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Integrated Appraisal of the Draft GM Transport Strategy 2050 and Delivery Plan

IA Report

November, 2025

Quality information

Prepared by	Checked by	Verified and approved by
LM OM IK	IM	NC-B

Prepared for:

Transport for Greater Manchester (TfGM)

Prepared by:

AECOM Limited
Aldgate Tower
2 Leman Street
London E1 8FA
United Kingdom
aecom.com

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1 Introduction

1.1 Background

1.1.1 AECOM has been commissioned by Transport for Greater Manchester (TfGM), on behalf of the Greater Manchester Combined Authority (GMCA), to lead on the Integrated Appraisal (IA) in support of a new GM Local Transport Plan (LTP) which is comprised of the GM Transport Strategy 2050 and GM Transport Delivery Plan (2027-2037).

1.1.2 In line with the Transport Act 2000 and Local Transport Act 2008, GMCA are required to produce a Local Transport Plan which set out the combined authority area's plans and policies for transport and how these will be implemented.

1.1.3 TfGM is a not-for-profit organisation that delivers the GMCA's transport policies. It coordinates transport networks across the region, decides where to invest transport funding, and owns and runs the Metrolink tram service1. As well as coordinating public transport, TfGM oversees major roads in the region, including those with the most peak time traffic. It works with National Highways (who run England's Strategic Road Network), and the ten Greater Manchester councils.

1.1.4 TfGM, on behalf of the ten local authorities and the GMCA, is currently working on producing the new GM Transport Strategy 2050 and Delivery Plan which will outline GM's overarching ambitions for transport in the combined authority area, and how these will be achieved between now and 2050. The intention is that a draft transport strategy and delivery plan will go out to statutory public consultation by the end of 2025, and adoption in 2026.

1.1.5 The Integrated Appraisal incorporates a Strategic Environmental Assessment (SEA), Equality Impact Assessment (EqIA), Health Impact Assessment (HIA) and Habitats Regulations Assessment (HRA) into one process. This integrated appraisal will identify the potential impacts of the Draft GM Transport Strategy 2050 and Delivery Plan on the environment, community and vitality of Greater Manchester, with a view to promoting a more sustainable plan making process.

1.1.6 Key information relating to the draft transport strategy and delivery plan is presented in Table 1-1 overleaf.

[1] TfGM (2024): Transport for Greater Manchester

Table 1-1: Key facts relating to the GM Transport Strategy 2050 and Delivery Plan

Responsible authority	Transport for Greater Manchester (on behalf of Greater Manchester Combined Authority and the then constituent local authorities)
Title of plan	Draft GM Transport Strategy 2050 Draft GM Transport Delivery Plan (2027-2037) Together these documents are the Draft Local Transport Plan (Draft LTP) also called “the Plan” within this document
Subject	Draft transport strategy and delivery plan
Purpose	The draft transport strategy and delivery plan will provide a strategic framework for future transport planning across Greater Manchester.
Timescale	To 2050
Area covered by the plan	The administrative area of Greater Manchester Combined Authority (Figure 1.1 below).
Summary of content	The draft GM Transport Strategy 2050 will set strategic transport planning policy for Greater Manchester up to 2050. The draft GM Transport Delivery Plan (2027-37) will set out which transport interventions the CA area intends to deliver during the plan period, and how these schemes will be funded.

Figure 1.1: GMCA area

1.2 Integrated Appraisal (IA) explained

1.2.1 There are a range of impact assessment tools that can be used to assess how a plan, programme, project, or particular development performs against a range of criteria. The common aim of these tools is to gain an understanding of impacts upon environmental, social, or economic issues (or a combination of these); with the aim of achieving a better performing proposal overall.

1.2.2 Certain impact assessment tools are a legal requirement for when preparing particular plans, and this is the case for the appraisal of the GM Transport Strategy 2050 and Delivery Plan. For example:

- A Strategic Environmental Assessment (SEA), which reviews and predicts how a plan or proposal performs against a range of environmental factors; whilst suggesting ways in which mitigation and enhancement measures can be taken into consideration.
- An Equalities Impact Assessment (EqIA) reviews and seeks to ensure that equality and fairness is achieved in the delivery of services and how people experience life. Requirements emanate from the Equality Act 2010.
- Local Authorities have a statutory duty to protect and improve health and wellbeing as set out in the health and Social Care Act 2012. A Health Impact Assessment (HIA) is one of many tools that authorities can use when seeking to ensure that they satisfy this statutory duty. A HIA is a practical approach used to judge the potential health effects of a plan, programme or project on a population, with the aim of maximising the proposal's positive health effects and minimising its negative health effects. As well as direct effects on health there is a need to consider the 'social determinants' of health and wellbeing that contribute to health.
- Habitat Regulations Assessment (HRA) seeks to identify and assess any aspects of a Plan that would cause any adverse effect on the integrity of Natura 2000 sites, otherwise known as European sites.

1.2.3 It is possible to undertake these processes separately, but often an integrated approach is taken. This is sensible given that there are considerable overlaps between the processes.

1.2.4 An Integrated Appraisal (IA) therefore helps to reduce duplication of efforts (and the number of separate reports); whilst taking advantage of the strengths of each impact assessment tool. In turn, this aids in undertaking effective consultation with interested parties.

1.2.5 To undertake a successful IA, it is important to set out the approaches clearly from the outset and to invite comments. This is one of the purposes of the Scoping Report.

1.2.6 It is also important to ensure that the IA is closely aligned to plan-making activities so that it can guide/ influence decisions in a meaningful and positive way.

1.3 Our Approach to Integration

1.3.1 SEA can be regarded as the most comprehensive impact assessment tool with regards to plan-making in the UK. This is because it is enshrined in legislation and covers a wider range of factors compared to more specific impact assessment tools such as HIA/ EqIA.

1.3.2 For this reason, the SEA process is typically used as the over-arching framework for which an integrated impact assessment is conducted.

1.3.3 The requirements of HIA and EqIA are then woven into the SEA process. This is the approach being taken for this integrated appraisal.

1.3.4 Habitat Regulations Assessment (HRA) have entirely separate legislative drivers and purposes and will be a separate process, but it is incorporated into the IA by helping to inform the biodiversity section of this Scoping Report.

Meaningful integration

1.3.5 Integrated Appraisal should cover all the relevant sustainability factors that a plan could have significant effects upon. In this sense, health issues, equality and diversity issues, and climate change issues, would all typically be covered through the SEA process.

1.3.6 However, IA is not simply about including health, equality, and community safety issues within a standard SEA process; rather it should present nuanced approaches to data gathering and assessment within the broader framework of an SA. This ensures that the principles and methods of EqIA and HIA are captured properly, whilst using the SEA as the overall approach to conduct the assessments.

1.3.7 For each step of the SA process, we have sought to reflect the requirements and benefits of EqIA and HIA in a meaningful, but proportionate way.

1.3.8 In terms of integration of the HRA process, it is recognised that a HRA will be undertaken parallel to this work. The primary aim of HRA is to ensure the protection of sites that host habitats and species of European importance. This process is set out in the Conservation of Habitats and Species Regulations 2017 (the 'Habitats Regulations). The HRA will inform the IA

stages set out overleaf.

Table 1-2: Integration of EqIA and HIA into each IA stage

IA stage	How have EqIA, HIA and SEA been integrated?
Scoping	• Specific baseline information presented for each group with protected characteristics. • Information relating to health characteristics of affected populations have been included in a specific health and wellbeing chapter. Further health related baseline data is incorporated throughout the scoping report, with health and wellbeing forming a central theme and vulnerable 'receptors' being identified throughout.
Appraisal framework/ methods	• The appraisal methodology includes several objectives relating to health and equality; with specific objectives set out in the IA framework. • Sources of information, assumptions and team members that will undertake appraisals have been identified. This demonstrates how stakeholders with specific knowledge, experience and interest in health and equality factors will input to the appraisal process. • Key stakeholders (for example NHS Greater Manchester) will be engaged to input to and / or review the assessment findings. This is important because EqIA and HIA work best when they involve people who can contribute different perspectives, knowledge and insight.
Appraisal of options	• The options identification process will seek to identify whether there are approaches that are led by social value and health outcomes. • Appraisal of options will report upon the implications with regards to health impacts and equality (through the IA process).
Appraisal/ screening of the Plan	• The GM Transport Strategy 2050 and Delivery Plan will be appraised against the IA framework, with the primary aim of identifying significant effects. The IA involves objectives and supporting questions that will interrogate health and equality implications.
Mitigation and enhancement	• Recommendations are made in SEA, EqIA and HIA; each with the intention of avoiding and minimising negative effects and enhancing benefits.
Detailed appraisal (if necessary)	• Should significant effects be identified, this could trigger further exploration of potential impacts through the following steps:

IA stage	How have EqIA, HIA and SEA been integrated?
	– Gather additional/ more detailed information with regards to potentially affected receptors. – Identify impact pathways for specific affected groups.

2 Scoping

2.1 Background

2.1.1 Scoping is undertaken as part of most impact assessment processes, and therefore, an integrated approach simply helps to combine the evidence gathering stages and devise appropriate methodologies.

2.1.2 As described above, the IA uses the SEA process as the over-riding structure to the approach. Therefore, the scoping exercise is arranged and presented in a similar way.

2.1.3 Essentially, scoping involves identifying a 'framework' of sustainability issues and objectives that should be a focus of, and provide a methodological framework for, the appraisal of the GM Transport Strategy 2050 and Delivery Plan (and reasonable alternatives).

2.1.4 In order to facilitate the identification of sustainability issues/ objectives, scoping firstly involves review of the 'policy context' and 'baseline'.

2.1.5 Scoping for the IA therefore involves the following steps:

1. **Policy context** – a review of existing policy and issues/ objectives established by Government, GMCA, and other key organisations. This is broken down by the level at which the policy exists, including international, national, regional, and local.
2. **Baseline review** – a review of the current 'state of the environment, economy and society' and a consideration of how this might evolve in the absence of the plan. A review of key trends and anticipated impacts that existing/ emerging plans, projects and programmes are likely to have.
3. **Key issues summary** – a summary of the key (in the sense that the GM Transport Strategy 2050 and Delivery Plan may have an effect) problems and opportunities identified through steps (1), (2) and (3).
4. **IA framework development** – a refinement of the key issues into a set of sustainability objectives (and description of assessment methods).

2.2 Policy Context

2.2.1 The scoping report sets out a comprehensive review of the following policies, plans, programmes and schemes (listed here for reference).

2.2.2 The context review focused on drawing out the key messages from these documents, as well as environmental protection objectives and targets. This information was used alongside baseline information to determine key sustainability issues for the Local Transport Plan update IA.

National

National Planning Policy Framework (NPPF)
Planning Practice Guidance (PPG)
National Model Design Code
National Design Guide
UK Climate Change Risk Assessment 2022
Taking charge: the electric vehicle infrastructure strategy
Environment Act 2021
Environmental Targets (Fine Particulate Matter) (England) Regulations 2023
Net Zero Strategy: Build Back Greener
Decarbonising Transport: A Better, Greener Britain
Decarbonising Transport: One Year On
Network North
Bus Back Better: national bus strategy for England
Waste Management Plan for England
Gear Change: A bold vision for cycling and walking
Gear Change: one year on
National Infrastructure Strategy
Health Equity in England: The Marmot Review 10 Years On
Clean Air Strategy 2019
Future of Mobility: Urban Strategy
A Green Future: Our 25 Year Plan to Improve the Environment
Environmental Improvement Plan 2023
Plan for Water
Policy Statement for Flood Risk
National Flood and Coastal Erosion Management Plan
National Infrastructure Assessment
Healthy High Streets: good place making in an urban setting
The Road to Zero: Next steps towards cleaner road transport and delivering our Industrial Strategy
The Conservation of Habitats and Species Regulations 2017
Changes to the Habitats Regulations 2017 Policy Paper
The Clean Growth Strategy: Leading the way to a low carbon future

Cycling and Walking Investment Strategy
Local cycling and walking infrastructure plans technical guidance
Heritage and Climate Change: A strategy for Historic England's response to the climate, energy and biodiversity crisis
Statements of Heritage Significance: Analysing Significance in Heritage Assets Historic England Advice Note 12
Conservation Area Appraisal, Designation and Management Historic England Advice Note 1 (Second Edition)
The Setting of Heritage Assets Historic Environment Good Practice Advice in Planning Note 3 (Second Edition)
Water Environment (Water Framework Directive) (England and Wales) Regulations 2017
UK plan for tackling roadside nitrogen dioxide concentrations: An overview
Equality Act 2010
Safeguarding our Soils - A Strategy for England
Climate Change Act 2008

Regional

North West river basin district river basin management plan: updated 2022
Humber river basin district river management plan: update 2022
United Utilities Final Water Resource Management Plan
Final Drought Plan
Integrated Rail Plan for the North and Midlands
Strategic Transport Plan
Second Strategic Transport Plan (STP)
Transport and Social Inclusion in the North in 2023/ 2024
Connecting Communities
Northern Powerhouse Rail: Connecting the people, communities and businesses of the North.
The Potential of Northern Powerhouse Rail: Improve connectivity Unlock potential.
At a glance: Northern Powerhouse Rail.
Northern Powerhouse Independent Economic Review: Core Messages
The Northern Powerhouse: One Agenda, One Economy, One North: A Report on the Northern Transport Strategy

Greater Manchester

Greater Manchester Strategy
5-Year Environment Plan for Greater Manchester
Build Back Fairer in Greater Manchester: Health Equity and Dignified Lives

Greater Manchester Housing Strategy 2019-2024
Greater Manchester Housing Strategy 2019-2024 Implementation Plan
Greater Manchester Infrastructure Framework 2040
Greater Manchester Local Industrial Strategy
Greater Manchester Resilience Strategy 2020-2030
Places for Everyone
Greater Manchester Rail Prospectus
Greater Manchester Transport Strategy 2040
Our Five Year Transport Delivery Plan 2021-2026
Greater Manchester Electric Vehicle Charging Infrastructure Strategy
Greater Manchester Bus Strategy
Bus Service Improvement Plan (BSIP)
Streets for All
City Centre Transport Strategy to 2040
Greater Manchester Low-Emission Strategy
Inclusion and Equalities Strategy Annual Report 2022 - 2023
Greater Manchester Air Quality Action Plan 2016-2021
Integrated Water Management Plan
Greater Manchester Joint Minerals Plan
Greater Manchester Joint Waste Development Plan
Local Nature Recovery Strategy for Greater Manchester (GMCA)

2.3 Baseline review and Key Issues

Summary

2.3.1 Part of the scoping stage involved collating a range of data and information to establish the 'current and future baseline' for each sustainability topic. The information is presented as a series of maps, figures, charts, tables and accompanying text to provide an understanding of the characteristics of the Plan area and what is expected to happen to the baseline position in the absence of the Transport Plan update.

2.3.2 Together with the key messages arising from the contextual review, the baseline review allowed for a set of key sustainability issues to be identified for each appraisal topic. The key issues are important as they are used to establish a suitable framework of sustainability objectives and criteria to guide assessments.

2.3.3 The key issues identified in the scoping report for each sustainability topic are replicated below.

Biodiversity

- There is a strong legislative and policy framework seeking to protect and enhance biodiversity. In particular there is a need to reverse the declines that have been experienced in biodiversity and to achieve 'net gain'.

- The nature, scale, timing, and duration of some transport activities can result in the disturbance of species at a level that may substantially affect their behaviour and consequently affect the long-term viability of their populations. This can include effects of poor air quality on designated sites, severance of ecological networks and road kills.

- There are three SACs and two SPAs within Greater Manchester that will contribute to the wider biodiversity network. These sites are likely to be more sensitive to air quality changes, and as such could be negatively impacted by the GM Transport Strategy 2050 and Delivery Plan through increased traffic and tailpipe emissions.

- Specifically, Natural England consider traffic impacts to Manchester Mosses SAC to be a key sustainability issue. Places for Everyone Policy JP-C8 Transport Requirements of New Developments states that planning applications which are required to be accompanied by a Transport Assessment will need to consider air quality impacts on Holcroft Moss, within the Manchester Mosses Special Area of Conservation (SAC). Any proposals that would result in increased traffic flows on the M62 past Holcroft Moss of more than 100 vehicles per day or 20 Heavy Goods Vehicles (HGVs) per day must devise a scheme-specific range of measures to reduce reliance on cars, reduce trip generation and promote ultra-low emission vehicles and provide a contribution towards restoration measures in accordance with the Holcroft Moss Habitat Mitigation Plan.

- Internationally designated sites are supported by networks of wildlife habitats which extend across the GM area. Nationally and locally designated sites predominately exist outside of the urban areas although many are seen within.

- Reflective of consultation with Natural England, impact to the Great Manchester Wetlands NIA is recognised as a key sustainability issue for Greater Manchester. Potential impacts may include inappropriate development including air quality and drainage concerns, impacts to peat, species and habitats, lack of climate change adaption and resilience, fragmentation of wildlife corridors and barriers to access to nature.

- Enhancements to the Great Manchester NIA could be considered as a key opportunity.

- There are a variety of BAP Priority Habitats and components of the nature network present across GM. It will be important for transport interventions to support nature recovery across the combined authority area, and restore losses suffered.

Water, soil and land

- The quality of water courses across Greater Manchester is mostly 'moderate', with very few 'good' or 'high' classifications. Though this is an improvement on past quality levels, there is much room for further improvement, and this is a key policy aim at the international, national and local level.

- The key pressures on water bodies within Greater Manchester linked to transportation involve pollution and physical modifications to water courses.

- There are a number of water quality designations across the area – including SPZs and drinking water safeguard and protection zones. New transport infrastructure should avoid these areas where possible to avoid a decline in water quality in Greater Manchester. It is noted however, that transport related activities are not the only contributor to water pollution.

- The undeveloped land in the western half of Greater Manchester is largely Grade 3 ALC, with some areas of Grade 1 and Grade 2 ALC. This land should be protected as far as possible, as these soil resources may be better suited for agricultural purposes. The undeveloped land to the east and north is largely Grade 4 and Grade 5 ALC and as such is of lower quality.

- Increased development could lead to elevated levels of soil erosion and compaction, which could reduce drainage capacity – thus increasing the risk of surface water flooding.

- Brownfield land is distributed across the Greater Manchester area, with higher concentrations in the city centre environment and in the district centres.

- Any development should consider the protection and enhancement of restorable peat and protected wetland sites. Improved management of peat soils can contribute towards tackling climate change, boosting biodiversity and supporting sustainable agriculture.

- There are existing mineral extraction areas within Greater Manchester, and search areas for sandstone, sand, and gravel. There are also mineral safeguarding areas for these resources – development should be steered away from these areas to avoid potential resource sterilisation.

- It is recognised that most physical resources required for development in the Greater Manchester area are imported (and transported) to the region rather than extracted / developed locally. Opportunities should be sought through the freight industry to transport construction materials efficiently, reliably and sustainably to sites in Greater Manchester and throughout the North West; delivering economic and environmental benefits.

- New transport interventions' construction contributes to increase the levels of waste generated. The GM Transport Strategy 2050 and Delivery Plan should seek to reduce consumption of resources such as construction materials e.g. through encouraging the use of recycled or secondary materials. This will also reduce the need to transport these materials and transport the waste by-products.

Historic Environment

- Past transportation infrastructure has shaped the historic landscape of Greater Manchester – especially the canals, trams and railways, and the road network.

- Greater Manchester has a rich historic environment, with a variety of designated and non-designated features across its area. Whilst listed buildings tend to be concentrated within the Manchester city centre and the district centres, registered parks and gardens, conservation areas and scheduled monuments are more evenly distributed.

- The most recent Heritage at Risk Register for the Northwest indicates there are 103 entries from the Greater Manchester area. Consideration should be given to disturbance of heritage assets and their settings as a result of activities including noise from transport, use of land for new infrastructure, as well as investment/ restoration of travel networks.

- Increasing traffic levels associated with an increase in population has the potential to negatively impact upon the historic environment, through increased vibrations experienced by structures, and changes to the setting of features linked to new infrastructure and associated noise.

- Conservation area appraisals have not been undertaken for all the conservation areas in Greater Manchester. This represents a gap in the baseline and should be a key consideration for transport investment; recognising that the use of land, including within towns, can cause disturbance to assets.

- New transport infrastructure provides an opportunity to positively impact on the setting and significance of historic environment features, through enhancements to the visual interpretation of structures. New transport infrastructure could also increase the number of visitors travelling to view specific historic environment features. This could cause increased pressure on these features but could also provide a greater opportunity to undertake conservation work where appropriate.

Landscape

- The Peak District National Park is partially within the Greater Manchester area, and there is also approximately 595.4 square kilometres of green belt land within Greater Manchester. The GM Transport Strategy 2050 and Delivery Plan should seek to ensure transport interventions avoid sensitive landscape areas.

- There are seven NCAs within the Greater Manchester area, with the associated NCA profiles detailing their special qualities and providing environmental opportunities to help their conservation and enhancement. The NCAs show that landscape and townscape within Greater Manchester varies greatly between districts, including both urban and rural features. There is a mix of high-density urban areas, suburbs, semi-rural and rural locations in GM, but overwhelmingly the land use is urban.

- Locally there are ten LCTs and 46 component LCAs in Greater Manchester. Of these, three LCAs have a high sensitivity to residential development and related transport infrastructure and could therefore be at risk through the GM Transport Strategy 2050 and Delivery Plan.

- There are a number of TPOs across Greater Manchester that have been designated for their amenity value.

- Views are also an important consideration in the planning process as the scale, height and mass of development can ultimately impact important views if they are not appropriately considered through design and layout of any future proposals.

Air quality and noise

- The Greater Manchester Combined Authority AQMA has been designated for exceedances in NO2. There is an AQAP in place to address air quality within the AQMA and across the wider Greater Manchester area.

- Long-term trends have shown that emissions and have reduced and air quality has improved in Greater Manchester; however, short-term trends are indicating that air quality is declining.

- The emerging Clean Air Plan will be crucial to reducing emissions and improving air quality throughout Greater Manchester.

- Noise pollution is very closely associated with the transport network in Greater Manchester. In particular, the road network contributes a lot of noise in the area – especially along the many motorways including (but not limited to) the M62, the M60, the M61 and the M6.

- Economic growth, with associated transport infrastructure has the potential to increase the amount of traffic on key routes, which would likely lead to an increase in air and noise pollution. Conversely, investment could help to enhance public transport networks and improve the efficiency of road networks, which would help to minimise air and noise pollution issues.

Climate change

- Flood risk is prevalent across the Greater Manchester area. It is likely that an increase in transport infrastructure would exacerbate this flood risk – due to potentially bringing forward development on floodplain areas and increasing the built footprint of Greater Manchester. An increase in the built environment would impact upon the level of natural drainage; keeping greater levels of water on the surface.

- Additionally, with the predicted increase in winter rainfall and annual temperature linked to climate change, it is probable that the existing transport network will become more vulnerable. As such, the resilience

of the transport network to the likely impacts of climate change should be a key factor in the GM Transport Strategy 2050 and Delivery Plan.

- Transportation is the second largest contributor to CO2 emissions in Greater Manchester, and as such should be a key area to focus on to reduce climate change impacts. This could be achieved through greater public transport provision, increased installations of electric vehicle infrastructure, and improving sustainable and active travel routes.

Healthy and safe communities

- The Greater Manchester population has increased and is likely to continue to grow over the GM Transport Strategy 2050 and Delivery Plan.

- The population between the ages of 45-84 is bigger in Greater Manchester in comparison to regional and national trends – as such, it is likely the area will experience an increase in the ageing population.

- Methods of transportation impact on the health of communities across Greater Manchester – the active transport network provides a key benefit by promoting physical activity, which supports both physical and mental health and wellbeing.

- General health is in line with regional and national trends – though it is noted there are disparities between the districts within Greater Manchester. This is likely due to differing levels of access to health services and facilities, alongside other community infrastructure. The GM Transport Strategy 2050 and Delivery Plan present an opportunity to improve accessibility in this respect.

- In terms of road safety, over the longer term there has been a downward trend in reported accidents, reflecting a wide range of factors (including road improvement schemes, improved vehicle safety, and national and local measures to improve the training & skills of road users and their compliance with traffic laws). However, whilst general reductions are being seen among most of the main road user groups, there has been an increase in fatal accidents since 2019.

- Greater Manchester includes areas that are amongst the most deprived in England according to the crime domain of the indices of deprivation 2019, with almost half (47.6%) of LSOAs within the top 20% most deprived areas. Reported crime incidents increased overall +5.9% between 2021/22 and 2022/23. This could influence use of the public transport network.

Material assets

- Homelessness is still a major issue in Greater Manchester, with the number of people rough sleeping thought to be three times higher than in 2010.
- There are significant economic disparities within the Greater Manchester area boroughs, which could increase without intervention.
- Full-times roles in the central and southern area of Greater Manchester have higher pay, on average, than other parts of the area, impacting commuter pathways and increasing transport infrastructure congestion.
- Connectivity between the North's towns and cities, and beyond, restricts growth and opportunities. Commuting between Manchester and Leeds is 40% lower than expected when compared to city pairs that are similar distances apart in the UK.
- Employment opportunities are unequally dispersed across Greater Manchester, with a high proportion of jobs (20%) being located in the central and southern parts of the area, and fewer and lower-paying roles in comparison being located across the rest of the area.

Equalities

- There is a need for an accessible and inclusive transport network across Greater Manchester to support the increasing population, including the groups with protected characteristics. This is in terms of access, cost, safety and ease of use.
- There is a need for transport information to be provided in formats that all travellers can access and understand, both before and during a journey.
- Transport can be one of the biggest barriers faced by disabled people in terms of physically accessing services, the planning of journeys due to a lack of accessible travel information or having negative experiences which reduces their confidence in travelling. Furthermore, an increasing number of disabled people may have difficulty in walking to a station or stop; which also applies to elderly people.

- Greater Manchester is forecast to experience a rise in the OADR ratio, in line with an increase in the ageing population. Designing new infrastructure and services to improve accessibility for people with mobility problems will have the additional benefit of future-proofing the transport network to meet the needs of an ageing society. It is noted that TfGM are working with the Disability Design Reference Group to do this in relation to public transport infrastructure.

- New services and business models should provide opportunities for all and be designed from the outset with groups with protected characteristics in mind. This includes utilising advances in technology.

- An increase in demand for travel is likely to be a continued key issue for the GM area; particularly given the future increase in population.

Transport

- The Greater Manchester area is well positioned to provide access to a variety of additional centres further afield, such as Liverpool, Sheffield, and locations to the north, to the south, and in Scotland.

- The road network comprises mostly motorways and A roads, with a number of B roads providing connections between them. The motorway network allows for access to a variety of locations within Greater Manchester and further afield.

- Journey time reliability is a key issue across Greater Manchester, with key problem areas including Salford, Stockport town centre, around Sharston and Bury town centre – reflective of the strategic roads present. Accommodating the scale of growth expected across Greater Manchester up to 2040 without significant additional delays will be a considerable challenge.

- There are a number of train and tram links that provide sustainable transport opportunities for people living / working / visiting the Greater Manchester area. However, it is noted the network is largely limited to within and in proximity to Manchester city centre and its environs – especially for the metro system.

- The bus network in Greater Manchester is well distributed across the area and allows for a good level of sustainable transport. The provision of bus services is good – with night bus services, and a free bus within the city centre of Manchester to encourage a reduction in private vehicle usage.

- It will be important for the bus network to continue to develop in response to demand for travel, particularly to and from new areas of housing, employment, and education and training.

- Access to sustainable transport infrastructure is greater within and in proximity to Manchester city centre, and within the district centres. This is likely due to a greater number of services running in these areas, and alongside increased level of supporting infrastructure. This influences the commuter pattern within Greater Manchester; with a greater number of people using sustainable and active transportation methods within Manchester city centre in comparison to less urban areas. The delivery of an integrated public transport network where services complement each other, will maximise connectivity opportunities.

- While Greater Manchester is relatively self-contained when it comes to commuter flows, consideration of neighbouring authorities and the city's location within the wider strategic context are of importance when managing transport associated with commuter movements. It is considered that Greater Manchester's transport systems will need to accommodate a dramatic increase in commuter trips into and across the Regional Centre up to 2040.

2.4 The Integrated Appraisal Framework

2.4.1 Table 2.1 below sets out the IA framework which forms the methodological structure for assessing the GM Transport Strategy 2050 and Delivery Plan (and reasonable alternatives).

2.4.2 The assessments take account of the criteria presented within the SEA Regulations. For example, account is taken of the potential for effect significance to be a factor of the timescale and reversibility of effects. Cumulative effects are also considered, i.e. the potential for the GM Transport Strategy 2050 and Delivery Plan to impact the baseline in combination with other plans, or unplanned activity.

2.4.3 Every effort is made to identify and evaluate effects accurately; however, this is inherently challenging given uncertainty regarding the 'on the ground' implications of policy. The ability to predict effects accurately is also limited by understanding of the baseline.

Table 2.1 The Integrated Appraisal Framework

IA Objectives	Will the option/ proposal help to…
IA Topic 1: Biodiversity	
Protect, restore and enhance habitats and species in Greater Manchester, including designated sites, locally important features and links between habitats.	• Protect the integrity of the European designated SACs and SPAs within Greater Manchester? • Avoid negative impacts, and where possible improve the condition of nationally designated SSSI and NNR sites within Greater Manchester? • Manage pressures on locally designated sites for biodiversity and geodiversity in Greater Manchester? • Protect and enhance priority habitats, as well as the habitats of priority species, during both the construction and operational phases of development/ schemes? • Protect and enhance ecological networks? • Achieve over and above the national biodiversity net gain (BNG) standard? • Increase the resilience of biodiversity to the potential effects of climate change? • Reduce the impact of the transport network on species' severance? • Contribute to the creation of coherent and resilient ecological networks? (i.e. allow passage of wildlife across roads, railway lines, cycle paths through the use of animal bridges / tunnels or support green infrastructure enhancements)?
IA Topic 2: Water Soil and Land Resources	
Seek to deliver neutral, or where possible positive, impacts of transport, and transport infrastructure on water quality, associated biodiversity, and on the physical state of water bodies.	• Support improvements to water quality, including through minimising the impacts of diffuse run off from road surfaces? • Protect surface water and groundwater resources? • Minimise physical alterations to water bodies and re-naturalise watercourses where possible? • Minimise the impacts to, and where possible enhance the quality of water bodies of strategic significance for water supply?

IA Objectives	Will the option/ proposal help to…
Promote the efficient use of land.	• Facilitate the use of previously developed land? • Avoid the development of the best and most versatile agricultural land (Grade 1 to 3a agricultural land)?
Promote sustainable waste management solutions that encourage the reduction, re-use and recycling of waste during construction.	• Encourage recycling of materials and minimise consumption of resources during construction, operation and maintenance of new transport infrastructure? • Encourage the use of alternative transport methods for the movement of waste in Greater Manchester? • Protect the integrity of mineral resources and mineral safeguarding areas?
IA Topic 3: Historic Environment	
Preserve and enhance Greater Manchester's historic environment, including designated and non-designated heritage assets and their setting.	• Conserve and enhance the significance of designated and non-designated assets, and their setting? • Conserve and enhance the special interest, character and appearance of conservation areas and their settings? • Support the protection and management of 'at risk' historic places and sites across Greater Manchester? • Protect and enhance the distinctive historic landscape character of Greater Manchester? • Support place-making and high-quality design in the built historic environment? • Support access to, interpretation and understanding of the historic environment?
IA Topic 4: Landscape	
Protect and enhance the character and quality of Greater Manchester's landscapes, townscapes and villagescapes.	• Support the management objectives of the National Park within Greater Manchester? • Support the purposes of the Green Belt? • Conserve and enhance locally important landscape, townscape and village-scape features? • Improve accessibility by sustainable transport to landscape resources, including the National Park?
IA Topic 5: Air quality and noise	

IA Objectives	Will the option/ proposal help to…
Deliver improvements in air quality in Greater Manchester	• Reduce emissions from transport? • Contribute to improvements in air quality within AQMAs? • Promote the use of zero emission vehicles? • Promote enhancements to green infrastructure networks to facilitate increased absorption and dissipation of nitrogen dioxide and other pollutants? • Encourage a modal shift to more sustainable transport? • Improve access to active travel networks?
Reduce the impact on environmental noise from transportation sources	• Contribute to lowering noise levels in general? • Seek to mitigate the impact on areas likely to be affected by noise, and reducing the noise generated at source and/or containing the noise generated? • Utilise measures to reduce traffic noise specifically during transport planning, such as low noise road surfacing?
IA Topic 6: Climate change	
Support climate change mitigation across Greater Manchester through limiting the contribution of transport to greenhouse gas emissions.	• Limit the increase in the carbon footprint resulting from new transport infrastructure provision? • Seek to significantly reduce the emissions from existing transport infrastructure in line with a pathway to the GMCA target to be carbon neutral by 2038? • Promote the use of sustainable modes of transport, including walking, cycling and public transport? • Reduce the need to travel? • Reduce energy consumption from non-renewable resources? • Encourage the update of electric and alternatively fuelled vehicles?
Support the resilience of Greater Manchester's transport networks to the potential effects of climate change	• Increase the resilience of the transport network to the potential effects of climate change? • Reduce the impact of embodied carbon in transport infrastructure?

IA Objectives	Will the option/ proposal help to…
	• Promote a coordinated approach to the management of flood risk across public infrastructure provision? • Improve and extend green infrastructure networks as part of transport infrastructure provision to support adaptation to the potential effects of climate change? • Sustainably manage water run-off, reducing surface water runoff? • Ensure the potential risks associated with climate change are considered through new transport programmes and interventions? • Reduce the impact of extreme weather events on the condition of the transport network?
IA Topic 7: Healthy and safe communities	
Promote sustainable transport use and reduce the need to travel	• Encourage modal shift to active forms of travel? • Support accessibility by active means to key services and facilities?
Improve the health and well-being of Greater Manchester's residents	• Reduce the impacts of air and noise pollution on health? • Promote the use of healthier modes of travel? • Enhance the provision of, and access to, green and blue infrastructure, in accordance with national standards? • Avoid any negative impacts to the quality and extent of existing recreational/ leisure assets, including cycle routes and formal or informal footpaths? • Improve access to green spaces within urban centres and to the countryside for recreation? • Avoid severance between new and existing communities?
Support the vitality of communities, including through improving community and road safety	• Seek to improve the health and vitality of residents by improving the quality and safety of roads in residential areas? • Reduce crime and improve perceptions of community safety? • Reduce community severance?

IA Objectives	Will the option/ proposal help to…
IA Topic 8: Material assets	
Promote coordinated land use and transport planning across Greater Manchester	• Increase accessibility through sustainable modes of transport to / from residential areas? • Support the delivery of housing in sustainable locations that allow easy access to a range of local services and facilities? • Encourage people to switch to low emission vehicles; for example, by providing supporting infrastructure alongside housing development (including charging points, preferential parking etc)? • Support the development of urban centres and residential areas with attractive streets and public spaces that are easy to walk and cycle around?
Promote economic growth and job creation across the sub-region, and improve access to jobs for all	• Support widespread accessibility to employment areas/ centres, including the use of sustainable modes of transport? • Help to create and sustain new jobs? • Reduce congestion and improve / enhance journey time reliability on the highways and rail network?
IA Topic 9: Equalities	
Cater for existing and future residents' needs as well as the needs of different groups in the community, and improve access to local, high-quality community services and facilities.	• Promote access to transport services for all including those with and without shared protected characteristics? • Provide opportunities to foster good relations between groups? • Maintain or enhance the quality of life of residents? • Address the needs of all community groups? • Meet the needs of those living in rural areas? • Improve accessibility of key infrastructure and local facilities, including specialist services for disabled and older people? • Reduce inequalities and improve mobility? • Improve perceptions of security when accessing and using the transport network?

IA Objectives	Will the option/ proposal help to…
IA Topic 10 Transport	
Reduce the need to travel throughout Greater Manchester by car, or move goods by road, and promote sustainable modes of transport.	• Improve transport to ensure sustainable and active modes are most desired as used to connect people to places? • Improve accessibility, and affordability, of sustainable forms of travel? • Minimise dependence on the private vehicle? • Promote a wider travel choice through delivering improvements to existing travel networks? • Meet future transport trends and service those of all abilities? • Promote transportation of freight and goods using waterways and rail?

2.5 Consultation

2.5.1 A full draft of the scoping report was sent for comment with a range of stakeholders across TfGM and the GM Authorities. Feedback received and suggested sources of information were fed into the draft Scoping Report prior to it being finalised for forma. consultation.

2.5.2 The report was also sent directly to the statutory bodies (Natural England, the Environment Agency and Historic England) for a period of 5 weeks between 2nd April and 10th May 2024.

2.5.3 Feedback from statutory consultees was taken on board before finalising the scoping report in June 2025. Appendix B sets out a summary of the responses received, and the action taken to update the Scoping Report accordingly.

3 Exploring and Appraising Options

3.1 Introduction

3.1.1 An important feature of Integrated Appraisal (IA) is the need to consider and appraise reasonable alternatives to the plan. However, it is not a legal requirement (nor is it productive) to identify and appraise alternatives for every individual element of a plan. Rather, the focus should be on matters that provide strategic 'choices' and are most likely to give rise to significant effects.

3.1.2 TfGM and GM Local Authorities are keen to ensure that the IA process makes a positive contribution to the Transport Plan Update. It has therefore been proactive in exploring options that can provide meaningful input to the development of policies within the plan update.

3.1.3 The process that has been followed with regards to strategic options is outlined in this section of the report. The consideration of options in relation to the action plan is dealt with in a separate chapter.

3.2 Consideration of strategic matters

3.2.1 It is important to acknowledge that many elements of the existing transport strategy remain valid and TfGM and GM Local Authorities are not seeking to radically change the overall vision and goals.

3.2.2 However, the update provides the opportunity to respond to new evidence and policy drivers and to reflect upon what elements of the plan can be improved.

3.2.3 An important target in the existing Transport Strategy is to achieve 'the right mix' by supporting a reduction in car use to no more than 50% of daily trips by 2040. TfGM and GM Local Authorities consider that this target is still appropriate as it is challenging yet achievable.

3.2.4 The current Local Transport Strategy also includes a set of modal and network principles which cover a range of sustainability topics. These remain relevant, as do the 2040 spatial themes.

3.2.5 The introduction of growth locations is a key element of the Local Transport Plan update, responding to the adoption of the Greater Manchester Strategy and GM Growth Plan Places for Everyone Plan, which sets out spatial priorities and allocations for development. The IA presents an opportunity to explore how the Local Transport Plan update can support growth in these locations, and whether it is appropriate to prioritise social, economic or environmental factors in order to address key issues and opportunities facing these unique locations.

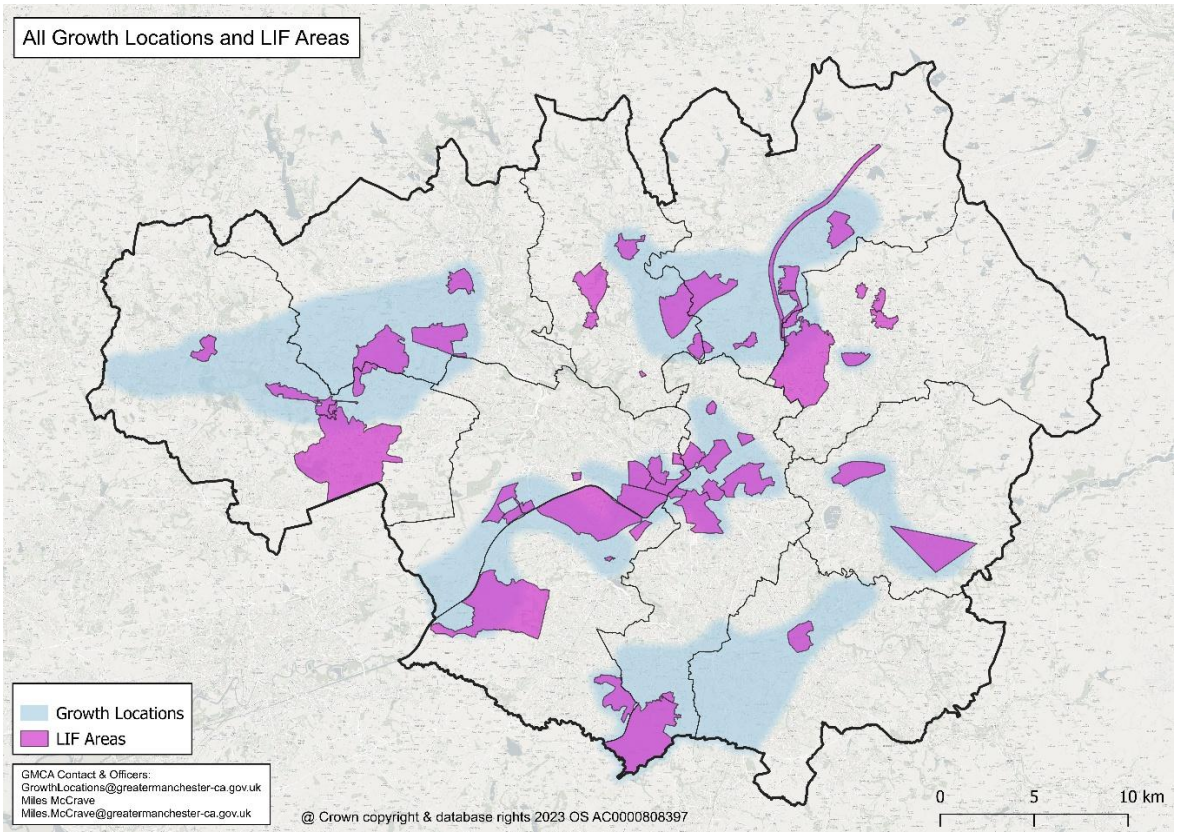
3.2.6 TfGM undertook several workshops with IA consultants AECOM to consider options for each growth location. To determine whether options constitute reasonable alternatives for testing in the IA, attention was given to the following factors:

- Options need to be realistic and deliverable.
- Options need to be sufficiently distinct from one another.
- A 'do nothing' approach is essentially the baseline position and does not constitute a reasonable alternative in this instance.

3.3 Options for the growth locations

3.3.1 The growth locations shown on figure 3.1 below represent areas of focus that have emerged to support transformational change across Greater Manchester. The locations reflect the spatial priorities of the Places for Everyone Plan, as well as key development locations and centres of economic activity outlined in the Greater Manchester Strategy and the GM Growth Plan. Also illustrated in the map are Local Infrastructure Fund (LIF) areas, which broadly overlap with the growth locations. These are areas where significant investment is proposed to help the continued delivery and improvement of the Bee Network.

Figure 3.1 Growth locations and LIF Areas



3.3.2 The growth locations are important to support sustainable growth across Greater Manchester, helping to rebalance population and to address spatial inequalities. To reflect their importance, TfGM have explored what reasonable alternatives there could be to help guide the strategic principles and priorities for each location. The growth locations are discussed below, exploring the extent to which social, economic or environmental factors could be prioritised in terms of directing investment, funding and the types of schemes that should be supported. A conclusion is reached as to whether there are reasonable alternatives for the growth locations.

Responding to key issues

3.3.3 As an initial step, the key issues in each growth location were identified through reference to the IA scoping exercise and workstreams already underway for the growth locations. The intention was then to explore whether certain issues warranted greater intervention and prioritisation to ensure that meaningful change can be achieved. For example, areas experiencing multiple deprivation and health inequalities overlap with several of the locations and one approach could be to maximise the benefits for such communities through targeted measures. This would mean less focus on other factors such as achieving the highest levels of environmental sustainability or improving network capacity for business growth.

3.3.4 Other options that were considered included:

- Strengthening the focus on environmental factors in growth locations to prioritise clean air, climate resilience and biodiversity net gain.
- Focusing on enhancements to the road network to support economic growth and network reliability.

3.3.5 The working group acknowledged that there are benefits to focused approaches that seek to address issues that are specific to different growth locations. However, following a series of workshop discussions it was concluded that a balanced approach to growth was the only reasonable approach to take in relation to the growth locations. It was considered unrealistic to prioritise particular interventions with a social, economic or environmental lens, and that there is a clear need for a range of measures that integrate all three strands of sustainability.

3.3.6 Furthermore, it is difficult to categorise interventions and approaches according to their focus on ‘environmental’, ‘social’ or ‘economic factors’. Many interventions straddle all three strands of sustainability, and therefore the policy approach should reflect this. For example, measures that will support environmental protection are also of benefit to the economy and social betterment.

3.3.7 Likewise, well-planned economic growth ought to help address inequalities, and a focus on improving accessibility for communities will have knock on benefits for economic activity.

3.3.8 In conclusion, TfGM and GM Local Authorities consider that the only reasonable approach to take with regards to the growth locations is to seek to achieve a suitable balance between environmental, social and economic factors (informed by the key issues, development activity and funding).

3.3.9 However, the extent to which a truly a balanced approach can be achieved is dependent upon the level of funding available and the amount directed towards the different growth locations (and what measures are prioritised). It is unlikely there will be enough funding to deliver all desired projects in the plan period, and therefore there is a strategic choice to be made in relation to the level of investment and prioritisation directed to the growth locations.

What about other areas across Greater Manchester?

3.3.10 The emerging policy approach for the Local Transport Plan update is to prioritise action in the growth locations. This is understandable given that they are the focus of significant housing and employment growth, there are also overlaps with key town centres, investment areas and planned transport infrastructure.

3.3.11 There will clearly be increased pressures on transport networks that need to be resolved. However, one could argue that mechanisms are more likely to be in place in such locations to help support the infrastructure needed to support growth. There will be higher levels of development and the investment this brings in terms of new infrastructure. In some instances, the growth locations overlap with dense neighbourhoods and urban centres, where measures are likely to generate more marginal GVA gains. However, in several locations, the areas are low density, and beyond the base level of investment expected, additional investment in measures could be costly, whilst having a more limited geographical influence. In this respect, a reasonable alternative would be to direct additional funding to locations within and links to the existing dense urban areas, rather than focusing more on the key growth locations (again there is some overlap, but this is a clearly different strategic approach).

3.3.12 Two strategic options present themselves here:

1. **Focus additional funding and schemes to the growth locations** to ensure that infrastructure and improvements delivered go beyond the ‘business as usual’ that would be expected through development finance. Under such an approach one would expect the following principles, policies and actions to be

prioritised:

- Growth location policies and portfolio.
- Enhancement to strategic road networks linking to the growth locations.
- Freight and logistics movements where appropriate.
- Land use and reducing the need to travel – especially by private vehicle.
- Enabling mode shift and increasing mobility by sustainable modes.
- Support longer term opportunities for tram and train expansion in locations that overlap with growth locations. This could include the Middleton Route which overlaps with the Northern Gateway, Stockport Town Centre and the completion of the airport loop (tram/metro)
- Support for bus route expansion into growth locations (all growth areas would require this, but there could be potential to create enhanced new links throughout the City Centre, regional centres and local urban cores).
- Supporting Metrolink stops in locations that overlap with growth locations (For example Elton Reservoir, Cop Road, Beale Valley).

2. **Focus on the maintenance and improvement of services in denser urban areas and town centres.** There is already demand for services in existing built-up areas with significant economic activity and movement. One could argue that a focus on such areas is likely to have implications for a greater number of people. Though there is development activity in such locations, aside from development in the regional centre, this is typically of a lesser scale compared to the strategic locations, and therefore one might expect that additional improvements would be more reliant on other sources of funding (hence the rationale for a more focused approach). Under such an approach one would expect the following principles, policies and actions to be prioritised.

   - Prioritise asset management and network management to ensure that existing services in urban areas remain reliable / are improved.
   - Ensure reliability of services, particularly bus.
   - Continued integration of public transport services.
   - Longer term opportunities for tram and rail expansion into existing urban areas where there are gaps (For example, Cop Road / Elton Reservoir, Cheadle, Stockport Metro and Golborne Rail).
   - Increased focus on active travel and Streets or All principles in urban areas.
   - Safety and improved perceptions of safety across the network, within town centres and support for nighttime economies.

3. A third option would be to take a **Hybrid Approach,** which priorities the growth locations as well as the town centre locations (which in some instances includes an element of overlap). Under such an approach, the growth locations would receive a smaller share of public funding, so there could be choices to make about which growth locations or which measures to prioritise. Alternatively, a greater emphasis might be needed on drawing in developer investment into required infrastructure. Likewise, there would be less scope to deliver significant enhancements to existing services in the urban areas, as attention would be spread more thinly.

3.4 Consideration of options for other policy matters

3.4.1 There is a range of other policies that will be included in the Plan, but most of these are high level priorities / principles with no realistic alternative approaches. As part of the IA, TfGM and GM Local Authorities have determined that there are no options to test in relation to all of the thematic policies with the exception of the following:

Climate change led approach

3.4.2 The Greater Manchester Combined Authority has declared a climate emergency and set a long-term environmental vision, part of which is to be carbon neutral by 2038. Urgent action is needed across a range of sectors, including transportation, which is reflected in the existing Greater Manchester Transport Strategy 2040 and the emerging Local Transport Plan update

3.4.3 A range of measures to reduce carbon emissions already feature in the existing Transport Plan and are reflecting in the early draft Local Transport Plan update. These will continue to be supported as part of a balanced and sustainable approach to growth. One could argue that a greater emphasis could be given to achieving carbon emission reductions, given the urgency of this issue and the challenging targets in place. In practice this could mean that greater emphasis is given to measures that reduce operational carbon emissions and embodied energy within construction. There would also be greater emphasis on reducing the need to travel by car, encouraging greater modal shift rather than increasing road capacity and investing in new car-centric infrastructure.

3.4.4 Under such an approach, schemes that achieve higher levels of carbon reductions would be prioritised as well as measures that facilitate low carbon shipping and freight. Given the context of the Places for Everyone Plan and other growth strategies, continued economic growth would be necessary and expected under such an approach (which can increase overall emissions), however, this would be directed towards green technologies, re-shaping the built and natural environment across greater Manchester (rather than

facilitating increases in carbon intensive transportation such as private vehicles). Under such an approach one would also expect:

- Less emphasis on facilitating increased global travel.
- Focusing on making new developments carbon neutral.
- Prioritising climate change mitigation and resilience over service enhancements.
- Affordability would be less of a priority.
- Greater support for walking, wheeling and cycling.
- Directing funding towards the enhancement of green and blue infrastructure.
- Focus on decarbonising travel networks.
- Focus on an investment-led approach to clean air and a reduction the use of fossil fuel powered vehicles.

3.4.5 The approach to climate change in the current GM Transport Strategy 2040 is a balanced picture, with climate change measures being supported alongside other pillars of sustainable development (such as supporting economic and social goals). A continuation of this approach is considered to represent the baseline position (i.e. what is likely to arise in the absence of a shift in policy direction). The effects of the climate change focus option are therefore identified in this context.

Tackling deprivation

3.4.6 When drafting plan policies, it was queried whether a deprivation policy should set a clear preference for projects that benefit communities experiencing multiple deprivation (when making choices about where investments should be directed). A strategic choice could therefore exist in terms of whether this principle should be included as a key element of this policy. In taking such an approach, there would be more emphasis placed on network policies that address factors such as affordability, tackling deprivation, crime and safety, pollution and health. Other plan policies would also be important as to tackle deprivation there is a need to deliver efficient transport networks, support economic growth and to protect the environment and wellbeing. The assumption here though is that such measures would be directed to deprived areas as a priority, meaning that affluent locations would be more reliant on private funding and a lower level of funding intervention.

3.4.7 The approach to tackling deprivation within the GM Transport Strategy 2040 is a more balanced picture, with social factors being supported alongside other pillars of sustainable development. A continuation of this approach is considered to represent the baseline position (i.e. taking a business-as-usual approach). The effects of the deprivation focused option are therefore identified in this context.

3.5 Options appraisal methods

3.5.1 The following sections of the report present appraisal findings for the options discussed in the previous section.

3.5.2 Each option is appraised in a consistent way against the Integrated Appraisal Framework that was established at the scoping stage. The IA Framework is summarised below.

IA topic	IA objective
Biodiversity	Protect, restore and enhance habitats and species in Greater Manchester, including designated sites, locally important features and links between habitats.
Water, soil and land resources	Minimise the impact which transport, and transport infrastructure has on water quality, associated biodiversity, and on the physical state of water bodies.
	Promote the efficient use of land.
	Promote sustainable waste management solutions that encourage the reduction, re-use and recycling of waste during construction.
Historic environment	Preserve and enhance Greater Manchester's historic environment and archaeological features, including designated and non-designated heritage assets and their setting.
Landscape	Protect and enhance the character and quality of Greater Manchester's landscapes, townscapes and villagescapes.
Air quality and noise	Deliver improvements in air quality in Greater Manchester
	Reduce the impact on environmental noise from transportation sources
Climate change	Support climate change mitigation across Greater Manchester through limiting the contribution of transport to greenhouse gas emissions.
	Support the resilience of Greater Manchester's transport networks to the potential effects of climate change
Healthy and safe communities	Promote sustainable transport use and reduce the need to travel
	Improve the health and well-being of Greater Manchester's residents
	Support the vitality of communities, including through improving community and road safety

IA topic	IA objective
Material Assets	Promote coordinated land use and transport planning across Greater Manchester
	Promote economic growth and job creation across the sub-region, and improve access to jobs for all
Equalities	Cater for existing and future residents' needs as well as the needs of different groups in the community, and improve access to local, high-quality community services and facilities.
Transport	Reduce the need to travel throughout Greater Manchester by car, or move goods by road, and promote sustainable modes of transport.

Determining Significance

3.5.3 Each option is considered against all the IA themes in the framework, guided by the objectives and supporting questions.

3.5.4 To determine the significance of effects, account is taken of a range of factors including magnitude, duration, frequency, likelihood, permanence, and timescale. Consideration is also given to the interaction of the Plan with other plans, policies and programmes that affect the baseline position.

3.5.5 Secondary, cumulative, synergistic, short, medium and long-term permanent and temporary, positive and negative effects have been considered for each topic as part of the assessment process. These are drawn out in the appraisal text as relevant. It can be assumed that where effects have not been identified within the appraisal text, that these were not important factors in determining overall significance.

3.5.6 The following significance scale is used to record the effects for each of the IA themes.

Major positive
Moderate positive
Minor positive
Neutral (/)
Minor negative
Moderate negative
Major negative
Uncertain (?)

4 Appraisal of spatial approach options

4.1 Introduction

4.1.1 This section sets out an appraisal of the three spatial approach options listed below:

- Growth locations focus
- Urban area and town centre focus
- Hybrid approach

4.2 Biodiversity

Growth Locations Focus

4.2.1 A growth locations approach would direct additional transport investment and development towards areas designated for future housing and employment, with locations designated across broad areas. Large amounts of land in these locations are undeveloped, which includes green infrastructure assets, priority habitats, and areas of higher ecological value (to differing extents). Expanding and developing transport infrastructure in these areas has the potential to result in the degradation of and disturbance to habitats, including woodlands, wetlands, grasslands, and hedgerows. However, it should be recognised that planning policy will seek to minimise impacts on biodiversity through avoidance, mitigation and compensation. There may also be potential to implement enhancements through new schemes and to relieve pressure on habitats by supporting measures that divert traffic away from habitats.

4.2.2 A number of the growth locations broadly encompass and include international designations (for example, the Rochdale Canal Special Area of Conservation (SAC) runs through the North East Growth Corridor), or national designations, for example a number of National Nature Reserves (NNRs) and Sites of Special Scientific Interest (SSSIs) lie just south of Wigan, where one of the broad locations (Wigan-Bolton Growth Corridor) encompasses this land. Transport related development schemes through these locations have potential for negative impacts upon these designated habitats, especially if this involves physical infrastructure that intersects habitats or increases car traffic. For example, road routes that pass across the Flashes of Wigan and Leigh could contribute towards negative effects on biodiversity. Increased accessibility through the North East Growth Corridor could also lead to more recreational pressures and pollution sources to the Rochdale Canal SAC.

4.2.3 Transportation development through the existing less developed areas of land also has the potential to disrupt biodiversity networks. Greater Manchester has a range of interconnected green and blue infrastructure, including river corridors, wetlands, and woodlands that facilitate species movement and contribute to biodiversity at a local and regional level. Increased transport related development in growth locations could sever these connections, making it more difficult for species to migrate, adapt to environmental changes, or recover from disturbances. This could lead to a reduction in ecological diversity and impact the broader functionality of ecosystems.

4.2.4 Increased land take for roads, rail/tram, and active travel infrastructure in growth locations may encroach upon natural habitats, leading to habitat loss, reduced species richness, and potential displacement of wildlife.

4.2.5 Expanding transport corridors can fragment ecological networks, restrict species movement and reduce habitat connectivity. Additionally, greater human activity and increased connectivity in these areas could introduce disturbances such as noise, light, and air pollution, which can have detrimental effects on biodiversity.

4.2.6 Species sensitive to environmental changes, particularly nocturnal and migratory species, may struggle to adapt to increased artificial lighting and traffic movements, further exacerbating biodiversity decline.

4.2.7 Indirect pressures from urban expansion (facilitated by transport infrastructure) also pose risks to local ecosystems and biodiversity. Pollution from construction and transport emissions can degrade air and water quality, while surface runoff from new developments may carry pollutants into rivers and wetlands, altering aquatic ecosystems and reducing their ability to support diverse species.

4.2.8 Changes in land management practices, such as increased urbanisation and reduced green space, could further impact upon habitat availability and ecological resilience. On the other hand, a growth location approach does present opportunities for biodiversity enhancement if ecological considerations are integrated into transport and development planning. Increased investment in green and blue infrastructure, such as wildlife corridors, green bridges, and wetland areas, could help mitigate some of the negative effects of habitat loss and fragmentation. Sustainable drainage systems, tree planting, and habitat restoration projects within growth locations could also contribute to maintaining biodiversity in urbanising areas. Additionally, by supporting accessibility measures within defined growth locations, this could help to reduce less sustainable transport choices dominating, helping to reduce impacts associated with car emissions and car movements along road networks.

4.2.9 Overall, a **minor negative effect** is predicted, reflecting the potential for habitat loss, fragmentation and human pressures from increased accessibility throughout the growth locations. Whilst there will be an ability to avoid and mitigate impacts, this will need to be determined once specific schemes and developmental details are clearer. Therefore, a precautionary approach is taken at this stage in predicting effects.

Urban area and town centre focus

4.2.10 Development through this approach would focus on investing in the maintenance and enhancement of existing infrastructure, as well as in new transport services and infrastructure within current urban, densely populated areas.

4.2.11 The intensification of urban transport infrastructure could possibly put pressure on existing urban green spaces and biodiversity corridors. Many urban areas support small but ecologically valuable habitats, such as street trees, canals, riverbanks, and urban parks, which provide refuge for wildlife. Increased transport development - whether through road expansion, new public transport routes, or higher footfall, could lead to habitat loss or fragmentation, making it more difficult for species to move between green spaces. Noise, light, and air pollution from increased transport activity could also negatively impact biodiversity, particularly for species that are sensitive to disturbances, such as bats and certain bird species, wild flowers and plants. Further, the introduction of artificial lighting could disrupt nocturnal wildlife, while higher footfall and increased urban activity may result in degradation of green spaces, making them less hospitable for certain species.

4.2.12 Furthermore, increased transport investment in town centres could lead to indirect biodiversity pressures. As connectivity improves, there may be increased demand for commercial and residential development, leading to higher land-use intensity and greater pressure on existing green infrastructure. There is potential that this could result in a gradual erosion of biodiversity value in urban areas. Additionally, while focusing development on urban centres reduces pressure on rural biodiversity, it does not eliminate the risk of indirect impacts, such as increased pollution runoff from urban areas affecting water quality in surrounding natural habitats.

4.2.13 Conversely, by directing accessibility investment towards already built-up areas, this approach could help better protect natural habitats in the more rural and undeveloped locations. It will also support further densification in town centres, which could help to reduce the need for urban expansion in the longer term. This could, in turn, support broader biodiversity conservation efforts across Greater Manchester, ensuring that greenfield sites and important wildlife habitats remain undisturbed.

4.2.14 Additionally, prioritising sustainable transport solutions such as improved public transport, walking, and cycling infrastructure, could help lower vehicle emissions and improve urban air quality, which is beneficial for both human health and urban biodiversity. Measures such as increased tree planting and green walls could provide additional habitats for pollinators, birds, and small mammals, while also improving climate resilience by reducing the urban heat island effects.

4.2.15 Overall, it is anticipated that development through this approach could have **minor negative effects** on biodiversity. There are a number of challenges such as urbanisation and intensification of transport infrastructure that could have negative impacts on not only existing urban green spaces and biodiversity corridors, but also with more indirect impacts and pressures. As with a focus on growth locations, there are also likely to be opportunities to achieve biodiversity enhancements in urban areas, and to reduce wider pressures on the environment associated with travel. However, a precautionary approach is taken given the strategic nature of assessments at this stage.

Hybrid approach

4.2.16 In terms of a hybrid approach, impacts are likely to be a combination of those discussed for the targeted approaches discussed above, but the pressures (and potential for enhancement) would be more diluted. In this respect, neutral effects are predicted.

4.2.17 Directing more limited resources into existing urban areas would mean that further pressures on urban biodiversity from increased movements / new infrastructure is lower. However, the potential for targeted enhancement measures may also be reduced. In terms of the growth locations, a reduction in investment and transportation infrastructure could have mixed implications. On one hand it could limit impacts on habitats as it would be less likely that large infrastructure schemes would be supported. Conversely, it could mean that road travel is a more dominant mode of travel, with more indirect effects on habitats in the wider area. Likewise, the potential to incorporate biodiversity enhancement measures into schemes would likely be reduced for the growth locations.

Growth locations	Urban / centres	Hybrid
Minor -ve	Minor -ve	Neutral

4.3 Water, soil and land resources

Growth Locations Focus

4.3.1 A focus on the growth locations approach would prioritise investment into the transport system and emphasise policy and action within the designated areas. Development under this strategy could involve expanding and enhancing existing public transit networks - including bus, train, and metro systems - to better serve the identified growth areas. These growth areas include some existing urban areas, however, also cover broad areas where increased housing and infrastructure development could be focused.

4.3.2 Until schemes and actions are agreed, there will be a degree of uncertainty in relation to impacts in the growth locations on land, water and soil. However, one could expect that investment could have mixed effects.

4.3.3 There is potential for land take if new infrastructure is developed, particularly in areas where expansion of the transport network is required, however this is considered to be inevitable to some extent in accordance with already expected growth through other plans. However, it should be acknowledged that other measures could also be supported that do not require land take and natural resource usage, such as behaviour change initiatives, measures to support efficiency of networks and so on.

4.3.4 The quality of watercourses within the Greater Manchester area are primarily rated as ‘moderate’ meaning that there is room for improvement for these. Expanding transport links and the strategic road network could lead to increased pollution impacting water resources, especially as transportation and urbanism are two key factors impacting water catchment quality at present. It is noted that the transport plan will likely seek to mitigate these impacts where possible, and that the transport plan also presents an opportunity to support and enhance these water resources (particularly if a growth locations focus is taken). For example, through upgrading road and rail corridors could incorporate sustainable drainage systems (SuDS); reducing surface runoff and improving water filtration. Additionally, investment in public transport could decrease reliance on public vehicles, reducing emissions and runoff pollutants that affects water quality more widely across Greater Manchester. In terms of direct effects on watercourses, measures that involve increased use of watercourses to transport freight have potential to increase disturbance and water pollution. For example, there could be impacts in this respect in the GM Western Gateway growth location.

4.3.5 In terms of land quality, there are areas of Grade 1 and Grade 2 land within the Western Corridor, and a high proportion of Grade 3 land, especially within the Wigan-Bolton Corridor.

4.3.6 The growth locations focused approach could negatively impact upon land and soil resources through the development of greenfield land (if this involves significant new infrastructure). However, some of the growth locations, such as the Eastern Growth Cluster, Airport City and Southern Growth Corridor, and Central Growth Cluster, are already relatively well served by existing metro and railway lines. Strengthening these would present the opportunity to enhance existing water infrastructure, including of surface water management and drainage system within existing transport corridors. Further, the growth locations cover broader areas, including less developed areas, and development through this approach could provide sustainable transport options to these areas that otherwise might not exist. This could reduce the number of private vehicles necessary, if sustainable transport links are made available, and therefore reduce pollution levels impacting water and soil. This could also be beneficial in urban city centres such as Manchester and Stockport that sit within the growth areas, where there does not need to be large levels of land take to improve upon transport infrastructure.

4.3.7 Overall, a growth location focused approach could have mixed effects over different time periods. In one respect, one could expect that there would be a need for land take and resource use to support the expansion of the strategic road network and / or public transport. This could have some negative short-term implications in terms of soil and mineral resources and pollution related to new development activities. However, in the longer term, improved connectivity should help to reduce pollution associated with car travel. There should also be opportunities to implement sustainable drainage and green infrastructure into new schemes (potentially to a higher standard with focused investment into these areas). This approach could also see investment in urban areas that overlap with growth locations, with a greater focus on measures that improve existing networks (and don't require significant land take / use of natural resources). Urban greening measures could also be supported, which help to manage surface water run-off in urban areas.

4.3.8 It is considered that in terms of land, water, and soil resources, this approach would have **minor negative effects.** This reflects the potential for land take, greenfield development, and increased pollution impacting water and soil resources, especially in less developed areas and with an increase in water-based freight movements. However, it is acknowledged that mitigation and enhancement ought to be possible to minimise impacts. Putting additional investment into transport infrastructure should also help to make it more environmentally friendly.

Urban area and town centre focus

4.3.9 Development through this approach would prioritise investment into the maintenance and improvement of existing infrastructure and services. This would be less likely to require land take and the use of natural resources.

4.3.10 There could also be support for new transport services and transport infrastructure into current urban, population dense areas (though to a lesser extent than would be likely for the less urbanised areas of the growth locations). The effects would be dependent upon the types of schemes and actions that are prioritised. Increased investment into public transport would help to support population growth within urban centres (which is anticipated to be substantial) and help to minimise pressure related to car usage. This ought to have knock on benefits in terms of reducing pollution pressures on water and soil resources. Conversely, supporting increased movements and activity in the urban locations could potentially create greater pollution risk in terms of surface water run-off. This is especially notable in areas such as Oldham and Stockport, where water bodies are already considered 'bad' in part due to urbanisation. It will be important to ensure that transport infrastructure and wider growth in such locations is supported by mitigation and enhancement measures that address pollution risks.

4.3.11 Many of the urban centres (Wigan, Salford, Manchester, and Stockport) are covered by groundwater Source Protection Zones (SPZs) and some by Nitrate Vulnerability Zones (NVZs). It is considered unlikely that transport schemes would have a significant influence on factors affect such designations (for example, agricultural uses).

4.3.12 Concentrating development in city and district centres would also likely result in more rural, less developed areas receiving less investment in transport infrastructure. This could leave these areas more reliant on car usage, requiring residents to travel longer distances to reach essential services and facilities. As a result, reliance on private vehicles would likely persist, potentially leading to increased land take for road expansion and greater surface runoff affecting water quality.

4.3.13 Direct impact on agricultural land would likely be lower than through the growth locations approach, with development concentrated in urban and exclusion classified land areas, rather than productive land. Furthermore, brownfield land is more prevalent within urban areas and town centres, and this approach should allow for increased levels of regeneration.

4.3.14 This approach is predicted to have **neutral effects** overall. On one hand, a focus on urban locations should help to reduce land take and resource usage associated with transport schemes in less developed areas.

4.3.15 It could also allow for increased investment in measures to make urban areas and associated transport infrastructure more environmentally friendly (as well as reducing impacts from car usage in the longer term by supporting sustainable travel). Whilst there could be reduced use of resources and land take to support enhanced transport networks in the (less developed parts of) growth locations, it is more likely that car reliance would be higher, and interventions relating to environmental enhancement would be reduced in such locations. This offsets the positive effects somewhat, so that neutral effects remain.

Hybrid approach

4.3.16 A hybrid approach would allow for a more balanced distribution of investment. On one hand, it ought to be possible to incorporate greening measures across the urban areas, though the benefits would likely be more widely spread. It would also be possible to support actions in the growth locations that involve less intensive use of land and mineral resources. In this respect, land and mineral resources ought to be used more efficiently, and water quality could be protected and improved. A focus in the growth locations could allow for new infrastructure and networks to be made more environmentally friendly and to better explore environmental enhancement measures. There would also be a greater likelihood that sustainable modes of transport would be an important part of the transport solutions in these areas, which in the longer term would help to reduce pollution to water and land from car trips.

4.3.17 Some actions could still lead to negative effects, but on balance, the positive effects ought to outweigh the negatives. Again, this is very dependent upon the schemes and actions that are prioritised and supported.

4.3.18 Overall, **minor positive effects** are predicted.

Growth locations	Urban / centres	Hybrid
Minor negative	Neutral	Minor positive

4.4 Historic Environment

Growth Locations Focus

4.4.1 By prioritising investment into the growth locations, this approach would help to ensure that the areas within the growth locations are better connected (both within and out of the areas). Increased investment into the transport system can support heritage tourism, through improved access to historic town centres (many of which fall within or on the edge of the growth locations). There could also be wider opportunities to improve access to assets that are not in central urban locations such as historic parks and gardens and smaller villages.

4.4.2 New developments in the growth locations (proposed in the PFE) could impact upon rural landscapes and buildings that have historic importance. A focus on transport measures in these locations will not inherently change this but could either help to mitigate impacts or contribute further to negative effects (more likely with significant new transport routes being established). This will depend upon the measures and the locations involved. Broadly speaking, the areas within growth locations that are not in existing urban areas do not contain significant concentrations of heritage assets. Therefore, it is considered unlikely that investment in transport schemes would have a major impact on the historic environment across greater Manchester. However, the potential for negative effects cannot be fully ruled out as the broad growth locations encompass large areas of open land, some of which may have heritage significance or contribute to the setting of historic assets. Expanding transport infrastructure into these areas could lead to land take, altering historic landscapes and potentially impacting archaeological sites.

4.4.3 Investment into sustainable transport modes such as trams, rail, and active travel routes could help to reduce traffic congestion and pollution in historic centres, which could support their long-term preservation. The growth locations overlap with some areas of importance in this respect such as Manchester City Centre and Stockport Town Centre. Where the growth locations involve growth on the periphery of urban areas, it would be likely that car transport dominates unless supporting public transport is provided. This could still have indirect effects in terms of traffic and congestion through urban areas, as car trips to and from these locations would increase. Therefore, providing further investment in transport measures within the growth locations is likely to be positive in this respect.

4.4.4 In urban areas within growth locations, intensified transport development could have mixed effects. On one hand, it could put additional pressure on historic buildings and conservation areas (greater congestion, construction activity, increased footfall).

4.4.5 Conversely, there are opportunities to support heritage-led regeneration and to ensure that town centres remain attractive places to live, work and visit (which should be positive in respect of the built environment and historic environment). Under a focus on the growth locations, the urban areas most likely to benefit in this respect would likely be Stockport and Manchester City which sit directly within broad locations for growth.

4.4.6 On the whole, a growth locations focus is likely to have mixed effects. There should be some improvement to accessibility to heritage assets, and in some of the growth locations which overlap with urban centres, heritage should benefit from regeneration and improvements to public transport. These are **minor positive effects**.

4.4.7 From a negative perspective, significant infrastructure investment in peripheral locations could lead to a change in rural landscapes and increase in car trips. However, investment in growth locations ought to lead to better outcomes in relation to public transport to and within these locations, helping to reduce congestion through urban areas (with knock on benefits for heritage).

4.4.8 It is also unlikely that significant damage to heritage would arise in growth locations outside of the urban areas (given that these are not the most sensitive areas with regards to heritage across Greater Manchester). Therefore, potential **minor negative effects** are predicted.

Urban area and town centre focus

4.4.9 This approach would direct investment towards enhancing transport infrastructure and services in already populated areas, including key urban centres. These locations typically already have well-established transport networks that promote sustainable travel options, along with a higher concentration of services, facilities, and employment opportunities that help minimise the need for long-distance travel. This focus on existing urban areas also intersects with considerations for the historic environment, as town centres contain concentrations of heritage assets. Investment into the transport system focused in these areas is likely to increase access to these assets and also help to maintain the viability of centres as places to live, work and visit. Given the changing role and pressures upon town centres, it will be important to ensure that they remain attractive and well-connected places. This focused approach will allow for greater investment in transport measures which will support the role of urban areas.

4.4.10 Infrastructure investment into urban centres should also allow for increased levels of sustainable tourism, due to the increased public access to urban heritage assets.

4.4.11 Funding focused on these areas could support active travel and pedestrian friendly strategies, which could help to maintain, or enhance the character of historical assets in more historic town centres.

4.4.12 A focus on existing urban centres could facilitate greater funding towards maintenance and protection of buildings such as train stations, which would have benefits for the character of the built environment (Stockport Station, Wigan Northwestern and Manchester Victoria are all listed buildings and could see particular benefits). It could also go towards enhancements to footpaths, canal paths and cycle infrastructure through urban areas. Investment in public realm improvements such as these typically includes landscaping and amenity measures, which can contribute positively to townscapes.

4.4.13 Conversely, focusing transport investment and development within urban and town centres could have negative consequences for the historic environment, particularly if this involves land use changes, street furniture, parking and charging infrastructure, inappropriate signage or leads to significant increases in traffic.

4.4.14 Increased transport activity can put additional pressure on historic buildings, conservation areas, and archaeological sites. Vibrations from construction and increased traffic, air pollution, and changes to urban layouts can all contribute to the deterioration of heritage. This is particularly concerning in areas where heritage assets are already classified as "at risk." According to the 2023 Heritage at Risk Register, several assets lie within urban centres (Manchester, Bury, Rochdale, Ashton-under-Lyne, Oldham, Stockport, and Altrincham) and are already facing threats from neglect, decay, or inappropriate development. Increased urban transport interventions could exacerbate these risks, potentially leading to further degradation or even loss of valuable historic features. Conversely, investment could help to support improvement schemes and by making centres more accessible and attractive places to live, it could help to facilitate regeneration efforts (which would bring the potential to address heritage assets that are at risk). Support for public transport maintenance and enhancement also helps to ensure that pressures relating to congestion are reduced.

4.4.15 Additionally, infrastructure projects in town centres may necessitate alterations to historic streetscapes, undermining the character and setting of listed buildings and conservation areas. Without mitigation measures, a focus on urban transport investment could unintentionally harm built heritage.

4.4.16 Overall, while there are some possible negative effects associated with congestion, construction pressures, streets scheme and land use changes, it is likely that a focus on urban centres would be beneficial with regards to heritage.

4.4.17 There would be direct opportunities to improve the fabric of transport infrastructure / buildings with historic value, and indirect benefits associated with investment in regeneration of urban centres. Given that many heritage assets are located in urban centres, it also provides a better opportunity to increase access to the historic environment. On balance, **major positive effects** are predicted alongside some **minor negatives**.

Hybrid approach

4.4.18 A hybrid approach that combines focused funding and policy prioritisation in growth locations, as well as urban centres, could better balance the benefits and risks that are associated with either option discussed above. However, the effects will ultimately depend upon the type and extent of interventions in the growth locations and urban areas.

4.4.19 By directing transport improvements to both new development areas and established town centres, this approach would enhance connectivity whilst helping to mitigate some of the pressures on the historic environment.

4.4.20 In growth locations, careful planning could ensure that new transport infrastructure avoids significant effects upon heritage assets and integrates design measures that respect historic character. Meanwhile, investment in urban centres could support heritage-led regeneration strategies and sustainable tourism while promoting active travel and public transport to reduce congestion and pollution. **Moderate positive effects** are predicted overall, as there should still be significant investment in areas that contain heritage given the overlap with urban areas and the growth locations. However, this would be to a lesser significance compared to a purely urban focused approach (which would cover a wider range of centres across Greater Manchester).

4.4.21 This approach could still introduce negative impacts – increased development pressures on urban and rural historic assets, and potential conflict between infrastructure expansion and historic conservation efforts. Only **minor effects** are predicted as the potential for avoidance and mitigation should be high given the greater number of locations and different measures/actions that could be prioritised.

Growth locations	Urban / centres	Hybrid
Minor positive **Minor negative**	**Major positive** **Minor negative**	**Moderate positive** **Minor negative**

4.5 Landscape

Growth Locations Focus

4.5.1 The growth locations approach focuses funding into transport in areas that are likely to have future housing and employment, with these broad areas shaping how land is developed and integrated into the wider region. This approach seeks to support economic expansion whilst ensuring that new communities are well-connected. However, as transport infrastructure expands to accommodate these growth areas, there is likely to be an incremental impact on the surrounding landscape. Increased infrastructure development could alter the rural character of some locations, potentially introducing new urban elements such as roads, rail/ tram corridors, lighting, and signage, which may disrupt the visual continuity and tranquillity of open landscapes. In some cases, this could result in fragmentation of green spaces, reducing continuity of natural landscapes - with large-scale transport expansions potentially causing visual intrusion where new infrastructure contrasts sharply with the existing landscape. However, it is acknowledged that infrastructure development is likely to come about due to the nature of growth that will come through other plans. This could also impact important views, especially in more rural areas. Further, as many of the broad areas cover Green Belt land, especially in the more northern of growth locations, expanding transport infrastructure to support new housing and employment opportunities could lead to increased land take within these areas, potentially altering its character. Broadly speaking, the growth locations do not overlap with the most sensitive landscapes in Greater Manchester, so significant effects at a regional level would be unlikely.

4.5.2 It should also be acknowledged that basic transport solutions will be needed in the growth locations as a minimum and so new access roads and supporting infrastructure would be expected in the absence of a focused approach. The key impacts on landscape would emanate if increased investment led to wider transport infrastructure such as additional tram/train stops and new link roads.

4.5.3 It is important to recognise the role of planning, which presents opportunities to integrate green infrastructure, such as tree planting, landscaped buffers, and habitat creation. Improved public transport and road expansions may also improve public access to natural landscapes. Conversely, increased transport activity might lead to higher levels of noise and light pollution, which could impact upon landscape quality.

4.5.4 Overall, it is predicted that a growth location focused approach could have mixed effects on landscape and townscape. There is potential for transport

infrastructure to intrude on landscapes and sever features in some locations.

4.5.5 However, broadly speaking the most sensitive areas would not be affected and it should be possible to mitigate effects and implement enhancements to townscape in urban areas. On balance, **minor positive** and **minor negative effects** are predicted.

Urban area and town centre focus

4.5.6 An urban areas and town centres focus would direct transport investment towards enhancing infrastructure and services within existing built-up areas, reinforcing their role as key economic, social, and cultural hubs. This approach aims to support sustainable travel, reduce car dependency, and maximise the use of well-connected locations, aligning with broader regeneration and economic strategies.

4.5.7 Given that urban centres often feature a mix of historic and modern development, changes in transport infrastructure could reshape their built environment and have implications for townscape. While this approach should largely avoid the direct loss of undeveloped land, it still has the potential to alter townscapes and affect the visual and spatial character of Greater Manchester's urban areas.

4.5.8 A concentrated focus on urban centres will support increased densification, which in turn could lead to further development in centres. In growth zones such as the Central Growth Location, this indirectly contribute to significant changes to the skyline and townscape character. Transport-related developments, such as pedestrianisation, cycling infrastructure, new public transport hubs, or active travel corridors, may change the aesthetic and historic fabric of key urban areas. In places like Manchester and Salford city centres and historic market towns such as Altrincham and Stockport, modern infrastructure upgrades may contrast with or heritage assets, affecting their visual prominence within the urban landscape. Additionally, intensifying transport investment in urban centres may increase demand for high-rise developments and supporting infrastructure, which could lead to the fragmentation of historic streetscapes. While well-designed interventions could enhance urban aesthetics and public spaces, poorly integrated schemes risk disrupting the coherence of historic townscapes. Increased traffic flow and infrastructure modifications may also introduce harder standing, which could affect sense of place in conservation areas.

4.5.9 Conversely, this approach also presents opportunities to enhance the urban landscape through public realm improvements. Investing in pedestrian-friendly spaces, greening initiatives, and well-integrated transport hubs could improve the visual quality of town centres and contribute to more attractive,

accessible environments. Green and blue infrastructure enhancements, such as urban tree planting or the revitalisation of canal-side routes, could further enhance the overall character of urban landscapes in Greater Manchester.

4.5.10 Overall, an urban area and town centre focus is likely to have mixed effects, with the nature and significance depending upon which schemes and actions are prioritised (and in which locations). While this approach avoids land take and better preserves undeveloped locations, the intensification of transport infrastructure within urban centres could alter historic townscapes, increase visual intrusion, and fragment established streetscapes, which are potential **minor negative effects**. However, opportunities for well-designed public realm improvements and green infrastructure could help to mitigate these effects and, in some instances, lead to enhancements. An enhanced transport system in the urban areas is also likely to help support ongoing regeneration initiatives and the repurposing of town centres to make them attractive places to live, work and visit. This could lead to **moderate positive effects** in the longer term.

Hybrid approach

4.5.11 A hybrid approach would combine elements of both a growth locations focus and an urban areas and town centres focus, meaning its impact on the landscape would reflect a mix of the effects discussed above. By directing some investment towards already developed areas, it could help limit urban sprawl and preserve more rural landscapes, while still accommodating necessary expansion in designated growth locations. However, new infrastructure in both settings could alter existing townscapes and introduce visual change, particularly where development extends into open land or where transport upgrades affect historic urban areas. Residual **minor negative effects** are predicted in this respect.

4.5.12 There is also potential for positive effects to arise by helping to enhance urban locations and support environmental improvements alongside new transport networks in less developed areas. The wider range of locations that could be involved in a hybrid approach could see some of the benefits in individual locations diluted somewhat, and so only **minor positive effects** are predicted.

Growth locations	Urban / centres	Hybrid
Minor positive **Minor negative**	**Moderate positive** **Minor negative**	**Minor positive** **Minor negative**

4.6 Air quality and noise

Growth Locations Focus

4.6.1 It must be acknowledged that growth is already planned across Greater Manchester, and this will bring with it new infrastructure. Additional investment in transport infrastructure could lead to more extensive expansion of road and public transport networks, or it could focus on making networks more sustainable. This will determine the ultimate effects on air quality and noise receptors.

4.6.2 Depending upon the actions and schemes involved, increased transport investment into the growth locations has the potential to lead to higher levels of road traffic (originating both within and outside of Greater Manchester), increasing emissions of nitrogen dioxide (NO_2) and particulate matter (PM), which are harmful to human health and contribute to poor air quality. New road expansions and transport corridors could exacerbate pollution levels, particularly if private vehicle use remains high despite efforts to encourage modal shift. This is particularly concerning in areas that already experience poor air quality and will impact negatively upon the Greater Manchester Combined Authority AQMA, which covers areas where exceedances of NO_2 emissions limits have occurred (mostly related to transportation).

4.6.3 In the less developed locations, new road and rail infrastructure could introduce new sources of air and noise pollution, particularly in areas that currently experience relatively low levels of emissions. Expanding road networks or public transport in these areas could lead to localised increases in air pollutants. However, by prioritising investment in sustainable transport infrastructure such as high-quality public transport, cycling, and active travel facilities, this approach could help embed more sustainable travel behaviours, reducing long-term reliance on private vehicles.

4.6.4 Construction activity associated with new transport infrastructure would also have temporary but potentially significant air quality impacts, with dust and diesel emissions from construction vehicles and machinery contributing to localised pollution.

4.6.5 If large-scale road and rail expansion is required to support growth locations, this could result in long-term increases in vehicle emissions unless counteracted by emissions reduction measures and a strong focus on public transport and active travel. It is likely that electric vehicles will help to reduce tailpipe emissions significantly, but they may not be affordable for many people within the plan period, and so a degree of second-hand cars running on petrol would be expected to remain in use. Car usage will also still create emissions such as particulate matter.

4.6.6 Expanding connectivity to key economic areas, such as the Airport City and Southern Growth Corridor, is likely to involve delivery of infrastructure related to the airport. This will support higher levels of international travel, and result in greater amounts of road-based trips by private vehicles, freight and public transport. This could contribute to an increase in emissions related to the airport, as well as noise pollution.

4.6.7 Equally, this approach provides opportunities to integrate sustainable transport options from the outset, reducing long-term air quality impacts and noise. If transport investments and strategies prioritise dedicated public transport corridors, improved cycling and walking networks and transport hubs, this could limit reliance on private vehicles and road-based freight, helping to mitigate some of the negative effects on air quality from growth.

4.6.8 Additionally, green infrastructure, such as tree planting and green corridors alongside transport routes, could help to disperse pollutants and improve air quality in and around transport infrastructure. However, the effectiveness of these measures would depend on the scale and enforcement of sustainable transport policies (reliance on green infrastructure alone would not suffice). Other positive effects could arise if new road infrastructure provides alternative transport routes that diverts traffic away from town centres (for example bypass schemes).

4.6.9 Overall, investing in transport actions and measures in the growth locations is likely to have mixed effects. On one hand it allows for major areas of growth to be supported with measures that enable sustainable modes of travel. There is also some overlap with urban locations and thus potential to address air quality issues in those areas too. Conversely, negative effects could arise if there is a focus on supporting increased travel movements, particularly through a support for road-based travel using less sustainable modes of transport. On balance, **neutral effects** are predicted.

Urban area and town centre focus

4.6.10 An urban area and town focus prioritises investment in existing transport networks, enhancements to public transport infrastructure, and measures to support sustainable travel. This approach could lead to an increase in traffic volumes, particularly if road capacity is expanded or if accessibility improvements encourage higher levels of vehicle use. This could contribute to localised air pollution particularly in areas where congestion is already an issue, exacerbating emissions. Additionally, expanded public transport services, such as bus networks, could contribute to emissions unless there is an emphasis on low-emission or electric vehicle fleets.

4.6.11 Further, town centres and urban areas already experience elevated

background noise due to traffic, commercial activity, and high population density.

4.6.12 Increased frequency of public transport services, road capacity expansions, and new rail or tram infrastructure, particularly where new public transport infrastructure is introduced, such as tram or rail expansions that increase the frequency of services. Areas already experiencing high levels of noise, such as city centres and major transport hubs, could see further deterioration in noise conditions, affecting residents and businesses.

4.6.13 The concentration of new bus corridors and expanded delivery and freight routes, and the potential for a rise in private vehicles and delivery vehicles that support business could also contribute to higher noise levels, especially in areas with a high proportion of residential properties. In more historic urban centres, where buildings were not designed with modern noise insulation in mind, increased ambient noise could degrade the quality of life for residents and diminish the experience of heritage assets, affecting their setting and character. The potential for around the clock transport services could also cause disruption in terms of noise pollution. Extended operating hours of public transport night-time freight movement, and 24-hour transport hubs, could lead to continuous low-frequency noise that is difficult to mitigate.

4.6.14 However, mitigation strategies - such as investment in quieter, low-emission transport options, noise-reducing road surfaces, and the promotion of active travel - could help to counteract some of these impacts. Green infrastructure, such as tree planting measures along transport corridors, noise barriers, and improved urban design measures could also play a role in minimising disruption, particularly in conservation areas or near more sensitive sites.

4.6.15 It is also worth noting that an urban centre approach should provide greater opportunities to target investment into actions and measures that address air quality and noise issues in problematic areas (for example, supporting electric vehicle charging, managing the impacts of car travel, improving and expanding public transport networks, encouraging higher usage of networks etc).

4.6.16 While increased transport related activity could worsen air and noise pollution in some urban areas, the emphasis on sustainable transport infrastructure, investment in low emission mobility solutions, and implementation of air quality improvement measures has the potential to mitigate impacts and achieve improvements in the longer term. These are potential **moderate positive effects.**

4.6.17 Diverting investment away from some of the growth locations could also mean that transport solutions in those locations are not optimal and are more

focused on accessibility by roads without dedicated public transport enhancements and enhanced walking and cycling infrastructure.

4.6.18 In those locations, air quality could deteriorate. This is reflected by **minor negative effects** alongside the positive effects discussed above.

4.6.19 It is recognised that there are a range of measures already being implemented across Greater Manchester to address air quality and these will help to mitigate impacts of growth. Nonetheless, residual negative effects could remain without targeted interventions.

Hybrid approach

4.6.20 An approach that balances prioritisation of increased transport investment and strategy into both the growth locations and into existing urban centres could see a mix of all impacts discussed above. By distributing transport investment across both newly developing areas, as well as established centres, air quality and noise effects (both positive and negative) are likely to be more dispersed rather than concentrated in specific locations. This could help to prevent the more extreme localisation of air and noise pollution in any one area, however, could also limit the effectiveness of targeted air quality improvements. In this respect, the effects are predicted to be of minor significance.

4.6.21 In urban areas, a hybrid strategy could support clean air measures and active travel, helping to counteract some of the concentrated air pollution and noise impacts. However, the challenge would be in balancing investment between mitigating urban congestion, and actioning strategies that bring sustainable transport solutions to the growth locations. There is a chance that if resources are spread too thinly across the board, neither of these objectives would be fully realised. Nevertheless, the overall effects are likely to be positive, rather than negative.

4.6.22 Overall, this approach is likely to result in **minor positive effects**. Whilst distributing transport improvements may prevent more concentrated deterioration of air quality in any single area, it could also dilute the potential for stronger positive interventions in air quality management. Providing some support for the growth locations should also allow for a heightened degree of mitigation and intervention to prevent negative effects arising.

Growth locations	Urban / centres	Hybrid
Neutral	**Moderate positive** **Minor negative**	**Minor positive**

4.7 Climate change Mitigation and Resilience

Growth Locations Focus

4.7.1 A focus on growth locations could allow for additional investment into public transport, low emission vehicle infrastructure and active travel measures. This would be likely to reduce greenhouse gas emissions from residents of these areas, benefitting sustainable transport rates from future residents, as well as existing residents (where growth locations and new transport provisions functionally relate to existing populous areas). This would potentially improve sustainable transport rates for the already populated areas of central Manchester, Salford, Wigan, Bolton, Bury, Ashton-under-Lyne and Stockport. Other, more rural/ peripheral communities or less well-connected communities in these areas may also benefit, where existing sustainable transport options are limited, more investment could deliver an increase in infrastructure and services which may drive down transport related emissions from these communities.

4.7.2 Further investment in road infrastructure might serve to incentivise private car use from the growth areas, increasing transport related emissions from these areas and potentially reducing the viability of public transport options due to lower use rates. Though the move towards electric vehicles is a mitigating factor when considering future air quality, the take-up of new electric vehicles is somewhat uncertain, and non-exhaust emissions will still remain an important consideration.

4.7.3 Whilst some areas of the growth locations are at risk of fluvial flooding, scheme design ought to mitigate vulnerabilities to new transport infrastructure. Where some infrastructure development in these areas might be on greenfield land, there is a risk that decreases to infiltration rates might increase the risk of surface water flooding. Sustainable drainage systems would be expected to mitigate this risk. Furthermore, upgrades to existing transport infrastructures in the growth areas might reduce existing areas of higher surface water flood risk, due to improved drainage standards. There could also be potential to introduce enhanced green and blue infrastructure, helping to improve resilience to climate change.

4.7.4 With regards to climate change mitigation, the effects of this approach would depend upon the emphasis placed upon supporting sustainable modes of transport in the growth locations. If the additional investment helped to support a reduction in car-based travel there ought to be a reduction in emissions in the longer term. Where it is difficult to reduce car-based travel, a support for EV charging infrastructure will also help with regards to air quality (but acknowledging that there are challenges to the widespread roll out of EV).

4.7.5 However, there would be embodied carbon associated with new infrastructure provision. It is also probable that car travel will increase within some of the growth locations, particularly where growth is in peripheral locations that are not currently serviced by public transport, and where it would be unrealistic to do so. It should be acknowledged that the growth locations overlap with some urban centres, and in this respect, there would be greater potential to support urban intensification and transport measures that support a decrease in car usage. On balance, **minor positive effects** are predicted.

4.7.6 In terms of climate change resilience, it is likely that new infrastructure provision in the growth locations would be designed to avoid and address flood risks. Increased investment would perhaps allow for higher standards to be achieved in relation to drainage and the incorporation of green and blue infrastructure. Where growth locations overlap with the urban centres, such measures could help contribute to urban greening, with knock on benefits in relation to climate change resilience. Overall, **minor positive effects** are predicted in relation to resilience.

4.7.7 With regards to the climate change topic area, a **minor positive effect** is predicted overall, reflecting the factors discussed above.

Urban area and town centre focus

4.7.8 This approach would focus new and improved transport infrastructure and services to existing populated areas, including major centres. Generally, these locations already benefit from accessible transport infrastructure which support sustainable modes of transport as well as high densities of services, facilities and opportunities which reduce the need to travel. Additional provision of transport infrastructure and improvements ought to support further improvements to sustainable transport rates, which would be accessible to large populations in these areas (hence a greater potential for modal shift / update of sustainable transport options).

4.7.9 This would be likely to support travel behaviours in urban and higher-density areas which drive down transport-relation greenhouse gas emissions. Measures that could be useful in driving down emissions in urban areas are wide ranging, but could include:

4.7.10 Making public transport more efficient, reliable, affordable and easier to use – which ought to drive up usage and reduce emissions from internal combustion engine driven cars.

- Incorporating low carbon energy generation into transport infrastructure.
- Sequestering carbon through the urban greening measures.
- Supporting the provision of electric vehicle charging facilities.
- Provision of safe active travel networks.

- Funding the expansion of tram/rail/bus networks.

4.7.11 Conversely, this approach would not see as much transport investment in growth locations that do not overlap with urban areas. For example, south of Bury, the GM Eastern Gateway, Manchester Airport and across the Wigan – Bolton corridor. This could mean that significant investment in public transport infrastructure is more limited, with consequential increases in car travel expected in these areas.

4.7.12 Overall, **minor positive effects** are predicted in relation to carbon emissions. Investment in the urban areas would help to maintain and boost levels of active and sustainable travel, but this would be offset somewhat by increases in car travel through some of the growth locations.

4.7.13 In terms of resilience to the effects of climate change, a greater focus on new and improved services and infrastructure for existing centres and more densely populated areas could help to alleviate climatic risk factors in these areas. Measures could include improved drainage systems, green and blue infrastructure schemes and other actions to improve the resilience of urban areas to climate change such as shaded bus and tram stops. Greening linear routes in urban areas as well as strengthening green space in the public realm would be likely to help tackle surface water flood risk and urban heating. This is likely to achieve benefits in locations that have higher risk factors to climate change and would affect a wider range of populations. In this respect, **moderate positive effects** are predicted.

4.7.14 Overall, the City Region as a whole should see a reduction in carbon emissions through targeted investment in sustainable travel in urban areas (which is where the majority of existing travel movements are, and the most people would be affected). The benefits would be offset somewhat by increases in car travel in the growth locations outside of the urban areas, but the residual effects should still be positive.

4.7.15 Resilience to climate change would also be expected to improve in urban areas, with measures here having more significant benefits given that urban areas are more susceptible to heat and extreme weather events.

4.7.16 On balance, **moderate positive effects** are predicted for the climate change topic, reflecting the factors discussed above.

Hybrid approach

4.7.17 A hybrid approach would be expected to reflect the effects outlined above, depending upon the extent to which urban areas and growth locations are prioritised (for additional investment) and the types of measures and actions involved. However, a hybrid approach should have better potential to target

investments to areas which are most in need as well as maximising the value added from transport infrastructure and services.

4.7.18 In this respect, **moderate positive effects** are predicted in relation to minimising carbon emissions.

4.7.19 In terms of flood risk, heating and other climate resilience issues a similar targeting of areas with greater need would be possible. In particular, a greater focus in urban areas ought to help to improve connectivity of green and blue space, manage surface water flooding and provide shading in areas that are more at risk / more vulnerable. Additional investment could be spread more thinly to the growth locations outside of urban areas but still help to implement measures to address climate change resilience.

4.7.20 Overall, **moderate positive effects** are predicted.

Growth locations	Urban / centres	Hybrid
Minor positive effects	**Moderate positive effects**	**Moderate positive effects**

4.8 Healthy and safe communities

Growth Locations Focus

4.8.1 This approach would act to bring additional transport investment to growth locations. Increased investment in active travel infrastructure in these areas would be likely to increase physical activity rates for existing and future residents. There could also be opportunities to link residents to recreation and leisure facilities and improve access to a high-quality homes and emerging jobs. This would have positive effects on health and wellbeing. By improving links between the growth locations and existing urban areas (and acknowledging that there is some overlap), there would be good potential to ensure that new jobs can be accessed by communities that are more reliant on public transport.

4.8.2 Where growth areas overlap with towns / dense urban areas, investment would be likely to benefit a greater number of people and also improve existing active travel infrastructure and public transport, exaggerating positive effects in these locations (for example, central Manchester, Salford, Wigan, Bolton, Bury, Ashton-under-Lyne and Stockport). The investment in improved transport provisions for growth areas will be likely to support the vitality of future communities and existing communities in these areas. Connectivity between housing, shops, facilities and employment opportunities will be positive for social and economic outcomes and overall community wellbeing.

4.8.3 Additional investment could also be secured to ensure that new roads and infrastructure in the growth locations cater for a range of users and prioritise safety on new routes, provide enhanced mitigation to deal with amenity concerns.

4.8.4 Some urban areas would perhaps see less investment under this approach, and the maintenance and enhancement of existing infrastructure and services might not improve in line with increased demands likely to arise from population growth in urban areas. This could mean that health issues and accessibility in urban areas does not improve, which offsets the benefits that should be experienced in the wider growth locations. Nevertheless, moderate **positive effects** are predicted overall.

Urban area and town centre focus

4.8.5 This approach would focus on transport infrastructure and services in already populated areas, particularly in and around towns and the regional centre. These areas already benefit from good active travel infrastructure and access to shops, facilities and opportunities. However, there are still some barriers to accessing services that could be addressed such as focusing on affordability, reliability and safety. These measures would all help to support a wide range of communities across the region in terms of accessing jobs, services and facilities. There could also be opportunities to enhance green infrastructure in urban areas alongside transport routes, which would help to support cleaner air and to support active travel (both of which are determinants of health). In this respect, one would anticipate significant positive effects upon health and wellbeing. It should be acknowledged that certain measures could cause amenity concerns as a result of construction and increased use of transport services. However, the positive effects would outweigh these negatives.

4.8.6 Though some of the growth locations overlap with town centres / urban locations, there are some key employment and housing developments outside of these areas that could be difficult to access for lower income communities if transport infrastructure is not inclusive and comprehensive (further focused investment would better help to achieve this). In this respect, new opportunities in peripheral locations might not be as accessible to communities of need that are located in urban areas. Therefore, overall, **moderate positive effects** are predicted in terms of healthy and safe communities.

Hybrid approach

4.8.7 A hybrid approach would be expected to mimic effects outlined above, though with the potential to better target investments to areas which are most in need as well as maximising the value added from transport infrastructure and

services in terms of promoting active and healthy lifestyles, promoting social interaction and supporting the vitality of communities.

4.8.8 The broader distribution of interventions might lead to a more wide-spread set of significant effects, though at a reduced magnitude in any one location. The ability to target interventions to areas most in need would be expected to maximise value added, resulting in **moderate positive effects** on health and wellbeing.

Growth locations	Urban / centres	Hybrid
Moderate positive	**Moderate positive**	**Moderate positive**

4.9 Material assets

Growth Locations Focus

4.9.1 The focus of investment into growth locations under this approach would help to support higher quality, reliable and networked transport infrastructure to support growth in the identified growth locations. It would be likely to connect employment and housing growth within these locations, with particular benefits in this respect for greater concentrations of populations and employment hubs, including existing built-up areas, including central Manchester, Salford, Wigan, Bolton, Bury, Ashton-under-Lyne and Stockport. Infrastructure delivery relating to the airport would be likely to see substantial economic growth, with international links providing positive outcomes for the area's economy. Road network and other upgrades would be expected to alleviate pressures within the growth locations, potentially making the network more efficient and the City Region a more attractive place to invest.

4.9.2 In terms of community vitality, the strategic direction of investment to growth locations would be likely to support the delivery of new housing and employment growth, delivering well connected settlements which support a range of transport provisions and contribute towards well performing principles of movement and connectivity.

4.9.3 The potential to see less funding for interventions in towns and existing populous areas, outside of growth locations, might hold back these locations. This could be seen through inadequate provisions to support the mobility of people and goods in these spaces, especially in the context of population growth, resulting in inefficiencies and potential consequential reductions in business confidence and associated growth and employment opportunities. Where the growth locations overlap with centres to an extent, this would be less of a problem, but for locations outside of growth locations there would be less support for urban centre development. Having said this, it is important to recognise that some urban areas outside of the growth locations are relatively well served by transport infrastructure, and therefore significant investment in such locations should not be necessary.

4.9.4 Overall, this approach would be expected to see some mixed effects, with **major positive effects** in the growth areas, promoting growth, investment, opportunity community vitality and effective land use planning in these areas. Conversely, locations outside of the growth areas, including existing built-up areas might see inefficiencies in their transport networks and associated loss of investment, opportunities and vitality; **minor negative effects** might be seen in this respect (acknowledging that the growth locations overlap with several urban centres).

Urban area and town centre focus

4.9.5 A strategic focus on transport infrastructure and services under this approach would be directed towards towns and the regional centre, including existing built-up areas. These areas host some existing higher quality transport provisions as well as forming key centres of housing and employment across the City Region. Investment would support the vitality of these areas in terms of providing access to employment throughout areas of higher population and job densities, providing suitable links to locally and regionally important service centres and making these areas more attractive for investment and growth. Some service centres which have seen less footfall (especially those smaller ones, in less affluent areas) might see improved footfall linked to the improved accessibility to and from residential locations.

4.9.6 The efficiencies of the transport network and improved offerings for sustainable travel in these locations would be expected to reduce congestion, and in turn, lead to some degree of associated boosts to economic growth.

4.9.7 That said, a reduced focus on growth locations might mean that the anticipated additional journeys relating to future growth would be more likely to be reliant upon private car use, thus driving up congestion in key destinations, such as town and regional centres. This lower amount of investment in growth locations might also hold up the vitality of communities and local centres in and around growth locations, whilst also failing to promote a holistic approach to sound land use planning in some respects.

4.9.8 Overall, the town and regional centres would be expected to see **major positive effects**, associated with supporting the movement of goods and people in an efficient way in locations with high densities of jobs and housing. These areas would see improved footfall and vitality and would be primed to support further urban intensification. That said, some **moderate negative effects** might be seen, where growth locations are unable to deliver higher quality transformational schemes that promote sustainable modes of travel. This could mean opportunities to deliver economic growth and well connected new communities are not realised as readily in certain growth locations.

Hybrid approach

4.9.9 This approach would be expected to mimic those effects set out above, though with a distribution which better allows targeted interventions in areas most at need (whether this be the growth locations or the urban areas). This would help to improve the efficiency of the transport network in future areas of growth as well as existing population and employment centres, with connectivity within and between these locations better able to manage

increased volumes of traffic, drive down car dependencies and support an efficient transport network to enable economic growth and prosperity.

4.9.10 This more integrated and targeted approach would also support principles relating to sound land use and transport planning. That said, interventions and associated effects could be less focused and more thinly distributed across the city region. Overall, **moderate positive** and **minor negative effects** are predicted.

Growth locations	Urban / centres	Hybrid
Major positive **Moderate negative**	**Major positive** **Moderate negative**	**Moderate positive** **Minor negative**

4.10 Equalities

Growth Locations Focus

4.10.1 A growth locations focused approach would seek to bring in additional transport investment to these areas. This would ensure future housing and employment land is supported not only by standard development-related transport infrastructure, but improved facilities and services. Increased investment in these areas would benefit both new and existing residents by reducing spatial inequalities, and enhancing access to transport networks, potentially improving connectivity for disadvantaged communities. For those without access to a private vehicle – whether due to location, low income, disability, age, or other factors – this could lead to improved transport accessibility and overall mobility. This could be particularly beneficial in areas with larger proportions of elderly populations, which are typically located in more suburban or rural areas, with younger populations generally located in more urbanised areas. For example, this could benefit the larger elderly resident populations located across the south of Greater Manchester, who fall within the Airport City and Southern Growth Corridor.

4.10.2 There is also the opportunity to improve accessibility for groups with protected characteristics through improving and adapting existing infrastructure, as well as implementing design strategies in new transport infrastructure to promote inclusivity. This could include, for example, step-free access, safe and well-lit routes, and affordable transport options, which are important for people with disabilities, women, and those who otherwise experience barriers to safe mobility. Additionally, changes and improvements to public transport routes may alter mobility patterns, potentially improving access to employment, education, and services.

4.10.3 Conversely, if transport investments are concentrated in the broad growth locations, existing deprived areas that sit outside of these areas may not see improved transportation infrastructure, exacerbating transport inequalities. This includes, for example, the wider Oldham urban area, Walkden, Swinton, Farnworth, Tyldesley and Mosley Common, the outer urban edges of Bolton, and the urban periphery of Manchester City. These locations are not directly located within the growth locations yet experience high levels of deprivation. Communities that already face poor connectivity in these locations, and others, may remain isolated if they are not further invested in.

4.10.4 This is likely to encompass a range of groups of people that are concentrated in these urban locations including young people, ethnic minorities and people with reported ‘bad health’. However, it needs to be acknowledged that transport connectivity in several of these urban areas is strong, and a lack of additional investment might not lead to significant inequalities.

4.10.5 A focus on strategies and investment into active transport infrastructure should support healthier, and more inclusive mobility patterns. This could include investment into safe and accessible walking and cycling routes, such as wider, step-free paths, protected cycle lanes, and targeted safety measures. Safe and accessible walking and cycling routes would particularly benefit women, children, and disabled individuals, who may face barriers to safe travel otherwise. These improvements would also facilitate active travel overall, which is likely to benefit the health of communities, and to a larger extent in urban areas which overlap with the broad locations – for example, Stockport, central Manchester, Wigan, and Bolton, due to the higher density of populations.

4.10.6 On the other hand, investment into transport in the growth locations could also disproportionately impact upon communities facing inequality beyond spatial transport inequality. This could include a number of risks, including the potential to distribute investment unequally if improvements are not extended to lower-income or deprived areas, which could widen the gap in mobility inequality. Further, there is a risk of displacement, as improved transportation opportunities and facilities could lead to rising property values in the growth locations, potentially pushing out lower-income residents.

4.10.7 This could disproportionately impact marginalised groups, reducing access to affordable housing, and forcing displacement to areas with poorer transport links.

4.10.8 It is anticipated that overall, a growth locations focused approach is likely to have mixed effects on equalities, with **moderate positive effects** and **minor negative effects** expected. This is due to the opportunity to increase accessibility and mobility across a range of minority communities, hence reducing inequality across a number of other factors such as health, wellbeing, and economy. However, there are some risks that inequalities could be widened (or not enough action directed to some locations), but these can be mitigated through planning leaving only minor impacts.

Urban area and town centre focus

4.10.9 This approach would aim to focus transport investment to town centres and dense urban areas, prioritising enhancing and improving existing services and facilities, as well as directing funding and encouraging strategy towards any necessary additions to the transport system in these areas. An emphasis on sustainable and active travel options, including walking, cycling, and public transport, could make urban centres more accessible and inclusive, benefiting those who do not drive or own a car.

4.10.10 By prioritising investment in areas with high population density and existing transport networks, this approach could improve public transport and active travel modes more accessible for people with limited mobility, younger people, and those without access to a private vehicle. This could particularly benefit low-income residents, and disadvantaged communities, as reliable and affordable public transport networks play a key role in accessing jobs, education, and other essential services and facilities. Additionally, improved street design, better lighting, and enhanced security measures on public transport, that could all come through increased investment into the transport system, could contribute to safer and more inclusive urban environments, particularly for women and vulnerable groups. Further, this approach would mean that urban centres not located within the broad growth areas would benefit from investment through this option.

4.10.11 Whilst the majority of town centres and urban hubs should benefit under this approach, it is not a certainty that measures and actions would be distributed evenly across these areas. It will therefore be important to promote actions that address areas of greatest need and seek to minimise a widening of any inequalities in accessibility.

4.10.12 Improvements to public transport and active travel accessibility could mean that property values and living costs are driven up in urban centres, therefore potentially creating affordability challenges for lower-income residents and risking displacement. Finally, increased transport activity in dense, deprived urban areas could lead to higher congestion and pollution levels, disproportionately impacting vulnerable groups such as children, elderly populations, and those with respiratory conditions (though it is more likely that measures would be channelled to address such issues rather than contribute to them).

4.10.13 Moreover, a transport investment focus on urban centres could lead to further reduced accessibility for those living in suburban and rural areas who already face accessibility inequality, where public transport services are often less frequent and comprehensive. Many elderly populations, who are more likely to live in rural locations and also have limited mobility, may be further isolated in terms of accessibility if resources are concentrated in urban centres. This could limit access to essential services, such as healthcare, shops, and social opportunities.

4.10.14 Additionally, those in suburban and rural areas who rely on private vehicles may see fewer improvements in road infrastructure or alternative transport options, potentially increasing disparities in mobility and access.

4.10.15 Overall, it is likely that **major positive impacts** will arise from this approach, however there is also potential for **moderate negative impacts**

4.10.16 Deprived populations located within urban centres are likely to benefit notably from this approach, with improvements to health, accessibility, and mobility likely for a large proportion of 'in need' communities across the region. Despite this, there are possibilities of risks that could come from increased transport investments, such as the increase of disparities, and isolation of some populations.

Hybrid approach

4.10.17 Impacts through this approach are likely to mimic those discussed for the growth locations and the urban centres approach, however a hybrid approach provides the ability to be more flexible in terms of investment. This approach would mean that investment could be dispersed as necessary, focusing on areas that have higher need for transport investment, and therefore areas that might be facing higher levels of mobility inequality.

4.10.18 Further, by ensuring that transport improvements extend beyond urban centres, linking broad locations with these centres, this approach could help maintain vital links for those in suburban and rural communities, including elderly residents who may rely on public transport for essential services. Enhanced regional transport networks, such as improved bus and rail links, could create more seamless connections between rural/ peripheral areas and key urban centres, reducing isolation and ensuring more equitable access to employment, healthcare, and amenities.

4.10.19 However, there is potential for inequalities to worsen if transport investments are not distributed fairly, and there is also potential for these opportunities to fall through if investment is spread too thinly to cover all potential needs. Therefore, it is predicted that this option would have **moderate positive effects** overall.

Growth locations	Urban / centres	Hybrid
Moderate positive **Minor negative**	**Major positive** **Moderate negative**	**Moderate positive**

4.11 Transport

Growth Locations Focus

4.11.1 This approach would bring additional transport investment to growth locations, ensuring that future housing and employment land is supported by standard development-related supporting transport infrastructure alongside additional infrastructure and services. The additional strategic focus for these areas would be expected to ensure that inter- and intra-growth area connectivity would be networked and well planned, offering good access to public transport, active travel and road transport options as well as facilitating efficient movements of freight. This would be expected to reduce the potential for congestion related issues in these areas, which would help to mitigate increases in population and future business activity in these locations.

4.11.2 Infrastructure improvements would be likely to increase the accessibility to sustainable travel options for existing residents within growth areas as well as for future residents, with already populated areas expected to see improved sustainable transport rates for the already populated areas of central Manchester, Salford, Wigan, Bolton, Bury, Ashton-under-Lyne and Stockport. Other, more rural communities or less well-connected communities in these areas may benefit also, where existing sustainable transport options are limited, more investment could deliver an increase in infrastructure and services which may drive down accessibility related issues and car dependencies. Such locations might include areas in and around Hulton Lane Ends, Hindley Green, Tamer Lane End and Middleton. Conversely, investment in road infrastructure might serve to incentivise private car use from the growth areas and potentially reduce the viability of public transport options due to lower use rates. A lack of additional investment within urban areas, which are likely to see increased vehicle journeys during the plan-period, might result in congestion relation problems, especially at peak journey times and around key employment centres.

4.11.3 Investment in new and improved transport infrastructure ought to help to improve parts of the network which are in need of upgrades or repairs, helping to make the transport network more efficient. This might be particularly relevant for particular locations within the proposed growth areas, especially on more rural routes which might have seen underinvestment.

4.11.4 Overall, Mixed effects are likely, with **major positive** and **minor negative effects** predicted. This approach would best help to facilitate sustainable transport and an efficient network in locations that will see significant growth. This includes several urban locations but also will help to improve connectivity across the City Region outside of existing built-up areas.

4.11.5 There is a risk that a focus on growth locations could lead to increased car dependencies and congestion if the focus is on road network expansion. However, without investment in suitable transport networks to support growth, the implications would likely be more negative. A focus on growth locations is more likely to support enhanced sustainable modes of transport and help to ensure that urban expansion is accessible by a choice of transport modes to a range of communities.

4.11.6 In the urban areas and centres, the benefits would be directed mainly towards areas that overlap significantly with growth locations such as Stockport and Manchester City Centre.

4.11.7 Peripheral urban locations that might not benefit as much from enhanced investment include areas of Manchester outside the central core, and peripheral urban areas in Bolton, Oldham and Rochdale Town Centres.

Urban area and town centre focus

4.11.8 This approach would focus new and improved transport infrastructure and services to existing populated areas, including the city, town and local centres. Generally, these locations already benefit from accessible transport infrastructure which support sustainable modes of transport as well as higher densities of services, facilities and opportunities which reduce the need to travel. Additional provisions ought to support significant improvements to sustainable transport rates, with higher population densities being likely to increase the rates of behaviour change and use-rates of sustainable transport options.

4.11.9 Conversely, the anticipated focus of new housing and employment development across growth locations would be likely to see minimal transport investment, beyond that which would be expected to come forward alongside development projects. As a result, existing residents across rural and less well-connected areas, as well as future residents and businesses within some parts of growth locations would be unlikely to see significant uplifts in investment and thorough solutions to support sustainable modes of transport. As a result, some greater car dependencies would be likely to be seen across the city region, reducing the likelihood that future increases in population would be matched up to improvements in sustainable travel rates. In terms of congestion, journeys might be expected to be high frequency between growth locations and existing town/regional centre(s). With difficulties associated with significantly increasing the capacity of urban roads, it might be expected that congestion worsens in these areas, especially at peak journey times and nearby to key employment centres. Schemes such as park and rides in strategically selected locations on urban peripheries might help to alleviate

these problems to some extent (but would require investment).

4.11.10 Overall, the City Region as a whole should see improved sustainable travel rates and this would be in locations where significant numbers of people would benefit. It should be possible to achieve improvements to existing services, which could also be more cost effective compared to the expansion of services into new locations. There could also be a reduction in traffic and congestion if measures are secured that target such issues in the urban centres. However, this approach would miss opportunities to ensure that growth locations are supported by sustainable transport services and infrastructure, which could lead to greater reliance in car trips in those locations and less sustainable patterns of growth.

4.11.11 As a result, mixed effects are anticipated. Though there would likely be **major positive effects** by focusing on maintaining and enhancing services in the main urban areas, there would be opportunities lost in the growth locations, which could lead to long term **moderate negative effects**.

Hybrid approach

4.11.12 This approach could be expected to enable an efficient balance of targeted maintenance, mitigation and enhancement measures across the city region.

4.11.13 A hybrid approach would be expected to mimic effects outlined above, though with the potential to better target investments to areas which are most in need as well as maximising the value added from transport infrastructure and services. The targeting would allow elements of the transport network most in need of maintenance and upgrades to be improved, whilst also supporting an enhanced transport offer for the growth locations (though to a lesser extent than if all attention was given to the growth locations).

4.11.14 This broader distribution of interventions should help to achieve **major positive effects** in terms of supporting sustainable modes of travel, access to jobs and services and reducing reliance on car trips. However, the potential for some of the growth locations to see lower investment could mean that **minor negative effects** arise in relation to increased road traffic and car reliance.

Growth locations	Urban / centres	Hybrid
Major positive **Minor negative**	**Major positive** **Moderate negative**	**Major positive** **Minor negative**

4.12 Summary of appraisal findings for the spatial strategy options

SA Topic	1.Growth location focus	2. Town centres and urban focus	3.Hybrid approach
Biodiversity	Minor -ve	Minor -ve	Neutral
Water, soil and land resources	Minor -ve	Neutral	Minor -ve
Historic environment	Minor +ve Minor -ve	Major +ve Minor -ve	Moderate +ve Minor -ve
Landscape	Minor +ve Minor -ve	Moderate +ve Minor -ve	Minor +ve Minor -ve
Air quality and noise	Neutral	Moderate -ve Minor -ve	Minor +ve
Climate change	Minor +ve	Moderate +ve	Moderate +ve
Healthy and safe communities	Moderate positive	Moderate positive	Moderate positive
Material assets	Major +ve Moderate -ve	Major +ve Moderate -ve	Moderate +ve Minor -ve
Equalities	Moderate +ve Minor -ve	Major +ve Moderate -ve	Moderate +ve
Transport	Major +ve Minor -ve	Major +ve Moderate -ve	Major +ve Minor -ve

4.12.1 Firstly, it is important to note that this is a strategic assessment based on high level assumptions about the types of measures and actions that would be involved with each of the three options. The predicted effects need to be understood in this context.

4.12.2 The intention of the appraisal is to highlight the likely significance of effects for each option, but it is possible these could be different when taking into account mitigation and enhancement measures (i.e. when factoring in plan policies, actions and project details).

4.12.3 There are some similarities between the options, which is to be expected given that certain locations overlap with both the growth locations and urban areas / centres. The key differences relate to the extent to which investment would be dispersed across these areas.

4.12.4 A growth location focus could potentially have some minor negative effects with regards to environmental factors as it could involve greater infrastructure provision in urban fringe locations which could overlap with biodiversity assets, as well as affecting water and soil resources. However, it ought to be possible to limit the significance of effects through mitigation and enhancement measures.

4.12.5 Where there is overlap with urban areas and centres, a growth locations approach provides some opportunities to help support regeneration and public realm improvements, with some minor positive effects with regards to the historic environment and landscape.

4.12.6 A growth location approach would likely be significantly positive with regards to socio economic factors. It would help to ensure that growth locations are better integrated with existing communities, helping to link people to new homes and jobs. It would be more likely that sustainable transport networks could be implemented in the peripheral areas under such an approach, which is a major positive effect. One drawback of this approach would be that some communities would be less likely to see investment, and this could lead to inequalities persisting.

4.12.7 A focus on urban areas and centres is less likely to have environmental impacts in non-urban areas (either positive or negative). Though there could be more pressure on environmental resources in urban areas, it is considered to be more likely that enhancements would be secured (e.g. urban greening). Increased investment into the urban areas / centres is also more likely to support regeneration efforts and the vitality of urban centres. In this respect, there is greater potential to support improvements to the public realm with knock on positive effects for heritage and townscape.

4.12.8 An urban / centres approach would also provide good opportunities to support the maintenance and enhancement of existing infrastructure networks and allow for improved access to services for a wider range of existing communities. Many of the communities involved are in deprived areas, and in this respect major positive effects could arise in relation to equalities.

4.12.9 This approach should also help to support economic growth in heavily populated areas and could help to address air quality issues in these locations (to a greater extent than a purely growth location focus). Supporting improvements in these locations is also predicted to be positive for climate change by promoting densification and resilience measures in urban areas which are more vulnerable.

4.12.10 The main drawback of an urban / central focus would be that a lack of support for growth locations could lead to more significant negative effects on

material assets and transport objectives (alongside positives in urban areas).

4.12.11 The more peripheral growth locations could be less well integrated and might be more likely to lead to an increase in car travel. Some communities in deprived locations outside of urban locations would also be likely to experience some inequality in mobility and accessibility.

4.12.12 A hybrid approach allows for a wider range of areas to be focused upon, meaning that investment could potentially be directed towards measures and actions that are needed most to support growth across Greater Manchester. In this respect, negative effects are less likely to arise across the majority of appraisal topics. The significance of positive effects would likely be diluted compared to either of the focused approaches, but would still be moderately positive for material assets, healthy and safe communities and equalities. Importantly, this approach is least likely to lead to inequalities widening. In terms of transportation, this approach allows for cost effective measures to be focused into the urban / central areas where a significant number of people could benefit, but still provides support for peripheral locations to help ensure that growth is supported by appropriate sustainable modes of transport.

5 Appraisal of policy option 1: Strategic focus on climate change mitigation and resilience

5.1 Introduction

5.1.1 This section sets out an appraisal of the following strategic policy approach:

- Prioritise climate change mitigation and resilience

5.2 Biodiversity

5.2.1 A climate change-focused mitigation and resilience approach would see prioritised support and investment into transport infrastructure and related strategies that would support positive outcomes with regard to the climate change theme. This could mean a focus on decarbonising transport networks, enhancing climate adaptation measures, and integrated green and blue infrastructure within transport corridors. Measures such as increasing tree cover, integrating green corridors, and enhancing sustainable drainage systems would not only support climate adaptation but also provide vital refuges for wildlife in both urban and rural areas.

5.2.2 Such an approach would also encourage a shift away from road expansion and towards investment in public transport, walking and cycling infrastructure, which would reduce emissions, improve air quality, and lower noise pollution, all of which benefit biodiversity.

5.2.3 Reduced vehicle emissions would contribute to better air and water quality, mitigating harmful effects on sensitive ecosystems such as riverine and wetland habitats, which could have benefits for designated habitats such as Manchester Mosses. Additionally, by prioritising into undeveloped areas, this approach could help protect existing natural habitats from land take and fragmentation, preserving Greater Manchester's ecological networks.

5.2.4 However, a strong emphasis on climate change mitigation could also present risks to biodiversity, particularly if transport decarbonisation measures are not carefully implemented. For instance, large-scale renewable energy infrastructure to support low-carbon transport - such as electric vehicle charging networks, solar farms, or hydrogen production sites - could require land use changes that may disrupt existing habitats. Additionally, while prioritising active and public transport could reduce pressure on rural landscapes, it may also concentrate development and infrastructure upgrades in existing urban areas, leading to increased pressure on urban green spaces and biodiversity corridors.

5.2.5 There is potential that such intensification could result in the loss of street trees, green roof opportunities, and small but ecologically valuable pockets of habitat, reducing overall biodiversity resilience in the built environment.

5.2.6 Further, flood resilience measures designed to protect transport infrastructure could have unintended consequences for biodiversity. While natural flood management solutions, such as wetland restoration and river rewilding, are likely to provide ecological benefits, more engineered solutions like flood walls, drainage upgrades, and hard surfacing to protect transport routes could disrupt natural hydrological processes and reduce habitat availability for aquatic and semi-aquatic species.

5.2.7 Similarly, while efforts to enhance urban resilience through green infrastructure could support biodiversity, if resilience measures prioritise human needs over ecological considerations, there is a risk that biodiversity conservation could become secondary in transport planning decisions. On the other hand, integrating transport infrastructure with natural flood management techniques, for example permeable surfaces and floodplain restoration, could enhance biodiversity while improving resilience to extreme weather.

5.2.8 Additionally, policies aimed at reducing the need to travel and encouraging compact, low-carbon urban development could lead to land-use pressures in existing urban centres, potentially reducing space available for green infrastructure and biodiversity enhancement. However, incorporating biodiversity-focused design principles, such as urban greening, and wildlife-friendly infrastructure could enhance ecological value within built-up areas while supporting transport decarbonisation. There is also the potential for conflicts between biodiversity and other sustainability priorities, such as renewable energy generation and urban densification, if land-use decisions do not integrate biodiversity considerations from the outset.

5.2.9 Overall, this approach is predicted to have **moderate positive effects** on biodiversity. While there is some potential for urban intensification pressures, and potential habitat loss, there are significant opportunities for habitat restoration, reduced pollution, and the expansion of green infrastructure a part of transportation schemes.

5.3 Water, soil and land

5.3.1 This option would likely prioritise sustainable transport and reducing the need for trips, which would likely discourage road transport expansion. This would allow for sustainable and efficient approach to use of land, soil and water resources. A climate focused approach should also mean that green infrastructure is prioritised, which could reduce flood risk and implement water retention strategies, thereby positively impacting upon water resources.

5.3.2 A focus on resilience and carbon emissions mitigation should discourage the inefficient use of natural resources and promote the use of secondary materials. It could also be assumed that there would be a focus on waste minimisation. These measures would help to prevent pressures on land, soil and water resources.

5.3.3 Conversely, to achieve longer term emissions reductions and resilience, there could be a need to deliver new active travel and public transport infrastructure. This would require the use of resources and could possibly overlap with soil resources and create temporary pollution risks.

5.3.4 Overall, a climate-focused approach is expected to have **minor positive effects** on land, soil, and water resources by reducing land take for roads, prioritising green infrastructure, and improving water management. The effects are offset to an extent by the likely need for embodied energy use to invest in public transport and active travel infrastructure.

5.4 Historic Environment

5.4.1 A climate change mitigation and resilience-focused approach could likely see prioritisation of low-carbon transport solutions, such as enhanced active travel networks and investment into green and blue infrastructure. These actions could help to reduce air pollution and congestion, which would benefit historic buildings and conservation areas by minimising vehicle emissions and vibrations. Additionally, a greater emphasis on climate adaption measures, such as flood resilience strategies, could protect vulnerable heritage assets particularly in areas at risk of flooding. However, reduced investment in new transport infrastructure may limit accessibility to historic sites, particularly those in less connected or rural areas. Furthermore, efforts to retrofit existing infrastructure to be more energy efficient, or carbon neutral could pose challenges to historic buildings and streetscapes, potentially leading to alterations that impact upon the character and integrity of heritage assets. Overall, this approach presents opportunities to enhance the resilience of the historic environment, and therefore effects are likely to be **minor positive**, depending on the extent to which heritage-sensitive solutions are implemented.

5.5 Landscape

5.5.1 A climate change-focused approach would prioritise reducing carbon emissions and enhancing climate resilience, influencing the landscape through measures such as increased green and blue infrastructure, reallocation of road space for active travel, and restrictions on high-carbon transport developments. This could help protect and enhance natural landscapes by reducing the demand for new road infrastructure and associated land take, preserving open countryside and minimising urban sprawl. Additionally, the promotion of tree planting, wetland restoration, and sustainable drainage systems could improve the ecological quality of landscapes, contributing to biodiversity and long-term environmental resilience.

5.5.2 However, some interventions, such as renewable energy installations to support transport infrastructure, electric vehicle charging hubs, or flood resilience measures like embankments and water storage areas - could introduce visual changes to both urban and rural settings. In historic areas, infrastructure modifications to accommodate climate resilience strategies, such as retrofitting streets for pedestrianisation or introducing permeable surfaces, may alter traditional townscapes. Additionally, policies discouraging car use could lead to the reconfiguration of road networks, potentially impacting the character of some areas (either positively or negatively).

5.5.3 Overall, this approach is likely to have a **minor positive effect** on the landscape, as it seeks to enhance natural resilience, reduce land disturbance, and integrate more sustainable infrastructure. However, localised alterations and the visual impact of certain climate mitigation measures could create some challenges in sensitive landscapes.

5.6 Air quality and noise

5.6.1 This approach would place a strong emphasis on reducing emissions, promoting sustainable transport, and improving environmental conditions across Greater Manchester. This would likely lead to improved air quality by prioritising active travel, public transport, and low-emissions vehicles whilst discouraging private car use and fossil fuel-dependent transport. Promoting clean air measures, investing in zero exhaust emission public transport, and promoting walking and cycling would help reduce harmful pollutants such as nitrogen dioxide (NO_2) and particulate matter (PM), particularly in urban centres where air pollution is a major concern.

5.6.2 Noise pollution could also be positively impacted under this approach, as reduced reliance on road traffic and greater investment in quieter, low-emission vehicles would lower traffic noise, particularly in residential areas.

5.6.3 However, the construction of new transport infrastructure, such as additional tram or rail services, could introduce temporary noise disruptions and air quality issues. In areas where transport hubs are expanded, increased public transport use could lead to localised noise impacts, though these would likely be offset by reductions in road traffic noise overall. By focusing on climate resilience, this approach would also encourage green and blue infrastructure, such as tree planting, green corridors, and water features, which could act as natural buffers against air and noise pollution. This could be particularly beneficial in urban areas where pollution levels are highest and where enhanced green infrastructure could contribute to both air purification and noise reduction.

5.6.4 Overall, this approach is expected to have a **moderate positive effect** on air quality and noise. While localised noise and air quality impacts from infrastructure development may occur, the long-term reduction in vehicle emissions and traffic-related noise, alongside improvements in green infrastructure, would contribute to a cleaner, quieter environment across Greater Manchester.

5.7 Climate change

5.7.1 This approach would support transport related infrastructures and services which directly correlate with and support positive outcomes in terms of the climate change theme. Focus would minimise investment related to global travel, support carbon neutral developments with sustainable transport connectivity and support transitions to cleaner transportation with lower embodied and operational carbon. A focus on delivering green and blue infrastructure would bring benefits in terms of resilience to heating and mitigating flood risk, whilst funding priorities focusing on resilience would reduce the potential for climate and weather-related disruptions to the transport network and its operations. Overall, **major positive effects** are predicted.

5.8 Healthy and safe communities

5.8.1 The support for carbon neutral developments with sustainable transport connectivity and for transitions to cleaner transportation with lower embodied and operational carbon would help to maximise the number of trips made by sustainable means, including by active travel. Active travel infrastructure and increased related modal shares would support healthier, more active lives, boosting physical and mental health outcomes. Travel by active means has shown to be positive in terms of supporting local community vitality, increasing footfall in local centres and facilitating social interaction.

5.8.2 Whilst the focus on climate change would not be directly targeted at improved outcomes for healthy and safe community related indicators, **moderate positive effects** would still be expected.

5.8.3 Conversely, focusing too heavily on addressing climate change could mean that other issues persist such as affordability. Seeking to limit further network expansion (roads and public transport) could also mean that congestion becomes more problematic in certain locations. A climate change focus could mean that these issues persist or worsen if a focus on sustainable transport measures is not successful. This could affect the ability of some people to access jobs and services. These are major contributors to good health, and so some people could experience negative effects in this respect. Overall, these factors constitute **minor negative effects** alongside the positive effects discussed above.

5.9 Material assets

5.9.1 The support for carbon neutral developments with sustainable transport connectivity and for transitions to cleaner transportation with lower embodied and operational carbon would help to maximise the number of trips made by sustainable means. This could help to support long term sustainable growth, but in the short term could mean that traditional economic growth is stalled, with negative effects on the economy and housing delivery.

5.9.2 Focusing on climate change mitigation measures might lead to less investment in transport links which would support industry linked to the airport, potentially limiting economic growth in this respect.

5.9.3 In one respect, this approach would be expected to lead to positive effects for local centres, with increased footfall driven by the increase in public transport use and active travel. However, it might also lead to increased congestion if relief roads are not supported and the need / demand for travel remains high.

5.9.4 If sustainable transport and public transport measures do not lead to a decrease in car usage, then a lack of focus on supporting road growth might result in increased congestion across growth areas and in the City Region's existing built-up areas (which could be a barrier to growth).

5.9.5 The approach would support transport related investments which increase the resilience of the transport network to climate change's effects, potentially reducing the likelihood of disruption related to extreme weather events. An efficient transport network is a key supporting element of economic growth, and so resilience in this respect is likely to result in some benefits for safeguarding the economy.

5.9.6 In terms of land use planning and transport planning, this approach would support sound land use and planning principles of supporting communities with sustainable transport infrastructure and services in the long term. However, one would assume that there would be less focus on measures that support airport growth and the use of cars (which might not be beneficial for the economy in the short term).

5.9.7 Overall, in terms of material assets, a climate change focus might lead to mixed effects. **Minor positive effects** might be seen relating to local economic development, support for sustainable land use and transport planning principles and resilience to extreme weather. Conversely, **major negative effects** might be seen in the short to medium term, linked to under investment in roads and the airport (including linked industries), more isolated communities and congestion in built up areas.

5.10 Equalities

5.10.1 This approach would see a focus of strategy and investment on reducing emissions, enhancing sustainability, and increasing resilience to climate-related impacts. This option would promote more sustainable and affordable travel options, such as active travel – walking and cycling, and public transport, which could improve accessibility for lower-income groups, who are less likely to own private vehicles. Investments into clean public transport and active travel infrastructure could also enhance mobility for people with disabilities and older adults. Further, reducing emissions and air pollution would have health benefits, particularly for disadvantaged communities who are disproportionately exposed to poor air quality, due to frequently being located in proximity to industrial areas and busy roads.

5.10.2 Conversely, this approach might also mean that as climate resilience is prioritised, this could lead to policies that disincentivise car use, such as congestion charging, clean air zones, and reduced road capacity. This could disproportionately impact those who rely on private vehicles, such as people with disabilities and mobility impairment, or lack adequate public transport options in their area. Furthermore, if investment is heavily concentrated in urban centres as part of a sustainability driven strategy, rural and suburban communities, where car dependency is higher, may experience reduced connectivity, leading to greater inequality. There is also a risk that the transition to low-carbon transport, such as electric vehicles, could be financially inaccessible to lower-income groups.

5.10.3 Ultimately a climate change-focused approach would need to be carefully designed to ensure that the benefits of sustainability do not come at the expense of accessibility and affordability for certain groups.

5.10.4 While such an approach has the potential to reduce environmental inequalities and promote cleaner, healthier transport, it must be implemented in a way that considers all communities. Therefore, without targeted mitigation measures, there is a risk some groups could face disproportionate disadvantages, making the overall effect on equalities **uncertain**. It is possible that there would be a mix of effects depending on the communities in question.

5.10.5 Some effects (such as affordability) would also be likely to change over time. Both **minor positive** and **minor negative effects** are predicted at this strategic scale, acknowledging there is a high degree of uncertainty.

5.11 Transport

5.11.1 This strategy would prioritise transport infrastructure and services which would drive down transport related greenhouse gas emissions, such as public transport, active travel, creating a reduced need to travel longer distances and supporting electric vehicles. It might be expected that road network expansion would be minimised as well as activity relating to the airport which might otherwise increase carbon intensive aviation. In terms of increasing sustainable transport investment and opportunities across the City Region, this option would be likely to induce **major positive effects**. That said, in support of delivering adequate road capacity to support growth, this approach would not perform well, inducing some **moderate negative effects**.

5.12 Summary of appraisal findings: Strategic focus on climate change

SA Topic	Summary of effects
Biodiversity	**Moderate positive**
Water, soil and land resources	**Minor positive**
Historic environment	**Minor positive**
Landscape	**Minor positive**
Air quality and noise	**Moderate positive**
Climate change	**Major positive**
Healthy and safe communities	**Moderate positive / Minor negative**
Material assets	**Minor positive / Major negative**
Equalities	**? Minor positive / Minor negative ?**
Transport	**Major positive / Moderate negative**

5.12.1 By clearly prioritising climate change mitigation and resilience, the set of actions and measures that followed would have significant, but polarised effects.

5.12.2 On one hand, such an approach would clearly have major positive effects on climate change mitigation and resilience objectives. This would also create knock on positive effects in terms of wider environmental quality as a reduction in emissions and promotion of resilience measures would likely involve urban greening measures. By supporting sustainable transport, active travel and more resilient transport networks there will also be positive effects on transport objectives, healthy communities and equalities for some locations.

5.12.3 Conversely, this approach could see less of a focus on the expansion and improvement of transport networks (unless they achieved carbon reductions), which would have major negative effects in the short to medium term with regards to economic growth, mobility and accessibility.

6 Appraisal of policy option 2: Prioritising deprived communities

6.1 Introduction

6.1.1 This section sets out an appraisal of the following strategic policy approach:

- Prioritise funding and investment into deprived communities.

6.2 Biodiversity

6.2.1 A prioritised funding and schemes approach directed towards deprived locations would focus transport investment in areas with higher levels of economic and social disadvantage, aiming to improve accessibility, infrastructure, and environmental quality for local communities. Many deprived areas in Greater Manchester include dense urban environments with more limited green space, as well as post-industrial areas that may contain brownfield land with ecological value. By directing investment towards these locations, there is an opportunity to improve urban biodiversity through targeted interventions such as the creation of new parks, green corridors, and urban greening initiatives. Enhancing tree cover, green roofs, and sustainable drainage systems could contribute to both climate resilience and biodiversity, offering habitats for pollinators, birds, and other wildlife while also improving air and water quality. Additionally, improvements to active travel infrastructure and public transport in deprived areas could reduce traffic congestion and vehicle emissions, leading to indirect benefits for biodiversity by decreasing air and noise pollution that can negatively affect urban wildlife.

6.2.2 Further, directing investment to deprived areas could allow for the integration of biodiversity-friendly transport solutions. For example, incorporating green infrastructure alongside new cycle lanes, tram routes, and pedestrian-friendly streetscapes could create new ecological corridors that support species movement and habitat connectivity. Similarly, if policies focus on nature-based solutions - such as green roofs, rain gardens, or tree planting - biodiversity could be enhanced alongside transport improvements.

6.2.3 However, prioritising transport investment in deprived locations may also pose risks to biodiversity, particularly where new infrastructure is introduced, or existing areas are redeveloped. If transport improvements involve road expansion or the conversion of green spaces into built infrastructure, this could lead to habitat loss, fragmentation, or the displacement of existing species. Brownfield sites, often targeted for regeneration in deprived areas, can hold significant ecological value despite their urban nature, supporting specialist plant and invertebrate species that thrive in these environments.

6.2.4 Redevelopment, without mitigation, could lead to the destruction of these habitats rather than their enhancement.

6.2.5 Another potential risk comes from increased urban densification and economic development in these areas, which could lead to greater land-use pressures on remaining green spaces. While investment may improve transport links and public realm enhancements, it could also encourage further urban expansion or gentrification, which may indirectly reduce biodiversity if natural spaces are not preserved or enhanced in the process. Additionally, deprived areas often have higher levels of pollution, including poor air and water quality, which negatively impacts biodiversity. If transport interventions do not actively address these issues, such as through traffic reduction measures, green infrastructure, or improved air quality strategies, biodiversity may not see significant benefits.

6.2.6 Overall, this approach would be likely to have **neutral effects** on biodiversity. While there are risks of habitat loss and increased urban pressure if transport investment isn't considerate of biodiversity impacts, there are opportunities to enhance biodiversity through urban greening and sustainable transport infrastructure.

6.3 Water, soil and land

6.3.1 Prioritising interventions that support deprived communities could mean that there are more affordable public transport and active travel options and could also encourage investment in accessible and cost-effective infrastructure for electric vehicles. Investment into these areas could help expand the provision of shops, essential services, and employment opportunities in these areas. Investment in green infrastructure projects in these areas could enhance soil and water quality by reducing surface runoff, mitigating pollution, and improving drainage systems. Many deprived locations are concentrated within urban centres or designated growth areas, such as Manchester city centre, Bolton, Rochdale, and Oldham, meaning that funding in these locations could align with existing infrastructure, supporting regeneration and remediation of previously developed land. Given that these areas often experience higher levels of pollution and environmental degradation, targeted investment could improve conditions, particularly where land remediation is needed.

6.3.2 However, not all deprived areas align with urban centres or growth locations; some extend into more rural or poorly connected areas, particularly in the outer parts of Manchester to the south and west. Investment in these areas could involve new development and infrastructure; increasing land take and potentially affecting productive agricultural land. This could lead to soil

degradation and increased runoff if not carefully managed.

6.3.3 Prioritising investment in deprived communities could enhance transport accessibility, support land remediation, and boost local infrastructure. However, it may require new development on greenfield or productive land, posing environmental trade-offs. Overall, this approach is likely to have a mix of **minor positive** and **minor negative** effects on land, soil, and water resources.

6.4 Historic Environment

6.4.1 This approach would prioritise transport funding and investment in deprived areas, aiming to improve accessibility, affordability, and environmental conditions while supporting economic and social regeneration. Some deprived areas, particularly in urban centres, contain heritage assets, including listed buildings, conservation areas, and industrial heritage sites that have suffered from neglect or underinvestment. Increased funding in these locations could facilitate much-needed conservation and regeneration efforts, supporting heritage-led regeneration initiatives that enhance historic townscapes while improving the local economy. Improved transport accessibility could also encourage sustainable tourism and greater public engagement with local heritage, increasing awareness and appreciation of historic assets. However, there are many deprived locations that do not contain heritage features, and a dispersed approach that covers a range of communities would be less likely to bring about significant effects.

6.4.2 Directing transport investment predominantly into deprived areas could also pose risks to the historic environment. Infrastructure projects in dense urban settings may require modifications to historic streetscapes, potentially leading to the loss of heritage assets or alterations that diminish their character.

6.4.3 Additionally, deprived areas are often those most affected by pollution and poor environmental conditions, and while investment could improve air quality and reduce traffic congestion, construction and development pressures may introduce new threats to vulnerable heritage assets.

6.4.4 Overall, a deprived-locations-focused approach is likely to have **minor positive effects** as there would likely be overlap with some locations that could benefit from investment in transport infrastructure. Potential negative effects should be possible to avoid and mitigate and would not be concentrated into any particular location.

6.5 Landscape

6.5.1 This approach could lead to enhancements in the landscape/townscape by contributing towards the regeneration of neglected urban spaces, improved green infrastructure, and better public realm design (should these be part of direct transport improvement measures or through consequential investment). New transport schemes could incorporate urban greening measures such as street trees, green corridors, and pocket parks, improving both the aesthetic and environmental value of these landscapes. Increased investment in sustainable transport, such as pedestrian-friendly streets and cycle routes, could also enhance the character of townscapes, making them more attractive and accessible.

6.5.2 In some cases, new transport schemes or redevelopment efforts could lead to the loss of existing green spaces, tree cover, or historically significant townscape features. The introduction of new transport infrastructure, such as road widening or the development of new transport hubs, may result in the removal of mature vegetation and open spaces, which are already limited in some deprived areas. However, these factors would need to be addressed through the planning process, and it is considered unlikely that significant effects would arise.

6.5.3 Whilst improved infrastructure can enhance the local environment, increased activity and densification in deprived urban areas could result in pressure on existing landscapes. An influx of transport infrastructure could contribute to a more fragmented landscape, particularly if new developments prioritise movement and accessibility over placemaking and environmental integration.

6.5.4 There is also a potential imbalance in terms of rural and suburban landscapes. By focusing investment primarily on deprived urban areas, less funding may be available for enhancements in other locations (which otherwise could help to soften the impact associated with new transport infrastructure in rural and urban fringe locations).

6.5.5 Overall, this approach is likely to have mixed effects. While investment could enhance public spaces, green infrastructure, and the overall quality of the built environment in deprived areas, there are risks, including the potential loss of historic townscape character, increased densification pressures, and the reduction of existing green spaces. Without careful mitigation, some of these changes could negatively impact the local landscape, particularly where infrastructure projects prioritise movement and accessibility over placemaking and environmental integration. There would also be less funding directed towards measures that soften the impact of new development (and supporting

transport infrastructure) in less deprived locations. As such **neutral effects** are recorded overall.

6.6 Air quality and noise

6.6.1 Many deprived areas in Greater Manchester experience higher levels of air pollution due to their proximity to major roads, industrial sites, and dense urban development. Increased investment in these areas could lead to improvements in air quality if it prioritises sustainable transport measures such as enhanced public transport, active travel infrastructure, and low-emission vehicle incentives. Reducing reliance on private car use from, to and within these areas through better public transport facilities and affordability schemes could reduce transport related emissions that disproportionately affect deprived communities. In addition, measures that help to reduce the impacts of freight and commercial vehicle activity would help to further improve air quality (for example, traffic and route management, last mile delivery measures, urban design).

6.6.2 However, if investment includes significant road expansion, or increased transport activity in these areas, there is a risk of worsening air quality due to increased traffic volumes. Road-building projects could also encourage higher private vehicle use and facilitate development, leading to increased congestion and emissions particularly in areas that are already suffering from poor air quality. Construction-related activity may also temporarily increase pollutant and dust levels, further impacting upon air quality in the short term.

6.6.3 In terms of noise pollution, enhanced public transport services, particularly rail and tram extensions, could help reduce road traffic noise by shifting travel patterns away from private vehicles. Additionally, improvements to active travel networks could encourage more walking and cycling, reducing overall traffic-related noise in these areas. However, new transport schemes, particularly if they involve road expansion or increased public transport services near residential areas, could introduce new sources of noise pollution, such as rail noise, station activity, and busier roads.

6.6.4 Overall, the impact on prioritising funding and schemes in deprived locations on air quality and noise is likely to be mixed, with both positive and negative elements. While investment in sustainable transport could improve air quality in the long term (with **minor positive effects**), potential increases in traffic, construction, and economic activity in these areas may lead to localised air and noise pollution, resulting in a **minor negative effects**. The extent and magnitude of effects would be dependent on the measures involved and the locations involved. If a fairly dispersed approach was promoted that covered all deprived areas, it is likely that effects would be diluted somewhat.

6.7 Climate change

6.7.1 A focus on prioritising interventions which benefit more deprived communities ought to result in a greater level of more affordable public transport and active travel options for these areas, increased accessible and affordable infrastructure to support the use of electric vehicles, as well as investment which might increase the provision of or access to shops, facilities and employment opportunities. This would be expected to reduce car dependencies, support low-carbon vehicle use and drive down transport related greenhouse gas emissions. Efforts to reduce air pollution might come in the form of green infrastructures, which might consequentially help to increase the resilience of these areas to extreme rainfall and heating events. In terms of the spatial distribution of interventions, areas which are more deprived can be found in a southern arc, from Wigan to Bolton, around Bury and Rochdale, an arc from Oldham, through Ashton-under-Lyme and towards Stockport. There is also a large concentration of more severely deprived communities in a ring around Central Manchester and Salford, though this is less concentrated and widespread in some areas to the south and south east of Manchester City Centre.

6.7.2 Whilst many of these areas have good existing connectivity to the train and Metrolink services, particular improvements in terms of reduced greenhouse gas emissions from transport related activities would be expected to be seen in the less connected, more deprived areas. In terms of active travel rates, the more deprived areas generally have higher active travel rates across the city region, though the cycle-route connectivity is not networked in many areas, with key infrastructure gaps across many more deprived areas. Considering this, further networked infrastructure improvement might improve these active travel rates.

6.7.3 Whilst a focus on tackling deprivation is likely to have knock on benefits for climate change (as discussed above), it could limit investment in targeted investments based on climate change resilience and mitigation. In some instances, a focus on addressing social inequalities could also necessitate increased expansion of infrastructure and movement of people and goods. This approach is also less likely to address emissions emanating from affluent communities (which tend to have higher emissions per capita). This could offset the reductions in emissions discussed above.

6.7.4 Overall, by providing more affordable, accessible and better planned, networked infrastructure and services to support mobilities in more deprived areas, transport related greenhouse gas emission rates are likely to reduce. However, this could also detract from direct efforts to address climate change, and so the achievement of carbon targets and resilience may be slowed

down. On balance, **neutral effects** are predicted.

6.8 Healthy and safe communities

6.8.1 This strategy would be likely to result in a greater level of more affordable public transport and active travel options for deprived areas, increased accessible and affordable infrastructure to support the use of electric vehicles, as well as investment which might increase the provision of or access to shops, facilities and employment opportunities. Some of the areas which would see the interventions experience poorer health outcomes than others and so measures which boost active travel would be likely to be most pronounced in terms of their value added for physical and mental health outcomes. That said, the more deprived areas across City Region have relatively high active travel rates, and so further behaviour change might be more challenging in these areas.

6.8.2 Where funding for transport interventions would be targeted to deprived locations, areas in more acute need of active travel provisions and targeted measures to boost community vitality could be lacking. Some of the growth locations do not overlap entirely with deprived areas and investment in those areas would be lower. This could be more pronounced if newer developments in growth locations are more isolated or in areas which are poorly connected to existing infrastructure but are not considered to be deprived. There is also the potential for vehicle movements to increase through deprived areas with no local benefits arising.

6.8.3 Overall, **moderately positive effects** are predicted alongside some **minor negative effects**.

6.9 Material assets

6.9.1 This strategy would be likely to result in a greater level of more affordable public transport and active travel options for deprived areas, increased accessible and affordable infrastructure to support the use of electric vehicles, as well as investment which might increase the provision of or access to shops, facilities and employment opportunities in deprived areas. This would be likely to support economic wellbeing of less affluent communities, potentially improving the vitality of local centres through increased accessibility and associated footfall. Affordable transport options and better connectivity to employment centres would also help with supporting opportunity and prosperity.

6.9.2 A lack of focus on supporting transport related interventions where most acutely in need might result in increased car dependency, congestion or increased or unaddressed vulnerabilities (such as to areas at greater risks of being impacted by extreme weather) in specific areas, and this inefficiency in the transport network would be likely to be a barrier to growth.

6.9.3 In terms of land use planning and transport planning, this approach would support sound land use and planning principles of supporting more deprived communities with sustainable transport infrastructure and services, however the potential for an under-delivery of infrastructure to support other areas might be considered to be poor planning in terms of holistic land use and transport planning outcomes.

6.9.4 Overall, in terms of material assets, a focus on deprivation might lead to mixed effects. **Moderate positive effects** might be seen relating to local economic development, support for affordable access to employment and positively planning to provide transport infrastructure for communities who are more deprived. Conversely, **moderate negative effects** might be seen, linked to under investment in areas of growth, isolated communities with local centres experiencing less footfall and general inefficiencies across the network in specific locations. This approach would also be less likely to provide enhanced support to housing and employment development in growth locations that do not overlap with deprived communities.

6.10 Equalities

6.10.1 A focus of additional funding into deprived locations would likely have mixed effects in terms of equality and diversity.

6.10.2 On one hand, such an approach would directly benefit communities with lower incomes as there would likely be improvements to the standard of public transport and active travel. There might also be improvements in terms of safety and the quality of the public realm alongside transport infrastructure. This would be likely to benefit groups that are affected more by feelings of safety in public and on public transport. There would likely be improved access to jobs and services throughout deprived locations as a result of this approach, which would help to reduce inequalities in this respect.

6.10.3 Deprived areas across Manchester overlap with communities with protected characteristics, particularly ethnic minorities, and younger people. In this respect, these groups are also likely to see positive effects as a result of a focus on deprived areas. On the other hand, locations that are not deprived would be likely to see less investment, and any protected groups living in those areas could (unintentionally) be subject to further inequalities. For example, many elderly people live in rural areas and suburban areas that do not experience deprivation. Equally, disabled people living in these areas would be less likely to benefit from interventions to assist with mobility.

6.10.4 In the regional centre growth location, there is a higher concentration of LGBTQ+ communities, which in some areas overlaps with deprived areas. Certain measures could benefit such communities if they focus on making transport networks safer and more inclusive. Such measures would also benefit women, elderly and disabled people.

6.10.5 Overall, such a focus is likely to significantly benefit many communities most in need of support with mobility, whether due to low income or a specific protected characteristic. As such, **major positive effects** are predicted in this respect. However, this is on the assumption that measures would help to promote improved accessibility and mobility by sustainable and active modes of travel and would not lead to an increase in congestion and car usage. There could be some **minor negative effects** where investment is directed away from communities that are not currently well supported by transport systems. In particular, this could be a problem for disabled and elderly populations that do not live within deprived locations.

6.11 Transport

6.11.1 A focus on prioritising interventions which benefit more deprived communities ought to result in a greater level of more affordable public transport and active travel options for these areas, increased accessible and affordable infrastructure to support the use of electric vehicles, as well as investment which might increase the provision of shops, facilities and employment opportunities, reducing the need to travel to access such destinations. This would be expected to increase sustainable transport rates amongst deprived communities. In terms of the spatial distribution of interventions, areas which are more deprived can be found in a southern arc, from Wigan to Bolton, around Bury and Rochdale, an arc from Oldham, through Ashton-under-Lyme and towards Stockport. There is also a large concentration of more severely deprived communities in a ring around Central Manchester and Salford, though this is less concentrated and widespread in some areas to the south and south east of Manchester City Centre.

6.11.2 Whilst many of these areas have good existing connectivity to the train and Metrolink services, particular improvements in terms of improved accessibility would be expected to be seen in the less connected, more deprived areas. In terms of active travel rates, the more deprived areas generally have higher active travel rates across the city region, though the cycle-route connectivity is not networked in many areas, with key infrastructure gaps across many more deprived areas. Considering this, further networked infrastructure improvement might improve these active travel rates.

6.11.3 The limited focus on transport issues outside of deprived areas would likely mean that issues persist (or increase) in those areas. For example, car dependencies and congestion issues could persist across other areas of the City Region. This could be a particular issue in growth locations that do not overlap with or link to deprived areas. This approach is also less likely to reduce car usage amongst the more affluent communities.

6.11.4 Overall, by providing more affordable, accessible and better planned, networked infrastructure and services to support mobilities in more deprived areas, transport in and around these areas would be expected to become more efficient and better connected. However, it is likely that some areas in more acute need would not be provided with investment. There would also be less focus on addressing car usage from affluent areas and hence issues may persist in these areas.

6.11.5 Overall, **moderate positive** and **moderate negative effects** are predicted.

6.12 Summary of appraisal findings: Prioritising deprived locations

SA Topic	Summary of effects
Biodiversity	Neutral
Water, soil and land resources	Minor positive / minor negative
Historic environment	Minor positive
Landscape	Neutral effects
Air quality and noise	Minor positive / minor negative
Climate change	Neutral
Healthy and safe communities	Moderate positive / Minor negative
Material assets	Moderate positive / Moderate negative
Equalities	Major positive / Minor negative
Transport	Moderate positive / Moderate negative

6.12.1 By focusing on deprived locations as a priority, this approach would likely have significant benefits in terms of equalities and health. By directly focusing on social value, measures could help to improve affordability, reliability and safety on existing networks that support communities. Whilst this approach would also help to improve transport networks and support economic growth, there could be a lack of investment in areas that are not deprived but are in need of investment to ensure sustainable patterns of growth. This could mean that some growth locations are less well served by sustainable modes of transport, there could be a reliance on car travel, and some people with protected characteristics could be further excluded.

6.12.2 With regards to environmental factors, the effects are predicted to be neutral or minor. Most deprived locations overlap with urbanised environments; therefore, measures that help to support active and sustainable travel could also help to improve air quality, water quality and encourage the efficient use of land. Investment that overlaps with urban areas / centres could also help to support regeneration activities with knock on benefits for the historic environment.

7 Conclusions for the strategic options appraisals (what is the preferred approach?)

7.1.1 The draft Local Transport Plan update includes 'priorities for growth', which set out the strategic focus for targeting funding to support growth. The approach builds on the strategy set out in the PfE Plan, seeking to focus on the nine main town centres across Greater Manchester alongside six wider Growth Locations. This approach aligns most closely with the 'hybrid' spatial option tested in the Integrated Appraisal.

7.1.2 It is considered that this approach will benefit the whole city-region by helping to support transformational growth across greater Manchester in appropriate locations.

7.1.3 The Integrated Appraisal demonstrates that focusing solely on the growth locations or the urban areas / town centres would be a less well-balanced approach. Taking a mixed approach allows for the most significant negative effects to be avoided, whilst still generating positive effects and avoiding polarised effects in different parts of the conurbation.

7.1.4 With regards to broad principles for transport and travel, the Local Transport Plan sets out a series of 'network ambitions', which inform the plan policies. The preferred / emerging approach is to apply a mix of policies that achieve the right balance against a range of sustainability issues. This mixed approach is considered most likely to achieve 'good growth' in combination with the spatial prioritisation of funding towards growth locations and town centres.

7.1.5 The option of prioritising climate change as the most important strategic factor has several long-term benefits across the spectrum of sustainability topics but could potentially lead to some exacerbation of existing inequalities and potentially act to slow down housing and employment growth in the short to medium term. Therefore, this single focus approach is deemed suitable.

7.1.6 Likewise, prioritising social inclusion above other principles has clear benefits for communities of need across Greater Manchester. However, this would not necessarily address all the network principles and could lead to inefficiencies in the transport network in some of the growth locations. This approach would also be less likely to be proactive in terms of addressing climate change and biodiversity emergencies. For these reasons, this approach is not being promoted in the GM Transport Strategy 2050.

8 Appraisal of early policy drafts

8.1 Discussion

8.1.1 A useful part of the integrated appraisal process is to contribute towards the development of plan policies. This helps to ensure that sustainability considerations are considered from an early stage in the process and allow for recommendations to be made at a formative stage of plan making.

8.1.2 Members of the IA team reviewed draft policies, being mindful of the IA framework and made broad comments on the likely effects of the policies, as well as making recommendations for improvement where appropriate.

8.1.3 Appendix A sets out a record of the commentary on the draft policies, summarising the likely nature of effects and any suggestions for mitigation or enhancement. Whilst the policies were considered individually as part of this exercise, conclusions about significance of effects were not presented at this stage. When determining significance, it is important to consider the effect of the plan 'as a whole', which means understanding the implications of the policies when considered in combination. This exercise was undertaken once all policies were finalised (see section 9, which sets out an appraisal of the draft plan).

8.1.4 It is worth noting that as the policies were being developed several changes occurred, which means that the draft policies listed in Appendix A do not fully match the final plan policies. For example, some policy titles were amended, some policies were split into several different policies, new policies were introduced etc. Essentially, the appraisal of the draft policies presents a snapshot of the Plan making process; demonstrating how policies evolved and how the Integrated Appraisal influence this process.

9 Appraisal of the GM Transport Strategy 2050 and Delivery Plan

9.1 Introduction

9.1.1 The GM Transport Strategy 2050 and Delivery Plan (hereafter referred to as the 'Plan' for brevity) is appraised in this section. Whist all aspects of the Plan have been considered, the predicted effects are presented in relation to the 'whole plan' rather than for individual policies and schemes. This is important because plan policies and schemes work in combination and there is a need to consider cumulative and synergistic effects.

9.1.2 The effects of the Plan are determined by reference to the IA themes in the framework, guided by the objectives and supporting questions. The findings are presented under four headings.

Vision and ambitions

9.1.3 The appraisal in this section builds upon the findings from the strategic options appraisal, as the Plan vision and ambitions broadly align with the 'hybrid option' that focuses on growth locations and town centres. Further attention is given to the detail that has been added in relation to 'Our People Our Place' and 'Priorities for Good Growth'

Network and delivery policies

9.1.4 This section discusses policies that are most relevant to the sustainability topic, commenting on whether they are broadly positive, negative or neutral.

Delivery Plan

9.1.5 This section discusses the aspects of the Delivery Plan that are relevant to the sustainability topic, commenting on how the measures will have synergistic and cumulative effects when applied in combination. The assessment differentiates between the measures that seek to 'sustain', 'grow' and 'transform'.

Overall effects

9.1.6 This section brings together consideration of all aspects of the draft Plan (i.e. the vision, ambitions, policies and Delivery Plan) to conclude on the likely significance of effects.

9.2 Determining significance

9.2.1 To determine the significance of effects, account is taken of a range of factors including magnitude, duration, frequency, likelihood, permanence, and timescale. Consideration is also given to the interaction of the Plan with other plans, policies and programmes that affect the baseline position.

9.2.2 Secondary, cumulative, synergistic, short, medium and long-term permanent and temporary, positive and negative effects have been considered for each topic as part of the assessment process. These are drawn out in the appraisal text as relevant. It can be assumed that where effects have not been identified within the appraisal text, that these were not important factors in determining overall significance.

9.2.3 The following significance scale is used to record the effects for each of the IA themes.

Major positive
Moderate positive
Minor positive
Neutral (/)
Minor negative
Moderate negative
Major negative
Uncertain (?)

9.2.4 The assessment attempts to conclude on the 'overall effects' of the Plan on each sustainability topic. However, given the many policies and schemes and the large geographical area covered by the Plan, it is entirely possible that both negative and positive effects could arise under the same sustainability topics. This simply represents that some areas / communities could benefit from the Plan, whilst others less so. Where this is the case, it is considered more helpful to highlight the nature of different effects, rather than concluding a 'neutral effect' where both positive and negative effects are predicted. For the purposes of this appraisal, a neutral effect means that no significant changes to the baseline position are predicted.

9.3 Biodiversity

Appraisal of vision and ambitions

9.3.1 The appraisal of the hybrid approach concluded that neutral effects were likely with regards to biodiversity. The main reason being that effects would likely be dispersed across many locations and not be significant cumulatively. The spread of investment across the growth locations and town centres also dilutes the opportunities for biodiversity enhancement in specific locations.

9.3.2 Reviewing the vision and ambitions provides clarity that a critical component of growth will involve reducing the need to travel by car. This gives further confidence that any negative effects associated with car travel would not be significant. Though there will be a need for new road connections to provide connectivity to and within the Growth Locations, there will be a focus on people capacity rather than car capacity, meaning more support for modal shift.

9.3.3 'Environmentally responsible' is one of the seven network ambitions. Headline features that are relevant to biodiversity are seeking to reduce emissions and for new transport schemes to deliver environmental enhancements (which are likely to be focused on the growth locations and town centres). The network and delivery policies discussed below help to deliver this ambition, and ensure that the strategic approach to growth has a net gain for the growth locations and town centres.

9.3.4 Conversely, the desire for a 'globally connected City Region' will see more movement by water, rail and is supportive of international travel (including air travel). This increased activity all presents the potential for negative effects on biodiversity.

Appraisal of network and delivery policies

9.3.5 Policies of note with regards to significant effects on biodiversity are as follows:

- Land use and new development
- Pollution
- Climate change
- Green and blue infrastructure
- Built and natural environment
- Health
- Streets
- Freight and logistics
- Rail integration and reform
- Future light rail and metro
- Transport hubs

9.3.6 There is a general ambition to support modal shift, reduce carbon emissions and minimise the social and environmental impacts of transport and travel. This is reflected in many plan policies, and when considered together, there are likely to be secondary positive effects for biodiversity (for example reduced habitat loss from network expansion, reduced disturbance from car travel and better air quality and water quality).

9.3.7 Several policies make specific reference to biodiversity and provide support for urban greening, nature-based solutions, biodiversity net gain and using transport to help improve the resilience of nature. These measures are all likely to have benefits for biodiversity and will help to manage the impacts of growth, whilst also delivering improvements in the environmental baseline in certain areas.

9.3.8 Whilst several policies are focused on improving outcomes for people, there would likely to be secondary benefits for biodiversity. For example, reducing air and noise pollution, creating high quality open spaces, and supporting active travel to help reduce vehicle trips

9.3.9 The delivery policies that support infrastructure enhancement bring the potential for negative and positive effects. For example.

- Supporting increased travel during hours of darkness could have negative implications for nocturnal animals by increasing artificial light, noise and pollution.
- Expanding light rail and metro has the potential to create/ expand ecological corridors that can be delivered alongside infrastructure (providing that impacts are mitigated and enhancements are secured)
- Increased freight and logistics activity has the potential to bring more pressures on biodiversity, but the policy does seek to minimise environmental impacts.
- New transport hubs and stops in identified locations (e.g. Golborne and Cheadle rail stops, Stockport Interchange and travel hub, Bury Interchange, Mosley Common Guided Busway stop) are not significantly constrained in terms of designated biodiversity habitats. However, there will be a need to explore and address any locally important biodiversity issues. There is also the potential to introduce enhancement measures where land use changes are occurring.

Appraisal of the delivery Plan

9.3.10 Several measures are listed that will 'sustain' efforts to achieve environmental protection and enhancement. Notably this includes the following that could have some minor benefits for biodiversity.

- GM SUDs Maintenance Programme.
- GM Air Quality Measures and Monitoring Programme.

9.3.11 The majority of sustain measures are unlikely to have a direct effect upon biodiversity, but some measures that will help to support modal shift will likely have indirect benefits for biodiversity through a gradual reduction in polluting modes of travel. Effects are unlikely to be significant, as the sustain measures are mostly 'business as usual'.

9.3.12 Many delivery measures that aim to 'grow' and 'transform' are also not directly linked to biodiversity and there is unlikely to be a causative effect on wildlife species or habitats locally or further afield.

9.3.13 The key measures that could affect biodiversity are those that include substantial new infrastructure, particularly where these are not already in the development pipeline.

9.3.14 Infrastructure enhancements that utilise existing routes are unlikely to have a direct negative effect upon biodiversity, as there would be a limited change in land use. In some instances, there could be an opportunity to incorporate green infrastructure alongside route improvements such as street trees and sustainable urban drainage systems. It is noted that habitat improvement areas overlap with transport corridors across Greater Manchester.

9.3.15 With regards to new road schemes, there is potential for negative effects to arise where routes cross through or run alongside habitats. For most schemes, there are no major implications for biodiversity, but there is potential to affect priority habitat depending on scheme design and mitigation. There is a presumption that these impacts would not be significant. For other schemes, there are greater issues that need to be addressed:

- Schemes to the east of the M67 (Mottram Bypass - A57 Link Road, A628 Hollingworth and Tintwistle bypass) are likely to overlap with some areas of priority habitat. There could also be severance of woodland and routes would likely be close to the South Pennine Moors SAC. In addition to potential direct effects upon these habitats, improved accessibility to the South Pennine Moors could also result in increased recreational pressure from visitors.

- Parts of the Wigan – Bolton East West route runs alongside the Flashes of Wigan and Leigh, and there is widespread presence of priority habitat along this and several other parts of the route. There has already been disturbance to the Flashes as a result of the completion of part of the A49 link road), and this could be compounded by the extension of the route. Though the Environmental Statement for the A49 link road concluded that there would be no long-term significant effects on the environment, this was dependent upon mitigation measures being implemented and monitored over time. Cumulative negative effects should not be ruled out at this stage and will need to be addressed through an Environmental Impact Assessment.

9.3.16 With regards to light rail and Metrolink / Tram-train schemes the following 'issues' are noted:

- Oldham – Rochdale, and Rochdale to Bury via Heywood will both utilise existing transport routes and are unlikely to involve significant impacts upon habitats or species.

- The Stockport Metrolink extension is not significantly constrained by biodiversity considerations, with the effects likely to be limited to urban environments.

- Stockport - Altrincham Tram-train would likely use existing transport corridors, and does not pass through any international or national designated biodiversity habitats.

- The Metrolink Airport Line Western Leg (route not finalised) is unlikely to affect any nationally significant habitats, and ought to be delivered alongside major development areas, which are being master planned and are outlined in the Places for Everyone as key locations for growth. Therefore, whilst some local biodiversity could be affected, it is likely that mitigation and enhancement measures would be successful in avoiding significant negative effects.

- The Rapid Transit extensions to Leigh and Bolton are not established, but likely to use existing transport corridors (rail / guided bus route), which minimises the need for new land take. There could be a need for widening of routes or clearance for infrastructure upgrades, but these are likely to be small scale and could be mitigated / compensated for. It is considered that significant effects would be unlikely.

- Links to Port Salford (for example rail links and Metrolink extensions) would be mainly within existing built-up areas and unlikely to significantly affect biodiversity habitats.

9.3.17 Other measures that could affect biodiversity include those that expand the use or operating time of public transport into nighttime. Artificial night at light and increased noise can lead to greater disturbance of nocturnal species in a variety of ways. There will be a need to consider mitigation strategies to address such issues.

Conclusions for biodiversity

9.3.18 Taking account of the network and delivery policies, the overall approach of focusing on growth locations and town centres is predicted to have minor positive effects. This is also the case when considering the potential for enhancement to be achieved alongside several delivery schemes (for example green infrastructure corridors alongside new / expanded metro and road routes).

9.3.19 Though there is potential for new infrastructure and increased travel operating hours to have some negative effects on biodiversity locally, the policies in this plan (considered alongside other requirements such as in the Places for Everyone Plan and Local Plans) should ensure that these are adequately mitigated.

9.3.20 The overall intention to support modal shift and achieve 'the right mix' will also have wider secondary benefits for biodiversity by reducing carbon emissions, pollution and disturbance from car travel.

9.3.21 There is an intention to use transport to help implement biodiversity net gain and enhancements, and this could be a particular opportunity along transport corridors to help support species movement and resilience. There is also support for urban greening, which could benefit the nine key town centres in particular.

9.3.22 Overall, a **minor positive effect** is predicted, as it is likely that negative effects can be mitigated and some positives achieved. The positive effects may only arise in the longer term once net gain schemes have time to establish and cumulative effects across the City Region arise.

9.3.23 Some new transport routes (roads) have greater potential to impact upon biodiversity given that they run adjacent to or through important habitats. However, with mitigation in place the effects are likely to be short term minor negative effects.

9.3.24 It is recommended that the pollution policy also seeks to address air quality where it is a threat to European habitats.

9.4 Water, soil and land resources

Appraisal of the vision and ambitions

9.4.1 The spatial approach offers a balanced distribution of investment. It ought to be possible to incorporate greening measures across the urban areas, whilst supporting actions in the growth locations that involve less intensive use of land and mineral resources. In this respect, land and mineral resources ought to be used more efficiently and water quality could be protected and improved. There is a focus on supporting regeneration activities in town centres, which should be positive in terms of reducing the need for expansion into greenfield locations.

9.4.2 There is support for modal shift throughout the vision / ambitions and making the most of current networks and infrastructure is a priority. This not only minimises the need for the use of virgin materials and waste generation in new construction but reiterates the aim of minimising car trips and resource use (which has secondary benefits in terms of water, land and soil resources).

9.4.3 A focus in the growth locations could allow for new infrastructure and networks to be made more environmentally friendly and to better explore environmental enhancement measures (which is a stated ambition).

9.4.4 There would also be a greater likelihood that sustainable modes of transport would be an important part of the transport solutions in these areas, which in the longer-term would help to reduce pollution to water and land from car trips.

9.4.5 The growth strategy could potentially lead to negative effects on water where there is support for increased water-based travel. However, achieving environmentally responsible development is a key part of the strategy, and this is reflected in several network and delivery policies. In this respect, it is predicted that negative effects on water would be minor or neutral.

Appraisal of the network and delivery policies

9.4.6 Policies of note with regards to significant effects on water, soil and land resources are summarised below.

- The Pollution policy directly seeks to reduce the impact of travel on watercourses. This will help to manage the impacts associated with increases in water-based travel.

- The land use and development policy seeks to reduce the need to travel, which should help to minimise pollution to water and land resources. Supporting higher density development also has the secondary benefit of reducing the need for new land take, which is beneficial in terms of soil and land.

- The climate change policy promotes the use of nature-based solutions such as SUDs alongside transport infrastructure. This will benefit water quality and drainage, with benefits most likely to arise in the growth locations where investment is directed.

- The green and blue infrastructure policy will likely have direct positive effects on water as it seeks to incorporate features such as street trees, nature-based solutions for drainage and other measures that will help to support water quality.

- The asset management policy will help to reduce demand for new infrastructure and the associated natural resources by preserving the life of current assets and making the most of existing infrastructure.

- The future light rail and metro policy could have some implications in terms of land take and soil, depending upon the location of new routes and stations.

Appraisal of the delivery Plan

9.4.7 Several measures are listed that will 'sustain' efforts to achieve environmental protection and enhancement. Notably this includes the following that could have some minor benefits for water, soil and land resources.

- GM SuDS Maintenance Programme
- Local Roads operation, maintenance and renewals, including drainage.

9.4.8 These measures are very much business as usual, and therefore, whilst positive in terms of water and soil management, the effects are unlikely to be significant. The implementation of a GM SuDS Pilot Programme will help to build upon existing efforts in this respect, with some minor positive effects expected for water quality objectives.

9.4.9 Most improvement schemes involve changes to existing infrastructure or use existing transport corridors within the urban area and thus are not likely to have significant adverse effects on land, soil and water resources. It is also assumed that improvements will include sustainability features such as green infrastructure and sustainable urban drainage to minimise potential adverse impacts from pollution in run-off and be aligned to minimise the potential loss or sterilisation of productive agricultural land.

9.4.10 Greater Manchester includes source protection zones (SPZs) and drinking water safeguard and protection zones for surface water which are areas vulnerable to a decline in water quality, including the potential decline in quality as a result of transport infrastructure (both during the construction and operational phases). The A6-M60 link road, Broadbent Moss and Beal Valley western link, and Broadbent Moss and Beal Valley eastern link, Intermodal Logistic Park North Rail Freight Terminal and Rapid Transit extension to Leigh are infrastructure schemes which fall within these areas and thus could contribute to increased pollution in surface water run-off. However, as discussed above, it is expected that there would be mitigation in place to address such issues during construction and operation.

9.4.11 The alignment of the Wigan to Hindley Link Road is likely to intersect Grade 3 agricultural land and the land between the existing built area and the new road would likely be lost through the expansion of the urban area. This is likely to result in some loss of agricultural land, although it is unclear if this is amongst the best and most versatile. Similar effects are also likely for the A6-M60 link road, which is also likely to intersect with Grade 3 land and unlock current agricultural fields for development. However, these effects are not predicted for the A6 High Lane and Disley Bypass or the Windlehurst High Lane Bypass, as these roads are likely to align with the existing railway line and urban area, and thus the likely alignment should avoid significant loss of agricultural land resources.

9.4.12 The M62-A57 Link and M60-M60 Link roads and the Carrington Relief Road schemes are likely to intersect with Grade 1 and 2 agricultural land, but the likely loss is not considered to be significant given the low magnitude of impacts. Other schemes such as improvements at Northern Gateway, Davenport Green Spine Road and the Port Salford Rail Freight link are likely to result in some loss of agricultural land resource, but the improvements will cover land with existing proposals and Local Plan allocations for development. Therefore, the loss of agricultural land forms part of the baseline and adverse effects are not assigned to this local transport plan.

9.4.13 Other road improvement schemes overlap with poorer quality agricultural land and / or urban areas and are unlikely to give rise to significant effects. This includes the Elton Reservoir Link Road, Angouleme Way Improvements, Gibfield - Hulton Park East – West link, Smithy Bridge access improvements, A627(M) Junction Improvements).

9.4.14 Metrolink / Tram-train schemes and bus rapid transit improvements mainly utilise existing infrastructure or the alignment is likely to fall either within the urban area or through existing site allocations in the Local Plan. Therefore, these schemes are unlikely to result in any significant loss of agricultural land resource. Whilst the likely alignment of the Rapid Transit extensions to Leigh, Bolton and Atherton to the Regional Centre are not established, they are likely to fall broadly within urban areas and lower quality agricultural land. There could be some slight overlaps with grade 3 land, which could result in some minor loss of land resources, although these effects are uncertain at this stage and would need to be explored further.

9.4.15 Most infrastructure improvement schemes fall outside of mineral safeguarding areas, use existing infrastructure or would introduce new infrastructure within an area already proposed for development, and therefore the improvements should not directly result in the potential release or sterilisation of mineral resources. The exceptions to this include some larger schemes including the eastern part of the Wigan - Bolton East-West M58 Link, the A6 High Lane and Disley Bypass and the Rapid Transit extension to Leigh (subject to the alignment), which could cause adverse effects if minerals are sterilised (though effects are not significant).

Conclusions for water, land and soil resources

9.4.16 The Plan is predicted to have mixed effects upon water, soil and land resources.

9.4.17 The strategic approach to growth, coupled with a focus upon sustainable modes of transport, infrastructure management and environmental enhancement should help to minimise further pressure on land and soil associated with new infrastructure. Many of the delivery schemes also utilise existing infrastructure and are located in an urban setting, so ought to avoid significant impacts on soil, land and water.

9.4.18 Environmental enhancement measures are supported in several policies that will help to protect and enhance water resources, with benefits expected for the growth locations and the town centres alongside development.

9.4.19 An increase in water-based transport movements and support for expanded infrastructure could have some minor negative effects with regards to water pollution and soil. However, the Plan policies seek to manage such impacts, and overall, the residual effects are predicted to be minor in this respect.

9.4.20 On balance, a mix of **minor positive effects and minor negative effects** are predicted.

9.5 Historic Environment

Appraisal of the vision and ambitions

9.5.1 By directing transport improvements to both new development areas and established town centres, the proposed approach would enhance connectivity whilst helping to mitigate some of the pressures on the historic environment.

9.5.2 In growth locations, careful planning could ensure that new transport infrastructure avoids significant effects upon heritage assets and integrates design measures that respect historic character. Meanwhile, investment in urban centres could support heritage-led regeneration strategies and sustainable tourism while promoting active travel and public transport to reduce congestion and pollution.

9.5.3 This approach could still introduce negative impacts – increased development pressures on urban and rural historic assets, and potential conflict between infrastructure expansion and historic conservation efforts.

9.5.4 The vision and approach do not explicitly seek to enhance the historic environment. However, the ambition to reduce car trips and improve access by sustainable modes of travel could have some secondary benefits with regards to the quality of the built environment (for example by reducing noise, air pollution and congestion in town centres).

9.5.5 One of the elements of the approach is to promote vibrant Town and Local Centres, which could have indirect effects on the historic environment. For example, priorities for good growth recognise the role of town centres and the need for transport investment. This could involve pedestrian and cycling routes and signage and traffic management measures. If such measures are applied insensitively, there is potential to affect the character of the built environment in town centres, which could potentially affect the setting of heritage assets. However, there is an aim to create high quality environments and a reference to the need to deliver ‘streets for all’, which should help to address these matters at a project level.

Appraisal of network and delivery policies

9.5.6 Policies of note with regards to significant effects on the historic environment are as follows:

9.5.7 Land use and development – This policy involves support for land use changes, which could include denser developments, planned provision of new buildings, changes to the public realm and more broadly prioritising sustainable travel. It is difficult to reach conclusions about the impacts upon heritage that would arise without an understanding of scheme design, but it is

likely that the character of the built environment would change.

9.5.8 Built and natural environment policy – This policy seeks to minimise and avoid the impact of transport on townscapes, the historic environment and cultural assets. This should help to ensure that transport and the associated growth that it enables is sensitive to the character of settlements across Greater Manchester. It is recommended that a greater emphasis could be placed upon enhancement as transport schemes could provide opportunities to improve the built environment and support regeneration of heritage assets and their surroundings.

9.5.9 Asset Management – This policy could help to have positive effects towards the upkeep and setting of historic and culturally important features across Greater Manchester.

9.5.10 The majority of the policies are unlikely to have a direct effect upon the historic environment when considered in isolation. In combination, the policies are likely to encourage fewer car trips and more sustainable travel, which ought to be beneficial in terms of the built environment. For example, this could be through enhanced public realm, encouraging vibrant town centres, and reducing pollution. There is a risk that supporting infrastructure and signage could have negative effects on the character of areas, but this could be mitigated through good design (which is required in Local Plans across the region). To ensure that this principle is reflected more strongly in the local transport plan, it is recommended that more explicit reference is made to the protection and enhancement of the historic environment.

Appraisal of the delivery Plan

9.5.11 Most improvement schemes involve changes to existing infrastructure or use existing transport corridors within the urban area. This includes improvements to facilities and the public realm of rail and bus stations and other transport infrastructure across Greater Manchester, including many locations within conservation areas. These schemes are likely to derive positive effects, as improvements will enhance the townscape character and the setting of heritage assets in these locations. However, effects are most likely to be significant for schemes which involve direct impact on heritage assets, such as station improvements at Salford Central and Salford Crescent, which can lead to positive or negative effects depending upon scheme design.

9.5.12 With regard to new road schemes, there is potential for negative effects to arise where routes cross through or in proximity to heritage assets including their curtilage. Where impacts are likely on a heritage asset or its setting, it is presumed that impacts will be minimised through sensitive design but cannot be fully ruled out at this stage.

9.5.13 The road alignments of the Wigan Bolton East -West M58 Link, A6-M60 link road and the A6 High Lane and Disley Bypass are likely to fall in proximity to listed buildings, which could derive negative effects if the developments do not include suitable mitigation to protect the character and setting of nearby heritage assets. This is likely to particularly be the case for the A6-M60 link road, where the route is likely to fall in proximity to listed buildings such as the Grade II listed Goyt Hall, where development could cause permanent harm to its wider open countryside setting.

9.5.14 The extension of the Metrolink to Middleton could potentially impact upon the Grade II listed Heaton Park Registered Parks and Gardens. Whilst it is likely that the route alignment can avoid harm to the immediate setting of listed buildings and key historic features in Heaton Park, harm to the wider setting of these heritage assets and from the permanent loss and from harm to the character and setting of the listed park are possible. The extension of the Metrolink / rail links to Port Salford could also cause harm to the setting of Grade II listed buildings at Barton Aerodrome, although potential harm can likely be mitigated through sensitive design.

Conclusions for the historic environment

9.5.15 The Plan is likely to deliver mostly positive effects on heritage assets and the built environment. By focusing investment on town centres and established corridors, the strategy could support heritage-led regeneration, improve public realm quality, and reduce congestion and pollution through sustainable travel. These measures may indirectly benefit historic settings by enhancing townscape character and reducing environmental pressures (which in some areas could lead to significant positive effects. However, the plan does not explicitly prioritise enhancement of the historic environment, and increased development activity could introduce risks to heritage assets without careful design and mitigation. There is an expectation that such issues would be carefully explored and addressed at the project level through the planning system, but it is important to flag the potential for negative effects at this strategic level of assessment.

9.5.16 At delivery scheme level, most improvements involve upgrading existing infrastructure, which generally offers opportunities for positive change, particularly in conservation areas and around transport hubs. Nevertheless, new road schemes and major extensions present a higher risk of permanent

harm to listed buildings, scheduled monuments, and historic townscapes / landscapes if not sensitively designed.

9.5.17 While policies seek to minimise impacts and there is clear intent to create attractive environments, there is limited explicit reference to the historic environment, particularly in terms of enhancement.

9.5.18 Therefore, the cumulative effect of infrastructure expansion could alter the character of both urban and rural settings.

9.5.19 At this strategic level, it is difficult to predict the significance of effects accurately, but the broad picture is considered to be a **mix of mostly positive and some potential for localised negative effects**. More explicit reference to heritage protection and enhancement within the plan would help ensure that transport improvements complement and enhance rather than compromise, the historic environment. However, such issues are largely outside of the remit of this transport strategy and are more appropriately addressed through the planning process.

9.6 Landscape

Appraisal of the vision and ambitions

9.6.1 By directing some investment towards developed town centre areas and supporting urban intensification / densification, this could help limit urban sprawl and preserve rural landscapes, while still accommodating necessary expansion in designated growth locations. However, new infrastructure in both settings could alter existing townscapes and introduce visual change, particularly where development extends into open land or where transport upgrades affect historic urban areas. The effects could be positive or negative, depending on the extent to which transport measures help to enhance urban locations through environmental improvement and regeneration.

9.6.2 Seeking to achieve vibrant town and district centres is likely to have positive secondary effects for landscape, as it will help to create the conditions within urban areas to support growth and urban intensification, which in turn, would help to reduce pressure for development on greenfield land that could have greater landscape value.

Appraisal of the network and delivery policies

9.6.3 Collectively, policies that seek to reduce the number of car trips, increase use of sustainable modes of transport and reduce the need to travel, are likely to be beneficial with regards to landscape. This is because such measures should help to make best use of existing infrastructure and minimise the need for increased capacity for vehicles (avoiding potential loss of landscape features within and between urban areas).

9.6.4 Other policies worthy of discussion with regards to landscape are as follows.

9.6.5 The ‘Land use and new development’ policy supports urban intensification, car free development and measures to reduce the need to travel. These measures should help to make urban locations accommodate growth and thus reduce pressure for new development on greenfield land (which tends to be where landscape sensitivity is higher).

9.6.6 Several policies concerned with environmental protection and enhancement are likely to have some knock-on benefits for landscape as they promote the use of natural solutions and the enhancement of green space (which could complement landscape character). This includes Climate Change, Green and Blue Infrastructure, and Built and Natural Environment (which explicitly mentions landscape) policies.

9.6.7 Policies that support the expansion of transport infrastructure and routes such as ‘future light rail and metro’ could potentially involve some intrusion into townscape and landscape character. The effects will depend upon the routes chosen and configuration of infrastructure. It ought to be possible to avoid significant negative effects, particularly as routes are likely to pass through urban areas and there will be a requirement to consider environmental protection and enhancement.

Appraisal of the delivery Plan

9.6.8 Several measures / schemes could help to improve the public realm, with positive effects upon townscape and landscape. This includes the renewal, maintenance and improvement of stations, bus, rail and tram stops. These measures mostly fall within the ‘sustain’ element of the Delivery Plan and are unlikely to have significant effects.

9.6.9 There could be opportunities to enhance the public realm through active travel schemes, and accessibility improvement measures that are included throughout the Delivery Plan. This will be dependent on scheme design, but guided by the policies within the strategy, it is reasonable to assume that minor positive effects could arise.

9.6.10 Most schemes involve improvements to existing infrastructure or use existing transport corridors within the urban area. These improvements are not predicted to derive adverse effects including where schemes intersect or result in some loss (although broadly unlikely) of landscape features such as trees, as the planning policy framework for Greater Manchester should ensure new features and green infrastructure are introduced to offset any harm, and this should help sustain the character of the urban area within the wider landscape.

9.6.11 With regard to new road schemes, many schemes currently in open countryside form part of an existing development proposal with extant planning permission or comprise an allocation in a Local Plan. This includes schemes which may cross sensitive landscapes including improvements at Northern Gateway, Davenport Green Spine Road, Smithy Bridge access improvements and the Port Salford Rail Freight link. The adverse effects of these schemes on landscape character are considered to form part of the existing baseline given that they are already in the pipeline. Where impacts are likely on landscape character in these areas, it is presumed that impacts at sensitive locations will be minimised through design, new landscape features and green infrastructure.

9.6.12 The alignments of the Mottram bypass and the Hollingworth and Tintwistle bypass are likely to involve medium-high and high sensitivity landscapes to the east of Greater Manchester, and these roads will continue beyond the Plan area into the Peak District National Park.

9.6.13 These schemes are likely to cause permanent harm to the character of these sensitive landscapes and of the Peak District National Park. These schemes will also traverse high elevation areas and are likely to derive some negative visual impacts, although some mitigation through introducing new landscape features to screen views of new roads should be possible.

9.6.14 The Wigan Bolton East -West M58 link, Carrington Relief Road, A6-M60 link road and the A6 High Lane and Disley bypass will also involve new road infrastructure across important local landscapes and are likely to cause permanent harm to landscape features including field patterns and boundaries, trees and green infrastructure. The A6 High Lane and Disley Bypass is likely to align closely with the existing railway line and urban area, and thus the likely alignment is unlikely to encourage any substantial increase in the built area and the potential harm to landscape character is likely to be less severe. At other locations, the land between the existing built area and the new road are likely to be lost through the expansion of urban areas in the medium to long term, which could exacerbate adverse effects on landscape character. These effects are considered to be more significant for the former two schemes which also intersect areas of medium landscape sensitivity. In the contrary, at some locations, a new road should provide a strong settlement boundary and containment of the urban area along existing settlement edges with weak natural boundaries which may otherwise be susceptible for larger and less sympathetic extensions to the built area.

9.6.15 Some improvements, including the M62 link roads and M60/M62/M66 Simister Island schemes, are likely to cause limited localised harm to landscape character in areas with landscape sensitivity. However, these effects are not predicted to be significant at the strategic level.

9.6.16 Metrolink/ Tram-train and bus rapid transit improvements mainly utilise existing infrastructure or the alignment is likely to fall either within the urban area or through existing site allocations in Local Plans. Therefore, these schemes are unlikely to cause any significant effects on landscape character.

9.6.17 The alignment of the Rapid Transit extensions to Leigh and Bolton (and from Atherton to the regional centre) are not yet established and thus potential effects on landscape character are unknown at this stage. However, effects are likely to be minimal where the alignment follows the existing guided busway, roads and railway lines and could be amplified if the alignment intersects areas of high landscape sensitivity.

9.6.18 The extension of the Metrolink to Middleton, subject to its final alignment, could have some adverse effects on landscape character if the route unsympathetically intersects through established fields or results in harm or the loss of landscape features outside urban areas.

Conclusions for landscape

9.6.19 The Plan is predicted to have uncertain effects with regards to landscape. Ultimately the effects will depend upon the location and design of schemes, particularly new infrastructure that has the potential to be intrusive. With that being said, it is considered unlikely that there would be any major negative effects.

9.6.20 The strategic approach is supportive of investment in the growth locations, which could potentially involve infrastructure that changes landscape character. However, it is important to acknowledge that growth is already earmarked in these areas, and transport links would need to be secured in the absence of the transport Plan. The policies within the Plan seek to ensure that the built and natural environment is not negatively affected by transport measures, and that enhancement is achieved were possible. In this respect, it should help to ensure that the routing and design of schemes avoids significant negative effects.

9.6.21 A focus on densification and town centres could have mixed effects too. On one hand it helps to regenerate areas and maintain their vibrancy, with the potential for public realm improvements. On the other, it could change the character of urban areas and be perceived as negative.

9.6.22 With regards to delivery plan schemes, there are a range of measures that seek to enhance the street scheme that will have some minor positive effects on townscape when considered in combination. Longer-term schemes that have been identified include new road infrastructure that in some locations could have negative effects upon landscape character. This is particularly the case for schemes towards the Pennines. However, these schemes will need to be assessed for impacts on a project level, and mitigation measures will be necessary. From a strategic perspective, the impacts across greater Manchester are not anticipated to be major with regards to landscape character.

9.6.23 Overall, the **effects are likely to be minor (both positive and negative)**, but there is uncertainty (which would be addressed at project level).

9.7 Air quality and noise

Appraisal of the vision and ambitions

9.7.1 By distributing transport investment across both newly developing areas, as well as established town centres, air quality and noise effects (both positive and negative) are likely to be more dispersed rather than concentrated in specific locations. This should help to prevent the localisation of air and noise pollution in any one area, however, could also limit the effectiveness of targeted air quality improvements.

9.7.2 In urban areas, the proposed approach should support clean air measures and active travel, helping to counteract some of the concentrated air pollution and noise impacts. However, the challenge would be in balancing investment between mitigating urban congestion, and actioning strategies that bring sustainable transport solutions to the growth locations. There is a chance that if resources are spread too thinly across the board, neither of these objectives would be fully realised.

9.7.3 However, it is clear from the vision and ambitions that reducing the dominance of motor traffic, and increasing support for people, walking, wheeling and cycling is central to the Plan. Alongside targets to become net zero, and for transport schemes to deliver environmental improvements, it is likely that air pollution will not worsen, and could potentially improve when considering the cumulative effects across the city region and in the key urban centres.

9.7.4 Though air quality is likely to improve as a result of the Plan, an increase in movements could lead to increased noise in town centres and growth locations.

Appraisal of the network and delivery policies

9.7.5 Complementing the vision and ambitions are a series of network and delivery policies that are likely to support improvements in air quality. Any policies that support a reduction in carbon emissions and an increase in walking, cycling and wheeling will be beneficial in this respect, but the following policies are of note:

9.7.6 The Health policy seeks to reduce noise and air pollution from motor vehicles.

9.7.7 The Pollution policy explicitly seeks to manage air pollution and noise from transport vehicles and infrastructure.

9.7.8 The climate change policy seeks to reduce emissions associated with transport, with knock-on benefits for air quality. This policy also supports nature-based solutions, which are likely to help regulate pollution.

9.7.9 Complementing this are policies that seek to enhance green and blue infrastructure and the built and natural environment. This includes promoting an increase in street trees, biodiversity net gain schemes and sustainable urban drainage systems.

9.7.10 The streets policy seeks to create environmentally friendly streets that encourage sustainable modes of travel, this complements the network policies in terms of controlling air pollution.

9.7.11 Ultra-low emission vehicles will help to support the roll out of electric vehicles, and ultimately lead to improved air quality.

9.7.12 The freight and logistics policy seeks to promote sustainable forms of freight travel and to minimise the environmental impacts. Though there is likely to be an overall increase in economic activity and freight movements, the policies in the transport plan seek to ensure that this is achieved in a sustainable way.

9.7.13 Several delivery policies support the management and expansion where necessary of transport networks including roads, rail, metro and freight. It is possible that this increase in capacity will increase trips with effects upon air quality and noise. However, there is also a clear preference for sustainable modes of travel that will help to reduce motorised travel and any associated environmental impacts.

9.7.14 Land use and new development could have mixed effects. On one hand, it promotes sustainable patterns of travel, reducing the need to travel and greater use of sustainable modes of transport. These measures are all likely to help reduce air pollution from transport. Conversely, there is support for denser development, which could lead to more noise, especially in urban locations.

9.7.15 The night-time travel policy is likely to increase noise as it will lead to longer operating hours. This could cause disturbances for certain communities, but other plan policies are in place that will help to manage environmental impacts.

Delivery Plan

9.7.16 A range of measures and schemes are listed that will support modal shift toward active travel public transport and facilitate the update of low-emissions vehicles. There is already progress being made in this respect, and therefore continuation of these measures will be important. Under the ‘sustain’ element of the Plan, the following measures are of note and will continue to feature:

- GM Air Quality Measures and Monitoring Programme.

- Key active travel route maintenance and renewal.
- Continuous improvements to Active Travel infrastructure.
- Public Transport access improvements – bus stops, tram stops and rail stations.

9.7.17 Further measures are proposed that will help to move closer to the 'right mix', and help to reduce the negative impact that transport can have on air quality and noise.

9.7.18 For example, there is an intention to achieve transformative change in relation to the strategic cycle network and delivery of micro mobility infrastructure. Growth / development will also help to fund improvements to public transport networks. Alongside measures to reduce emissions from vehicles (e.g. electrified bus fleets, EV charging facilities, express bus networks), there is likely to be a significant improvement in air quality in the longer term. These forms of travel are also quieter than traditional internal combustion engine based transport (thus noise pollution is likely to be lower).

9.7.19 With regards to new road schemes including new road links and interventions at specific bottlenecks, mixed effects are likely. Improvements to existing roads including junctions along the M60 and A627 and link roads along the A57 and M62 ,the A627(M) and the Handforth to Cheadle Phase 1 should help improve traffic flow in areas with high levels of existing air and noise pollution. New road links should further improve traffic flow in areas with high pollution levels on the existing road network. This includes the Wigan Bolton East -West M58 link which should help alleviate pressures in Wigan, the A6-M60 link road which should alleviate pressures around Hazel Grove and Stockport, and the A6 High Lane and Disley Bypass / Mottram Bypass. However, improving traffic flows is likely to encourage greater use of private vehicles, particularly in areas such as Hazel Grove, Glossop and Hadfield, which have existing high congestion levels and where improvements are likely to result in a substantial reduction of congestion on the local road network.

9.7.20 Cumulatively, this could derive adverse effects on air quality in the short and medium term from the collective increase in road capacity, although the transition to electric vehicles ought to mitigate air quality issues in the long term. The cumulative noise levels are also likely to increase, with effects exacerbated by increase noise from higher speed traffic movement on link roads and bypasses. Although, noise levels on the existing road network is likely to decrease, which could improve conditions at sensitive receptors including homes and schools. Air and noise pollution are also likely to be exacerbated in the short term during the construction phase, as construction activity is likely to generate additional traffic and increase congestion through potential road or lane closures. Some minor air and noise pollution is also likely to be generate through on-site works, although most impacts can likely

be mitigated and managed through a construction environmental management plan.

9.7.21 The existing Metrolink network broadly comprises a radial pattern, branching out from Manchester city centre to locations across Greater Manchester. The improvements include new non-centric connections between towns and locations including new routes and the use of tram – train on existing infrastructure. This includes an east to west link to the south of Greater Manchester between Altrincham and Stockport, to the north of Greater Manchester between Oldham and Bury via Heywood and Rochdale, and between Stockport and Ashton-under-Lyme. This will include the completion of a circular Metrolink route connecting towns and locations in the north-east with Manchester city centre.

9.7.22 Introducing new non-centric connections will provide new sustainable transport options and encourage a modal shift away from the use of private car. This should also help reduce the existing high reliance on bus for public transport connections between these locations. This will help alleviating pressures on the road network and related air and noise pollution in areas with existing high levels of pollution.

9.7.23 Other improvements including new connections to Port Salford, Leigh, Bolton and Atherton (rapid transit extensions) and Stockport and new train stations at Golborne and Cheadle should encourage a modal shift to more sustainable transport for short journeys and help address air and noise pollution in areas with existing high levels of pollution. Metrolink / Tram-train to Glossop and Hadfield should further provide an additional public transport option to current bus links, providing a desirable alternative to the private car in these locations which have existing high levels of road congestion and related poor air quality and noise pollution. Similar effects are also likely from bus improvements and from improvements to stations and public realm which may encourage active travel alongside the use of public transport.

9.7.24 During the construction phase, new light rail and metro schemes are likely to exacerbate congestion on the road network through additional traffic and road closures which may increase air and noise pollution in the short term. However, these effects are not likely to be significant, as most improvements are likely to utilise existing railway corridors. Some localised increase in noise levels is also likely due to construction activity, and from operations in the long term. However, scheme level mitigation ought to be sufficient to ensure that significant effects in terms of noise can be avoided or managed.

Conclusions for air quality and noise

9.7.25 The strategic approach to transport interventions should help to reduce the

environmental impacts of new transport infrastructure and development associated with the growth locations.

9.7.26 By supporting sustainable modes of transport and green infrastructure this will help to limit increased movements into and within these locations (with positive implications for air quality and noise). In the town centre / urban locations, further support for sustainable travel and transport should also help to address air quality concerns in areas where car trips are substantial. A range of delivery schemes are planned that would help to improve the mix of public transport compared to private travel, and these are generally low pollution / low noise solutions such as tram / light rail and electric bus fleet expansion.

9.7.27 In addition to the strategic approach to growth, the network policies and delivery policies are further supportive of measures that put sustainable travel at the forefront of future growth. Policies also seek to manage pollution and noise impacts, as well as delivering enhancements to the built and natural environment and enabling a reduction in emissions. In combination, these plan policies should help to minimise air pollution and noise impacts.

9.7.28 There are policies and associated delivery schemes that support economic growth and increased connectivity across the region, including increased operating hours and expanded public transport services, road networks and freight. This could lead to some increased noise and air quality issues across the region, but the residual effects are predicted to be minor with suitable project level mitigation in place.

9.7.29 On balance, **moderate positive effects** are predicted with regards to air pollution and **minor negative effects** with regards to noise.

9.8 Climate change

Appraisal of the vision and ambitions

9.8.1 The proposed strategic approach provides the potential to target investments to areas which are most in need as well as maximising the value added from transport infrastructure and services in existing urban areas.

9.8.2 In terms of flood risk, heating and other climate resilience issues a similar targeting of areas with greater need would be possible. In particular, inclusion of town centres ought to help to flooding improve connectivity of green and blue space in urban areas, manage surface water and provide shading in areas that are more at risk / more vulnerable. Additional investment could be spread more thinly to the growth locations outside of urban areas but still help

to implement measures to address climate change resilience.

9.8.3 The Plan has a strong emphasis on addressing climate change, supporting sustainable modes of travel, achieving 'the right mix' and ultimately reducing carbon emissions from transport to near zero by 2038. This is reflected in several ambitions, which seek to support growth through improvements to transport infrastructure whilst also protecting environmental assets.

9.8.4 Well maintained and resilient is one of the core ambitions, which factors in the influence of climate change, seeking to create a network that is reliable and can withstand pressures, including from extreme weather. This is positive with regards to climate change resilience.

Appraisal of the network and delivery policies

9.8.5 Many of the policies seek to make improvements to the transport network, encourage sustainable travel and minimise the environmental impacts of transport. These will help to contribute towards positive effects in terms of climate change, as the Plan will help to manage growth in a sustainable manner. Though some policies are unlikely to have a significant effect in isolation, the combined effects are likely to be positive as any measures that encourage sustainable travel and transport trends will help to reduce emissions. Though there are policies that support increased transport connectivity and economic growth, this should be considered in the context of wider plans for Greater Manchester. A significant amount of growth is anticipated and in the pipeline, and without a clear transport strategy, it is more likely that effects on climate change would be negative.

9.8.6 Policies that are particularly relevant to the climate change topic are discussed below.

9.8.7 The Climate Change policy is directly relevant and reiterates the message that sustainable transport modes should be promoted, the need to travel reduced and reducing emissions from vehicles. The policy also refers to resilience, embodied carbon and using nature-based solutions, linking to delivery policies that support these measures (for example, 'ultra low emissions vehicles' and 'freight and logistics'). There are several policies that support environmental enhancement, including the use of sustainable urban drainage, urban greening and enhancement of green and blue infrastructure. These measures should all have benefits with regards to climate change adaptation by helping to cool urban areas, provide shade and shelter for people using public transport, walking and cycling.

9.8.8 The Asset Management policy promotes efficient use of transport networks,

being mindful of the impacts of climate change. The efficient and prolonged use of existing infrastructure and assets should help to reduce carbon emissions in several ways.

9.8.9 First, an efficient network can support greater levels of sustainable transport, in addition, it helps to reduce demand for new facilities and associated resource use. The policy explicitly seeks to reduce the carbon intensity of infrastructure and assets which could also involve measures to reduce energy usage.

9.8.10 Perhaps an opportunity exists here to state that carbon sequestration will be promoted where appropriate as part of asset management and new infrastructure schemes (linked to environmental enhancement policies).

9.8.11 The Land use and new development policy is likely to be positive for climate change as it seeks to ensure that patterns for growth are encouraged that will reduce the need to travel and enable sustainable transport usage, both of which will reduce carbon emissions.

9.8.12 Though there are many policies that are likely to help reduce carbon emissions, the scale of the task is challenging, particularly when the Plan also seeks to facilitate increased economic activity, better transport connectivity and movements across the city region and internationally. In this regard, some plan policies could make the achievement of zero carbon transport more difficult to achieve. There will also be embodied carbon associated with infrastructure provision that will offset benefits in the short term.

Appraisal of the delivery Plan

9.8.13 With regards to climate change resilience, the key measures within the Delivery Plan relate to SuDs maintenance, piloting and delivery of new schemes. This spans the ‘sustain’, ‘grow’ and ‘transform’ elements of the Delivery Plan and is likely to have some minor benefits in terms of addressing flood risk.

9.8.14 There are no further direct references to climate change or any schemes that directly promote climate change resilience. In this respect, there will be a reliance on climate change measures being delivered alongside / as an integral part of infrastructure enhancements.

9.8.15 The key measures that will contribute towards a reduction in greenhouse gas emissions relate to modal shift, active travel and the electrification of vehicles. The Delivery Plan contains a comprehensive list of schemes that will facilitate increased bus patronage, an increase in the Metrolink tram network and improve active travel options. In the long term these will all help to reduce emissions associated with travel, particularly when coupled with efforts to

decarbonise vehicles and transport infrastructure.

9.8.16 A number of road-based schemes will also be supported, which will facilitate continued car travel, commercial vehicles and freight. Coupled with an ambitious growth agenda across Manchester, this could lead to increased emissions from transport through induced traffic from cars and potentially freight. Mitigating factors in the longer term will be an increase in fully electric vehicles and the electricity grid being predominately low carbon. However, increased trips will still generate emissions, and this could offset the reductions achieved through modal shift.

9.8.17 It is also important to acknowledge that there will be a significant embodied carbon associated with new infrastructure such as Metrolink extensions and new roads. Therefore, in the short term, greenhouse gas emissions will increase. In the longer term, the carbon savings offered by lower carbon modes of travel should mean that per capita emissions decrease and the overall impact is positive over the lifetime of such schemes. For example, Metrolink already runs on 100% renewable energy, meaning very low operational emissions, there is also a well-established network, and so the embodied carbon per kilometre of new route is expected to be lower than an entirely new system.

9.8.18 On balance, it is likely that the Plan will lead to a net decrease in carbon emissions from the transport sector. The most significant contributions are likely to arise from modal shift, demand reduction for cars and a shift from road-based freight to rail and water. However, without aggressive demand management and rapid transitions in freight transport, it is likely that transport emissions could still contribute significantly to Greater Manchester's remaining carbon budget up to 2038. Given that the carbon budget has already been exceeded in the short term, there will be a need for deeper cuts in the longer term to stay within the target. Therefore, without a significant reduction in emissions from the transport sector, there would be a reliance on deeper cuts from other sources.

Conclusions for climate change

9.8.19 The Plan seeks to facilitate economic growth, address social inequalities and improve environmental outcomes associated with transportation. The key challenge will be to ensure that these three pillars of sustainability are achieved in an appropriate way.

9.8.20 The spatial strategy and growth priorities are likely to have mixed effects on climate change. On one hand, there is support for densification and making best use of existing infrastructure and key town centres to improve sustainable transport and reduce the need to travel (with benefits in terms of

carbon emission reductions).

9.8.21 Conversely, the Plan acknowledges the need to support growth locations, which is likely to involve new infrastructure, increased trips and contribution to greater economic activity. There is also a need to ensure that services are accessible to all and are affordable. These socio-economic ambitions could make it more difficult to achieve climate change reductions targets, which will require significant investment and behaviour change. However, the Plan does seek to ensure that economic growth can facilitate environmental improvements that will help in terms of climate change resilience. There is also a focus on changing the modal mix and making the most of existing capacity rather than expanding existing roads and infrastructure (unless necessary to drive longer term behaviour change).

9.8.22 On balance, there is **potential for a moderate positive effect**. There are strong ambitions and policies in place that support climate change adaptation and mitigation. However, the Plan also has a strong focus on economic growth and facilitates road expansion, which could make it more difficult to achieve a zero-carbon transport network by 2038.

9.8.23 To achieve a moderate positive effect with regards to climate change, it will be necessary to accelerate modal shift and to progress schemes earlier to allow for emissions reductions to be ‘baked in’ during the Plan period (rather than towards the end). Without early interventions the effects are more likely to be minor.

9.9 Healthy and safe communities

Appraisal of the vision and ambitions

9.9.1 The spatial approach directs attention towards the growth locations and key town centres, which overlap with a significant proportion of the population. This should mean that investment can influence a wide range of communities, but perhaps at a lesser magnitude than a more focused geographical approach would achieve. The cumulative effects across the region are likely to be beneficial though in terms of helping to improve health (through transport related measures), particularly in locations where communities will benefit from better opportunities to access jobs and services, and to live healthy and active lifestyles.

9.9.2 The People and Place approach is comprised of several components that are likely to bring about positive effects on healthy and safe communities. There is a desire to create safe and attractive neighbourhoods and vibrant town and district centres, which put walking, cycling and wheeling at the forefront of travel priorities. This will help to create healthier environments with natural surveillance that encourage active lifestyles.

9.9.3 The other key network ambitions are all likely to bring about positive effects upon healthy and safe communities as there is a focus on putting residents, businesses and visitors at the heart of the Plan. Achieving healthy and safe communities are explicit network ambitions, whilst other ambitions seek to improve services, make them more reliable, affordable and inclusive. All of these measures will ultimately provide better transport options for communities, helping to improve access to jobs and services. In the longer term, this should contribute towards a more prosperous City Region where people from all communities are encouraged to live healthier lives.

Appraisal of network and delivery policies

9.9.4 Policies that seek to improve the provision of transport services are likely to have positive effects in terms of health (by increasing levels of physical activity and increasing social mobility). There is an emphasis on reducing the number of car-based trips and improving the provision of sustainable modes of travel, which is likely to create safer and more inclusive transport networks. There is also significant focus on improving road safety and reducing the number of people killed or seriously injured as a result of road accidents.

9.9.5 Several policies promote environmental protection and enhancement, which will help to contribute towards healthier and more resilient places (hence supporting healthy and safe communities).

9.9.6 For example, the Streets policy encourages urban greening, the Climate Change policy encourages the provision of nature-based solutions such as SUDs, the Green and Blue Infrastructure and Built and Natural Environment policies support nature protection and recovery.

9.9.7 All these measures would benefit health by creating more attractive environments that encourage active travel and also helping to regulate pollution. Improving access to nature is also known to be a positive contributing factor to mental health and wellbeing.

9.9.8 A range of policies seek to reduce carbon emissions and reduce the effects of transport on levels of pollution. This too should help to create cleaner, quieter and safer environments for people to travel, with direct positive effects on health.

9.9.9 Safety is considered throughout the Plan, with several policies explicitly mentioning the need to address traffic incidents, personal safety, perceptions of safety, operational resilience and security. Policies 'Vision Zero for Safer Roads', and 'Personal Safety and Security' are particularly relevant in this respect.

9.9.10 The Plan is also likely to reduce health inequalities by promoting inclusivity, access for all and affordable travel (which is most likely to benefit those with lower incomes and poorer health).

9.9.11 Policies that support the expansion of road and sustainable transport networks could have mixed effects. On one hand, it improves social mobility, which is positive for large numbers of people, especially in those groups that do not have access to private transport. Conversely, this could increase footfall around communities where new stations / stops are secured, leading to amenity and noise concerns for existing residents. Such impacts are predicted to be minor though when considering the other policies in the plan that seek to achieve high quality environments.

9.9.12 Whilst the Plan is positive [for health] in terms of encouraging sustainable and active modes of transport, it could create the potential for increased interactions (and conflict) between different users of streets and roads. For example, there is support for an increase in the number of pedestrians, cyclists, e-scooter users and public transport trips. This is acknowledged in the delivery policies though, which seek to ensure that streets are safe and can be used by multiple users simultaneously.

Appraisal of the delivery plan

9.9.13 There are a range of interventions that seek to improve connectivity within town centres and neighbourhoods. Some of these are listed under the 'grow' category and could therefore be expected to lead to positive effects on health and wellbeing beyond 'business as usual'. Improved connectivity is likely to benefit health by encouraging active travel and access to a range of services and employment opportunities.

9.9.14 The interventions that seek transformative change such as 'streets for all improvement packages' will further support healthy and safe environments, particularly in the main GM towns (where community safety issues are prevalent).

9.9.15 The measures and interventions that seek to maintain, improve and enhance active travel infrastructure are also likely to be beneficial to health and wellbeing given that they will enable greater movement of people. A key transformation action in this regard is the completion of improvements to cycling infrastructure across Greater Manchester which will support increased exercise in the future and ensure safer active travel .

9.9.16 Support for public transport is also positive as it will help a greater number of people who are unable to travel by private car to access jobs, leisure and public facilities. Improving rail connectivity for longer distance travel is also beneficial as it will improve people's ability to travel for leisure and business, both of which is positive for health and wellbeing.

9.9.17 In terms of safety, Vision Zero has clear and direct benefits. There are also likely to be indirect benefits to health such as improved air quality and encouragement for increased active travel (due to improved safety).

9.9.18 With regards to customer experience, efficiency and safety measures are likely to have positive outcomes for users of public transport as it could help to reduce costs of travel and make the experience of travel less stressful. Conversely, some measures such as the use of Artificial Intelligence (AI) could possibly displace jobs in ticketing, customer service, driving, security etc. This is potentially negative as it could lead to redundancies in this sector and change the customer experience. There will be a need to ensure that the potentially affected workforce is reskilled – this could be part of the delivery plan as a specific intervention.

9.9.19 Two schemes are worth discussing with regards to accessibility and healthcare. Enhanced access to healthcare facilities at North Manchester General Hospital and Fairfield General Hospital, will reduce barriers to essential services, supporting timely care and reducing health inequalities in areas that experience health deprivation.

9.9.20 New linear transport schemes can potentially have negative impacts if they lead to community severance, increased noise, air quality impacts and traffic. Without detailed scheme design these impacts cannot be determined, but it is assumed that there would be potential to mitigate impacts. A number of delivery schemes could also help to reduce community isolation such as new bridges and restorations, active travel crossing upgrades and town centre connectivity improvements.

Conclusions for healthy and safe communities

9.9.21 The Plan is predicted to have **moderate positive long-term** effects with regards to health and safety. There is an overarching ambition to increase the amount of sustainable and active travel, to reduce the number of car trips and to use transport measures as a way of enhancing the environment, increasing the levels of physical activity, and improving social mobility. The Plan also has a strong focus on improving road safety. The geographical focus on growth locations and town centres (which broadly overlap with communities of need) should help ensure that a significant proportion of the population benefits from investment measures (though the timing will differ and be less certain for some communities where schemes are longer term and aspirational).

9.9.22 As well as the direct benefits to health of improved environments and better transport options, the Plan will also help people to better access services and jobs, which will have moderate positive long-term effects on health. Two schemes will directly improve access to hospitals in North Manchester and Fairfield (Bury), supporting health improvements in key areas for growth.

9.9.23 Conversely, the Plan is supportive of economic growth, further densification of urban areas and increased connections across the region, nationally and internationally. This could lead to some minor negative effects on health and safety if it leads to increased noise, amenity concerns and conflicts between users of public space and roads. There are also likely to be short term disruptions to travel and due to construction, which could affect amenity and quality of life for some people.

9.10 Material assets

Appraisal of the vision and ambitions

9.10.1 The proposed approach allows targeted interventions in areas most at need (whether this be the growth locations or the key town centres). This would help to improve the efficiency of the transport network in future areas of growth as well as existing population and employment centres, with connectivity within and between these locations better able to manage increased volumes of traffic, drive down car dependencies and support an efficient transport network to enable economic growth and prosperity. This integrated and targeted approach would also support principles relating to sound land use and transport planning.

9.10.2 There is a strong strategic focus on supporting sustainable economic growth in the growth locations, as well as significant investment in key town centres. These areas are centres of economic activity and residential communities, and a strengthening of transport networks will lead to positive effects on material assets.

Appraisal of the network and delivery policies

9.10.3 Many of the policies are concerned with supporting economic growth through the delivery of an efficient and reliable transport network. This will be beneficial to existing businesses in the region as well as new and growing sectors. There is also an emphasis on supporting growth (housing and employment) with sufficient services and transport infrastructure. A feature of the approach is to make the most out of existing assets and to integrate transport networks. Together, this should create the conditions needed to have positive effects on ‘material assets’.

9.10.4 The following policies are notable for their contribution to the protection and enhancement of material assets across Greater Manchester.

- The ‘Land use and new development’ policy seeks to ensure that there is the necessary infrastructure to support residential development, as well as making sure that best use is made of transport infrastructure.
- The ‘Asset management’ policy is directly relevant as it seeks to maintain and enhance the condition and resilience of transport infrastructure.
- Strategic Roads and the Key Route Network policies both seek to support economic growth and homes, particularly in the growth locations.

- The Freight and Logistics policy supports sustainable economic growth in these key sectors, which will help to strengthen the provision of employment land in the region to support jobs.
- Rail Integration and Reform seeks to improve access to stations, support growth locations and densify areas close to stations. This will have positive effects in terms of support residential growth and strengthening network connections.
- A range of policies focus on improving active travel and public transport infrastructure, all of which will help to strengthen links between residential areas and sources of economic activity.
- Several policies promote regional, national and international connectivity improvements, which should all help to support economic growth and prosperity across the City Region and have positive effects on material assets.

Appraisal of the delivery plan

9.10.5 The Delivery Plan sets out a comprehensive programme of schemes over the short, medium and long term. There is a clear focus on coordinating land use and transport planning. The plan is also aligned with Greater Manchester's housing and spatial planning strategies and supports the development of new housing in locations that are well-connected by sustainable transport. The Integrated Pipeline approach ensures that transport investment is coordinated with housing and employment growth, particularly in identified Growth Locations and town centres.

9.10.6 There are a range of schemes that are identified that will 'Boost Northern Competitiveness', by seeking to improve east-west road links, tram expansion and public transport enhancements. These measures will help to support strategic housing sites, as well as funding new transport links that will improve business and commercial travel. Cumulatively, these improvements will help to attract further investment and facilitate growth. Several road schemes are vital to unlock the potential of development areas.

9.10.7 There are also a range of schemes targeted to 'Maintain Southern Competitiveness', with the aim of improving the sustainability of economic growth in the south and links to major economic centres such as Manchester Airport.

9.10.8 The "Grow" section of the Plan explicitly states that major new developments should be well-connected and prioritise sustainable travel options. This is reflected in interventions that seek to ensure that growth locations are well served by transport hubs, new roads and tram improvements / expansion.

9.10.9 In addition to major locations for new housing and employment, several priority interventions are proposed that will help to improve connectivity in existing communities.

9.10.10 There is also a continued focus on streets for all, with transformative interventions listed for the main town centres and City Centre. These will help to support active travel in busy locations that will be the subject of increases in residents and visitors. In this respect, the delivery plan will directly support the effective use of material assets across Greater Manchester, ensuring that the most is made of the existing infrastructure and planned upgrades.

9.10.11 Several measures are proposed that will help to drive decarbonisation through land use planning, this includes a GM EVCI Charging Programme, on-street and hub-based charging, and a trajectory for a fully electrified bus fleet. These elements show intent to encourage low-emission vehicle uptake and reduce transport-related emissions.

9.10.12 Overall, the Delivery Plan builds upon a strategic approach to transport planning that is well aligned with land use planning and will make effective use of existing infrastructure. This will help to protect 'material assets' across Greater Manchester such as infrastructure and a strong network of centres.

Conclusions for material assets

9.10.13 The Plan is predicted to have positive effects on the material assets topic as there is a strong focus on supporting economic growth and new homes with an effective transport network. The spatial focus will benefit a significant number of communities and seeks to ensure good land use planning by encouraging density near transport nodes and ensuring that areas of growth are supported with sufficient services and infrastructure. The Delivery Plan supports the strategy and sets out a comprehensive programme of measures / interventions to help ensure that land use and transport planning are well coordinated and help to protect and enhance the regions infrastructure assets. Overall, **major positive effects** are predicted.

9.11 Equalities

Appraisal of the vision and ambitions

9.11.1 The Plan's 'people and place' approach means considering individual needs and recognising the different circumstances across the City Region. Working with communities so that they can influence service provision is also a feature of the Plan strategy.

9.11.2 There is a focus on improving sustainable modes of travel and capacity for such measures, which is likely to be most beneficial for communities and individuals that have fewer choices (in relation to private travel). This approach and ambitions follow through into several policies as discussed below.

9.11.3 The proposed strategic approach provides the ability to be flexible in terms of investment priorities as it covers both the growth locations and the key town centres. Investment could therefore be dispersed as necessary, focusing on areas that have higher need for transport investment, and therefore areas that might be facing higher levels of mobility inequality.

9.11.4 There is strong support for the growth locations, which should ensure that new communities have adequate services and connections both internally and to the wider urban areas. Several of the growth locations overlap with areas that contain concentrations of communities experiencing multiple deprivation and protected characteristics. This is also the case for most of the town centres, which are characterised by concentrations of ethnic minorities and younger populations.

9.11.5 By ensuring that transport improvements extend beyond urban centres, linking growth locations with these centres, the approach to growth should help maintain vital links for those in suburban and rural communities, including elderly residents who may rely on public transport for essential services. Enhanced regional transport networks, such as improved bus and rail links, could create more seamless connections between rural/ peripheral areas and key urban centres, reducing isolation and ensuring more equitable access to employment, healthcare, and amenities.

9.11.6 However, there is potential for inequalities to worsen if transport investments are not distributed fairly, and there is also potential for these opportunities to fall through if investment is spread too thinly to cover all potential needs. Furthermore, the most isolated communities that do not overlap with growth locations are likely to remain that way, potentially widening the mobility gap between these communities and those in more built-up areas. This could affect elderly and disabled individuals more prominently if they do not have access to private modes of travel.

Appraisal of the network and delivery policies

9.11.7 The policies that seek to improve the efficiency, capacity and effectiveness of public transport networks are likely to have positive effects upon a range of communities, particularly for individuals that are reliant on public and active modes of transport to access services and jobs. The following policies are noted as being particularly important in this respect

9.11.8 The 'Delivering the Bee Network' Policy seeks to enhance and expand the Bee Network, which is concerned with providing multi-modal journeys across the transport network, with a focus on sustainable travel options.

- The 'Integrated Pricing and Payment' policy seeks to provide affordable travel and ticketing options that are accessible and fair to all.

9.11.9 'Personal Safety and Security' seeks to address high harm crimes, which often affect several groups with protected characteristics such as women (sex), ethnic minorities, and young people (age). Complementing this policy is 'Streets' which is also concerned with safety and inclusion. Efforts to create safer environments could also be beneficial for groups that experience hate 'crimes' which includes those with the protected characteristics of sexual orientation and gender reassignment.

9.11.10 'An Inclusive and Accessible Network' and 'Tackling Transport Related Social Exclusion' are important policies for addressing equalities. Both seek to ensure that people can access affordable public services and that active modes of travel are safe and attractive. This is complemented by policies that promote healthy lives, environmental enhancement and protection, which would help to reduce impacts of pollution and to improve the experience of travel for users.

9.11.11 The 'Neighbourhood Transport Services' policy references the need to support disabled people, older people and those with difficulty accessing services.

9.11.12 Some measures proposed might be more difficult to use for certain members of society. For example, embracing digital tools could be more of a challenge for those that are not IT literate, those without access to online services, or those with language barriers. However, traditional measures and support for such community members is highlighted throughout other Plan policies. For example, the 'Journey Planning and Information' policy seeks to provide information and services that are accessible and inclusive to all.

9.11.13 The 'Parking and Kerbside Management' policy primarily seeks to reduce inappropriate car parking and support car free areas. This should help to create more attractive locations that are suited for other street users.

9.11.14 In this respect, positive effects are expected for communities and for individuals that are reliant on walking and sustainable travel. The policy could potentially make it more difficult for individuals that require car access and parking (for example older people, people with small children, disabled people etc).

9.11.15 However, recognition is given for the needs of such groups by promoting the 'streets for all' approach. Therefore, any negative effects are unlikely to be significant.

9.11.16 Policies that support the expansion of transport infrastructure such as 'Future Light Rail and Metro' could have some negative implications for the communities that are close to stations / stops. Increased footfall and density of development in such locations could attract greater levels of crime and affect neighbourhood amenity. However, other Plan policies seek to address such issues, for example through high quality streets, management of pollution and environmental enhancement.

Appraisal of the delivery plan

9.11.17 There are a range of measures / interventions that seek to improve accessibility. Those that reference inclusivity and affordability are likely to be beneficial given that lower income groups are more reliant on public transport and other low-cost forms of transport.

9.11.18 The plan references inclusive and affordable transport as a core ambition and includes Access for All improvements at rail stations, which will have positive effects for people with disabilities. Specific stations are highlighted for improvements which will benefit communities in those locations. This includes a wide range of stations, including those close to areas of high multiple deprivation such as Bryn, Hindley, Walkden, Swinton, Levenshulme, Brinnington, Hattersley and Greenfield. Step-free access is planned across the network, which will lead to positive long-term effects in terms of equality.

9.11.19 Programmes / Schemes for Active Travel and Vision Zero aim to make walking, wheeling, and cycling safer, which benefits everyone, but particularly vulnerable users, including children, older adults, and disabled people.

9.11.20 The Bee Network integration and simplified ticketing can reduce barriers for people with cognitive impairments or language challenges. Conversely, it could have implications if digital-first ticketing is not complemented by offline options. Heavy reliance on the Bee Network app and digital ticketing could disadvantage older people, those with low digital literacy, or without smartphones unless alternative methods are provided too.

9.11.21 The plan promotes integrated ticketing but does not detail concessionary schemes or affordability measures for low-income groups, older people, or young people beyond existing statutory schemes. Implementing wide ranging improvements to transport networks whilst ensuring that public transport is affordable will be a key challenge.

9.11.22 Individual infrastructure schemes are likely to have a greater impact on communities that can make frequent use of them, as well as having a direct impact on individuals and communities that are affected by increased movements, construction activities and noise. Broadly speaking, the schemes are located in a range of urban and suburban locations that are occupied by a range of communities.

9.11.23 At a strategic level it is not clear that there are any groups that would be disproportionately affected by infrastructure expansions such as new roads and Metrolink services. The only sensible conclusion to make more broadly is that improvements to mobility and connectivity would have positive implications for all communities. For example, bus network improvements, orbital services, and integration of services supports those on low incomes and people without private vehicles, who are disproportionately women, younger people, and some ethnic minority groups.

9.11.24 Personal safety in public spaces and when using active and public transport networks is an important issue for residents and can disproportionately affect groups such as women and minorities. Policy NP16 (Personal security) is beneficial in this respect. The streets for all related schemes and proposed town centre improvements should also help to enhance feelings of safety for such groups.

9.11.25 The Plan sets out a key aim of ensuring meaningful opportunities for Greater Manchester's diverse communities to engage with planning for services. However, there are no specific delivery schemes identified to help to ensure these aims are achieved. This is a potential area for improvement (or clarification).

9.11.26 The geographical 'spread' of delivery schemes is relatively consistent across the sub-region, but the focus on growth locations and urban centres means that some authorities see more overall 'activity' than others (for example Manchester and Salford). There is no clear correlation between scheme distribution and equality issues / deprivation and therefore inequalities are unlikely to be deepened in this respect. However, it is worth noting that the phasing of schemes differs across authorities, and so some communities are likely to experience benefits from schemes later than others.

9.11.27 For example, Manchester and Salford see a greater proportion of schemes in the longer term compared to other authorities which have a greater number of short and medium term schemes that are more certain).

Conclusions for equalities

9.11.28 Overall, the Plan is likely to bring about moderate positive effects in terms of equalities. The strategic focus on growth locations and key town centres means that there will be significant overlap with communities of need, many of which contain concentrations of people with protected characteristics. The delivery schemes complement the strategy and set out specific locations where improvements to transport infrastructure will be sought, which in most cases overlap with locations that contain deprived communities.

9.11.29 There is a strong focus on people and places, and preference for prioritising sustainable modes of travel (which is demonstrated by the significant number of public transport scheme improvements that are identified in the delivery plan). This is likely to help support individuals and communities that are economically disadvantaged (which includes those with the protected characteristics of race, sex and age).

9.11.30 Increased footfall and activity would be expected alongside improvements to transport services and infrastructure, which could bring some minor concerns with regards to increased crime / anti-social behaviour and amenity. However, the Plan contains a range of policies (and schemes) that are supportive of environmental improvements and the creation of high-quality streets and transport infrastructure, and the promotion of safety. It is therefore more likely that investment would provide opportunities to address social exclusion and issues in these locations (rather than create significant negative effects).

9.11.31 The more isolated communities across the region (in most of the smaller built-up areas such as villages) are unlikely to see significant transport investment, and therefore these groups could continue to be disadvantaged in this respect. However, the Plan acknowledges these issues and includes policies to help support these areas (though this is unlikely to lead to improvements on the current baseline position given that there are no delivery schemes yet identified). These issues are more likely to affect the protected characteristics of age and disability, which are represented more in these locations.

9.11.32 On balance, when considering effects across the whole City Region it is predicted that the positive effects would be stronger and more widespread than the negative effects. In this respect, **major positive effects** are

predicted alongside minor negative effects.

Table 9.1 Summary of Plan impacts on groups with protected characteristics

Protected Characteristics	**Summary of impacts**
Age	Younger people are likely to benefit from a focus on improving sustainable modes of transport and active travel infrastructure. Elderly populations in rural locations may see more limited improvements in mobility.
Sex	Efforts to create safer environments are likely to be more beneficial to women.
Sexual orientation	Efforts to create safer environments are likely to be beneficial for groups that experience hate crime.
Disability	Several policies promote access to all people, with explicit actions and delivery schemes to ensure equality for less abled people.
Gender reassignment	Efforts to create safer environments are likely to be beneficial for groups that experience hate crime.
Marriage and civil partnership	The Plan is unlikely to have any direct effects.
Pregnancy and maternity	The Plan is unlikely to have any direct effects, however, the continued focus on improving interchanges, waiting environments and the accessibility of vehicles will benefit this group
Race	A focus on improving sustainable and active modes of travel in urban centres is likely to have benefits for ethnic minorities (which overlap with these locations across Greater Manchester). Efforts to create safer environments are likely to be beneficial for groups that experience hate crime.
Religion and belief	The Plan is unlikely to have any direct effects.

9.12 Transport

Appraisal of vision and ambitions

9.12.1 The approach to supporting social and economic development is focused on the growth locations and town centres. In this respect, it is likely that the benefits of transport interventions will be felt by a significant portion of Greater Manchester's population.

9.12.2 This approach could be expected to enable an efficient balance of targeted maintenance, mitigation and enhancement measures across the city region. Such targeting would allow elements of the transport network most in need of maintenance and upgrades to be improved, whilst also supporting an enhanced transport offer for the growth locations.

9.12.3 This broad distribution of interventions should help to achieve significant positive effects in terms of supporting sustainable modes of travel, access to jobs and services and reducing reliance on car trips. However, the ambition to provide improvements across a wide range of areas could dilute the benefits that arise in any particular location. It is also important to acknowledge that supporting movements within and between the growth locations is likely to require investment in road networks, and this could lead to increased trips in relation to employment activities.

Appraisal of network and delivery policies

9.12.4 Given that this is a transport plan, all the policies are likely to have a positive effect on at least one aspect of transport and travel. The key factor to consider is how the policies interact and the extent to which different priorities and ambitions within the Plan are achieved. It is also worth noting that the integrated appraisal topic for Transport is very much concerned with reducing the need to travel and promoting sustainable and active modes (which is mirrored in the Transport Plan).

9.12.5 Several policies are concerned with enabling / promoting increased use of sustainable transport and to increase the proportion of trips taken this way compared to private vehicles. The need to prioritise sustainable travel is reflected in many policies, as well as there being specific policies that seek to enhance how public transport services operate and expand infrastructure as necessary. There is a recognition of the importance that current infrastructure will play in supporting growth, as well as the need for expanded services (both in terms of physical infrastructure, and the capacity of provision). Taken together, the policies are likely to have a significant positive effect upon the transport objective.

9.12.6 Policies that promote environmental protection and safety are not directly aimed at travel and transport as such but are also likely to have secondary benefits in terms of supporting transport objectives. For example, making environments safe and attractive to travel through will likely encourage greater rates of walking, cycling, wheeling and the use of public transport as alternatives to the private car.

9.12.7 Though there is an acknowledgment of the need to maintain and enhance road networks, this takes a 'back seat' compared to the emphasis on sustainable and active travel. Therefore, it is possible that provision for car-based travel might not keep pace with demand if travel behaviours do not change as desired.

9.12.8 With regards to freight, the Plan supports a more sustainable approach to managing traffic and promotes alternative modes of travel such as by water and rail. This should help to manage the anticipated increase in trips from this sector.

Appraisal of delivery plan

9.12.9 The active travel improvements include targeted, location-specific interventions to enhance accessibility, movement, and safety across the existing network, alongside more strategic measures to support longer-distance active travel. Enhancements to town centres and the public realm are expected to improve safety and make walking, cycling, and wheeling more appealing and convenient. This is likely to encourage greater uptake of active travel for short trips, as well as support multimodal journeys that combine active travel with public transport. Other improvements including completing a comprehensive cycle network with strategic routes and access improvements on streets around schools should enhance safety and help facilitate active travel as a convenient option for travel. Cycle and scooter hire schemes are likely to increase access to these travel options for those without existing access or to facilitate short journeys which may otherwise be undertaken by less sustainable modes.

9.12.10 Road improvement schemes including new roads at new development sites and interventions at specific bottlenecks will help address congestion and improve movement and traffic flow. Whilst this could lead to an increase in car usage, it will also facilitate public transport and other modes of travel that use roads.

9.12.11 Some schemes should also help reduce severance for road users including pedestrians and cyclists which will improve the desirability of these modes of transport. These effects are particularly likely in areas where new roads will provide relief of long-distance traffic from local road networks, such

as in and around Carrington, Hindley and Hazel Grove.

9.12.12 New road schemes are also likely to include some provision for walking, wheeling and cycling.

9.12.13 In particular, there is potential to enhance long-distance cycling opportunities, notably by the M60-A6 link road, by creating new routes that shorten travel distances and reduce journey times.

9.12.14 Other improvements include new or expanded Metrolink connections, new train stations, increased capacity at some existing stations, and improvements to the bus network throughout Greater Manchester. Public transport improvements are likely to increase the attractiveness of the network, broaden travel choices and reduce reliance on private vehicle, encouraging a modal shift to more sustainable modes of travel.

9.12.15 New Metrolink / Tram-train or Rapid Transit connections are proposed between towns and locations including a north-western link to Wigan, east to west link to the south of Greater Manchester between Altrincham and Stockport, to the north of Greater Manchester between Oldham and Bury via Heywood and Rochdale, and between Stockport and Ashton-under-Lyme. This will contribute to completing a circular Metrolink line connecting towns in the north-east to Manchester city centre. Additional proposals include new Metrolink links to Port Salford, Leigh, Hazel Grove, and Stockport, and new train stations at Golborne and Cheadle.

9.12.16 The current Metrolink network primarily follows a radial pattern extending from Manchester city centre. The introduction of non-radial (cross-town) connections will improve travel options between towns and other locations outside the city centre, reducing the need for private car use for short and inter-town journeys. Additionally, a proposed light rail or metro link to Glossop and Hadfield would offer a more efficient and attractive alternative to current bus services, supporting a further shift away from car dependency in these areas.

9.12.17 Schemes aimed at enhancing the customer experience are also expected to encourage greater use of public transport by improving convenience and overall service quality. This includes further integration of ‘Tap & Go’ and ticket simplification, digital and technological improvements at stations and stops and regional ticket integration. Integrating regional and longer distance rail services is likely to encourage public transport use for last-leg journeys as an alternative to private taxi.

9.12.18 During the construction phase, all improvements are likely to cause disruption to the transport network. Improvements to the road network are likely to exacerbate congestion at a localised scale for the short term.

9.12.19 Improvements to stations and some public transport infrastructure could result in some short-term disruption to services which could make affected public transport services less favourable in the short term.

Conclusions for transport

9.12.20 The Plan is predicted to have **major positive effects** on the transport objective as there is a strong focus on increasing the share of sustainable and active travel in the transport mix. The strategic focus on the growth locations is likely to involve expanded infrastructure, and this will support a greater number of trips. However, the Plan is responding to spatial development that is already planned across the region, and without focused interventions it is likely that there would be a greater amount of car-based travel.

9.12.21 The focus on the key town centres is also likely to bring about significant positive effects as a significant number of journeys are made through these locations and the majority of the population can benefit from enhancements to transport infrastructure in denser urban areas.

9.12.22 A mix of delivery schemes are proposed to help achieve the plan objectives, some of which are already in the 'pipeline' and others at an advanced stage of support / with funding. Many of these overlap with the growth locations and town locations, to drive investment and growth in these locations. Other schemes are highlighted outside of these areas but are in place to respond to specific transportation issues. It is uncertain whether all these schemes will come forward as and when planned, but their inclusion within the delivery plan is proactive.

9.12.23 The Plan directs interventions across many locations, and the supporting policies are ambitious in relation to the delivery of environmental enhancements alongside transport infrastructure and service improvements. At the same time, there is a desire to keep sustainable travel affordable, accessible to all and to achieve carbon targets. There is some uncertainty whether the Plan can achieve all these things in tandem over the plan period.

9.14 Overall conclusions (appraisal of the GM Transport Strategy 2050 and Delivery Plan)

9.14.1 Table 9.2 below sets out a summary of the overall effects (i.e. the conclusions) of the Plan considered 'as a whole'. The effects are predicted in the context of the predicted future baseline (i.e. what is likely to happen in the absence of the Plan, including other schemes, plans and projects).

Table 9.2 Plan overall effects and summary

IA Topic	Overall effect	Summary
Biodiversity	**Minor positive effects**	The Plan is predicted to have **minor positive effects on biodiversity**. While new infrastructure could cause short-term minor negative impacts on habitats, strong mitigation measures, urban greening, and biodiversity net gain initiatives – especially along transport corridors – should deliver long-term benefits, including improved species resilience and reduced pollution.
Water, soil and land resources	**Neutral effects**	The Plan is predicted to have mixed effects on water, soil, and land resources. Most schemes use existing urban infrastructure and include measures to protect water and soil. Strong mitigation measures, such as the use of SUDS, greening, and biodiversity will minimise the impact of expanded infrastructure. Water-based transport could cause minor negative impacts**,** but all such schemes would be examined in detail prior to implementation so the impacts at this stage are only indicative and are uncertain. Overall, residual effects are expected to be a balance of minor positives and minor negatives resulting in a **neutral** assessment overall.
Historic environment	**Potential positive effects**	The Plan is predicted to have potential **positive effects on heritage assets and the built environment**. Investment in town centres and transport corridors could improve public realm quality and support heritage-led regeneration. In some locations, significant benefits could be achieved, but in most cases, effects are likely to be minor. It is important to acknowledge the potential for negative effects at this strategic level of assessment (though these would be anticipated to be restricted to specific schemes in sensitive locations). .Policy applicable to new road schemes and major extensions, seeks to avoid harm of historic settings and such impacts would also be examined on a case-by-case basis through the

IA Topic	Overall effect	Summary
		planning system, therefore, the potential impact would likely be effectively managed and minor.
Landscape	**Minor effects – positive and negative (depending on location)**	The Plan is predicted to have uncertain but generally minor effects on landscape. While new infrastructure could alter landscape character policies aim to avoid significant harm and some schemes may deliver positive townscape improvements. Overall, impacts are expected to be **minor effects – positive and negative (depending on location)** with uncertainty to be addressed at project level.
Air quality and noise	**Moderate positive effects (air quality)** **Minor negative effects (noise)**	The Plan is predicted to have **moderate positive effects on air quality** by prioritising sustainable transport modes, green infrastructure, and low-emission solutions like trams and electric buses. While expanded services and connectivity could cause **minor negative noise impacts**, strong mitigation measures should keep residual effects low.
Climate change	**Potential for moderate positive effect**	The Plan has the potential to have **moderate positive effects on climate change**. It promotes urban densification, sustainable transport, and modal shift, which support carbon reduction and resilience. However, its strong emphasis on economic growth and new infrastructure could mean the rate of progress toward zero-carbon targets is challenging. In order to achieve a moderate positive effect, it is recommended that modal shift and emissions reductions are accelerated early in the plan period wherever possible. Without early interventions the effects are more likely to be minor.
Healthy and safe communities	**Moderate positive long-term effects**	The Plan is expected to have **moderate positive long-term effects** on health and safety: it promotes road safety, personal security, active travel and better access to jobs and services, including hospitals, which should deliver moderate long-term effects upon health. However, increased transport related activity could cause minor negative impacts such as noise and amenity concerns in some locations (particularly during construction periods).
Material assets	**Major positive effects**	The Plan is expected to deliver **major positive effects on material assets** by aligning land use and transport planning to support economic growth, housing, and infrastructure protection. Its comprehensive delivery programme ensures coordinated development near transport nodes, enhancing regional assets and services.

IA Topic	Overall effect	Summary
Equalities	**Major positive effects**	The Plan is predicted to have **major positive effects on equalities**, mainly by improving transport in growth areas and town centres that overlap with deprived communities and protected groups. While isolated rural areas may see smaller benefits, overall major positive effects outweigh minor negatives, supporting social inclusion and sustainable travel.
Transport	**Major positive effects**	The Plan is expected to have **major positive impacts** on sustainable transport by promoting active travel and infrastructure improvements in growth areas and town centres.

10 Mitigation and enhancement

10.1.1 Given the iterative nature of plan-making, consideration of mitigation and enhancement measures has featured throughout the IA process. This section sets out a summary of how the IA suggested mitigation and enhancement at key stages in the plan-making process (and a summary of how the GM Transport Strategy 2050 and Delivery Plan were shaped by these 'recommendations').

Early policy development

10.1.2 As a first step, a range of recommendations were made at an early stage of policy development (see appendix A). TfGM took these into consideration to influence policies as they were being refined where possible. Appendix D sets out all the recommendations that were made at this formative stage of plan-making and states how the GM Transport Strategy 2050 and Delivery Plan responded to and addressed these measures and where further consideration is required prior to finalising the strategy.

Strategic options stage

10.1.3 Following consideration of early draft policies, mitigation and enhancement measures were considered further through the appraisal of the strategic options. The following measures have been drawn out of the assessment findings as important factors to ensure that the positive effects of investment are maximised and the negative effects are avoided. These findings were highlighted to TfGM to help influence the refinement of policies. The extent to which these factors are addressed by the plan policies and schemes is summarised alongside each recommendation in the table below.

Recommendations	Response
Require enhancements to surface water management and drainage systems as part of new transport schemes in growth locations.	Several policies support the delivery of sustainable urban drainage systems (notably 'Streets for All', 'Climate Change' 'Green and Blue Infrastructure'). The SuDs Pilot and Delivery programme is also relevant, though does not explicitly relate to growth locations. Further details in relation to growth locations can be articulated in masterplans and at a project level.

Recommendations	Response
Support higher standards of design in new transport infrastructure including the use of materials with low embodied energy, facilitating the expansion of low carbon technologies and implementing green and blue infrastructure networks.	Network Policy 12 'Climate Change' seeks to minimise the embodied and operational carbon that is produced by transport infrastructure. The need to deliver zero carbon / low carbon transport schemes is reflected in several delivery plan schemes such as 'Bury Interchange Redevelopment'.
Invest in urban greening measures such as urban tree planting and enhancement of canal-side routes. Greening linear routes in urban areas as well as strengthening green space in the public realm would be likely to help tackle surface water flood risk and urban heating.	Several policies support the delivery of urban greening measures (notably 'Streets for All', 'Climate Change' 'Green and Blue Infrastructure'). The Trafford Greenway scheme and 'Greening Trafford Park' are examples of specific schemes. Enhancements to linear routes and public realm improvements would also be expected throughout the urban areas with details to be articulated on a project level. It is also worth noting that the planning system has strong policy direction in relation to urban greening that will be applicable.
It will be important to ensure that transport infrastructure and wider growth in areas with poor water quality is supported by mitigation and enhancement measures that address pollution risks.	Several policies seek to protect environmental quality, with Network Policy 11 'Pollution' explicitly directing attention to areas that are most affected and a measure to reduce the impact of transport on water resources and watercourses. Project level impacts will need to incorporate construction management and scheme mitigation to ensure that impacts are addressed satisfactorily.
Ensure that transport enhancement measures in town centres do not introduce unsympathetic street design including signage, furniture and markings	The principles of sensitive design are included notably within Network Policy 14 'Built and natural environment' and Delivery Policy 2 'Streets for All'. Public realm improvements are an important feature of many of the delivery plan schemes, which will include consideration of the impact upon street scene, townscape and heritage. These issues will need to be addressed at a project level.

Recommendations	Response
Use transport investment to help regenerate urban areas and to protect and enhance heritage.	The principle of urban regeneration is reflected in a range of policies. There is reference to enhancement of heritage 'where possible' in the supporting text to Network Policy 14 'Built and Natural Environment'. There is a range of delivery schemes aimed at improving the public realm in town centres and other urban locations.
Seek to divert car travel away from town centres and denser urban areas. Prioritise investment in quieter, low-emission transport options in urban areas.	Car reduction is a key aim if the strategy, as reflected in the 'right mix' target. Several policies support sustainable transport first approaches, and this is backed by a substantial number of delivery schemes to achieve these aims. Whilst investment is not 'prioritised' in terms of low emissions transport, there is significant support for low carbon infrastructure schemes such as Metro link expansions, shifting to sustainable freight, and expanding infrastructure related to ultra-low emissions vehicles.
It will be important to minimise a widening of any inequalities in accessibility. Communities that fall outside of growth locations / LIF areas and denser urban centres are particularly at risk in this respect. Policy measures to address 'rural deprivation / access to services' could help in this respect	Network Policy 7 'Tackling Transport Related Social Exclusion' and Delivery Policy 7 'Neighbourhood Transport Services' are most pertinent to these recommendations as they support accessibility for communities that are experiencing deprivation.
A balanced approach to achieving sustainability needs to be taken. Giving a significant priority to social betterment could have serious implications for biodiversity and climate change. Conversely, a heavy focus on accelerating progress with climate change measures could come at a cost for the economy and lead to social impacts in the short to medium term.	The proposed spatial approach and supporting policies seeks to balance the three pillars of sustainability (Population, Economy, Environment).

Whole plan appraisal recommendations (Including delivery plan schemes)

10.1.4 Finally, as part of the Plan appraisal process further consideration has been given to measures that can enhance the positive effects of the final version of the Plan and minimise the negative effects. At this stage, the recommendations are less extensive, because the IA has influenced Plan development from an early stage (as above). It is also important to note that the Plan appraisal considers all the policies and delivery schemes in combination and addresses how effects arising from one element of the Plan will be influenced others. The measures listed below are focused on 'residual effects' where it is considered that the Plan could be amended to enhance positives. **These residual measures will be considered by TfGM alongside any comments received during the consultation period before the final version of the Plan is prepared.**

10.1.5 The focus of IA should (primarily) be to identify and mitigate (as far as possible) significant effects. No significant negative effects have been identified, but where minor negative effects have been identified and mitigation is considered possible, measures have been suggested.

- It is recommended that a greater emphasis could be placed upon enhancement with regards to the historic environment. Transport schemes could provide opportunities to improve the built environment and support regeneration of heritage assets and their surroundings. This can be reflected through policies to reinforce this focus when schemes are delivered.

- It is recommended that the pollution policy also seeks to address air quality where it is a threat to European habitats. A policy clause could be added to NP11 such as 'manage the impact of air pollution upon European Designated Habitats'.

- It is recommended that a scheme be explored that seeks to upskill / reskill those that might be affected by increasing use of Artificial Intelligence.

- To achieve a more significant positive effect with regards to climate change, it is recommended that longer-term schemes that enable modal shift and sustainable freight could be accelerated / brought forward (though acknowledging that this is heavily dependent upon resources and funding). This would allow carbon emissions to be 'baked in' earlier in Plan period which will be necessary if transports contribution to the Tyndall Budget is to decrease significantly.

11 Next steps and monitoring

Monitoring

11.1.1 There is a requirement to outline the measures envisaged to monitor the predicted effects of a Plan. The Regulations suggest that there is a need to focus on the significant effects that are identified (rather than all effects).

11.1.2 It is important to identify monitoring measures that are appropriate, which includes consideration of the practicality of collecting data. In this regard, it is important to consider existing monitoring regimes that cover similar topics and issues. The GM Transport Strategy 2050 and Delivery Plan is accompanied by a set of monitoring measures and there are also indicators and targets within related strategies and plans across Greater Manchester such as the Five-Year Environment Plan. To reduce duplication of effort, these sources of monitoring indicators have been utilised in the first instance. Where necessary, new indicators are proposed to complement any existing / proposed monitoring measures.

11.1.3 Table 10.1 below recaps on the overall effects of the Plan and presents a set of indicators that could potentially be used to monitor the predicted effects. Measures will be finalised once the Plan is adopted and will be set out in an SA Statement in accordance with the SEA Regulations.

Table 10.1 Potential monitoring indicators

Summary of effects	Proposed monitoring indicators	Potential source
Biodiversity **Minor positive effects**	Gross area of new habitat created from the application of biodiversity net gain in transport related schemes Number of trees planted annually (as a result of transport schemes)	Places for Everyone Plan (GMCA) Places for Everyone / Greater Manchester Strategy (GMCA)
Water, soil and land resources **Neutral effects**	25 year Environment Plan: Indicator B1 – Pollution loads entering waters	Environment Agency / DEFRA
Historic Environment **Potential positive effects**	Effects are not anticipated to be significant and would be more appropriately monitored for individual projects and schemes.	To be confirmed
Landscape **Minor effects – positive and negative (depending on location)**	G1a – Changes in the landscape characteristics of National Character Areas (NCAs).	Natural England
Air quality and noise **Moderate positive effects (air quality)** **Minor negative effects (noise)**	Exceedances of the legal level of NO2 (as an Annual Mean) in local AQMA and Clean Air Plan Monitoring. % of the GM bus fleet that is zero emission (at tailpipe)	Places for Everyone Plan (GMCA) Greater Manchester Strategy (GMCA)
Climate change **Potential for moderate positive effect**	Facilitation of GM logistics move to zero emissions fleets Carbon emissions per capita associated with transportation	Five Year Environment Plan (GMCA) DEFRA
Healthy and Safe Communities	Incidents of crime and antisocial behaviour per million passenger journeys. H5: Exposure to transport noise	LTP (TfGM)

Summary of effects	Proposed monitoring indicators	Potential source
Moderate positive long-term effects		DEFRA strategic noise mapping
Material assets **Major positive effects**	% of housing within 800m of good public transport accessibility Funding secured towards strategic infrastructure in growth locations.	Places for Everyone TfGM?
Equalities **Major positive effects**	% who find it easy or very easy to travel to key services (by any form of transport). - All respondents - Disability - No car access % who agree or strongly agree they get a fair deal for the fares they pay	LTP (TfGM) LTP (TfGM)
Transport **Major positive effects**	% of journeys made by active travel and public transport	LTP (TfGM)

Appendix A: Early policy development commentary

Draft Policy	Policy Implications	Mitigations/recommendations	Updates to policy papers
New Development	▪ Consideration of both design and locations of development in relation to access to and provision and convenience of sustainable modes of transport ought to lead to a range of positive factors linked to increased cycling, walking, wheeling and public transport use rates. These are expected to link to the following themes: ▪ **Air quality and noise** through a reduction in private motor-vehicle use rates and associated declines in a key source of air pollution; ▪ **Climate change** (mitigation) though an increase in use rates of transport modes which are associated with lower CO2e emissions; ▪ **Healthy and safe communities** through an increase in active travel rates, promoting positive physical and mental health outcomes; ▪ **Material assets** by reducing use rates of congestion causing modes of transport , efficiencies on the transport network would be expected to boost economic growth.	▪ Wording to strengthen landscape, townscape and heritage considerations and direct higher density to less sensitive areas might mitigate potential negative **landscape** and **historic environment** related effects. ▪ Setting a threshold at which travel plans are required, or the granularity of such plans being linked to different scales/types of development would help to account of the different **transport** related effects various scales and types of development might have.	▪ Policy paper has been merged with the land use policy to become NP05 – Land Use and Network Development. ▪ New section covering Transport Oriented Development with mixed uses and higher densities has been developed. ▪ Production of a development framework, a strategic regeneration framework or a masterplan accompanied by an infrastructure delivery and phasing strategy has been identified in the policy paper and guides larger, strategic developments. ▪ Urban form and impact of historic environment issues would be dealt with through the planning system, so any increase in density at transport nodes would need to take this into account.

Draft Policy	Policy Implications	Mitigations/recommendations	Updates to policy papers
	▪ Improved accessibility of development for all users is expected to benefit the **equalities** IA theme, considering access for those who are less able and also providing options for low-cost travel would be beneficial too. ▪ Potential negative effects on **landscape and townscape** matters may be seen by increasing development density around public transport access nodes, resulting in changes to the urban form. Depending on sensitivities in relation to the **historic environment**, the historic character of an area may also see some detrimental effects, including on the significance and setting of historic assets. However, it is recognised that this would be dealt with through the planning system and the transport strategy is merely setting out the principle that higher density development is beneficial to transport systems operation.		
An Inclusive and Accessible Network	▪ Positive effects are expected for **equalities** and **healthy and safe communities** by ensuring that transport provisions minimise barriers for use. ▪ Cross-cutting transport related benefits are likely to be realised by increasing the range of people able to access sustainable modes of transport, thereby potentially increasing the uptake of sustainable modes of transport.	▪ Specific reference to active travel accessibility (for example the removal of barriers) might result in more pronounced positive effects in relation to **equalities** and **healthy and safe communities**.	▪ The policy paper now identifies the following in regard to active travel accessibility “the requirement for inclusive and accessible design of our transport infrastructure, services and vehicles to support people who walk, wheel and cycle is recognised as being vitally important to reach our social, economic and environmental goals.” This is linked to the first bullet point which states “designing transport infrastructure, services, and

Draft Policy	Policy Implications	Mitigations/recommendations	Updates to policy papers
			vehicles with physical and cognitive accessibility, safety and inclusivity in mind". No further changes deemed to be required.
Accessible Travel Services (Ring & Ride, Local Link, Health/Voluntary Services)	▪ This policy ought to promote inclusive travel options for people who may experience barriers to travel and accessibility due to factors relating to mobility issues, disabilities, poor public service provisions. **Healthy and safe communities** and **equalities** IA Themes are expected to see positive outcomes linked to this. ▪ The improved access to employment areas by sustainable means associated with this policy ought to promote positive effects for the **equalities**, **climate change** (mitigation), **material assets** (economy and employment), **transport** and **air quality and noise** IA themes. These effects are likely to be linked to a reduced degree of car dependencies, more sustainable commuting patterns and improved access to employment opportunities for those who might experience barriers to their mobility.	▪ This policy could be strengthened by wording which also focuses the policy towards ensuring new large housing sites contribute towards accessible and sustainable transport services where they are needed to improve sustainable access to/from the site where traditional public transport provision would be unviable.	▪ The relevant policy paper (DP07 – Neighbourhood Transport Services) has undergone significant change since the early review with car clubs (DP13 – Car Clubs) now forming part of a standalone policy. ▪ Following review, developer contributions has not been defined for each mode. However, this forms part of the wider proposals outlined in the NP05 – Land Use and New Development policy paper. ▪ Policy NP5 is "Working collaboratively across GM we will encourage new development and land use patterns that reduce the need to travel by car, and work with developers to ensure a vision-led approach to deliver well-designed, sustainable places that prioritise travel by sustainable modes. This includes: o Ensuring the co-ordinated delivery and phasing of necessary sustainable transport infrastructure for development. ▪ This also outlines the intention to work "with developers and infrastructure

Draft Policy	Policy Implications	Mitigations/recommendations	Updates to policy papers
			providers to ensure that proposals for new development are: o Vision-led prioritising sustainable modes o Delivered in accordance with Local Plan / Development Plan Documents, unless material considerations indicate otherwise; and o Designed through early engagement with infrastructure providers to take full account of existing and future infrastructure assets.
Tackling Deprivation	▪ This policy is likely to support the delivery of transport services and infrastructure which improve the accessibility and affordability of transport in areas with higher degrees of deprivation. This ought to promote positive effects for IA themes **healthy and safe communities** and **equalities**.	▪ None identified.	▪ No updates required.
Pollution	▪ The reduction of transport infrastructure impacts on water courses is expected to bring positive effects for the **water, soil and land resources** IA theme. ▪ A reduction in air quality issues (from NO2, PM10 and PM 2.5) is likely to lead to a reduction in exposure to poor air quality, reducing the consequential negative health	▪ Further wording could specifically include the reduction of impacts of transport infrastructure on habitats and species. ▪ The policy could seek to spatially prioritise interventions to reduce air quality issues (for example, nearby schools, areas of higher population	▪ Requires further review prior to finalising the strategy. ▪ The latest position on the Greater Manchester Clean Air Plan has been outlined following Government's approval of its Investment-led Plan in January 2025. This will tackle nitrogen dioxide (NO20 exceedances and reduce the number of

Draft Policy	Policy Implications	Mitigations/recommendations	Updates to policy papers
	implications. Positive effects are anticipated for **healthy and safe communities**. ▪ A key focus on high-risk communities is likely to reduce the exposure to poor air quality from groups who may be more vulnerable to its associated health implications; the **equalities** IA theme would be expected to see some positive effects.	density, those areas without access to green space or of low green infrastructure density). ▪ The policy could seek to ensure that new transport infrastructure which might increase levels of poor air quality (such as road schemes) mitigates this where possible through design. This could focus on factors such as the location/route of the scheme (considering populated areas), pollution screens and green infrastructure. ▪ The policy wording could seek to reduce noise pollution at spatially prioritised locations which may link to population exposure. For example, bus stops and timing points stops being located nearby to residential development.	exceedances to 0 in 2026. The legal requirements on NO2 levels and PM10 and PM2.5 will control and minimise air pollution across Greater Manchester to compliant levels. ▪ Additional commentary has been added to reduce the impact of noise from transport vehicles and infrastructure wherever possible, including noise from freight being transported by rail through residential areas. The policy sets out that GM will work across local planning authorities and National Highways to mitigate and keep to a minimum the contribution transport and its infrastructure make to environmental noise across the region.
Climate Change	▪ This policy is high level, but its drive for a strategic focus on public transport and active travel ought to be beneficial to the increased provision and uptake of services and infrastructure to support such modal shifts. ▪ Positive effects for a range of IA themes are likely to be associated with an increase in active travel rates. ▪ **Healthy and safe communities** – health benefits associated with physically active	▪ Specific support for named modal types in specific areas or corridors which show acute issues relating to transport related emissions could promote positive outcomes. ▪ The reinsertion of wording related to collaborative approaches could help to promote positive outcomes in relation to various IA themes.	▪ Weather-related events and climate adaption is now covered in NP12- Climate Change policy paper. ▪ Nature-based solutions are referenced in the NP13- Green and Blue Infrastructure policy paper namely “New transport infrastructure can provide opportunities to support and enhance green and blue infrastructure, maximising nature’s

Draft Policy	Policy Implications	Mitigations/recommendations	Updates to policy papers
	lives are significant in terms of mental and physical health outcomes. ▪ **Air quality and noise** – a reduction in modal choices which deteriorate air quality ought to improve contributions to air quality issues. Further to this, an increase in off-road walking and cycling routes would be expected to reduce exposure to poor air quality. ▪ **Climate change** – a reduction in the use of high journey derived and embodied CO2e emissions is likely to be positive in terms of mitigating climate change. Active travel is also considered to be more resilient to extreme weather conditions. ▪ The drive for resilience in the network is high level, however it is likely to support outcomes which help to promote positive outcomes in relation to various IA themes. ▪ **Material assets** – resilience is likely to ensure reliability during stressed on the transport network, helping to protect economic output from the impacts of extreme weather events and climatic heating. ▪ **Climate change** – an increased resilience of the transport network will boost climate change adaptation as the policy thrust and IA focus are aligned.	▪ Specific support for types of nature based solutions would guide more pronounced positive outcomes (e.g. planting as a landscape mitigation for infrastructure projects) ▪ Add detail to reasoned justification on extreme weather events relating to extreme heating events and effects upon transport (e.g. rail operations during heat heating events) ▪ This policy does not require any mitigations in relation to the **equalities** IA theme.	role in adapting the city-region to climate change." ▪ There is now a policy on collaborating with neighbouring authorities and other organisations which would apply to all policy areas. The intention is that this policy avoids the need to repeatedly say we will work in collaboration in every other policy.

Draft Policy	Policy Implications	Mitigations/recommendations	Updates to policy papers
	▪ Support for nature based solutions in transport projects ought to promote positive outcomes for various IA themes. ▪ **Biodiversity** – nature based solutions are likely to lead to increased habitat creation; boosting fauna and flora. ▪ **Healthy and safe communities** – by boosting access to and provision of natural solutions which have positive effects for mental health. ▪ **Landscape** – by ensuring that schemes are supplemented with natural solutions which can often help to mitigate the impacts of infrastructure on the natural landscape.		
Green and Blue Infrastructure	▪ An increased provision of green and blue infrastructure ought to invoke positive effects for a range of IA themes: ▪ **Healthy and safe communities** – positive mental and physical health outcomes associated with an increased provision. ▪ **Climate change** – carbon sequestration benefits from green infrastructure alongside increased cooling and flood risk mitigation. ▪ **Landscape** – potential to mitigate infrastructure effect related landscape and townscape impacts through planting and screening.	▪ The reinsertion of wording related to collaborative approaches could help to promote positive outcomes in relation to various IA themes. ▪ Specific reference to the provision of multi-functional green infrastructure to screen transport infrastructure may help to mitigate potential negative effects on land or townscape settings. ▪ This policy does not require any mitigations in relation to the **equalities** IA theme.	▪ Policy papers covering environmental themes are largely contained in: NP11- Pollution, NP12- Climate Change and NP13- Green and Blue Infrastructure. ▪ There is now a policy on collaborating with neighbouring authorities and other organisations which would apply to all policy areas. The intention is that this policy avoids the need to repeatedly say we will work in collaboration in every other policy. ▪ A section covering “early engagement with partner organisations” has been included in the policy paper.

Draft Policy	Policy Implications	Mitigations/recommendations	Updates to policy papers
	▪ **Biodiversity** – increased habitat creation associated with this policy; boosting fauna and flora. ▪ **Transport** – potential to improve the aesthetics and setting of active travel routes, making uptake more likely. ▪ **Air quality and noise** – Green infrastructure provision can help to mitigate air pollution issues and potentially reduce exposure. ▪		▪ A link between the enhancement of green and blue infrastructure to support biodiversity, and community benefits forms part of the main policy statement in the policy, emphasising the multi-functional use of the infrastructure.
Built and Natural Environment	▪ The high level and cross-cutting approach to reducing the impact of transport on the built and natural environment ought to promote positive effects for **biodiversity**, **water**, **soil and land resources**, **historic environment**, **landscape**, **air quality and noise** and **climate change**. These effects are likely to be seen through ensuring that future transport scheme design and implementation consider and mitigate potential detrimental effects on a range of receptors. ▪ By seeking to protect natural spaces from adverse effects from transport related services and infrastructures, spaces which are positive for health and wellbeing and valuable as habitats will see some added protection. Positive effects for **healthy and safe communities** and **biodiversity** are expected to be realised.	▪ A greater emphasis could be placed upon enhancement with regards to the historic environment ▪ This policy does not require any mitigations in relation to the **equalities** IA theme.	▪ Requires further review prior to finalising the strategy.

Draft Policy	Policy Implications	Mitigations/recommendations	Updates to policy papers
A Reliable Transport Network	▪ A reliable transport network supports network-wide efficiencies for availability, journey-time reliability, punctuality, resilience and informative approaches is likely to increase confidence in the transport system throughout Greater Manchester. Positive effects are likely to be associated with this high level outcome, though specific thematic effects are dependent upon the nature of work targeting network reliability. ▪ In broad terms, improved reliabilities are expected to have positive effects for economic and employment outcomes in the area, benefitting the **material assets** theme. This is linked to travel efficiencies relating to commuting, deliveries, emergency response and communications; inward investment is likely to be seen as a result of this.	▪ More specific reference to reliability in relation to pressures would see a greater degree of benefits under this policy. This could include a focus on (but not limited to): o Severe weather events o Climatic heating o Economic and population growth o Security threats o Energy insecurity o Infrastructure failures ▪ This policy does not require any mitigations in relation to the **equalities** IA theme.	▪ Specific reference to climate change-related impacts has been included in the policy paper in the 'network resilience' section of the paper, including "we will keep the vulnerability of our public transport infrastructure and highways under review and ensure that new infrastructure is designed with in-built resilience. In recognising that climate change will have an increasing impact over the period to 2050".

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Personal Safety and Security	▪ This policy aims to enhance the perception and reality of personal security across the Greater Manchester transport network. By focusing on presence, monitoring, enforcement, and design, it seeks to make public transport a safer and more attractive option for all users, especially vulnerable groups. ▪ Crime and anti-social behaviour are also directly addressed, through collaboration with multiple agencies, which may lead to increased enforcement actions and improved safety perceptions. ▪ More broadly, in improving security, the policy is expected to encourage greater use of public transport, particularly during off-peak hours and among demographics that might otherwise avoid it due to safety concerns. ▪ The core focus on this theme would be expected to lead to positive effects on the **healthy and safe communities** and **equalities** IA themes. These would be realised through a decrease in the prevalence of crime and spaces in which might give rise to the perception of a lack of safety. Further, these improvements might boost accessibility to the transport network (including use of infrastructures and services) for groups who might have otherwise felt marginalised or threatened.	▪ The policy could seek to spatially prioritise interventions to reduce safety threats/crimes (for example by focusing on high-risk areas such as poorly lit transit hubs, frequently targeted routes, and locations with a history of anti-social behaviour or higher crime rates). ▪ By providing more specific policy wording to protect specific groups and characteristics, the policy's efficacy might be strengthened.	▪ Following review, the policy priorities tackling of 'high harm' crimes and this should be maintained as opposed to moving towards a spatial prioritisation with the policy paper stating a need to strive for a consistent approach across the whole transport network. ▪ Additional evidence has been included for specific groups that are disproportionately targeted by criminal and anti-social behaviour.

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Vision Zero	▪ The Vision Zero policy is expected to significantly enhance road safety, aiming to reduce fatalities and life-changing injuries to zero by 2040. This will lead to improved public health, economic savings, and increased equitable mobility. This is expected to benefit **healthy and safe communities**, **material assets** and **equalities** IA themes, respectively. ▪ Positive impacts are anticipated across several areas linked to safer roads, including reduced traffic speeds (and associated air quality improvements), a more encouraging environment for active travel and socialising, greater accessibility (especially for more vulnerable groups) to walking, cycling and wheeling and a better environment which supports less carbon intense modes of transport. These factors would be expected to benefit IA themes including **healthy and safe communities**, **air quality and noise**, **climate change** and **equalities**.	▪ A prioritisation of key barriers to perceived and actual safety would help to strengthen the policy and target interventions to ensure maximised safety improvements.	▪ The need to address perceived and actual safety is covered in NP16 - Personal Safety and Security. ▪ The Vision Zero policy paper is aligned to the Vision Zero Strategy and Action Plan. There is brief reference to the perceptions of safety however this is in context of road users.
Low Emission Vehicles	▪ An increase in the rates of low emission vehicle usage would help to reduce transport-related emissions per mile travelled across the City Region, helping to mitigate **climate change**. Targeted interventions in areas with high car dependency would potentially increase the magnitude of positive effects. ▪ The targeted approach of infrastructure provision in non-commercially viable	▪ In the longer-term, a reliance upon electric vehicles will not mitigate congestion related issues, and priority should be focused on more sustainable forms of transport, including active travel and public transport. This will help to reduce longer-term negative effects related to the embodied carbon of electric vehicles, and secondary	▪ The DP18 – Ultra Low Emission Vehicles policy focuses on supporting the transition to ULEVs. This also includes other transport modes, taxis, private hire vehicles and car clubs. This is complementary to the Right Mix target to “improve our transport system so that, by 2040, 50% of all journeys in GM will be made by public transport or active travel.” This

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	locations and intention to ensure pavements remain accessible are likely to have positive effects on **equalities** and **healthy and safe communities**. ▪ Air quality improvements ought to be seen through an increase in less-polluting vehicles. This will be likely to have positive knock-on impacts for health outcomes. ▪ Support for multi-modal transport integration ought to promote the use of sustainable modes of transport, potentially increasing sustainable transport rates. ▪ A reduction in air pollution might have positive outcomes for **biodiversity**, by reducing conditions which induce negative outcomes for flora and fauna.	consequences of congestion and road capacity issues. The supporting text references this, but the policy could provide a more direct link to this point.	policy paper should be read in conjunction with the main strategy document and other related policy papers such as the NP11- Pollution and NP12- Climate Change policies.

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Innovation	▪ By harnessing new technologies to meet ambitions across the City Region, economic growth is likely to be boosted through advancements in the development of innovative tools to improve network efficiencies and experiences. **Material Assets** IA theme is likely to see some positive effects. ▪ The policy's support for the adoption of Intelligent Transport Systems (ITS) and other technologies that improve efficiency and reduce emissions might be expected to minimise contributions to air quality issues and other environmental receptors such as species, habitats and other land and water quality indicators. The potential for cleaner, quieter and more efficient transport systems in this respect might be expected to benefit the following IA themes: **Air quality and noise**, **climate change**, **biodiversity** and **water, soil and land resources**. ▪ An increased use of technologies would be likely to promote solutions to accessibility and safety related issues, resulting in positive effects for the **healthy and safe communities** and **equalities** themes.	▪ New innovations on the transport network, especially where these relate to personal mobility, may exclude disadvantaged groups or those who might experience barrier to access. A support for those interventions which promote inclusive solutions might strengthen the policy in this respect. ▪ New innovations and technologies which alter the dynamics of the transport network may lead to adverse disruptions other areas of transport. Challenges with the integration of new technologies might also be soon. Appropriate mitigations should be planned for and supported, in order to minimise disruption to the network and its day-to-day operations.	▪ The DP25 – Technology and Innovation policy paper outlines the intention to investigate, develop and deploy transport technology and innovations. This includes horizon scanning, trialling new ideas through pilots and rolling out success trials. As part of this approach, potential issues will be identified and mitigations proposed.

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Strategic and Key Roads	▪ The policy's emphasis on coordinating the planning, management, and operation of both the Strategic Road Network (SRN) and Key Route Network (KRN) is expected to enhance overall network efficiency. This will likely lead to safer, smoother, and more reliable journeys for all users, supporting economic growth by reducing inefficiencies on critical routes. The **Material Assets** IA theme is likely to benefit. ▪ By reducing the impacts of the SRN and KRN on local social, environmental and economic outcomes (relating to physical and psychological severances, habitat and species disruption and preventing efficient connectivity and accessibility), a range of positive outcomes would be expected. Communities and local areas would be expected to see improved biodiversity outcomes, better community integration, reduced air and noise pollution, better inter and intra neighbourhood connectivity and boosted accessibility. IA themes which are likely to see benefits include **healthy and safe communities**, **biodiversity**, **air quality and noise**, **equalities** and **material assets**. ▪ By managing the transport network according to its role and use, effective network management can be delivered. This is likely to prioritise appropriate network uses and distributions of transport across the City	▪ Whilst a properly networked and strategic approach to connectivity within a transport network and route setting is vital to ensuring its equitable distribution and efficacy, how this relates to sensitive receptors should be considered. The strategic road network and key routes might be expected to have more significant implications for sensitive receptors. For example, areas with higher landscape, historic environment or biodiversity value should see some protections afforded through the policy wording.	▪ The original policy paper has now been split into two separate papers: DP09 – Strategic Roads and DP10 – Planning of Key Routes and Local Roads. ▪ DP10- Planning of Key Routes and Local Roads sets out that GM does not “propose to add significant additional road capacity for general traffic, other than where it is required to support new development”. There will be an emphasis on balancing the needs of all uses and users of our roads. To avoid duplication with NP11 – Pollution (which sets out noise and air quality considerations), this has not been referenced as part of the DP09 – Strategic Roads and DP10 – Planning of Key Routes and Local Roads policy papers.

Draft Policy	Policy Implications	Mitigations/recommendations	Updates to policy papers
	Region, resulting in improved efficiencies and appropriate solutions being targeted to key target areas. The **material assets** IA themes is expected to see positive effects.		

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Freight and Logistics	▪ The policy aims to optimise the transport network to support more efficient freight movement, freight transport system use and how the freight transport system interacts with other elements of the transport network and the built and natural environment. This ought to facilitate economic growth derived from efficiencies, benefitting the **material assets** IA theme. ▪ The policy acknowledges the significant contribution of road freight to carbon emissions and air pollution. It promotes the transition to zero-emission vehicles and a shift from road to rail or water for freight where feasible. This should reduce carbon emissions, air and noise pollution, and lead to positive consequences for habitats and species. This ought to benefit the IA themes of **climate change**, **air quality and noise** and **biodiversity**.	▪ The policy could strengthen wording to support prioritisation of associated development and infrastructure, so as to minimise exposure to air, noise a vibration related impacts of freight infrastructure. This could promote freight corridors in areas which are segregated from community spaces and housing. ▪ This policy does not require any mitigations in relation to the **equalities** IA theme.	▪ This policy paper has included the section “mitigating the environmental, safety and societal impacts” which proposes to reduce negative impacts associated with the current means of transporting freight and encouraging shifting freight to more sustainable means of transport. This includes zero emission LGVs and cycle freight for short-distance trips and rail or water for longer distance freight.
Active Travel	▪ Promoting active travel through improved infrastructure is likely to lead to an increased active travel rate across the City Region, resulting in more healthy and active travel choices, reduced transport related emissions and improvements in air quality. Positive effects are anticipated for the IA themes **air quality and noise**, **healthy and safe communities** and **climate change** (mitigation).	▪ Policy could highlight the key focus or definition of the identified ‘key destinations’. ▪ The policy could seek to promote segregated routes, especially in locations with higher incidences of road traffic accidents or poor air quality.	▪ The active travel policy has been split into two policy papers: DP03 – Walking and Wheeling and DP04 Cycling. ▪ The policies align with the Streets for All approach which provides scheme design requirements. On this basis, the policy papers are aligned to the recommendation set out.

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	▪ The flexibility of active travel and an increase in support for it, ought to help to better connect the City Region's transport in a networked approach, benefiting the **transport** IA theme. ▪ An increase in walking, cycling and wheeling might increase exposure to poor air quality; leading to negative effects in relation to the **air quality and noise** IA theme. ▪ An increase in walking, cycling and wheeling might increase exposure to risks of road traffic accidents; leading to negative effects in relation to the **healthy and safe communities** IA theme. ▪ The focus on reducing barriers to access to infrastructures (including bicycles, inclusive design and locking facilities) ought to promote positive effects for the **equalities** theme.		
Walking and Wheeling	▪ Promoting walking and wheeling through improved infrastructure is likely to lead to an increased active travel rate across the City Region, resulting in more healthy and active travel choices, reduced transport related emissions and improvements in air quality. Positive effects are anticipated for the IA themes **air quality and noise**, **healthy and safe communities** and **climate change** (mitigation).	▪	▪ No update proposed.

Draft Policy	Policy Implications	Mitigations/recommendations	Updates to policy papers
	▪ The focus on inclusive distribution of the network to support all communities as well as the provision of improved crossings to be accessible will increase the ability for less abled users to travel without impairment. The **healthy and safe communities** and **equalities** IA themes will be expected to see benefits. ▪ The flexibility of walking and wheeling and an increase in support for it, ought to help to better connect the City Region's transport in a networked approach, benefiting the **transport** IA theme. ▪ An increase in walking and wheeling might increase exposure to poor air quality; leading to negative effects in relation to the **air quality and noise** IA theme. ▪ An increase in walking, cycling and wheeling might increase exposure to risks of road traffic accidents; leading to negative effects in relation to the **healthy and safe communities** IA theme. ▪ The promotion of liveable communities/neighbourhoods ought to promote human-scale design and environments which promote positive effects for health and wellbeing, benefitting the **healthy and safe communities** IA theme.		

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Cycling	▪ Promoting cycling through improved infrastructure is likely to lead to an increased active travel rate across the City Region, resulting in more healthy and active travel choices, reduced transport related emissions and improvements in air quality. Positive effects are anticipated for the IA themes **air quality and noise**, **healthy and safe communities** and **climate change** (mitigation). ▪ The flexibility of cycling and an increase in support for a networked approach, ought to help to better connect the City Region's transport in a networked approach, benefiting the **transport** IA theme. ▪ An increase in cycling might increase exposure to poor air quality; leading to negative effects in relation to the **air quality and noise** IA theme. ▪ An increase in cycling might increase exposure to risks of road traffic accidents; leading to negative effects in relation to the **healthy and safe communities** IA theme. ▪ The focus on reducing barriers to access to infrastructures (including bicycles, e-bicycles, inclusive design and locking facilities) ought to promote positive effects for the **equalities** theme.	▪ The policy could seek to promote segregated routes, especially in locations with higher incidences of road traffic accidents or poor air quality.	▪ The policy aligns with the Streets for All approach which provides scheme design requirements. On this basis, the policy paper is aligned with the recommendation set out.

Draft Policy	Policy Implications	Mitigations/recommendations	Updates to policy papers
	▪ Support for training might reduce barrier to access and make cycling a safer option for travel for those who might have not adopted this mode due to safety concerns. The **healthy and safe communities** and **equalities** IA themes are expected to see positive effects as a result.		
Public Transport Integration	▪ The successful integration of Greater Manchester's public transport into the Bee Network could enhance multi-modal connectivity, streamline fare structures, and improve overall user experience across different modes of transport (bus, Metrolink, rail, and active travel), with the potential to boost economic growth and social inclusivity. This would be expected to benefit the **material assets**, **equalities** and **healthy and safe communities** IA themes. ▪ The rollout could lead to greater public trust in the transport network, reducing reliance on private cars and promoting sustainable travel options, thereby contributing positively to air quality, reduced congestion, and lower carbon emissions. IA themes including **air quality and noise, material assets** and **climate change** would be likely to benefit as a result.	▪ The policy could potentially emphasise the importance of continuous stakeholder engagement and public consultation throughout the implementation process. By actively involving local communities, businesses, and advocacy groups in decision-making, the policy can better address public needs and concerns, leading to more inclusive and widely supported outcomes. ▪ The policy could benefit from a stronger emphasis on ensuring equitable access to the Bee Network for all users, particularly those with disabilities or in underserved areas. Incorporating language which emphasises the need for considerations relating to accessibility in every stage of planning and implementation, along with specific targets for	▪ This policy has undergone significant change and is now one of two overarching policies and titled "DP1 – Delivering the Bee Network". ▪ Upon review, no changes have been made to the policy papers considering that they, alongside with the Strategy document, Delivery Plan and Summary document, are subject to consultation. ▪ Need to review whether there needs to be a specific policy on public engagement as part of the public consultation exercise. There is a policy that covers stakeholder engagement (DP26). ▪ NP6 now covers accessibility and inclusivity, and NP7 covers transport related social exclusion.

Draft Policy	Policy Implications	Mitigations/recommendations	Updates to policy papers
		improvements in these areas, would ensure that the network serves the needs of all Greater Manchester residents.	
Transport Hubs	▪ The policy aims to improve the quality and consistency of transport hubs and interchanges across Greater Manchester. By ensuring consistently high standards of infrastructure and service integration with an approach which aligns infrastructure provision with hierarchy of travel hub, it is expected to create a more accessible and navigable transport network. This could lead to increased public transport usage, contributing to reduced congestion, improved air quality, and progress towards climate goals; this would benefit the **material assets**, **air quality and noise** and **climate change** IA themes. ▪ The policy's focus on inclusivity and accessibility implies significant positive effects on **equalities** and **healthy and safe communities** themes. Ensuring that all users, including those with mobility impairments, can access transport hubs and interchanges equally, confidently, and independently would promote greater use of public transport ▪ The policy's commitment to reducing carbon emissions and promoting environmentally friendly infrastructure will have positive	▪ The policy could seek to integrate identified growth areas and strategic developments and larger concentrations of housing and employment growth with suitable levels of transport provisions. The interchange categories could be linked to criteria relating to the scale or nature of proposed developments.	▪ The LTP Strategy outlines a series of Growth Locations across Greater Manchester that will deliver a significant proportion of the larger-scale housing and employment growth over the planned period. This is expanded upon in one of the overarching policies: GP01 Growth Locations and Town Centres. ▪ The DP23 – Transport Hubs (including Park and Ride) policy explains the role of different types of transport hubs, from strategic interchanges to local travel hubs. The link between growth locations and levels of transport provision is outlined in the GP01 Growth Locations and Town Centres policy paper and therefore no changes are required to the DP23 – Transport Hubs (including Park and Ride) policy paper.

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	implications for climate change mitigation. Initiatives such as habitat creation and species protection and introduction and sustainable urban drainage systems integrated into transport hubs could contribute to positive effects for **biodiversity**, **climate change** and **air quality and noise** IA themes.		

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Bus Services	▪ A decarbonised fleet of buses will be likely to reduce contributions to poor air quality and reduce greenhouse gas emissions. Positive effects for **air quality and noise** and **climate change** are anticipated. ▪ An improved and more standardised approach to bus services will likely reduce barriers for those with additional needs which may make navigating access to transport difficult. The **equalities** IA theme will see positive effects. ▪ A multi-modal, integrated network will reduce barriers to access to sustainable transport modes. The **equalities** IA theme will see positive effects. ▪ Cross-cutting IA theme positive effects will likely be seen resulting from the policy, with particular emphasis from the increased frequency of services and targeted nature of route setting, in order to most efficiently connect the City Region.		No updates required.
Coaches	▪ The **equalities** IA theme is likely to see some positive effects linked to support for low-cost sustainable travel options (providing inter- and intra- regional/national connectivity). ▪ The support provided to vehicles which are commonly diesel powered may lead to some potential increased in air pollution issues, especially in the vicinity of set down/pick-up	▪ Planting could be encouraged around set down/pick-up points to mitigate potential air quality effects, as well as potentially reducing any adverse noise related issues. This could be included within the green and blue infrastructure policy, providing specific reference to localised air pollution sources (such	▪ The DP23 – Transport Hubs (including Park and Ride) policy paper refers to there being a consistent, high-quality standard including being environmentally friendly. This includes reducing embodied carbon in construction, being carbon neutral in operation, supporting zero emission (at the

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	points. As the transition to less polluting vehicles continues, these effects are likely to be reduced. As such, these are expected to be more short-term effects on the **air quality and noise** IA theme.	as coach travel) and associated planting as mitigation.	tailpipe) services and incorporating opportunities for biodiversity and sustainable urban drainage. No further changes identified.
Taxis	▪ Support for taxis and their integration into the wider transport system ought to promote positive effects for the **material assets** (economy and employment) IA theme by supporting the nighttime economy and efficient intra-regional connectivity for the visitor economy. ▪ Policy support for enabling the transition to low emission vehicles ought to promote a fleet of vehicles which are less pollution in terms of particular matter and CO2e. Positive effects are expected for **air quality and noise** and **climate change** IA themes. ▪ Promotion of flexible travel which can pick-up and drop-off from precise locations ought to increase the availability of transport options for those with mobility issues or who experience vulnerabilities. The fact that Hackney Carriage vehicles are more commonly classified as 'Wheelchair Accessible Vehicles' should also benefit the accessibility of disabled users. The **equalities** IA Theme is likely to benefit.	▪ Policy could seek to strengthen support for more licences for 'Private Hire Vehicles' which are classified as 'Wheelchair Accessible Vehicles' to promote more pronounced effects in relation to equalities.	▪ DP16 – Taxi policy paper now reflects the collaborative work conducted with the taxi trade and local authorities in response to government taxi and private hire vehicle licensing proposals. This is in addition to the Hackney Support Funding as part of the Greater Manchester Clean Air Plan which is providing grants to taxi licensees to support GM-licensed Hackney Carriage upgrades. No further changes identified.
Rail Integration and Reform	▪ The focus on micro- to macro-connectivity by rail ought to promote positive effects for	▪ The policy could make specific reference to reliability and resilience	▪ This policy is now titled 'DP-19 Rail Integration'.

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(Regional and National Rail Services)	economic growth and employment, benefitting the **material assets** theme. ▪ Improved intra- and inter regional connectivity by rail ought to drive down private car use for both short and longer journeys. Positive effects would be expected for **climate change** (mitigation) and **air quality and noise**.	in relation to climate change adaptation, providing a focus for how services and the network can be more resilient to extreme weather events. ▪ This policy does not require any mitigations in relation to the **equalities** IA theme.	▪ Following review, reference to climate change adaption and resilience has been retained in the NP12 – Climate Change policy and not restated here.
Bee Network Rail Integration	▪ Better integration of transport connectivity between sustainable modes ought to boost active travel and public transport rates, consequentially improving air pollution and active lives. **Air quality and noise** and **healthy and safe communities** themes are likely to see some benefits. ▪ Encouraging development nearby to railway stations ought to promote economic growth and employment opportunities in accessible locations, bringing potential positive effects for **material assets** and **equalities** IA themes. ▪ Encouraging improved accessibility at stations ought to enable a greater degree of inclusiveness within the City Region's public transport offerings, bringing potential positive effects for the **equalities** IA theme. ▪ Focusing on community ownership, placemaking and social inclusion ought to increase community support, engagement	▪ The policy could be strengthened by providing further detail relating to locating development nearby to railway stations. This could set specific support for locations which have strong existing sustainable connections to railway stations.	▪ This policy is now titled 'DP-19 Rail Integration'. ▪ Following review, details relating to locating development nearby rail stations is set out in DP-23 Transport Hubs (including Park and Ride) with reference to Transport Oriented Development. Therefore, no changes to this policy have been made.

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	and use of schemes, ensuring that they are delivered in a way which best reflects community interests. This ought to promote positive effects for the **equalities** and **healthy and safe communities** themes. ▪ By seeking to prioritise carbon reduction measures through station improvements, the **climate change** (mitigation) IA theme would see some positive effects. ▪ Focusing on passenger information (fares, ticketing etc) being integrated may improve its clear and effective communication and hence engagement with the public, bringing potential positive effects for the **equalities** IA theme.		
Growth Locations	▪ The policy's support for transport interventions which unlock sustainable growth (with specific reference to town centres and 'designated growth locations') should promote development, bringing economic and housing growth and promoting positive effects for the **material assets** IA theme. ▪ By seeking to ensure that growth is accommodated by the highways network and supporting a reliable network, congestion related limitations for economic growth would be likely to be minimised. Further to this, congestion related air quality issues would be likely to be minimised.	▪ Greater links to locations identified for growth beyond Town Centres and designated growth locations would improve the support for smaller (but still significant) areas of growth to be supported by sustainable transport options. ▪ Whilst support for sustainable travel options in strategically selected locations ought to be beneficial, dominant behavioural norms mean that private motor vehicle usage would still be expected to make up a large proportion of future growth associated journeys. Mitigations to	▪ The policy paper (GP01 – Growth Locations and Town Centres) focuses on support for the delivery of transport interventions that enable vision-led, inclusive and sustainable development and regeneration. There is a particular focus on the Growth Locations and Town Centres albeit this policy is not exclusive to these defined boundaries. The main strategy document refers to "Our Priorities for Good Growth" which outlines Greater Manchester's focus on enabling new development to come forward in a way that ensures sustainable and equitable access.

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	▪ The promotion of sustainable forms of transport and accessible locations (Town Centres and designated growth locations) through this policy should promote a range of benefits, linked to healthier and active lives, reduced air quality issues and a decrease in more carbon intensive travel options. This would benefit **healthy and safe communities**, **air quality and noise** and **climate change** (mitigation) IA themes.	reduce the impact of these journeys could benefit a range of IA topics. For example- car sharing or 2+ passenger lanes. Further to this, to support behavioural change, education provisions could be directed to organisations operating within growth areas to help to promote a wider uptake of sustainable transport modes. ▪ The blanket policy supporting sustainable transport across the City Region at the specified locations could be strengthened with specific policy directing strategic priorities for making travel more sustainable and efficient in each of the identified locations; this should align with key transport issues in the areas and their main points of connectivity. ▪ This policy does not require any mitigations in relation to the **equalities** IA theme.	▪ All policies are in support of the LTP Right Mix target for 50% of trips by sustainable modes by 2040. No further changes required to policy papers.
Nighttime Economy	▪ Supporting a diversified economy (and associated employment opportunities) which promotes a range of industries ought to be beneficial for the **material assets** IA theme. ▪ Some increased support for travel options for a range of employment types (and	▪ Seek to ensure that key access nodes for late-night transport are away from residential dwellings.	▪ Following review, this recommendation has not been taken forward as it would potentially conflict with NP5 – Land Use and New Development which encourages and supports Transit Oriented Development with higher density

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	communities) ought to promote positive outcomes in relation to **equalities** and **healthy and safe communities**. ▪ A greater offering of public transport during night time hours may help to support a modal shift towards more sustainable night time travel choices. ▪ Some noisier transport options operating throughout extended hours may lead to some negative effects for **healthy and safe communities** and **air quality and noise** due to the increased potential for amenity related issues.		development in appropriate locations (including residential) with access to services, facilities and amenities and with good public transport access.
Shared Transport	▪ By providing cost-effective access to shared vehicles, barriers (financial and accessibility related) to access to certain travel options are reduced, helping to promote positive effects for IA themes **equalities**, **healthy and safe communities** and **material assets**. ▪ By reducing private vehicle ownership, the embodied CO2e emissions associated with a greater level of personal ownership could see some minor reductions, resulting in positive outcomes for **climate change** (mitigation). ▪ The support for and availability of some forms of shared transport could lead to an increased level of anti-social behaviour and vandalism of shared assets. This could lead	▪ The policy could provide specific wording to provide a greater degree of support for shared schemes which use electric cars and provide supporting infrastructure.	▪ This policy has now been superseded and split across DP07 – Neighbourhood Transport Services and DP13- Car Clubs. Reference to promotion of electric cars and supporting infrastructure has been retained in the DP18 – Ultra Low Emission Vehicles policy paper.

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	to negative effects for **healthy and safe communities**. ▪ Where access to sustainable forms of shared transport is promoted, the associated modal shift to more sustainable travel behaviours might promote positive effects for **air quality and noise** and **climate change** (mitigation). As associated active travel modal share increased could also benefit **healthy and safe communities**. ▪ Support for flexible and readily accessible options such as bicycle or e-scooter hire might help to integrate the network of sustainable transport offerings across the City Region by providing connecting links for the 'first and last mile' to access wider transport links. Positive effects would be anticipated for **air quality and noise** and **climate change** (mitigation).		

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Asset Management	▪ Support for continued improvement and maintenance works for assets which make up the transport network ought to ensure benefits associated with the Plan as well as existing infrastructures are realised on a long-term basis. This ought to promote positive effects for all IA themes, across a long-term trajectory. ▪ Ensuring maintenance ought to deliver safety improvements, making the City Region's infrastructures more accessible and better able to safeguard against risks. Positive effects for the **equalities** and **healthy and safe communities** are likely.	▪ This policy could take a more proactive approach to asset management by requiring maintenance and upgrades to seek improvements in infrastructures in relation to ensuring resilience to climate change, contributions towards mitigating climate change, supporting habitat creation and protection of flora and fauna. This would lead to improved outcomes in relation to **climate change** and **biodiversity** themes.	▪ This policy is now titled NP18 - Maintenance and Asset Management. This is now captured as part of the "environmentally responsible" section within the policy paper, referencing reducing carbon emissions and resilience to effects of climate change.
Streets	▪ The inclusive and people-focused drive of this policy is likely to ensure that streets and places meet the needs of people and businesses, boosting positive effects for **equalities**, **healthy and safe communities** and **material assets** IA themes. ▪ A support for safe spaces which prioritise appropriate vehicle types and support locally acceptable uses of spaces ought to increase safety, and the perception of safety. The **healthy and safe communities** theme is likely to see positive effects in this regard. ▪ The focus on support for green infrastructure provision within street design could help with cooling urban environments and increasing interception and infiltration rates during	▪ In the context of extreme weather events as a result of climate change, the policy could be strengthened to ensure that streets should be designed in such a way as to minimise people-scale exposure to weather events such as extreme heat and flooding. More direct, policy-specific support for this would be recommended. This would promote positive effects for healthy and safe communities and climate change (adaptation) IA themes. This might boost the resilience of places which hold important economic functions within the City Region, with positive consequences for the	▪ This policy is now titled DP02 – Streets for All. This policy paper is aligned to the Streets for All strategy which provide further details on the street design requirements. The policy paper sets out climate change impacts as part of "creating a resilient and connected street network". A link to the NP12 – Climate Change policy paper has been provided. No further changes required.

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	rainfall, helping to increase resilience to extreme weather. Positive effects would be likely for climate change (adaptation). Green infrastructure might also prove positive for the **biodiversity** theme, by providing a more ecologically diverse space, benefitting outcomes for flora and fauna. ▪ The support for connectivity (physical and digital) ought to increase efficiency of travel and communication, this is likely to bring positive effects for the economy and employment (**material assets** IA theme). ▪ The support for development along streets according to 'street types' ought to promote appropriate interventions and infrastructures in different typologies. This would be likely to ensure appropriate design and scales, resulting in positive outcomes for townscapes across the City Region (**landscape** IA theme). ▪ The prioritisation of certain journey and vehicle types according to street typologies ought to increase segregation of people and heavy goods vehicles, reducing exposure to air quality and benefitting the **air quality and noise** IA theme.	material assets (economy and employment) IA theme.	

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Land Use	▪ Support for mixed-use and higher density development in areas which are accessible to essential services is likely to promote positive effects for healthy and safe communities and air quality and noise, due to the increased likelihood that people will travel by active means. This approach to delivering growth is also likely to benefit the local economy, by encouraging (through ease of access) local economic activity and employment opportunities; the **material assets** theme would be expected to benefit. ▪ Higher density development can have knock-on effects relating to increased congestion in areas which see such growth; this might be expected to be most pronounced at peak journey times and at traffic pinch points. The **air quality and noise** theme might see some negative effects. ▪ Higher density development, with mixed-use schemes can often result in pedestrian friendly streets as well as car-free zones. This is broadly positive, however the needs of those with accessibility issues may be hindered, especially where car restrictions are in place. The **equalities** theme may see some potential negative effects. ▪ Supporting alternative uses and development on town and city centre land currently used for parking might lead to a shortfall in parking provision, potentially resulting in issues for	▪ The policy could be strengthened to provide specific wording which provides support for interventions, where they do not hinder the accessibility of shops and services for those with mobility issues, particularly those who require a vehicle for access.	▪ This now forms part of the new development policy and titled “NP05 – Land Use and New Development”. The policy wording has been retained as this mitigation will form part of the planning requirements.

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	those with accessibility issues, especially those who need car parking and nearby access to shops and services. The **equalities** theme may see some potential negative effects.		

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Counter Terrorism	▪ Enhanced safety and security for transport networks and public spaces through proactive monitoring, staff training, and robust emergency planning. This supports **healthier and safer communities**. ▪ By integrating security measures into infrastructure design, the policy helps protect key locations from potential attacks, ensuring the safety of public spaces, transport hubs and landmarks linked to transport. This might serve to protect heritage assets, serving to benefit the **historic environment** IA theme.	▪ This policy does not require any mitigations in relation to the **equalities** IA theme.	▪ No updates proposed – this policy is now referred to as “NP17 – Network Security”
Motorcycles and Mopeds	▪ The support for smaller personal vehicles is likely to reduce congestion, resulting in positive effects for the **air quality and noise** IA theme. The promotion of the electrification of these vehicles would increase the magnitude of these benefits. ▪ The focus on unlawful use of similar vehicles is likely to promote support from communities and reduce the fear of antisocial behaviour and pedestrian safety. **Healthy and safe communities** IA theme is likely to benefit.	▪ This policy does not require any mitigations in relation to the **equalities** IA theme.	▪ No updates proposed – this policy is now referred to as “DP15 – Motorcycles, Mopeds and E-Scooters”,

Appendix B: Scoping Consultation Responses

The consultation bodies (Natural England, the Environment Agency, and Historic England) were consulted on the scope of the IA in April – May 2024.

A summary of the comments provided by the consultees on the IA of the Greater Manchester Transport Strategy 2050 and Delivery Plan Scoping Report, and how they have been addressed, can be read in the table below.

Consultation response summary	How the response was considered and addressed
Natural England	
NE set out types of plans relating to the natural environment which should be considered where applicable to the plan area.	Relevant local strategies have been included in the Scoping Report as provided by TfGM and the study area's LPAs. It is recognised that IA is an iterative process and any additional evidence (including that currently emerging) will be considered through the subsequent stages of IA.
NE suggest additional baseline considerations – including the GM Local Nature Recovery (LNR) Strategy, Nature Recovery Network, ponds and wetland sites, peat assets, urban green infrastructure, air pollution and noise in relation to the natural environment.	Baseline additions added throughout as recommended. Note that the water resources baseline has not been amended as this IA theme currently provides a high level overview of water resources across Greater Manchester – with local feature data not provided. Detailing of ponds and wetland sites will be considered through the next stages of IA where relevant to the assessment. It is noted that wetland sites form the baseline for the biodiversity and geodiversity IA theme (Chapter 4).
Additional key sustainability issues proposed relating to the Manchester Mosses SAC, wetland sites and restorable peat.	Updated.
Clarity requested in relation to environmental outcomes/ indicators, and additions proposed.	Updated.

Environment Agency	
EA set out additional plans, policies and programmes of relevance to the IA.	Updated.
EA provide additional sources of information and data that could be useful for the IA.	Noted and will be considered through subsequent stages of IA.
EA suggests the future baseline explicitly capture land contamination pressures.	Updated.
EA suggest reviewing the emerging Local Nature Recovery Strategy and priority habitats to align indicators with strategy objectives.	The emerging GM LNRS has been included under the biodiversity IA theme as requested. Consideration of strategy objectives and IA objectives/ indicators will be ongoing through all stages of IA, as LTP objectives are further developed/ refined.
EA suggest strengthening the water resources IA objective to better align with the 25 yr Environment Plan and latest NW River Basin Management Plan.	Updated.
Historic England	
HE provide guidance on the effective assessment of the historic environment in Strategic Environmental Assessments.	Comment noted.
HE set out their understanding of the contents of a Scoping Report, including context and baseline information.	Comment noted.

HE provide comments on the Historic Environment theme focus, identifying additional references and requesting clarifications in relation to terminology used.	Theme focus updated, including additional references and clarifying terminology. Not Conservation Areas have not been listed separately in the theme focus as they fall under designated assets.
HE suggests the sections on assets including heritage at risk be amended to include what the LTP puts at risk.	The scoping report provides a proportionate level of baseline information in relation to heritage at risk, including links to the Heritage at Risk Register for the North West where further information can and will be sourced as necessary through the next stages of IA (including SEA/SA). This will include in relation to the potential effects of the LTP and alternatives.
HE suggests Conservation Areas should not be listed under locally designated sites. HE also suggest further baseline information is provided in relation to Conservation Areas, including at the authority level (guidance, risk, etc).	Conservation Areas are locally listed, however we recognise through the IA their importance both locally and nationally. Baseline discussion of CAs has been moved to be separate from locally listed designations. The scoping report provides a proportionate level of baseline information in relation to CAs, given the extent of coverage throughout the TfGM study area. It is therefore not considered necessary for the scoping report to explicitly list the 241 CAA MPs for each LPA within TfGM and identify where CAs are at risk. This will be explored at the next stages of IA where relevant, for example to inform the appraisal of the LTP and alternatives. It is also noted that Figure 6.1 has been updated to include CAs within Tameside. The absence of data for Oldham reflects a data gap which again will be considered through the next stages of IA.
HE provides comment on Figure 6.2 and Figure 6.3. It is requested figures provide further detail, showing the varied history of designated assets in GM.	The purpose of the IA Scoping Report is to provide a high level overview of baseline information which can be seen within Chapter 6 in relation to the historic environment, particularly through Figures 6.1 – 6.3. Figure 6.2 shows the density of listed buildings across the study area as mapping

	individual assets in this respect would not be appropriate or useful (given the extent of assets present). The supporting narrative further clarifies the purpose of figures and what is being presented. Figure 6.3 shows all features on the Heritage at Risk register 2023.
HE suggest the future baseline summary does not link with the wider chapter.	The future baseline section links to the baseline section by identifying broad potential effects of future transport infrastructure, traffic levels, etc., on the assets listed in the baseline commentary. Risks related to specific assets will be considered through the next stages of IA.
HE recommend the policy context include a link to all Historic England guidance, rather than key strategies produced by HE.	Updated.
HE provides comment in relation to the Historic Environment sustainability objectives. These broadly relate to clarifications and suggested additions.	IA objectives revisited and updated.
HE suggests the environmental indicator list is strengthened.	Quantitative environmental indicators proposed to support monitoring. Additionally those set out reflect positive management of the historic environment, for example if the number of entries present on the Heritage at Risk Register continued to decline. Additional indicators included, where relevant extracted from Heritage Indicators (2021).
HE strongly advises engagement with conservation, archaeology and urban design colleagues at the local and county level to ensure awareness of all the relevant features of the historic environment and that the historic environment is effectively and efficiently considered as part of the Local Transport Plan, and in the preparation of the SA/SEA.	Comment noted – stakeholder engagement will be sought as necessary throughout the next stages of IA.