



Greater Manchester Spatial Framework Transport Study

Understanding the Issues

September 2018







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This information is also available on the TfGM website: www.tfgm.com/2040

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Executive Summary

This report presents the outcomes of the first part of the ongoing work to prepare the transport evidence base for the Greater Manchester Spatial Framework (GMSF). The purpose of this Understanding the Issues report is to summarise the critical transport challenges for Greater Manchester that have been identified in the context of the planned housing and employment growth in the city-region. The transport interventions that are likely to be required to address these issues are then defined in subsequent phases of the GMSF Transport Study.

The GMSF Transport Study

- This Understanding the Issues report will inform the second consultation draft of the GMSF, and will be used to demonstrate the soundness and deliverability of the final GMSF in regards to transport. This is principally a qualitative piece of work, setting out the strategic transport issues and opportunities prior to a more detailed analysis of future transport interventions to address these issues.
- For the purposes of the GMSF Transport Study, Greater Manchester has been divided into six Study Areas. This is shown in Figure 1 below.

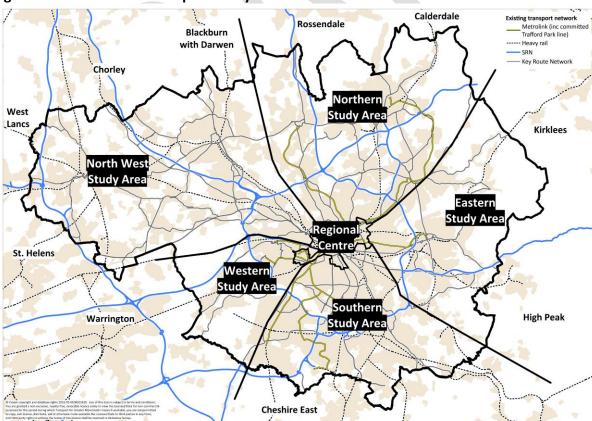


Figure 1: The six GMSF Transport study areas

- 4. The critical transport issues for Greater Manchester have been established through a collaborative process, involving all ten Greater Manchester local authorities as well as other key stakeholders. A key part of this process has been to review the transport-related comments from the public, received through the consultation on the first draft of the GMSF. A brief summary of the transport-related consultation comments can be found in Appendix D.
- 5. This Understanding the Issues report combines the insights from the six Study Areas to produce an initial qualitative transport evidence base to support the second consultation draft of the GMSF.

The critical transport challenges for Greater Manchester in the context of the planned population, housing and employment growth

- 6. The most important transport challenges identified in this report that will need to be addressed by the GMSF include:
 - A radical transformation of the Regional Centre's public transport and walking and cycling facilities.
 - Creating sustainable new communities and employment locations, and building on the strengths of existing urban centres and public transport connections.
 - Reducing the reliance on the car for movements across the wider city-region, including orbital connections between town centres.
 - Ensuring that pan-Northern transport interventions for city-to-city trips are fully integrated with regional and local networks.
 - Investing in local neighbourhoods to make walking and cycling the natural choice for short journeys, and to stimulate town centre and neighbourhood renewal.
 - Maximising the efficiency and reliability of Greater Manchester's existing transport networks.
 - Strengthening the role of Manchester Airport as the international gateway to the North of England.
 - Exploiting new opportunities for the sustainable movement of freight.
 - Being prepared for future innovations in technology and travel behaviour, while recognising ongoing uncertainty.

Next steps

- 7. This GMSF Transport Study Understanding the Issues report is being published alongside the new consultation draft of the GMSF.
- 8. Mott MacDonald has been commissioned by TfGM to undertake a study to set out how the critical transport challenges for Greater Manchester, as identified in this Understanding the Issues report, can be addressed entitled 'Greater Manchester Spatial Framework: Addressing

the Issues' report. The Addressing the Issues report will present a potential outlook of what the transport system could look like in the short, medium and long term. This report by Mott MacDonald will in turn impact on the final vision for the future transport network in Greater Manchester outlined to address the critical transport challenges in the Greater Manchester Transport Strategy 2040: Delivery Plan 2020-2025.



Section 1: Introduction

Background and purpose of this report

- 9. This report presents the outcomes of the first part of the ongoing work to prepare the transport evidence base for the Greater Manchester Spatial Framework (GMSF). The purpose of this Understanding the Issues report is to summarise the critical transport challenges for Greater Manchester, which have been identified in the context of the planned housing and employment growth in the city-region. The transport interventions that are likely to be required to address these issues are then defined in subsequent phases of the GMSF Transport Study.
- 10. The foundations of this report are the:
 - Greater Manchester Transport Strategy 2040, published in 2017, which set out the strategic approach to transport in the context of growth.
 - The GM Transport Strategy 2040: Evidence Base. This Evidence Base was originally
 published in 2017 alongside the Greater Manchester Transport Strategy 2040. Since then,
 additional evidence has been gathered and this is included as an appendix to this report.
 - Insights from stakeholder workshops and public consultation, held across Greater Manchester over the past 18 months.
- This report is designed to add an extra level of spatial understanding to the issues described in the Greater Manchester Transport Strategy 2040. It is the first step in the long process of developing potential solutions for the transport issues Greater Manchester will face in the future as a result of rapid growth.
- 12. It has been prepared by Transport for Greater Manchester (TfGM), and is the outcome of a collaborative process across Greater Manchester which has involved officers from the Greater Manchester Combined Authority, and all ten local authorities in the city-region, as well as other stakeholders. It is principally a qualitative report, but it draws on a wide range of evidence, including a review of existing transport datasets and insights from stakeholder workshops and public consultation.

Background to the Greater Manchester Spatial Framework

Purpose and scope of the GMSF

- 13. The GMSF is a joint plan for Greater Manchester, which sets out the spatial strategy for housing and employment land growth across the city-region for the next 20 years.
- 14. The GMSF will define the strategic spatial approach to delivering the vision of the Greater Manchester Strategy. The Greater Manchester Strategy is the overarching new plan for the city-region and covers health, wellbeing, work and jobs, housing, transport, skills, training and economic growth. The GMSF reflects and underpins the vision for Greater Manchester set out

- in the Greater Manchester Strategy by defining a spatial picture of how the city-region is planning to deliver it and meet the planned levels of growth.
- 15. The GMSF will help ensure that investment and growth in houses and jobs happens in a structured way that benefits our residents and makes Greater Manchester a better place to live and work. It is an important part of the city-region's strategy to not only deliver its full economic potential but also to ensure that all Greater Manchester's residents get to share in that economic success.

History of the GMSF to date

- In October 2016, a first draft of the GMSF was submitted to the public for consultation. The first consultation draft GMSF provided a plan to accommodate land for 200,000 jobs and over 227,000 new homes by 2035, with most of these delivered in urban centres, key gateways and along several corridors¹. A summary of the key transport-related themes from the consultation on the first draft of the GMSF is included in Appendix D.
- 17. This GMSF Transport Study: Understanding the Issues Report is being published alongside the second consultation draft of the GMSF. This report supports the second consultation draft by identifying the critical transport issues in the context of the region's planned housing and employment growth.
- 18. The second consultation draft of the GMSF will be followed by a further consultation with the public. Following this, a final version of the GMSF will be prepared for Examination in Public and adoption by the GMCA.
- 19. The new second consultation draft of the GMSF aims to make the most of Greater Manchester's available land supply and town centres while reducing the impact on greenbelt. In doing so, it also sets out how Greater Manchester can best enhance and protect the quality of the natural environment, conserve wildlife and tackle flood risks. It presents a new spatial vision based on the 2017 Greater Manchester Strategy, and incorporates a range of new information, including revised economic forecasts and housing need assessments.

The GMSF Transport Study

Purpose of the GMSF Transport Study

20. This Understanding the Issues report forms one strand of evidence which has informed the second consultation draft of the GMSF, and which will be required to demonstrate the soundness and deliverability of the final GMSF in transport terms. This is principally a qualitative piece of work, setting out the strategic transport issues and opportunities alongside more detailed analysis of future transport interventions to address these issues in the subsequent Addressing the Issues report and the Greater Manchester Transport Strategy 2040: Delivery Plan 2020-2025.

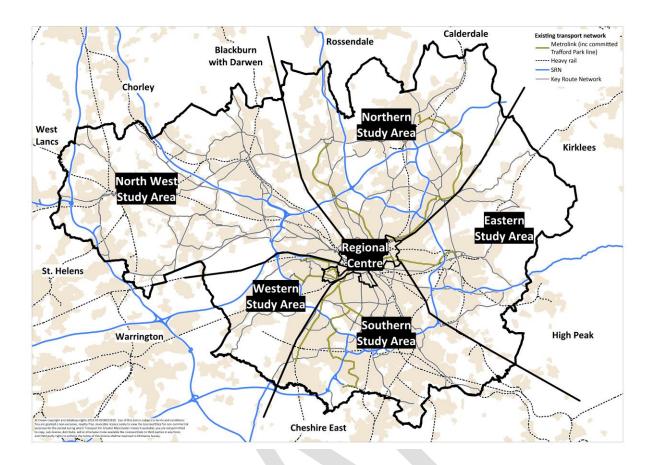
¹ Greater Manchester Combined Authority (2016), Draft Greater Manchester Spatial Framework, p. 62-63.

- 21. This report is therefore the first stage within a body of work exploring the implications of growth on both the demand and pattern of travel and transport in Greater Manchester.
- The main purpose of Understanding the Issues report is to understand the key current and future transport issues for Greater Manchester in the context of the planned population, housing and employment growth. The transport interventions that are likely to be required to address these transport issues are then defined in the next phase of the GMSF Transport Study. This is presented in the GMSF Transport Study: Addressing the Issues Report.
- ^{23.} In preparing this Understanding the Issues report, a series of workshops have been held with the ten Greater Manchester local authorities as well as other key stakeholders. These workshops were used to gain insight into the key transport issues and opportunities in the cityregion in the context of the planned growth, and gather suggestions for potential interventions that could help deliver it.
- ^{24.} The transport-related comments from the public received through the consultation on the first draft of the GMSF were also reviewed as part of the GMSF Transport Study. A brief summary of these comments can be found in Appendix D.

The GMSF Transport Study Areas

- 25. For the purposes of the GMSF Transport Study, Greater Manchester has been divided into six Study Areas:
 - Western
 - North Western
 - Northern
 - Eastern
 - Southern
 - Regional Centre

Figure 2: The six GMSF Transport Study Areas



Note: The term 'City Centre' refers to the area bound by the Manchester and Salford Inner Relief Route (MSIRR) and the University Corridor. The term 'Regional Centre' is used in the 2040 Transport Strategy, and is defined as Greater Manchester's primary economic centre which includes the City Centre, Salford Quays and the Etihad Campus to the east.

- The outcomes of these discussions for the six Study Areas were analysed in order to identify the key transport issues and opportunities relative to the planned GMSF housing and employment sites. A summary of the key transport issues in each Study Area can be found in Appendix B.
- 27. Further detail on the stakeholder workshops held during Understanding the Issues report is included in Appendix C.
- This GMSF Transport Study Understanding the Issues report draws together the insights from the six Study Areas to establish the critical transport issues for Greater Manchester in the context of the planned growth (Sections 3-8). Some of these critical issues are city-region-wide issues that recur across multiple, or indeed most, Study Areas. Others are specific to one Study Area, but have been deemed critical for the GMSF as a whole because of the high impact they currently have (or potentially could have) on the city-region's future growth and transport. The issues are shown in the form of brief text, supported by evidence, and summarised in a conceptual map for each spatial theme.

Overview of this report

29. This report is structured as follows:

- Section 2: Context to the GMSF Transport Study This section provides the context for the report, by linking the GMSF Transport Study to the 2040 Transport Strategy, 2040 Delivery Plans and 2040 sub-strategies, as well as wider relevant transport plans in the North West and North of England.
- **Sections 3-8** These sections identify the critical transport issues in the context of the planned growth, identified through consultation with the ten local authorities in Greater Manchester and other stakeholders. Each section covers a different spatial theme:
 - Connected Neighbourhoods.
 - Travel across the wider City-Region.
 - Getting into and around the Regional Centre.
 - City-to-City Links.
 - A Globally Connected City.
 - Greater Manchester-wide Issues.
- **Section 9: Conclusions and next steps** This section outlines the overarching conclusions from the Understanding the Issues report, and sets out the next steps to be undertaken .
- **Glossary of terms** This section provides a glossary of the key technical terms used in this report.
- 30. This report also contains the following appendices:
 - Appendix A: Evidence underpinning the critical transport issues for Greater Manchester –
 Supporting detailed evidence for the critical transport issues identified in Sections 3-8.
 - Appendix B: Study Area transport issues and maps An overview of the key transport issues in each Study Area that were used as a basis for understanding the critical issues for Greater Manchester as a whole.
 - Appendix C: How the transport issues in GMSF Transport Study Report have been identified – Background on the stakeholder workshops that have been held across the region to prepare this report.
 - Appendix D: Analysis of transport-related consultation responses to the 2016 draft of the GMSF – A brief summary of the transport-related consultation responses to the 2016 draft of the GMSF that have informed this report.

Section 2: Context to the GMSF Transport Study

- The GMSF is a land use plan for Greater Manchester that aims to make the best use of Greater Manchester's existing assets including transport by concentrating the majority of growth in already accessible locations. The high levels of residential and employment growth that are envisaged by the GMSF will lead to significant additional demand for across all modes of travel. This demand will need to be carefully managed to avoid more congested highways, overcrowded public transport and ultimately to avoid it becoming a barrier to further growth.
- 32. The GMSF therefore has a relationship with a range of other transport strategies and policies, both within and outside of Greater Manchester. This section sets the GMSF in the context of these wider transport plans, and discusses the relationship between the GMSF and:
 - The Greater Manchester Transport Strategy 2040 and 2040 Delivery Plans.
 - The Strategic Transport Plan for the North of England, which is being prepared by Transport for the North (TfN).
 - Greater Manchester's HS2 and Northern Powerhouse Rail Growth Strategy.
 - Transport strategies and Local Plans in neighbouring authorities.

Relationship with the Greater Manchester Transport Strategy 2040

The Greater Manchester Transport Strategy 2040

- In early 2017 Greater Manchester adopted the Greater Manchester Transport Strategy 2040, developed by TfGM on behalf of the GMCA, which outlines a vision for Greater Manchester to have "World class connections that support long-term, sustainable economic growth and access to opportunity for all"².
- The 2040 Transport Strategy is centred on five spatial themes, each representing a different type of journey at a different distance across all modes of transport. By using the five spatial themes the 2040 Transport Strategy explicitly adopts a journey-focused approach to planning, instead of planning for individual modes of transport.
- 35. The five spatial themes from the 2040 Transport Strategy are shown in the diagram below.

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² Transport for Greater Manchester (2017), Greater Manchester Transport Strategy 2040, p. 3.

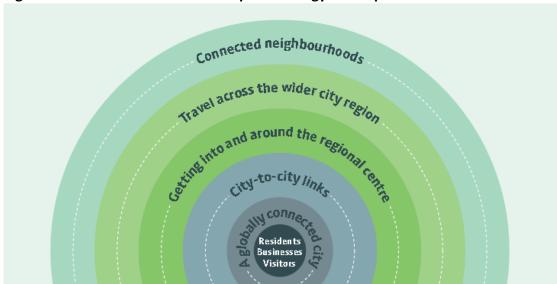


Figure 3: Greater Manchester Transport Strategy 2040 Spatial Themes

Source: Greater Manchester Transport Strategy 2040

- 36. These five spatial themes each cover a different type of journey:
 - A Globally Connected City: Global connectivity for freight and passengers via Manchester Airport, and the Manchester Ship Canal for international freight movements (as well as connections to other key ports).
 - **City-to-City Links:** Connections to major city-regions across the North, particularly the major Northern Powerhouse cities, and to other major cities such as Birmingham, London, Glasgow and Edinburgh.
 - **Getting into and around the Regional Centre:** Travel to and within Manchester City Centre and the adjacent areas of The Quays (Salford Quays and Trafford Wharfside) and the Etihad Campus. This includes travel to and from the Regional Centre from neighbouring authority areas.
 - Travel across the wider City-Region: Journeys across the city-region and to/from neighbouring areas, including commuting, business, logistics and leisure travel across a diverse mix of town centres, employment areas, major hospitals, educational establishments and visitor attractions outside the Regional Centre. This includes travel across the wider city-region to and from neighbouring authority areas.
 - Connected Neighbourhoods: Movement around neighbourhoods and local centres, including access to shops, schools, healthcare, recreation and jobs, as well as local connections to public transport.
- 37. The 2040 Transport Strategy recognises that although the spatial themes are described separately, the journeys that people make may involve a number of different elements, covered by different spatial themes. For example, inter-city journeys may start with a trip within the local neighbourhood and may then involve a journey across the city-region to access a motorway or a National Hub interchange. All elements need to function well in order to make a real difference to the journey as a whole.

The 2040 Transport Strategy Delivery Plans

- 38. Alongside the 2040 Transport Strategy, TfGM have also published a 2040 Delivery Plan. The 2040 Delivery Plan is a five-year plan, which will be refreshed on an annual basis. Each annual Delivery Plan provides an update on progress in delivering the strategy, in terms of:
 - The schemes delivered.
 - Changes in Key Performance Indicators.
 - Changes in the external environment which may affect priorities for delivery.
 - The results of studies or development of detailed sub-strategies.
- 39. The Delivery Plans also set out clear proposals for new investment, service delivery, maintenance/renewal of existing assets, and future studies, within the funding available to support the delivery of the 2040 Transport Strategy.
- 40. It is currently anticipated that an updated Delivery Plan will be published alongside the second consultation draft of the GMSF. This new Delivery Plan will be informed by the GMSF Transport Study, and will set out an updated five-year plan to support both the new GMSF and the 2040 Transport Strategy.

So what does this mean for the GMSF?

The 2040 Transport Strategy is Greater Manchester's strategy for delivering, in transport terms, the growth aspirations of the city-region as set out in the GMSF. The GMSF and the 2040 Transport Strategy are mutually supportive documents that share a common vision for Greater Manchester's transport future and the priority transport interventions needed to achieve this vision.

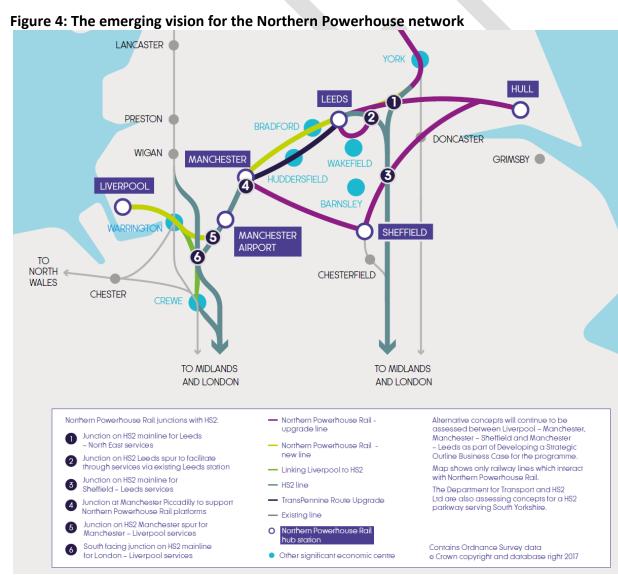
Ultimately, the GMSF and the 2040 Transport Strategy are striving to achieve the same outcomes, and once the GMSF is adopted, the transport element of the GMSF will be delivered though the annual 2040 Delivery Plans.

Relationship with the Northern Strategic Transport Plan

- ^{41.} Greater Manchester lies at the heart of the Northern Powerhouse. Through Transport for the North (TfN), Greater Manchester is working in close partnership with other key Northern cityregions to develop a Strategic Transport Plan for the North.
- The Strategic Transport Plan was published as a draft for public consultation in January 2018. Once adopted, the Strategic Transport Plan will be TfN's principal policy document and the plan of the statutory body. The Strategic Transport Plan, and its supporting evidence, will inform how central Government, Network Rail, Highways England and HS2 Ltd can work with partners in the North to deliver investment that can transform the economy. The plan will be complementary to the policy documents of TfN's partners, including Greater Manchester.
- The Strategic Transport Plan sets out an evidence-led and clear case for investment up to 2050, drawing on the findings of the Northern Powerhouse Independent Economic Review

(NPIER). It focuses on pan-Northern connectivity priorities that support smart ticketing and integrated travel, a major roads network, strategic rail links, strategic access for freight and logistics, and international connectivity.

- One of the most important components of the plan is the Northern Powerhouse Rail (NPR) network, a major strategic rail programme designed to transform connectivity between the key economic centres of the North. The NPR concept outlined in the Strategic Transport Plan includes the following (although alternative concepts will continue to be assessed, see Figure 4):
 - A new high-speed line to Liverpool via Manchester Airport and Warrington.
 - A new high-speed line to Leeds via Bradford.
 - An upgraded line to Sheffield.
 - Either an underground Northern Powerhouse Rail through station or a surface turn-back station at Manchester Piccadilly.



Source: TfN (2018), Strategic Transport Plan: Draft for consultation

The Strategic Transport Plan has also identified seven Strategic Development Corridors for further study. These seven corridors cover an economic area where the evidence suggests growth for the North could be maximised by bringing forward major, strategic rail and road investment.

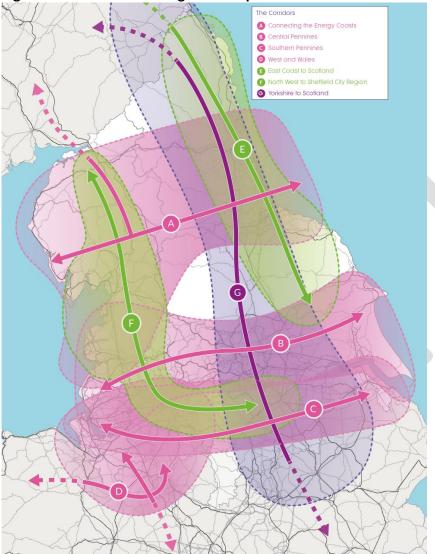


Figure 5: The seven 'Strategic Development Corridors'

Source: TfN (2018), Strategic Transport Plan: Draft for consultation

So what does this mean for the GMSF?

TfN's Strategic Transport Plan, once adopted, will support the North's case for investment and align funding for pan-Northern transport improvements. The Strategic Transport Plan is complementary to the policies of its partners, which in Greater Manchester includes the GMSF and the 2040 Transport Strategy.

TfGM is working in partnership with TfN on the Strategic Transport Plan, and this dialogue will ensure that the Strategic Transport Plan is aligned with Greater Manchester's policies. A key question is to what extent TfN-led long-term investment programmes such as Northern Powerhouse Rail can deliver benefits for journeys within Greater Manchester and therefore

help to achieve the shared transport vision of the GMSF and the 2040 Transport Strategy. Greater Manchester's recently published HS2 and NPR Growth Strategy has set out the cityregion's aspirations for this and it is discussed further in the next section.

Relationship with the Greater Manchester HS2 and Northern Powerhouse Rail Growth Strategy

- 46. Greater Manchester's HS2 and NPR Growth Strategy, launched in March 2018, sets out the region's ambitions for high-speed rail and the crucial part it will play in stimulating growth and opportunity across the North. The strategy details how HS2 and NPR will deliver new jobs, new homes and new opportunities for Greater Manchester at the heart of the Northern Powerhouse
- By 2033, HS2 will halve the journey time between Manchester and London, bringing businesses closer together and further promoting our city-region as a world-class business location. NPR will position Greater Manchester at the core of a highly connected network of cities and enhance links with Liverpool, Leeds, Newcastle, Sheffield and Hull.
- 48. One of the benefits of HS2 and NPR for Greater Manchester is that both Manchester Piccadilly and Manchester Airport will have new high-speed stations. Our vision is that these stations will become interchanges, creating an integrated transport system between HS2, Northern Powerhouse rail, local rail, Metrolink, buses and intercontinental air connections. The new high speed rail facilities at Manchester Piccadilly and Manchester Airport will act as a catalyst for economic growth and help deliver new jobs, new places for business and new homes.
- ^{49.} A crucial question for the future of the region is what the future high-speed Piccadilly station will look like in the future. New high speed rail facilities will act as a catalyst for economic growth and help deliver new jobs, new places for business and new homes. At present, pending the outcome of further analysis, it is the view of Greater Manchester that the best option is a tunnelled station. With the proposed new investment, the area around the redeveloped station is expected to provide 40,000 new jobs, 13,000 new homes and 820,000 square metres of commercial development.
- The arrival of HS2 and NPR at Manchester Airport also offers the opportunity to create a brand new station that both respects the natural setting and creates a new diverse neighbourhood with homes, offices and hotels, as well as the potential for 20,000 new jobs over the next ten years.

So what does this mean for the GMSF?

Integrated HS2 and NPR stations at Manchester Piccadilly and Manchester Airport provide a major opportunity to secure significant growth and regeneration opportunities at these strategic locations, delivering 96,000 jobs and 16,800 homes, as well as new world-class transport facilities. This fits entirely with the GMSF objectives to direct the city-region's growth towards the most accessible locations.

Relationship with the National Infrastructure Commission's National Infrastructure Assessment

- The National Infrastructure Commission published its first ever National Infrastructure Assessment (NIA) in July 2018, as part of its new requirement to undertake an assessment of the UK's medium and long term infrastructure needs once every five years.
- The NIA provides analysis of UK infrastructure's ability to respond to upcoming challenges. The Commission's interim report, published in October 2017, identified three headline challenges for the UK's infrastructure over the next 30 years: congestion, capacity and carbon. The NIA builds on this interim report to present a series of recommendations intended to form a long-term strategy for the UK's economic infrastructure from 2020 to 2050.
- 53. Headline recommendations contained in the NIA include:
 - £43 billion of stable long-term transport funding for regional cities;
 - Preparing for 100% electric vehicle sales by 2030 (and for developments in connected and autonomous vehicles);
 - Half of the UK's power provided by renewables by 2030;
 - Nationwide full fibre broadband by 2033;
 - Three quarters of plastic packaging recycled by 2030;
 - Ensuring resilience to extreme drought; and,
 - A national standard of flood resilience for all communities by 2050.
- 54. Alongside these recommendations, the NIA calls for better long-term planning, stable funding structures and improved infrastructure.

Relationship with the SEMMMS refresh

^{55.} In parallel with the GMSF Transport Study, the South East Manchester Multi-Modal Strategy (SEMMMS) is currently being refreshed, led by Stockport and Cheshire East councils. The refreshed SEMMMS will be a 20-year, multi-modal strategy, covering the south east of Greater Manchester as well as parts of Cheshire and Derbyshire. A draft of the new SEMMMS has recently been published for public consultation and is due to be adopted by Cheshire East and Stockport Councils by the end of the year.

Relationship with Local Plans and transport strategies in neighbouring authorities

The following table summarises the key growth aspirations of neighbouring authorities and the implications for Greater Manchester.

Table 1: Key growth aspirations in neighbouring authorities

Neighbouring authority	Key policy documents	Key findings
High Peak	High Peak Local Plan 2031	 By 2031 it is estimated that 7,000 new dwellings and 45 hectares of employments land will be required. Glossopdale will need between 958 and 1,242 of these new houses. Evidence from the High Peak Local Plan Transport Study indicates that future development within High Peak will further increase traffic on the A6, A57 and A628. It is the intention of High Peak Borough Council to continue improving rail services to Manchester.
Cheshire East	Cheshire East Local Plan: Local Plan Strategy 2010-2030 Local Transport Plan: Final Strategy 2011-2026	 36,000 homes will need to be built and a minimum of 380 hectares of land will need to be made available between 2010 and 2030. The principal town of Macclesfield expected to accommodate 20 hectares of employment land and 4,250 homes. A number of major highway schemes have been put forward, including the A6 to Manchester Airport Relief Road, Poynton Relief Road and improvements to the A34 and A555 corridors in Handforth. Other key service centres are also expected to accommodate development during the lifespan of the Local Plan period including: Handforth – 22 hectares of employment land and 2,200 new homes. Poynton – 10 hectares of employment land and 650 new homes. Wilmslow – 10 hectares of employment land and 900 new homes.
Warrington	Local Plan Core Strategy 2027	 Between 2006 and 2027 it is estimated that Warrington Borough requires 277 hectares of employment land to be developed. The housing policies in Warrington's Local Plan have been challenged in the High Court, and this has resulted in the removal of elements of the housing policies, including the housing target of 10,500 new homes (equating to 500 per year) between 2006 and 2027. The council are working to ensure the housing elements of the Plan are revised in line with the ruling. Proposed improvements include the reduction of private car use in the borough, improving integration of existing public transport infrastructure as well as more specific improvements such as a new/replacement high-level crossing of the Manchester Ship Canal.

Neighbouring authority	Key policy documents	Key findings
St Helens	Local Plan Core Strategy 2027	 The Local Plan has chosen to focus the majority of development on St Helens itself as well as the Newton-le-Willows and Earlestown area. In St Helens 20,000 square metres of retail floor space is planned and there are plans for a Strategic Rail Freight Interchange at Parkside near Newton-le-Willows. The attractiveness of St Helens Borough to businesses and residential developers is closely linked with its transport connections to major urban centres like Manchester, Liverpool and Warrington via national and regional roads (M6, M62 and A580), rail (West Coast Mainline) and airports (Manchester and Liverpool). Improving the accessibility of St Helens Borough via these and other transport links is therefore considered essential to meeting objectives of the Local Plan.
Rossendale	From East to West Making Rossendale the Best: Core Strategy Develop- ment Plan 2026	 By 2026 it is estimated that 3,700 dwellings and 45 hectares of employment land. It is the intention of Rossendale Borough Council to focus residential development within urban boundaries of the main settlements across the borough while economic development will be distributed among the largest urban centres of the borough including Rawtenstall and Haslingden. To continue to improve the strategic transport links between Rossendale Borough, wider Lancashire and Greater Manchester ideas have been put forward for improvements to be made to the key A56/M66 road links, as well as a Rawtenstall-Manchester Railway link.
Lancashire	Lancashire LEP Strategic Economic Plan 2014	 In the Strategic Economic Plan produced by the Lancashire LEP several targets have been set in terms of development including the creation of 50,000 new jobs, 40,000 new homes and £3 billion additional economic activity. The Strategic Economic Plan does outline several areas that will be a focus for future development, some of which are located close to Greater Manchester. It is estimated that East Lancashire has the potential to generate almost 10,000 jobs and over £500 million in GVA. Skelmersdale is another priority area, with over 2,000 new homes to be built and 52 hectares of employment land to be developed. Key transport issues include congestion during peak periods on the A56/M66 route and the M60/M62 in East Lancashire impacting commuters travelling to and from Greater Manchester, as well as the inadequate provision of rail services to Greater Manchester.

Neighbouring authority	Key policy documents	Key findings
West Yorkshire	Leeds City- region Strategic Economic Plan 2016- 2036 West Yorkshire Transport Strategy 2040	 The West Yorkshire Strategic Economic Plan sets out overall delivery targets of upwards of 35,000 additional jobs and an additional £3.7 billion annual economic output by 2036. A target was also set for residential development with a headline initiative to build between 10,000 and 13,000 new homes per year between 2016 and 2036. The major cities of Halifax, Huddersfield, Bradford and Leeds are considered key urban growth centres while the North Kirklees Growth Zone has been identified as a key housing growth area. The focus of future economic growth will be centred mainly on the major road corridors passing through the region such as the M62 Corridor that includes the Clifton Business Park (Calderdale), Lindley Moor East, Lindley Moor West and Moor Park Mirfield (Kirklees). Efficient motorways, High Speed Rail, fast East-West rail connections through Northern Powerhouse Rail across the north of England as well as better access to international gateways are all part of the new West Yorkshire Transport Strategy 2040. For the Calderdale and Kirklees districts bordering Greater Manchester improving transport links between these two regions is essential to supporting future growth in these areas. In Calderdale improvements are required to rectify congestion hotspots such as Junction 25 on the M62 as well as the electrification of the Calder Valley Line is also a key strategic transport priority while in Kirklees congestion alleviation is also a major issue on key routes such as the A616, A636 and A637.

So what does this mean for the GMSF?

The GMSF seeks to deliver growth within Greater Manchester, and identify the infrastructure to support this growth. To do this the GMSF needs to be mindful of both the impact of the city-region's planned growth on our neighbouring authority transport networks, and how their growth will affect Greater Manchester's networks. These neighbouring communities will need to be well-connected to key centres in Greater Manchester, including the Regional Centre and the Airport, and also to neighbouring towns and smaller centres.

Section 3: Critical transport issues – Connected Neighbourhoods

- 57. The ambition of the 2040 Transport Strategy is for local neighbourhoods to be safer and more pleasant to walk and cycle around, with the impact of traffic on local roads reduced and a year-on-year reduction in collisions. Walking and cycling will be the natural choice for many short journeys, with 10% of all journeys made by bike. Easier access to interchanges and to local centres will increase the proportion of journeys made by public transport and encourage people to use local shops and other facilities.
- The GMSF Transport Study has identified the following critical issues for Greater Manchester in relation to growth and connected neighbourhoods:
 - Form and design of new development
 - Access to public transport on foot and bike
 - High proportion of short trips made by car

Form and design of new development

- The form and design of new development is key to support sustainable travel behaviour. Placing new residential and employment development in the right locations across Greater Manchester is crucial, but equally important is that these new developments are planned and designed to maximise sustainable travel choices. It will be vitally important that developments are designed around public transport connectivity as much as possible, with higher densities, walkable connections, and local bus connections. Concepts such as filtered permeability, that prioritise walking and cycling for local journeys to schools, shops and public transport hubs, will need to play an important role.
- shops, schools and health centres, to reduce the need to travel. Approaches to car parking will also have a role to play in promoting sustainable travel choices. Any wider impacts on the local transport network will need to be adequately addressed through the planning system as these new developments come forward.

- The Manual for Streets highlights that people's propensity to walk is influenced not only by distance, but also by the quality of the walking experience.
- Guidelines from the National Institute for Health and Care Excellence recommended ensuring that pedestrians, cyclists and users of other modes of transport that involve physical activity are given the highest priority.
- TfL have adopted the Healthy Streets approach for Greater London, which puts people and their health at the centre of decisions about the design, management and use of public spaces with the aim to make streets healthy, safe and welcoming for everyone.

Access on foot and by bike

61. Local connections to the public transport network and local facilities are often perceived as unattractive in many parts of Greater Manchester. Better connections to and from public transport hubs (including better walking routes, better cycle parking, and links to bus services), as well as better facilities at existing and new public transport facilities and hubs, could encourage more people to use sustainable transport, rather than drive.

Evidence to support this issue (see Appendix A for details and sources):

- Approximately 40% of the Greater Manchester population live outside of areas with Greater Manchester Accessibility Levels 5 or above (on a scale of public transport accessibility from 1 to 8).
- During the morning peak only 25% of people who live and work in the city centre commute by car, but in the eight key town centres this rises to 50%.
- Safety is the single biggest concern preventing more people from considering cycling as a transport option.

High proportion of short trips made by car

- The proportion of short trips made by car in Greater Manchester is still high, particularly outside of the M60. In the city-region as a whole, nearly half of all trips are less than 2km and around 40% of these are made by car. The design of local streets and neighbourhoods is a key factor contributing to this high proportion of short car trips. This is not just a question of accessibility, but also the quality of the streets themselves, i.e. whether the urban environment is sufficiently attractive to pass through on foot. Existing streets need to be improved, as well as new developments, to provide high-quality streets and public realm.
- ^{63.} TfGM and Greater Manchester's local authorities are currently preparing a Streets For All strategy to be launched in 2018. This sets out the city-region's new approach to managing our highways, with a focus on improving our streets for people and places, rather than focusing on vehicles alone.

Evidence to support this issue (see Appendix A for details and sources):

- In Greater Manchester nearly half of all trips are less than 2km.
- Of trips up to 1km in length, 30% are taken by car either as driver or as passenger, for trips between 1km and 2km in length this rises to 62%.
- The proportion of short trips made by car is significantly higher outside the M60 (35.5% for trips under 1km, and 65.6% for trips between 1km and 2km).

Severance caused by busy roads and lack of crossing points

64. Greater Manchester's new cycling and walking infrastructure proposal, recognises that one of the main barrier to walking and cycling is the severance caused by busy roads and lack of crossing points. As a result, cycling and walking doesn't feel safe, attractive or easy for many people. As recognised by the new cycling and walking infrastructure proposal many local

walking and cycling trips to schools, GP surgeries and shops could be made on existing quiet streets. At present, this is not possible due to most low-traffic, quiet areas being hemmed in by busier, intimidating roads. The key to unlocking the potential of our local roads and communities lies in providing easy crossing points.

- Junctions pose the greatest danger on the roads. Two thirds of all collisions take place at junctions, this increases to three quarters of all cycling collisions.
- Eight out of ten residents equivalent to 2.2 million people across Greater Manchester want cycling and walking to be safer. Over two thirds of people would walk and cycle more if they felt safer.
- The proportion of children that cycle to school is over 50% in the Netherlands, but only 3% in the UK.
- 65. These issues are illustrated in Figure 6 overleaf.



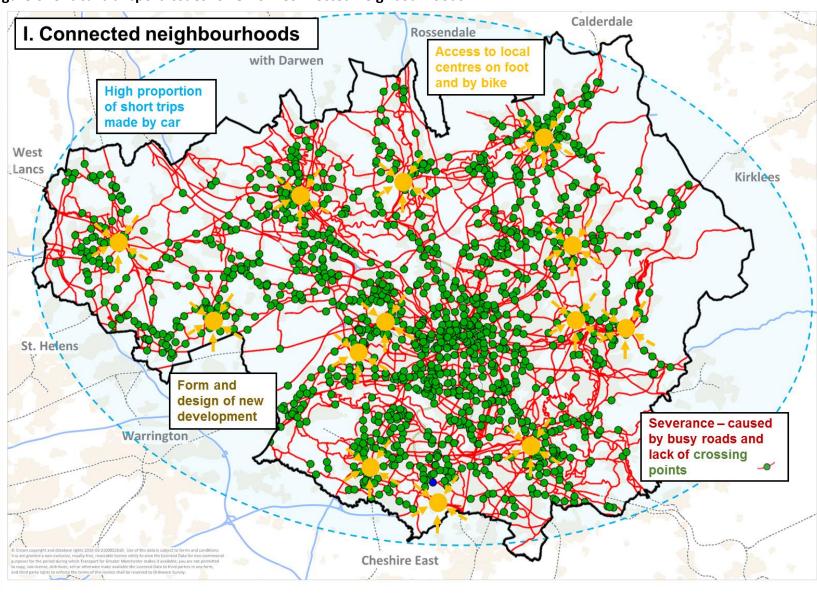


Figure 6: Critical transport issues for GMSF: Connected neighbourhoods

Table 2 provides a brief summary of transport issues within the Connected Neighbourhoods spatial theme that are unique to each Study Area. A more detailed overview of these issues – including mapping illustration of these issues – in each of the six individual Study Areas is included in Appendix B.

Table 2: Summary of selected key transport issues in the 'connected neighbourhoods' spatial theme

	Connected neighbourhoods
Western Study Area	 Severance caused by the Manchester Ship Canal Access to the Eccles, Cheshire Lines Committee and Altrincham lines Design of new development around public transport hubs
North Western Study Area	 Local connections to and from Wigan and Bolton town centres Accessibility of public transport Local access to employment
Northern Study Area	 Access to the Bury and Oldham/Rochdale Metrolink lines and Rochdale heavy rail line Local access to employment Potential for design of development around existing public transport
Eastern Study Area	 Access to public transport including the Ashton Metrolink line Opportunities for public transport oriented development Opportunity to create more attractive centres including Ashton, Stalybridge and Hyde
Southern Study Area	 Need for better access to public transport, e.g. Stockport Interchange Protecting centres as places which are walkable centres to promote local vitality, e.g. along the A6 Quality of local streets to support use of sustainable modes
Regional Centre Study Area	 Severance impacts of the Inner Relief Route, M602 and Manchester Ship Canal Variable quality of city centre development and mixed levels of permeability Form and design of new development needs to have sustainable travel at its core

Section 4: Critical transport issues – Travel across the wider City-Region

- The ambition of the 2040 Transport Strategy is that our regenerated town centres are easy to get to, particularly by sustainable modes, and pleasant to walk around and spend time in. Journeys across the area, between centres or to other major destinations will be made easier through better and faster orbital links, reduced congestion, a more reliable bus network, more effective interchange and better-connected cycle routes. Road collisions will fall, year-on-year, moving towards our goal of reducing deaths and serious injuries as close as possible to zero. The significant new development expected in Greater Manchester will be accessible by sustainable modes of transport, so that the impact of the extra trips on the road network is reduced.
- 68. The GMSF Transport Study has identified the following critical issues for Greater Manchester in relation to growth and travel across the wider city-region:
 - Existing public transport networks need enhancement in coverage and capacity
 - Car is the dominant mode for travel across the wider city-region
 - Traffic congestion on key roads
 - Local highways impacts arising from major new strategic highway infrastructure proposals

Existing public transport networks need enhancement in coverage and capacity

The existing public transport networks need better coverage and capacity to support the ambition to achieve inclusive and balanced population, housing and employment growth across the whole of Greater Manchester as outlined in the GMSF. The stakeholder workshops considered that greatly improved public transport connections will be required to support new development, including improved connections for travel across the wider city-region and orbital links between key centres. Depending on the scale and density of new developments there may be opportunities to provide new high-frequency services. However, particularly where travel patterns are dispersed across the region, there may be challenges in generating sufficient patronage for these new links. Consideration of new technologies and flexible ondemand services combined with Mobility as a Service (MaaS) solutions will also be required.

- Outside of the Regional Centre and key town centres, Greater Manchester Accessibility
 Level (GMAL) scores (measuring public transport accessibility on a scale from 1 to 8) are
 relatively low; many parts of Greater Manchester outside the M60 have a GMAL score of 3
 or below.
- Many respondents to the Greater Manchester 2040 Transport Strategy Consultation proposed specific transport improvements (often Metrolink as a high-profile and desirable mode of transport) as options to support easier orbital travel around the city-region.

Car is the dominant mode for travel across the wider city-region

- 70. Greater Manchester's public transport network is generally very effective for radial movements to and from the Regional Centre. However, this is not necessarily the case for many of the more complex journeys across the wider city-region. Travel to work at out-of-town business parks and industrial estates, is dominated by the car, with limited or difficult access by public transport, particularly for those who work shift patterns. Outside the M60 the locations people need to get to are dispersed. This contributes to high levels of car use and congestion.
- 71. Improvements to the wider city-region's public transport, including orbital connections between key centres, are essential to support employment and housing growth. New public transport solutions will need to be identified based on clear strategic principles, guided by the 2040 Strategy and its supporting sub-strategies (such as the Rapid Transit Strategy which is currently being developed). Integrated ticketing and, in the longer term, new demand-responsive forms of public transport through Mobility as a Service platforms could also help to provide viable alternatives to the private car.

Evidence to support this issue (see Appendix A for details and sources):

- Employment in Greater Manchester is concentrated in a number of areas. Outside the Regional Centre these include the key town centres, Trafford Park, Manchester Airport, and a range of smaller business parks and industrial estates. In many of these areas over 70% of people drive to work.
- The total distance travelled by motor vehicles has been falling within the M60 in recent years. In comparison, the distance travelled by motor vehicles across all Greater Manchester's roads has been increasing, especially on motorways.

Traffic congestion on key roads

The limitations of public transport and the demands of different types of traffic (e.g. local, freight, commuting) cause motorways and other key roads to come under considerable pressure in the peak periods. This leads to congestion and a lack of reliability and resilience. The cumulative impact of housing and employment growth is likely to significantly contribute to this issue if not adequately addressed. At present, congestion is particularly evident on the M60 north-west and south-east quadrants; radial corridors towards the Regional Centre such as the A580, A56, A34 and A635; east-west roads between the M6 and M61; and the M66. The scale of development proposed close to the Greater Manchester boundary in neighbouring authorities is likely to exacerbate the issue.

- During peak periods (school term time), journey times on some parts of the Greater
 Manchester A and B road network are double the journey times of the rest of the day.
- A comparison between AM Peak and overnight journey times also highlights significant levels of congestion on the motorway network, such as on the M60 north-west and southeast quadrants.

The Congestion Conversation which formed the basis of the Mayor's recent Congestion Deal, showed that people identified five clear and consistent causes of congestion: too many people travelling at the same time; too many short journeys by car; roadworks causing delay; poorly timed traffic signals; and no alternative to driving.

Local highways impacts arising from major new strategic highway infrastructure proposals

Proposals for major upgrades to the Manchester North West Quadrant, and potential Trans Pennine highway upgrades to Sheffield, are currently being studied in Highways England's RIS2 research phase. These proposals could have major implications for local travel patterns as well as travel across the city-region and therefore on future growth. They could enable growth by reducing journey times, however, the traffic generated by these schemes could significantly impact Greater Manchester's highway network. The local impacts of these proposals will be carefully considered as the next phase of the GMSF is being prepared to ensure the new infrastructure does not negatively impact local journeys or neighbourhoods.

- TfN, Highways England and DfT are currently investigating long-term options for providing significantly improved road connectivity between Greater Manchester and Sheffield city-region. According to TfN's Draft Strategic Transport Plan, this work has so far found that the most promising option is a partially tunnelled route on the line of the existing A628, with a supporting package of road connectivity enhancements, including on the M60, M67 and M1.
- The Manchester North West Quadrant Strategic Study, covering sections of the M60, M62, M602, M61 and M66, has found a strong strategic case for a substantial upgrade. This programme of work will shortly move into the next phase of development to identify the best value for money options.
- 74. These issues are illustrated in Figure 7 overleaf.

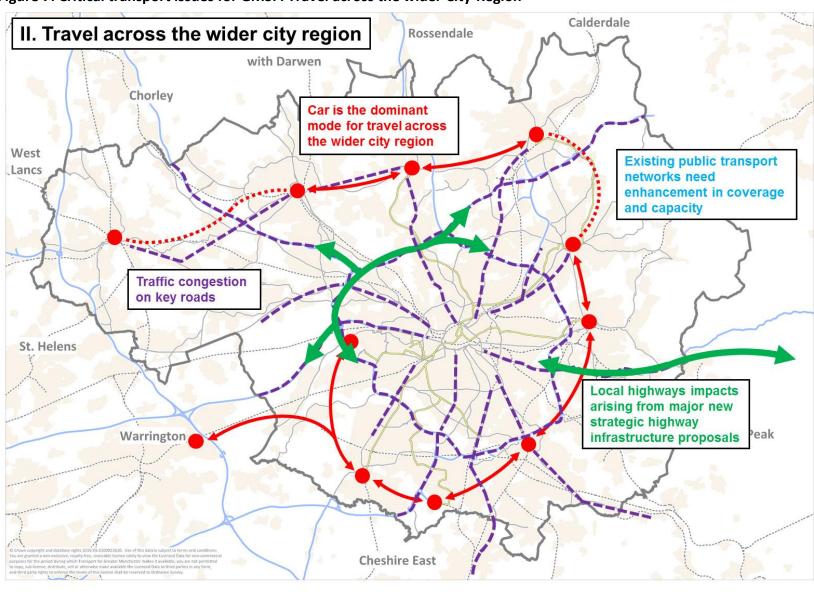


Figure 7: Critical transport issues for GMSF: Travel across the wider City-Region

Table 3 provides a brief summary of transport issues within the Travel across the wider City-Region spatial theme that are unique to each Study Area. A more detailed overview of these issues – including mapping illustration of these issues – in each of the six individual Study Areas is included in Appendix B.

Table 3: Summary of selected key transport issues in Travel across the wider City-Region

	Travel across the wider city-region
Western Study Area	 Lack of public transport to support development Need for highway access to Cadishead and Irlam and Port Salford Congestion on the M60, M62, A56, A57 and A6144
North Western Study Area	 Congestion on local roads, e.g. A577/A58, A580 and town centre approaches Congestion on the M60 North-West Quadrant Dispersed trip patterns due to the polycentric development of North Western towns
Northern Study Area	 Need for new public transport connections to support the Northern Gateway Car is more attractive than public transport for orbital connections, e.g. Rochdale to Bury Opportunities for development around and improvement to town centre public transport hubs
Eastern Study Area	 Car is more attractive than public transport for orbital connections, e.g. Ashton to Oldham Public transport provision to support development proposed Attractiveness of interchange between modes in Ashton
Southern Study Area	 Public transport connections are insufficiently attractive, particularly on orbital routes, e.g. between Altrincham, the Airport and Stockport Lack of public transport to the proposed new allocations Congestion on the M60 resulting from complex travel demands and physical constraints
Regional Centre Study Area	N/A

Section 5: Critical transport issues – Getting into and around the Regional Centre

- The ambition of the 2040 Transport Strategy is to deliver fully integrated Regional Centre transport networks that support rapid economic growth. This will included HS2 and Northern Powerhouse Rail services serving the heart of the city centre and city centre road traffic held at or below 2016 levels. There will be much better public transport, pedestrian and cycle connections across the wider Regional Centre, and key destinations will be accessible by public transport at all times. The Regional Centre will be more liveable as attractive pedestrian and cycling environments will minimise the negative impact of traffic.
- 77. The GMSF Transport Study has identified the following critical issues for Greater Manchester in relation to growth and travel to and within the Regional Centre:
 - Critical heavy and light rail constraints in the Regional Centre
 - Supporting economic growth while holding road traffic at or below 2016 levels within the city centre
 - Public transport access from outer Greater Manchester communities
 - Congestion on radial corridors and Inner Relief Route

Critical heavy and light rail constraints in the Regional Centre

- There are critical heavy and light rail capacity issues in the Regional Centre with peak time congestion and overcrowding on some routes. This is due to significant growth in heavy rail and Metrolink patronage into the Regional Centre over the last 10-15 years. There is some scope to increase heavy rail capacity in the short term by using longer trains, although this would need to be accompanied by platform lengthening. In the short term, 27 new Metrolink vehicles will be acquired through the Transforming Cities Fund, which will enable operation of more double-length trams on busy routes. Having sufficient capacity available in the Regional Centre is not just crucial for people getting into the Regional Centre itself, but also for journeys across the wider city-region that travel through it.
- 79. However, by 2035 it is expected that demand for radial public rapid transport will start to test the absolute limits of capacity in the Regional Centre. In particular, the Metrolink section between St Peters Square and Cornbrook and the heavy rail section between Deansgate and Piccadilly will both constrain the network's ability to meet future demand and more radical solutions will be required. Given the potential cost and planning involved, this will be a critical issue for the delivery of housing and employment growth, even if short-term improvements are able to be made. If, through the planning process, there is potential to direct growth in the shorter term to locations with more capacity, this could help to re-balance demand.

- The section of the Metrolink City Zone between Manchester Piccadilly, Manchester Victoria and Trafford Bar has the highest patronage of any Metrolink or rail line, with over 2,000 people using services on these sections during the AM Peak (08:00-09:00).
- Demand on a number of rail lines into the Regional Centre is over total capacity (including standing capacity) in the AM peak (as of 2015/16), including the Cheshire Lines Committee and Bolton line. Even more rail lines are over seating capacity.
- The Manchester Rail Capacity Study has forecast that by 2026/27, the Bolton line will still be over total capacity in the AM peak without further interventions, and a number of other lines will remain over seating capacity.

Supporting economic growth while holding road traffic at or below 2016 levels within the City Centre

80. The Greater Manchester 2040 Transport Strategy has set the ambitious target of delivering all growth in the city centre without increasing car traffic. The Regional Centre will need to accommodate this higher demand, while also keeping pace with the evolving requirements of city centre living. This is a major challenge, which will require significant investment to improve the quality and capacity of public transport and walking and cycling networks both within and into the Regional Centre. There will also need to be consideration of the long-term role of the Inner Relief Route, parking supply and freight deliveries.

Evidence to support this issue (see Appendix A for details and sources):

- In 2016 around 25,000 car trips were recorded entering Manchester City Centre cordon in the morning peak. In comparison, around 32,000 inbound car trips were recorded in 2002.
- Driving to work is much higher on the fringes of the Regional Centre in comparison to the inner core. Areas where less than 40% of people use a car to get to work are heavily concentrated in the city centre's inner core and the University Corridor. By contrast 65% of people in Salford Quays drive to work.

Public transport access from outer Greater Manchester communities

There are some limitations to public transport access to the Regional Centre from some outer Greater Manchester communities. Despite the extensive network of radial public transport links into the Regional Centre, a number of communities that are not effectively served by them, and are therefore remote from the jobs there. Although some bus services do exist in these areas, the distances involved often means that they have long journey times and frequencies may be low due to lack of demand. These include places such as Golborne in the west, Heywood and Bamford in the north, and Standish in the northwest.

Evidence to support this issue (see Appendix A for details and sources):

• In some parts of outer Greater Manchester, such as Standish, Bamford and Golborne, public transport journey times to the Regional Centre are over 60 minutes.

In these locations, typically less than 5% of residents in employment work in the city centre.

Congestion and Air Quality on radial corridors and Inner Relief Route

The majority of the highway routes serving the Regional Centre suffer from congestion in the peak periods, often over substantial distances. Traffic can often be slow moving over the entire journey between the M60 outer ring road and the Inner Relief Route. This results in poor air quality, with sections of the Inner Relief Route and Regent Road (Salford) regularly exceeding legal limits (above 40μg/m³ of NO₂). The reliability of travel time varies between routes into the Regional Centre, with some routes more susceptible to incidents or disruption. Bus priority measures have been implemented on some corridors, but in many cases, these are discontinuous and buses are therefore subject to the same unreliability as other vehicles. The scale of housing growth proposed, alongside job growth in the Regional Centre, could potentially add significant numbers of cars on to these already busy corridors unless attractive public transport is made available.

- Peak journey times on key radial routes between the M60 outer ring road and the Inner Relief Route (as well as the Inner Relief Route itself) are over double the length of the same journey at night.
- A large proportion of the Regional Centre, as well as the radial routes leading into it, are covered by the Greater Manchester Air Quality Management Area (AQMA). During the 2016 monitoring period the Oxford Road area recorded the regional high NO₂ annual mean concentration level at 66µg/m³.
- The Congestion Conversation, which formed the basis of the Mayor's recent Congestion
 Deal, showed that people identified five clear and consistent causes of congestion: too
 many people travelling at the same time; too many short journeys by car; roadworks
 causing delay; poorly timed traffic signals; and no alternative to driving.
- 83. These issues are illustrated in Figure 8 overleaf.

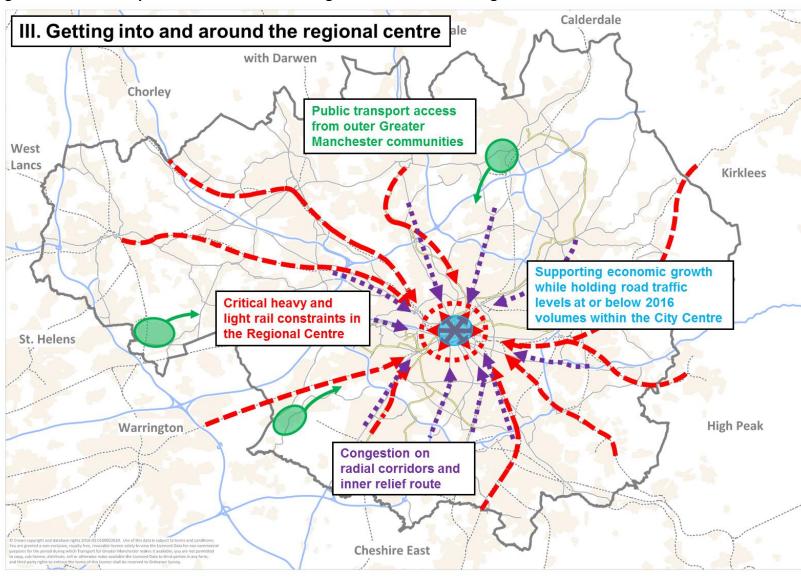


Figure 8: Critical transport issues for GMSF: Getting into and around the Regional Centre

Table 4 provides a brief summary of transport issues within the Getting into and around the Regional Centre spatial theme that are unique to each Study Area. A more detailed overview of these issues – including mapping illustration of these issues – in each of the six individual Study Areas is included in Appendix B.

Table 4: Summary of selected key transport issues in Getting into and around the Regional Centre

	Getting into and around the Regional Centre					
Western Study Area	• Edek of good focal services of the enestine times committee line					
North Western Study Area	 Congestion on radial routes including the M61, M60, A580, A572 and A6 Lack of north-south public transport connectivity in Salford Capacity and frequency limits on the Atherton line 					
Northern Study Area	 Overcrowding on the Bury line Congestion on radial corridors including Bury New Road and Oldham Road Public transport level of service in Middleton and Heywood 					
Eastern Study Area	 Heavy rail constraints in the Regional Centre preventing growth to Hyde / Glossop / Marple Congestion on radial corridors including the A57 and A635 Poor connectivity into the Regional Centre from the east of the Eastern Study Area 					
Southern Study Area	 Lack of capacity and overcrowding on radial lines e.g. Altrincham Metrolink line Poor public transport connectivity into the Regional Centre from new allocations Congestion on radial corridors, including the A34 and A6 					
Regional Centre Study Area	 High demand and a lack of available capacity on the rail and Metrolink networks Expansion of the Regional Centre leads to longer intra-centre journeys Congestion on major road corridors High demand on selected bus corridors Impact of motorised traffic on the vitality of streets Challenge of providing the right parking supply 					

Section 6: Critical transport issues – City-to-City Links

- 85. The ambition of the 2040 Transport Strategy is to see an increasingly successful Northern Powerhouse economy, with Greater Manchester at its heart, supported by transformed connectivity between the major cities of the North of England, and to the Midlands, London and Scotland. There will be a step-change in quality, speed and reliability of our city-to-city rail links, allowing travel to Liverpool, Leeds and Sheffield in 30 minutes or less and to London in just over an hour. Motorway journey times will be more reliable. More freight will be moved by rail and water. Transformed infrastructure, smart ticketing and customer information will encourage more trans-Northern journeys to be made by public transport.
- 86. The GMSF Transport Study has identified the following critical issues for Greater Manchester in relation to population, housing and employment growth and delivering better city-to-city links:
 - Reliance, reliability, speed and capacity of city-to-city strategic road and rail networks
 - Insufficient capacity to accommodate both frequent local and long-distance services on rail corridors
 - Need to ensure good public transport access to HS2 and NPR services from across Greater Manchester

Resilience, reliability, speed and capacity of city-to-city strategic road and rail networks

The M60 and other motorways and trunk roads in Greater Manchester perform multiple roles, including: supporting long-distance through traffic; traffic between the wider North West and Greater Manchester, and high volumes of relatively short-distance traffic. The multiple roles of the motorway network means that city-to-city traffic often experiences significant delays and unreliable journey times. Major studies, such as the North West Quadrant Study (part of the RIS2 research phase), are underway, but the scale of the challenge means that any significant interventions are unlikely to be delivered until the latter part of the next decade or beyond. The stakeholder workshops suggested that there will be a need to consider interventions to address or mitigate some of these issues in the shorter term. Similar issues of resilience, speed and capacity also apply to the rail network as journey times to other major cities including Liverpool, Leeds and Sheffield are often prohibitive for commuters. As a result, the labour markets of these major northern cities function largely separately, rather than as an integrated Northern Powerhouse. Here too major studies are underway (e.g. the Northern Powerhouse Rail project), but the interventions are unlikely to be delivered until the end of the GMSF plan period.

- Large sections of the motorway network within Greater Manchester are within the worst 10% nationally for delays. The M62-M60-M62 route between Liverpool-Manchester-Leeds is particularly bad.
- Currently, average speeds of rail travel across the Pennines between the major cities are below 50mph. The fastest current journey time on the critical Manchester to Leeds link is

- 49 minutes whereas a journey of equivalent length between Reading and London is under 30 minutes.
- Greater Manchester's labour market is still largely self-contained: only 2% of its workers commute in from Liverpool and 1% from the Leeds.

Insufficient capacity to accommodate both frequent local and long-distance services on rail corridors

88. Greater Manchester benefits from its strategic rail links with other major cities in the North. In many cases however these city-to-city movements use the same lines as local commuters, and this can cause conflict. One example of this competition between long-distance and local movements is the Cheshire Lines Committee line (Manchester to Liverpool via Warrington Central), where many local stations are only served by one train per hour or one train every two hours and are therefore not a good option for commuters. There are similar issues on the rail corridors to Preston, Huddersfield/Leeds and Sheffield.

Evidence to support this issue (see Appendix A for details and sources):

- Many local stations on inter-city lines only have a limited level of service. For example, in the PM peak, there are five trains an hour to Leeds, but only one to Mossley and Greenfield, and four trains an hour to Liverpool, but only one to Flixton.
- Rail North's Long Term Rail Strategy notes that ensuring frequent and reliable access between residential and employment areas (primarily city and town centres) is essential in supporting economic growth. Journey time is less important for these journeys, as the majority will be made during peak periods when there is greater highway congestion.

Need to ensure good public transport access to High Speed 2 (HS2) and National Powerhouse Rail (NPR) services from across Greater Manchester

HS2 has the potential to offer transformational change to the city-to-city rail offer. It will also bring wider benefits for the city-region because of the improved connectivity. It will be important to ensure that the HS2 stations and surrounding areas are well prepared to both accommodate the additional capacity which HS2 will generate and capitalise on the benefits to business and the wider economy. This includes consideration of how the new Piccadilly HS2 station will link with a future Northern Powerhouse Rail network. At present, pending the outcome of further analysis, it is the view of Greater Manchester that this is best served by a tunnelled station at Piccadilly. High-speed rail will also need to be integrated with existing rail and Metrolink routes, and with walking and cycling routes, as part of a wider transformational masterplan for the Piccadilly area. Access to Wigan Northern Western and Stockport stations also needs to be considered. A key challenge will be the period between 2027 and 2033, when HS2 trains will arrive from Crewe, but the new infrastructure to Piccadilly is not yet complete.

Evidence to support this issue (see Appendix A for details and sources):

HS2 is a new high-speed rail network for the UK, connecting London with major cities in the Midlands and the North of England. It is a Y-shaped network that will be delivered in three stages (Phase 1, 2a and 2b), integrated with the existing network. Phase 2b will connect

- HS2 at Crewe to Manchester Airport and Manchester Piccadilly, and connect HS2 to the West Coast Main Line near Golborne. Phase 2b is scheduled to be delivered by 2033.
- NPR is a major strategic rail programme designed to transform connectivity between the key economic centres of the North. The NPR concept outlined in TfN's Draft Strategic Transport Plan includes new high-speed lines to Leeds and Liverpool, and an upgrade of the existing line to Sheffield.
- 90. These issues are illustrated in Figure 9 overleaf.



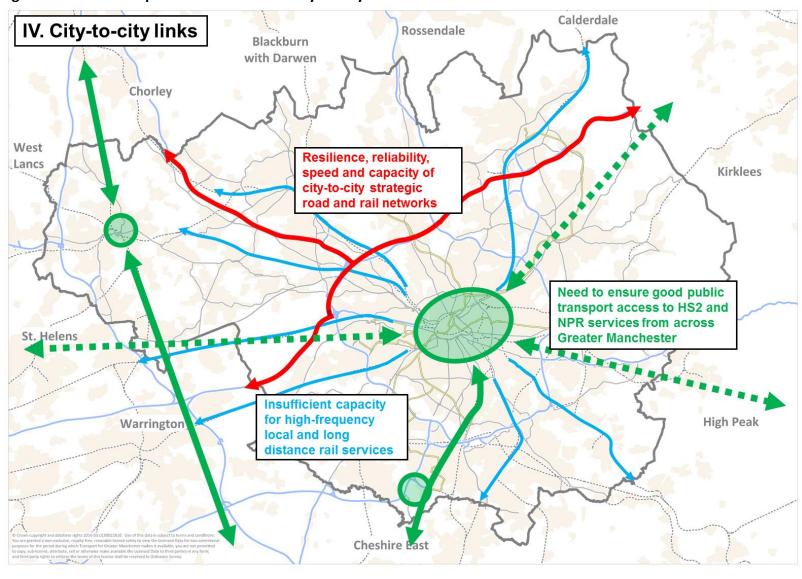


Figure 9: Critical transport issues for GMSF: City-to-city links

Table 5 provides a brief summary of transport issues within the City-to-City Links spatial theme that are unique to each Study Area. A more detailed overview of these issues – including mapping illustration of these issues – in each of the six individual Study Areas is included in Appendix B.

Table 5: Summary of selected key transport issues in City-to-City Links

	City-to-City Links					
Western Study Area	 Congestion and complexity of movements on the M60 North-West Quadrant Competition between local and long-distance services on the CLC and Chat Moss Lines Access form the suburbs to inter-city rail at Piccadilly 					
North Western Study Area	 Opportunity for a stronger Wigan hub provided by HS2 Competition between local and long-distance trips on the motorways 					
Northern Study Area	 Congestion on the M60, M62, M66 and A58 Poor access to fast inter-city rail connections Resilience of the M62 and other Trans Pennine routes to West Yorkshire 					
Eastern Study Area	 Lack of fast and reliable city-region to city-region connectivity to South Yorkshire and the East Midlands Competition between local and long-distance trips on the motorways Capacity and speed on the Huddersfield Line to Leeds and West Yorkshire 					
Southern Study Area	 M60 and M56 congestion affecting strategic access to the Southern Study Area Interface between the local public transport network and HS2 Lack of fast and reliable city-to-city connectivity beyond Greater Manchester, e.g. to Stoke and Warrington 					
Regional Centre Study Area	 Critical heavy rail capacity constraints in the Regional Centre hinder long-term growth across the region High Speed 2 connectivity and benefits maximisation Continuing need to provide access to the motorways 					

Section 7: Critical transport issues – A Globally Connected City

- The ambition of the 2040 Transport Strategy is to support growth at the Airport and the adjacent Enterprise Zone by: bringing many more passengers within a one and two hour rail journey time; improving the reliability of the highway network, and ensuring that public transport services better meet the needs of airport passengers and employees. Improved sustainable transport links will mean fewer Airport employees will drive to work. The Atlantic Gateway corridor will be developed to maximise the sustainable movement of goods by water and rail. The Port Salford area will be developed as a tri-modal (rail, water and road) logistics park and development zone to improve access to global markets via the Port of Liverpool.
- 93. The GMSF Transport Study has identified the following critical issues for Greater Manchester in relation to growth and global connectivity:
 - Public transport access to Manchester Airport
 - Reliability and resilience for port access and long-distance freight

Public transport access to Manchester Airport

While Manchester Airport railway station features frequent rail services, these largely connect the Airport to the Regional Centre, and then onwards to other UK destinations. Rail services to the south of the Airport are presently limited to a single train per hour, and there are no links east to Stockport, or west to places such as Altrincham or Chester. Bus services between Manchester Airport and the wider Southern Study Area are similarly limited in frequency and destination. This is in addition to other challenges to greater public transport use, such as the increasing use of private hire taxis which are more convenient and, in many cases, cheaper than public transport for group travel. The poor public transport access to the Airport outside of the Regional Centre and south Manchester adds to the pressure on the highway network and adds to the risk that Manchester Airport's success could be restricted by unreliable car access. Recent interventions, such as the Metrolink extension to the Airport and walking, cycling and wider highway improvements, have already helped to create more reliable access for workers, and this work will need to continue in the future as the Airport grows in line with the Manchester Airport Supplementary Planning Document (SPD).

- The 2016 Civil Aviation Authority Passenger Survey reported that only 17.5% of passengers used public transport to access Manchester Airport, compared to 25.7% of passengers travelling to Birmingham Airport and 50.9% of those going to Stansted.
- The most recent staff travel survey shows that 78.5% of staff used private transport to travel to the airport and 21.5% travelled by public transport, walking or cycling. However, it should be noted that this travel survey pre-dates the opening of the Airport Metrolink line.
- Manchester Airport has set a target to reduce the number of people using cars to get to the Airport to around 50% when passenger numbers reach 45 million a year. They also want to reduce the number of staff driving to work to 65% at the same point.

Reliability and resilience for port access and long-distance freight

- 45. As Greater Manchester's economy grows, there will be growing demand for freight transportation between the region and major UK ports such as the Port of Liverpool and Humber Ports. The construction of an inland tri-modal port at Port Salford to support this will attract freight and logistics businesses to the area and create more jobs. This will benefit the transport network as significant quantities of freight could then be transported via rail and water rather than on the motorways. However, new infrastructure will be needed to facilitate this growth at Port Salford and to accommodate the potential expansion of nearby commercial land. These improvements would include the Port's road, rail and water infrastructure, and also major rail network improvements to accommodate freight trains, potentially supported by completion of HS2 which will free up capacity on the West Coast Main Line.
- 96. Aside from Port traffic, there will also be a need for Greater Manchester to ensure that long-distance freight can move around the region efficiently and sustainably. The issues associated with of local delivery and wider city-region freight are included in the Greater Manchester-wide Issues section.

- According to TfN's latest freight and logistics analysis, the busiest road freight corridors in Greater Manchester include the M6 and the M62.
- In 2016 around 3% of Greater Manchester's freight tonnage was transported by rail.
- Waterborne traffic on the Manchester Ship Canal continues to increase. Peel Ports' shuttle service on the canal has increased from 3,000 containers a year in 2009 to 22,500 in 2013.
- 97. These issues are illustrated in Figure 10 overleaf.

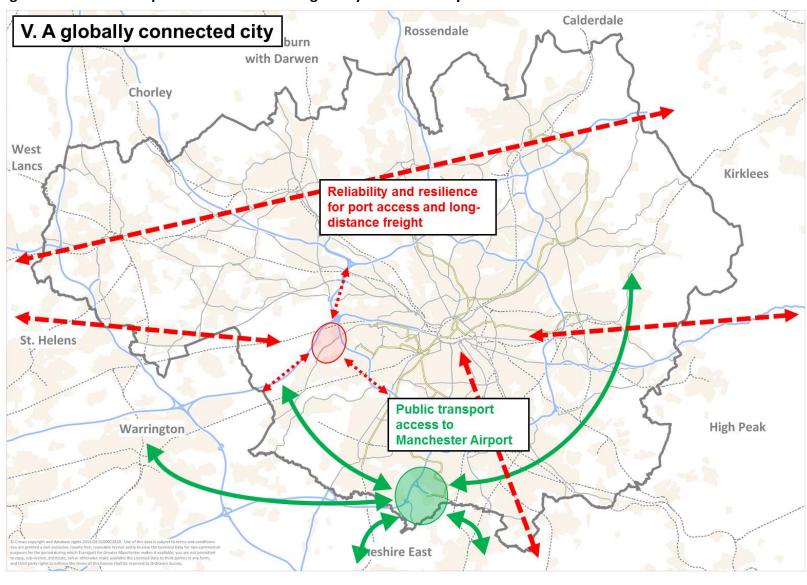


Figure 10: Critical transport issues for GMSF: A globally connected city

Table 6 provides a brief summary of transport issues within the Globally Connected City spatial theme that are unique to each Study Area. A more detailed overview of these issues – including mapping illustration of these issues – in each of the six individual Study Areas is included in Appendix B.

Table 6: Summary of selected key transport issues in A globally connected city

	A globally connected city					
Western Study Area	 Need for better access to Manchester Airport, especially by public transport Need for suitable infrastructure to support growth at Port Salford Connectivity for freight traffic 					
North Western Study Area	 Connectivity between Wigan/Bolton and the Airport Lack of reliability and resilience for long distance port traffic Connectivity to the Port of Liverpool via the M58 Opportunities for multi-modal freight, particularly Parkside and Port Salford 					
Northern Study Area	Pressure on the motorways for long distance freight movements Need for better access to Manchester Airport, particularly by sustainable transport					
Eastern Study Area	 Weak competitive position of public transport to the airport Lack of resilience of the M60 between Ashton, Stockport and Manchester Airport 					
Southern Study Area	 Unreliable highway access to the Airport Weak competitive position of public transport for travel to the Airport The congested nature and lack of resilience of the motorways hinders accessibility to Port facilities 					
Regional Centre Study Area	Access to Manchester Airport Access to Port Salford					

Section 8: Critical transport issues – Greater Manchester-wide Issues

- ^{99.} The 2040 Transport Strategy has established seven mutually reinforcing principles in support of a more customer-focused transport system. These network principles need to be applied consistently as we improve Greater Manchester's transport system to ensure that it meets the needs of all residents, businesses and visitors. They are:
 - Integrated.
 - Inclusive.
 - Healthy.
 - Environmentally responsible.
 - Reliable.
 - Safe and secure.
 - Well maintained and resilient.

Further details of these network principles are contained in the 2040 Transport Strategy.

- 100. The GMSF Transport Study has identified the following critical Greater Manchester-wide issues in relation to growth:
 - Lack of integration on public transport
 - Movement and place demands on street
 - Network reliability and resilience
 - Local air pollution and carbon emissions
 - Accessibility and affordability of public transport
 - Ongoing network maintenance requirements
 - Safety and security
 - Exploiting the potential of new technologies
 - Urban logistics and distribution
 - Severance caused by motorway and ship canal infrastructure

Lack of integration on public transport

101. A major barrier to sustainable travel is the lack of integration across the different parts of the transport network. The lack of integrated information, fares and ticketing makes it difficult for customers to understand what travel options are available; how they access and pay for them;

and how to move between different modes of transport for more complex journeys. The ambition to create a more integrated transport network therefore sits at the heart of the Greater Manchester 2040 Transport Strategy, and will be equally crucial for the delivery of the planned housing and employment growth. TfGM are currently progressing the roll-out of smart ticketing across Greater Manchester, as well as preparing for reform of the bus market using the powers granted to the Mayor by the Bus Services Act 2017. TfGM is now preparing an assessment of the options for the latter, including partnership proposals or a franchising scheme. As part of this assessment, we are engaging with the bus operators. Following an independent audit of the assessment the GMCA will decide whether to proceed with a consultation, enabling the public to have their say.

Evidence to support this issue (see Appendix A for details and sources):

- There is a strong degree of support, from the 2040 Transport Strategy consultation, for easier and more cost-effective multi-leg or multi-modal journeys, particularly by public transport.
- A number of respondents also specifically mentioned the complexity of the current bus network.
- Using the city-region's existing Get Me There card, 16 to 18-year-olds can already benefit
 from half-price travel on buses and on Metrolink off-peak and at weekends. By the end of
 2018, we are aiming to have developed the first phase of contactless smart ticketing
 payment on Metrolink. In early 2019 we will also look to simplify Metrolink's fare structure
 and introduce zonal charging.

Movement and place demands on streets

There is conflict between the need to maintain the movement of road traffic and place-making in local centres and communities. They need to serve as links between destinations and places in their own right, for example as centres for retail or other local services. In some locations, the needs of place have been secondary to the need for car access. This has resulted in cardominated, rather than pedestrian-friendly streets. Prominent examples include the A6 through Hazel Grove, the A56 through Sale and A49 through Wigan. While vehicular access is very important to these areas, it is also essential to seek a balance which achieves more accessible and attractive places, promotes active travel and ensures a healthy environment. Equally, the right balance needs to be found between place-making and public transport accessibility.

- The Greater Manchester Town Centres Review (2013) recognised that high quality and attractive environments played a fundamental role in raising footfall and encouraging people to stay longer, helping to grow turnover for neighbouring businesses.
- The way people travel into Greater Manchester's eight key town centres is highly mixed, with approximately 50% taken by car, 25% by public transport, and 25% by walking and cycling.

Network reliability and resilience

The cost of congestion in Greater Manchester has been estimated at £1.3 billion a year. In addition to frustration for motorists and delays for business, highway congestion can have a significant impact on bus journey times (making public transport less attractive), and lead to increased emissions. A crucial Greater Manchester-wide issue is therefore how highway journey times can be made more predictable, and public transport more reliable, given that expanding highway capacity to meet an ever growing demand for car travel is not sustainable, or physically or financially practical. The Greater Manchester Congestion Deal recognises that people choosing public transport rather than driving will reduce the number of cars on the road, and aims to provide a genuine alternative to the car for as many residents as possible.

Evidence to support this issue (see Appendix A for details and sources):

- Recent results from the Greater Manchester Congestion Conversation highlight the importance of reliable journeys to the city-region's residents. In the online survey, nine in ten respondents reported that congestion increases their experience of stress and anxiety.
- In 2015 it was estimated that the cost of congestion to Greater Manchester was approximately £1.3 billion a year.
- In 2016, around a quarter of GM businesses (28%) had experienced a major business disruption. No single type of disruption was evident and many factors were mentioned, but the most frequently was 'transport and congestion' (10% of respondents).

Local air pollution and carbon emissions

Transport is a major contributor of emissions in Greater Manchester due to the continued high dependence on traditional engine technology, and use of petrol and diesel to fuel vehicles. A major challenge for accommodating housing and employment growth is therefore to avoid, as much as possible, adverse impacts on the environment caused by increased travel demand, particularly on air quality, where emissions already exceed legal limits, and carbon emissions which are contributing to climate change. The Global Covenant of Mayors for Climate and Energy requires Greater Manchester to reduce emissions by 80% by 2050, and to achieve a 40% reduction between 2005 and 2030. This will require a significant reduction in transport carbon emissions over the course of the plan period, both by reducing the need to travel and by using cleaner vehicles.

- Transport accounted for 34% of the total carbon emissions across Greater Manchester in 2015.
- In Greater Manchester, road transport contributes to over 65% of emissions of nitrogen oxides and 79% of particulates.
- Greater Manchester is one of a number of major UK conurbations where NO₂ limits are exceeded, and an Air Quality Management Area (AQMA) is in place covering most major routes in the region.

Accessibility and affordability of public transport

If the GMSF is to deliver on its ambition to deliver inclusive growth for all residents in Greater Manchester, it will be important to improve the accessibility and affordability of public transport, particularly for residents on limited incomes. For those without access to a car, the availability of public transport may determine whether they can access jobs or training or attend medical appointments without using more costly individual travel options. The availability of public transport can also be a particular issue for people working in the night-time economy, and people with reduced mobility.

Evidence to support this issue (see Appendix A for details and sources):

- Cost is a key reason why residents would not consider travelling by train within Greater Manchester (18%), while a similar proportion of those who would not consider travelling by bus (18%) say cost is a prohibitive factor.
- Travel distances in Greater Manchester are strongly correlated to household income, with residents with the highest incomes travelling further than those on lower incomes.

Ongoing network maintenance requirements

As noted in the 2040 Transport Strategy, the economic performance of the city-region depends on a functioning transport network, and this will remain the case as the region grows over the next 20 years. There needs to be a comprehensive, coordinated, programme of investment to maintain all transport assets in Greater Manchester to ensure on-going network resilience and avoid network failure. In addition, transport networks need to continue to provide a service during planned or unplanned events. When rail or tram services are unavailable, well publicised alternatives or replacement services need to be available. When roads are closed clearly signed diversionary routes are needed, along with information on the availability of alternative modes.

- In England, the proportion of local authority managed A roads that should have been considered for maintenance in 2016/17 was 3%. In Greater Manchester, this is significantly higher, for some local authorities it is as high as 8%.
- In 2016/17, 6% of local authority managed B and C roads in England should have been considered for maintenance. Manchester (13%) and Stockport (9%) had a significantly higher percentage.

Safety and security

Road safety and personal security are fundamental requirements of any successful transport system for the city-region. Safety must be a consideration in the design of all new transport schemes that are needed to deliver housing and employment growth. Where these involve the highway network, the needs of a range of different users need to be considered, making it particularly important to reduce conflicts between the most vulnerable road users and other traffic. Equally, personal security will need to be an important element in the delivery of any new public transport infrastructure and services.

Evidence to support this issue (see Appendix A for details and sources):

- Perceptions of personal safety on public transport vary significantly between hours of daylight and darkness. For example, 93% feel safe on Metrolink during daylight hours, but this drops to 46% when it is dark. Similar patterns are observed on the rail and bus networks.
- In 2015 there were 3,073 report incidents involving injury on the Greater Manchester road network resulting in 4,320 casualties (injuries and fatalities).

Exploiting the potential of new technologies

Recent innovations and ongoing technological developments have created a window of opportunity for new forms of travel to emerge, such as flexible on-demand services and the emergence of Mobility as a Service (MaaS) as a new business model. Such service models are still in the early stages of development in most cities around the world, but will likely have a significant impact on travel behaviour further into the GMSF plan period. There is an opportunity for Greater Manchester to capitalise on these new technologies and associated changes to travel behaviour to help address the GMSF's key transport issues. For example, there could be new opportunities for the development of responsive, on-demand transport in less densely populated parts of the city-region to complement the existing public transport offer. There is also an opportunity to further increase the uptake of electric vehicles and provide the infrastructure required.

- The consumer market supports the digital requirements of MaaS: a recent study shows that 57% of respondents would not mind sharing their personal data in order to get a better transport service, and approximately half of smartphone users already consider the smartphone as essential for travel.
- The number of drivers registered to the Greater Manchester Electric Vehicles (GMEV) scheme increased from 48 in 2013 to 1,808 in January 2018.
- The UK Climate Change Commission has set a target for all car sales to be Ultra Low Emission Vehicles (ULEVs) by 2040. Within Greater Manchester, this would mean sales of 6,300 vehicles in 2020, increasing to 25,600 sales in 2025.

 While vehicle ownership is still dominant, attitudes to car ownership are shifting. In the UK, this is particularly pronounced amongst younger people, where the percentage of under 20s owning a driving licence has decreased by 40% since 1995.

Urban logistics and distribution

Changing patterns of freight and logistics have emerged as the industry responds to different demands for goods and services in a growing economy fuelled by rapid population growth. Increasing rates of online shopping and just-in-time approaches to business and manufacturing are increasing the number of light goods vehicles on our highways. This is contributing to congestion, emissions and noise. In order to ensure that the freight and logistics industry continues to support our economy, it will be important for logistics and freight facilities in Greater Manchester to be well located in order to maximise efficiency (in terms of vehicle km) and minimise the negative impact on local communities, particularly the most urbanised high-density parts of Greater Manchester.

Evidence to support this issue (see Appendix A for details and sources):

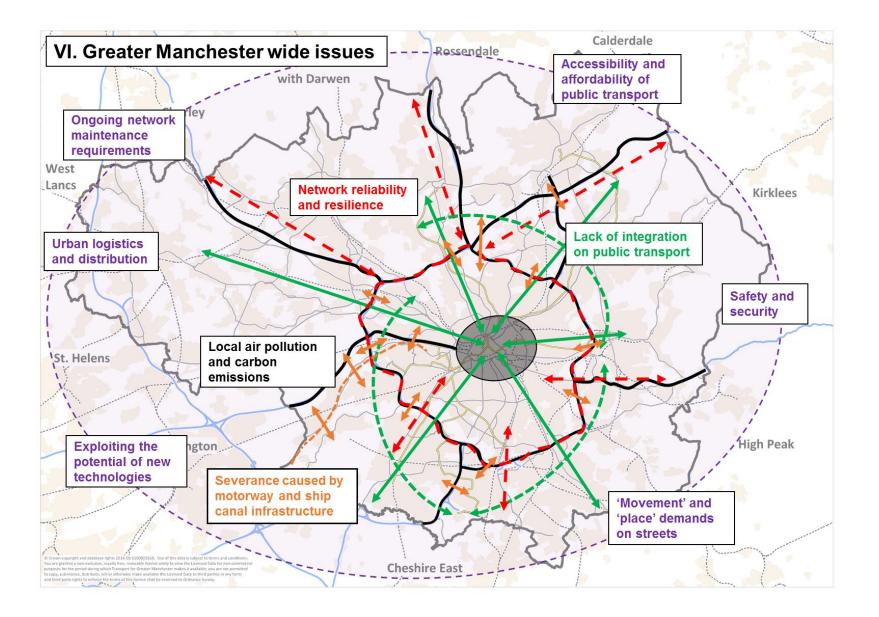
- Britain has the highest rate of online shopping in Europe. In 2013, 72% of British adults shopped online, up from 53%in 2008.
- The proportion of light goods vehicles on both Motorways and A Roads in Greater
 Manchester is higher than at any point in the previous 12 years.

Severance caused by motorway and ship canal infrastructure

Severance describes the way transport routes can disconnect places on one side of the route from those on the other. This is a common issue across nearly all Study Areas at the neighbourhood level, but it also affects other types of trips, particularly when there are major infrastructure barriers which are difficult to cross. For example, in the Western Study Area the Manchester Ship Canal was highlighted as a major barrier to local movements, whereas in the Northern and Southern Study Areas the severance caused by motorways, such as the M60, are a key issue. A common theme is that many residents choose not to make trips by bicycle or on foot because of the difficult or unpleasant environment. This in turn contributes to congestion on local road networks.

- Major transport infrastructure can have a significant impact on the ability to make short trips by sustainable transport. For example, the Manchester Ship Canal limits access between Cadishead and Partington, and the A602 limits access between neighbourhoods in Salford.
- 111. These issues are illustrated in Figure 11 overleaf.

Figure 11: Critical transport issues for GMSF: Greater Manchester-wide Issues



Section 9: Conclusions and next steps

- This report has captured the emerging understanding of the critical transport issues for Greater Manchester, in the context of the housing and employment growth across Greater Manchester which the GMSF seeks to deliver.
- This Understanding the Issues report has been developed to support the second consultation draft of the GMSF, and the new 2040 Transport Strategy Delivery Plan. The new Delivery Plan will provide further detail on the emerging priority transport interventions for Greater Manchester which will need to be delivered over to address the issues identified, with a focus on schemes and studies to be progressed within the next five years.

Emerging conclusions from the GMSF Transport Study: Understanding the Issues Report

- 114. From the transport issues identified in this report it is clear that the scale of growth envisaged by the GMSF will be a major challenge for the city-region. It will require a range of transformative investments across all the different modes of transport, across all the different types of trip, across all of Greater Manchester.
- 115. The most important transport challenges for Greater Manchester are summarised below.

A radical transformation of the Regional Centre's public transport and walking and cycling infrastructure

- The Regional Centre will be at the heart of the planned population, housing and employment growth. It is already the most significant economic location in the country outside London, and its position as the economic hub for the North of England will be further strengthened through the Northern Powerhouse. The number of office jobs in particular is predicted to increase dramatically, and there will also be strong growth in the number of residents and visitors. The 2040 Transport Strategy ambition to keep road traffic levels in the Regional Centre at or below current levels will therefore be a huge challenge.
- Given the expected increase in travel to, from, through and within the Regional Centre, particularly during the peak periods, improving public transport and walking and cycling capacity will be vital. This will, first of all, require a long-term strategy and major investment programme to ensure that the public transport network can accommodate the population, housing and employment growth ambitions without further growth in car traffic. Such a programme would start with relatively straightforward ways to improve capacity, such as longer trains and lengthened platforms on the rail network, and additional trams on the Metrolink network. At the same time, it will need to start planning and advocating for more long-term radical solutions, which could include a city centre tunnel or equivalent interventions to transform capacity through the city centre.
- As the Regional Centre expands outwards, improved intra-centre connections will also become increasingly important to support last mile journeys, for example from a future Piccadilly HS2 station. A hierarchy of movement through the Regional Centre will need to be established to

ensure that walking and cycling and bus are given adequate priority and can complement public realm initiatives.

- A rapid expansion of the cycle network in and into the Regional Centre will also be required, building on the success of recent schemes such as the Oxford Road corridor. The form and function of the Inner Relief Route will also need to be considered particularly with respect to walking and cycling between the new neighbourhoods in Manchester and Salford such as Chapel Street, Ancoats, New Cross, New Islington, Mayfield, Holt Town, Collyhurst and Strangeways. In addition key bus route must also be ensured priority to guarantee journey times in the Regional Centre.
- 120. Finally, investment in capacity on radial public transport corridors will be supported by a wider land use strategy, as set out in the GMSF. This will ensure that new strategic sites are connected to and developed around these corridors and linked to existing town and district centres.

Creating sustainable new communities and commercial areas, and building on the strengths of existing urban centres

- The final GMSF will need to create sustainable communities and commercial areas that balance the need for inclusive residential and job growth. This will require a significant effort by all partners in the city-region to undertake fully integrated planning for new sites, town centres and transport hubs, with sustainable transport fully embedded in the design process. How public transport hubs can be used to stimulate growth will also need to be considered.
- Connections between public transport and the development and design of affordable homes across Greater Manchester will also need to be considered. Although Greater Manchester has an excellent range of employment, housing and leisure opportunities, accessibility can vary considerably and some neighbourhoods have not shared in the benefits of recent economic growth. The GMSF has an important role in helping to address these inequalities and disadvantages.
- 1233. Traditional development patterns in Greater Manchester have shown that the more dispersed and distant they are from urban areas, the more challenging it is to serve them with sustainable transport. Planners will therefore need to ensure that new developments are well connected to existing public transport, cycling and walking networks and highways and does not lock in reliance on the car. This will mean designing these new communities so that local facilities are easily reachable on foot and bus and that they are integrated into the existing urban network. This is not just a question of accessibility, but also one of the quality of the streetscape; i.e. whether the urban environment is sufficiently attractive to walk through. This will be particularly important in Greater Manchester's key town centres and other urban centres, where good public transport links often already exist.
- 124. It is important to note that this planning should not just focus on the new GMSF allocations. There will also be a need for integrated visions and masterplans for the key intra-urban locations for development: the City Centre, the Quays, the main town centres, and the Airport. At each of these locations, sustainable transport principles need to be embedded in future plans to minimise traffic caused by new developments, and to help create the right conditions for growth.

Integrating transport and land use planning to create sustainable communities

Integration between transport and land use planning is critical in influencing people's travel choices. This includes the design of new developments, e.g. in terms of proximity to public transport, the availability of parking, the availability of safe and direct walk/cycle routes, the provision of secure cycle parking or the availability of electric vehicle charging points. Creating sustainable communities therefore needs to be guided by the following principles:

- Reducing the need to travel by car, and the distance travelled.
- Maximising accessibility by sustainable modes.
- Making the best use of existing infrastructure, particularly through increasing the density of development close to public transport nodes.
- Maximising opportunities to provide additional public transport.
- Designing to encourage walking and cycling.

Source: Transport for Greater Manchester (2017), Greater Manchester Transport Strategy 2040, February 2017 (p. 18-19).

Reducing the reliance on the car for movements across the wider city region, including orbital connections between town centres

- As noted in Section 4, a crucial issue for Greater Manchester is that while it has a strong network of radial public transport routes, public transport often compares poorly to the private car in the wider city-region. Travel to work at locations such as the main town centres, Trafford Park, the Airport, the Quays and many smaller business parks and industrial estates is dominated by the car, which contributes to congestion. There is a risk that these issues will be magnified due to housing and employment growth.
- There is therefore a clear need to reduce the reliance on the car for travel across the wider city-region. The challenge for the GMSF is that public transport cannot easily cater for the wide range of dispersed trips that are undertaken by commuters every day, for example around the M60. Orbital public transport trips are by their nature very different from orbital trips by car, so, in many cases, there is a logical point where it is quicker to travel via the Regional Centre, even if this requires a change. The best way to improve orbital public transport journeys will therefore need to be identified based on clear strategic principles, guided by the 2040 Strategy and its supporting sub-strategies (such as the Rapid Transit Strategy which is currently being developed). Solutions could vary from Metrolink to Bus Rapid Transit and Quality Bus Transit solutions, supported and enhanced by opportunities for interchange (enabled by Bus Reform and integrated ticketing) through a network of fully integrated transport hubs.
- The initial evidence suggests that in the medium term the density of future developments and potential travel demands required to justify rail-based orbital rapid transit solutions are most likely to be found on routes to and from the Airport. The Airport is a significant destination in its own right and could therefore most easily attract the levels of patronage required to ensure a financially sustainable operation. The introduction of an HS2 station at the Airport near the end of the GMSF plan period will also increase the potential markets for such services. However, further study will be required to determine where the highest levels of patronage could be achieved and where investment can most easily be justified. In other parts of Greater Manchester, there could also be new long-term opportunities for new orbital connections enabled by new development, depending on their size and density.

Ensuring that pan-Northern transport interventions for city-to-city trips are fully integrated with regional and local networks

- The future approach to transport will need to be aligned with, and maximise the opportunity provided by potential major transport investments, such as emerging recommendations from the Manchester North West Quadrant and Trans Pennine studies, and major rail interventions such as HS2 and Northern Powerhouse Rail (NPR). This infrastructure will make a major contribution to the creation of the Northern Powerhouse, and will be vital to improve access to the North's major economic centres.
- Highways England are currently undertaking two major studies as part of the RIS2 research phase into new infrastructure that, if delivered, would have major implications for the GMSF: the Manchester North West Quadrant, and Trans Pennine routes. Both of these have the potential to transform city-to-city motorway connectivity across the North of England, although they are both long-term investments that would only be delivered towards the end of the GMSF plan period.
- while there may be clear benefits from these investments for city-to-city trips, there is nevertheless a risk that a 'predict and provide' approach to the planning of these interventions will lead to additional induced traffic, thereby diminishing or cancelling out the long-distance benefits for pan-Northern travel. It will be crucial to fully integrate any proposals for the Manchester North West Quadrant or for an improved TransPennine route with the local network, to avoid negatively affecting local users.

Investing in local neighbourhoods to make walking and cycling the natural choice for short journeys, and to stimulate town centre and neighbourhood renewal

- In many parts of Greater Manchester, significant numbers of short trips are being made by car, contributing to local traffic congestion, road safety issues and poor air quality in neighbourhoods. In the city-region as a whole, nearly half of all trips are less than 2km and 38% of these are made by car.
- There is a significant opportunity across Greater Manchester to reduce pressure on congested road networks by improving options for walking and cycling and promoting bus travel. This will require new investment to create more sustainable communities, and a safer and more attractive environment for walking and cycling in local neighbourhoods and ensuring easy access to and from bus stops. This could include:
 - Improvements to streetscape and public realm.
 - Creating street patterns that are permeable to pedestrians and cyclists.
 - Opportunities to link streetscape improvements to planned maintenance to reduce costs.
 - An increased focus on placemaking, through Greater Manchester's Streets for All agenda.
 - Identification of locations where walking and cycling and public transport can enable town centre renewal.

 Repositioning Greater Manchester's district centres and suburbs as aspirational places to live through better quality design, and increased opportunities for social and economic interaction underpinned by creating more attractive walking and cycling environments.

Maximising the efficiency of Greater Manchester's existing transport networks

- As the population, housing and employment growth places substantially increased demand on the city-region's transport networks, it will become increasingly important to maximise the efficiency at which they operate. TfGM, the local authorities and transport operators already provide travel demand services, but there is scope to deliver more proactive, long-term and strategic information in order to reduce congestion
- 134. A comprehensive travel demand management strategy to support the planned population, housing and employment growth would ensure that Greater Manchester maximises the efficiency of its networks, using a variety of harder and softer measures. This could include:
 - Making most efficient use of existing road space, including re-allocation of road space to walking and cycling and public transport on corridors where demand is high.
 - Focusing on the role of transport corridors in relation to the efficient movement of people and role of the place.
 - Targeted marketing and behaviour change campaigns, particularly to promote and lock in the benefits of newly delivered infrastructure. This could include working with major employers.
 - Effective parking policies, particularly in and around the Regional Centre, where growth needs to be supported while holding road traffic at or below 2016 levels.
 - A comprehensive, integrated and affordable smart ticketing solution for Greater Manchester, including current short-term proposals to implement contactless payment and zonal charging on Metrolink.
 - Closer partnership working between TfGM, the Greater Manchester local authorities and transport operators, potentially including new disruptive entrants to the market such as those promoting Mobility as a Service.

Strengthening the role of Manchester Airport as the international gateway to the North of England

- Manchester Airport will continue to develop as a world-class airport with high-quality services and facilities, providing the UK's principal international gateway outside London. The introduction of services to a wide range of new destinations over the course of the GMSF plan period could enable a doubling of passenger numbers to around 45 million a year.
- However, the full potential of the Airport can only be realised if it is accompanied by improved access. Towards the end of the plan period, HS2 will arrive at Manchester Airport, providing a game-changing boost for long-distance public transport. Equally however, there is a need to improve more local access, including to places such as Altrincham and Stockport, and better integration between the available modes of transport for both passengers and employees. While the Airport is still in the relatively early stages of its planned growth, there is an

opportunity to identify land for sustainable transport, and this opportunity will need to be seized while it exists.

Exploiting new opportunities for the efficient and sustainable movement of freight

- 137. The efficient movement of goods is critical to the vitality of any large conurbation. Given the significant increase in the volume of freight being transported on our roads over recent years, it will be important to explore new ways to move it around our city-region in more sustainable ways. This could bring economic benefits to the region by creating a more competitive freight sector while also reducing the negative environmental and social impacts of freight traffic. This could include:
 - Protection of existing assets or suitable land for the use of Strategic Rail Freight
 Interchanges, including understanding in more detail the role of Port Salford within the
 region, and also locations such as Parkside just outside the Greater Manchester boundary.
 - Using policy incentives to reduce the impacts of freight vehicles during peak periods and better manage the impacts of freight on both local communities and in retail areas.
 - Exploiting opportunities for freight consolidation, particularly in busy and sensitive areas such as the Regional Centre and for public sector sites which cover a large area.

Being prepared for future innovations in technology and travel behaviour, while recognising ongoing uncertainty

- ^{138.} After decades of relative stability, transport technology and services available to transport operators and the public is rapidly changing. Some recent innovations have already reached maturity in a short space of time, such as the now near-universal market penetration of smartphones. Other innovations, such as autonomous vehicle technology and the emergence of Mobility as a Service as an entirely new business model, are still in their infancy but have significant momentum.
- The rapid pace of technological change could open the door for Greater Manchester to improve the performance and reliability of its transport networks, improve the customer experience, and provide more seamless multi-modal journeys. At the same time, the uncertainties around these new technologies are still very high; not just in terms of their likely market penetration, but also in terms of their impact on the wider transport network. For example, Mobility as a Service could reduce the need to own a car and therefore make public transport more attractive, but conversely, it could compete with the existing bus market.

Mobility as a Service (MaaS)

Mobility as a Service (MaaS) brings together all the different ways we travel into one, easy-to-use app. Imagine if you could book a train, hire a car and find the quickest walking route all in one place. It has the potential to make all our journeys simpler, quicker and cheaper and our transport network more efficient.

We know that one of the reasons many people choose a car for trips is that its seen as 'the easy option' and so MaaS seeks to make public transport the even easier alternative, combining modes and different operators into one seamless journey.

- ^{140.} Reducing the need to travel through home and remote working is also becoming easier with the advent of universal broadband and occasional work spaces growing in popularity. Flexible working arrangements that allow travel a little earlier or later than normal to fit in with bus or train times or to avoid the busiest times on the road are also increasing.
- The future GMSF should therefore seek to harness new technologies where they can add value, but avoid being overly reliant on technological innovations that are still highly uncertain. In particular, there could be new opportunities for the development of responsive, on-demand transport in less densely populated parts of the city-region to complement the existing public transport offer.

Next steps

- This GMSF Transport Study: Understanding the Issues report is accompanied by a GMSF Transport Study: Addressing the Issues Report. The Addressing the Issues Report defines how the critical transport challenges for Greater Manchester, as identified in this report, can be addressed. The Addressing the Issues Report will present an outlook of what the transport system could look like in the short, medium and long term; representing a plan for the future which is aspirational and transformative, but equally realistic and deliverable within funding and feasibility constraints.
- The Addressing the Issues Report also sets out the further work on the GMSF Transport Study that will be needed to prepare for Examination in Public of the final GMSF.

Glossary of terms

Terms	Definition					
City centre	The central part of the Regional Centre, contained within the Manchester and Salford Inner Relief Route and the University Corridor.					
GMCA – Greater Manchester Combined Authority	Greater Manchester's regional political authority, made up of the ten Greater Manchester councils and Mayor. The GMCA is run jointly by the leaders of the ten councils and the Mayor of Greater Manchester.					
GMSF – Greater Manchester Spatial Framework	The joint Development Plan Document which will set out the spatial strategy for housing and employment land growth across Greater Manchester for the next 20 years.					
GMS – Greater Manchester Strategy	The new plan for Greater Manchester, written by all ten councils, the Mayor, the NHS, transport, the police and the fire service. It covers health, wellbeing, work and jobs, housing, transport, skills, training and economic growth.					
Greater Manchester Transport Strategy 2040	Greater Manchester's long-term transport strategy, developed by TfGM in collaboration with the Greater Manchester local authorities and approved by the Greater Manchester Combined Authority. Its vision for Greater Manchester is to have 'World class connections that support long-term, sustainable economic growth and access to opportunity for all'.					
HS2 – High Speed 2	The planned new high-speed railway line which will connect London to the North of England. Phase 2, which will connect London and the West Midlands to the north, has been split into: • Phase 2a: (West Midlands to Crewe): complete by 2027 • Phase 2b (full network to Manchester and Leeds): complete by 2033					
Inner Relief Route (MSIRR – Manchester and Salford Inner Relief Route)	The Inner Relief Route around the city centre, comprising the A57(M) Mancunian Way, A6042 Trinity Way, A665 Great Ancoats Street and A635 Ring Road.					
Key town centres Greater Manchester's principal urban centres outside the Reg Centre. The eight key town centres are Altrincham, Ashton-ur Bolton, Bury, Oldham, Rochdale, Stockport and Wigan.						
KRN – Key Route Network	Nearly 400 miles of Greater Manchester's busiest local roads, for which TfGM and the Greater Manchester local authorities are developing a more strategic, coordinated management and maintenance programme.					

Terms	Definition					
MaaS – Mobility as a Service	Using a digital interface to source and manage the provision of a transport related service(s) which meets the mobility requirements of a customer. MaaS is a new concept that offers consumers access to a range of vehicle types and journey experiences					
NPR – Northern Powerhouse Rail	A major strategic rail programme being developed by Transport for the North, designed to transform connectivity between the key economic centres of the North. NPR will include a combination of new routes with upgrades of existing infrastructure, over and above short and medium-term proposals for network upgrades.					
Rapid transit	Any public transport service that offers significantly faster journeys than a stopping bus service for middle-distance trips. Examples in Greater Manchester include the Metrolink network and the Leigh-Salford-Manchester guided busway.					
Regional Centre	Greater Manchester's primary economic centre, which includes the City Centre, Salford Quays and the Etihad Campus to the east.					
RIS – Road Investment Strategy	A long-term approach to improve the Strategic Road Network across England. The first RIS (RIS1) covers the period 2015-2020. Highways England are currently carrying out studies to prepare for the second RIS (RIS2), which will cover the period post 2020.					
Spatial themes	Different types of journey that are made by Greater Manchester's residents and visitors, at different spatial scales. The five spatial themes were defined in the 2040 Transport Strategy, to enable an integrated set of interventions to be developed for different types of travel. The five spatial themes are:					
	 A globally connected city City-to-city links Getting into and around the Regional Centre 					
	Travel across the wider city-regionConnected neighbourhoods					
SPD – Supplementary Planning Document	Planning documents that build upon and provide more detailed advice or guidance on the policies in a Local Plan.					
SRN – Strategic Road Network	The national network of motorways and trunk roads managed by Highways England.					

Appendix A: Evidence underpinning the critical transport issues for Greater Manchester

Bound separately







GMSF Transport Study Evidence Base Appendix A1

Connected Neighbourhoods

September 2018

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Access to public transport on foot and by bike	6
High proportions of short trips made by car	10
Severance caused by busy roads and lack of crossing points	14



Form and design of new development

1. There is a substantial amount of best practice and guidance available that supports good design in new development to enhance sustainable travel choices. For example, the Manual for Streets¹ includes recommendations for layout and connectivity:

"Walkable neighbourhoods are typically characterised by having a range of facilities available to residents that can be accessed comfortably on foot. Making the local environment convenient and attractive to walk in can help enhance the vibrancy of a community and reduce reliance on motor transport¹."

2. It goes on to describe street users' needs:

"The propensity to walk is influenced not only by distance, but also by the quality of the walking experience. This will depend on how stimulating and attractive the environment is, together with how safe and secure people feel within it¹."

"Bus routes should be identified during the design process, working in partnership with the operators. High development densities make it easier to provide a good level of service without the need for long-term subsidies. Routes and stops should form key elements of the walkable neighbourhood¹."

- The National Institute of Clinical Excellence (NICE) published guidance on "Physical activity and the environment" in March 2018 that provided guidelines to improve the environment to encourage and support physical activity as well as increase the general population's activity levels². The NICE guidelines seek to identify and prioritise local areas where there is a high potential to increase travel on foot, by bicycle, or by other forms of active travel. The following overarching priorities were identified²:
 - Increase physical activity associated with using public transport services.
 - Ensure new and refurbished footways, footpaths and cycle routes link to existing routes and improve the connectivity of the network as a whole.
 - Ensure footways, footpaths and cycle routes are convenient, safe and appealing to users, and are built and maintained to a high standard.
 - Ensure pedestrians, cyclists and users of other modes of transport that involve physical activity are given the highest priority when developing or maintaining streets and roads.

¹ Department for Transport (2007), 'Manual for Streets' [online]. Available at:

https://assets.publishing.service.gov.uk/government/uploads/.../pdfmanforstreets.pdf [accessed 15 January 2018]

² National Institute of Clinical Excellence, (2018). 'Physical activity and the environment' [online]. Available at: https://www.nice.org.uk/guidance/ng90/chapter/Recommendations#active-travel [accessed 25 July 2018]

- Improve cycling infrastructure using information from people who walk, cycle, and drive in the local area, including those with limited mobility.
- Make it as easy as possible for people with limited mobility to move around their local area, and work with relevant third sector organisations to achieve this.
- Improve routes that children, young people and their families and carers use, or could use, for active travel to school, college and early years settings.
- 4. TfL have adopted the 'Healthy Streets' approach³, which puts people and their health at the centre of decisions about the design, management and use of public spaces with the aim to make streets healthy, safe and welcoming for everyone. It uses walking and cycling as a tool to encourage more physically active lifestyles. Rather than providing an idealised vision of a model street, the Healthy Streets Approach is designed to be a long-term plan to improve both resident and visitor experiences of streets, while encouraging everyone to be more active and enjoy the health benefits associated with being on the streets.
- The Healthy Streets approach is centred on people's experience of using the street, with Healthy Streets defined as safe, inclusive and places that encourage activity. TfL conducted a Healthy Streets Survey to capture the real-life experience and expectations of people on London's streets. They revealed that people's expectations of the streets were consistently higher than their actual experience. The survey found that motorised traffic had a negative impact on people's experience of the street and that people were more likely to award higher scores for streets with lower Movement functions and higher Place functions⁴.
- Ten Healthy Streets Indicators have been identified by TfL (see Figure A1.1). These encapsulate the necessary requirements to creating a safe, inclusive space where people will choose to walk and cycle. Out of the ten indicators, there are two top level indicators which are 'Pedestrians from all walks of life' and that 'People choose to walk, cycle and use public transport'. The remaining eight indicators represent the essential elements required to support the two main indicators. Together, all ten of the Indicators interrelate as the experience of being on a street affects all of the human senses.

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³ Transport for London (2017), 'Healthy Streets for London: Prioritising walking, cycling and public transport to create a healthy city' [online]. Available at: http://content.tfl.gov.uk/healthy-streets-for-london.pdf [accessed 15 January 2018]

⁴ Transport for London (2017), 'Key findings from the Healthy Streets Survey' [online]. Available at: http://content.tfl.gov.uk/key-findings-from-the-healthy-streets-survey.pdf [accessed 15 January 2018]



Figure A1.1: Healthy Streets Indicators⁵

⁵ Transport for London. 'Guide to the Healthy Streets Indicators: Delivering the Healthy Streets Approach' [online]. Available at: https://tfl.gov.uk/corporate/about-tfl/how-we-work/planning-for-the-future/healthy-streets [accessed 15 January 2018]

Access to public transport on foot and by bike

Greater Manchester Accessibility Levels (GMAL) are a measurement of accessibility from a point to the public transport network, including bus, rail, Metrolink and Local Link. Table A1.1 shows the proportion of the Greater Manchester population within each GMAL Level based on postcodes. GMAL takes into account the walking access time, and the service provision.

Table A1.1: Cumulative proportion of GM population by GMAL Level⁶

	Proportion of GM population with a GMAL level of at least							
	1 – very poor	2	3	4	5	6	7	8 – very good
2013	100.0%	99.8%	98.1%	85.4%	64.3%	27.0%	11.5%	4.5%
2014	100.0%	99.8%	98.0%	85.0%	62.9%	26.1%	10.8%	4.3%
2015	100.0%	99.8%	97.8%	84.1%	62.0%	27.2%	11.4%	4.7%
2016	100.0%	99.8%	97.9%	83.5%	61.1%	25.2%	10.5%	4.5%
2017	100.0%	99.8%	98.0%	84.7%	60.5%	23.5%	9.6%	4.1%

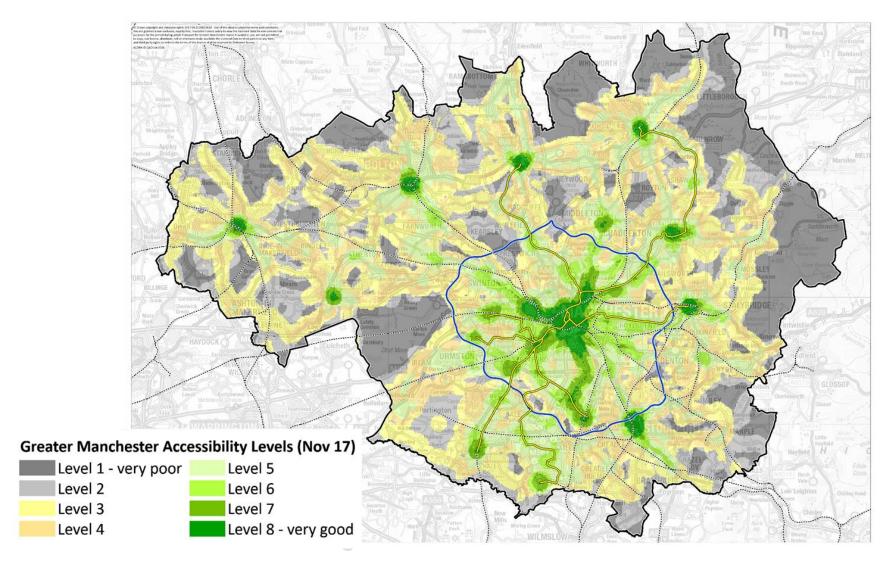
- Figure A1.2 shows the spatial distribution of GMAL Levels across GM using 100m grid squares. It is immediately noticeable that the areas with GMAL Levels 7 and 8 (which make up <5% of the total area of GM) include the Regional Centre, and the Key Centres⁷.
- Together, Table A1.1 and Figure A1.2 demonstrate the need and potential opportunity to improve walking and cycling access to the City Centre and Key Centres in terms of enhancing opportunities to use public transport for the c. 90% of the Greater Manchester population who live outside of areas with GMAL Levels 7 and 8.

6

⁶ Based on TfGM analysis of Greater Manchester Accessibility Levels (GMAL), 2013 – 2017.

⁷ The eight Key Centres are defined in the Greater Manchester Transport Strategy 2040; they are Altrincham, Ashton-under-Lyne, Bolton, Bury, Oldham, Rochdale, Stockport and Wigan.

Figure A1.2: GMAL Level (GM 100m Grid Square)⁸



⁸ Based on TfGM analysis of Greater Manchester Accessibility Levels (GMAL) 2017

^{10.} Figure A1.3 shows that the proportion of morning peak inbound trips that are made by non-car modes is c.75% for the city centre. In comparison this figure is c.50% across the eight Key Centres combined. This highlights the difference in accessibility to key social and economic centres by public transport within Greater Manchester.

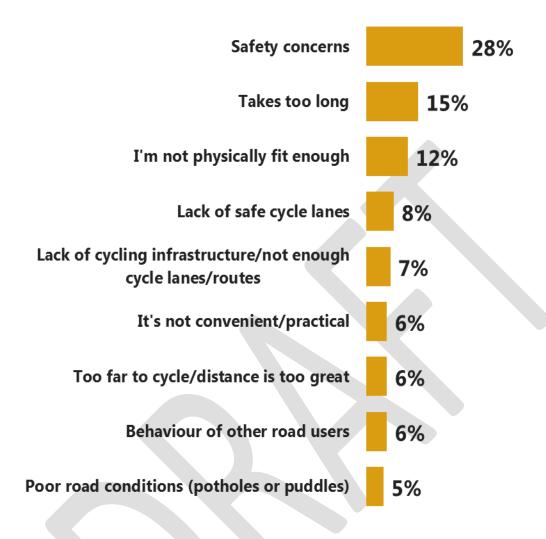
Figure A1.3: City Centre vs. Key Centres: % of morning peak inbound trips made by non-car modes (0730-0930)⁹



11. Cycling is being actively encouraged in Greater Manchester, yet there are a number of reasons that are preventing more people from taking it up. Figure A1.4 shows that safety is the single biggest concern preventing more people from considering it. Over a quarter reference safety directly, but one-in-ten highlight the lack of cycle lanes while another 7% consider the wider infrastructure to be poor. The behaviour of other road users is also perceived as a threat.

⁹ TfGM Highways Forecasting and Analytical Services, Cordon Counts 2011-2016

Figure A1.4: You said you wouldn't consider cycling even though you own a bike. Why do you say this $?^{10}$

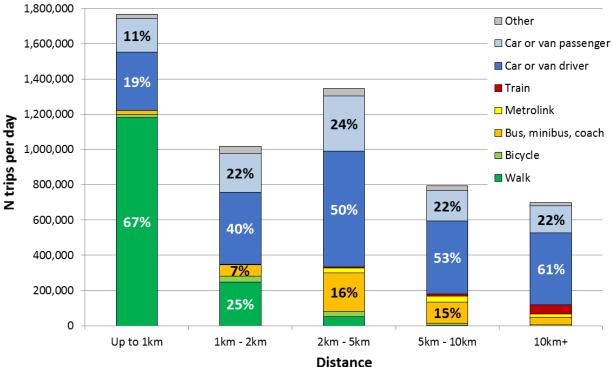


¹⁰ TfGM 2017 Segmentation Survey (Base 399)

High proportions of short trips made by car

Figure A1.5 shows the different modes of transport people in Greater Manchester use for different distances (Source: GM TRADS household survey). This shows that in the city-region, nearly half of all trips are less than 2km. Of trips up to 1km in length 30% are undertaken by car either as driver or as passenger, for trips between 1km and 2km in length this rises to 62%.





13. Figure A1.6 shows a breakdown of transport modes by distance bands, split into trips within the M60 and trips outside the M60. This highlights that the proportion of short trips made by car is significantly higher outside the M60.

10

¹¹ TfGM analysis of Travel Diary Surveys (TRADS) 2014 – 2016.

Figure A1.6: Daily number of trips to non-home destinations within Greater Manchester: Main Mode and Distance Travelled¹²



¹² TfGM analysis of Travel Diary Surveys 2014 – 2016.

14. In light of the evident dominance on private vehicles for trips in Greater Manchester Figure A1.7 shows recent results from the Greater Manchester Congestion Conversation, highlighting why people felt that different modes are given too much or too little consideration.

Figure A1.7: Response Summary on why people felt that different modes are given too much or too little consideration & Selected Responses - Walking and Cycling¹³



Safety was also a key issue for pedestrians. Respondents were most likely to mention **crossings** that were too far apart, had insufficient time to cross, or had too little priority for pedestrians. The condition of **pavements** was also a key issue, including width, surface repair and blockages by parked cars.



Comments on why respondents felt cyclists received too little consideration were likely to mention a **lack of cycle lanes**. Comments on the **design of cycle lanes** particularly criticised short or non-segregated lanes. **Safety** was a key concern, including examples of **poor driver behaviour** and discussion of cyclists' vulnerability on the road.

"...our streets/neighbourhoods/cities are designed with the car/van as the primary focus. I think **pedestrians should be given priority** at all junctions: pedestrians, then cyclists, then cars. At many junctions, pressing the button for the green man makes no difference at all to when the lights change. The pedestrian has to wait cold and wet while the car passenger zooms by snug in their cars."

"There needs to be more segregated cycle lanes to encourage people to get out on their bikes. Oxford road is a great example, with the work you have done there, you've made it a lot safer and segregated the lanes from cars but more importantly buses."

"...as a 20+ year cycle commuter I am driving far more often for work now as the roads are becoming attitudinally toxic... The verbal abuse and physical intimidation when on my bike is getting too much..."

¹³ TfGM Congestion Conversation, 2017: Q4. You said that (Q3) receives (Q3); why do you think this?

15. The recent results from the Greater Manchester Congestion Conversation highlight the issues of safety for both pedestrians and cyclists as well as a lack of cycle lanes as barriers to greater use of these modes of active travel.



Severance caused by busy roads and lack of crossing points

- Junctions pose the greatest danger on the roads. Two thirds of all collisions take place at junctions, this increases to three quarters of all cycling collisions¹⁴.
- 17. Eight out of ten residents equivalent to 2.2 million people across Greater Manchester want cycling and walking to be safer. Over two thirds of people would walk and cycle more if they felt safer¹⁴.
- $^{18.}$ The proportion of children that cycle to school is over 50% in the Netherlands, but only 3% in the UK 14 .

¹⁴ Made to Move: 15 steps to transform Greater Manchester, by changing the way we get around. A report to the Mayor by Greater Manchester's Cycling and Walking Commissioner (2017)





GMSF Transport Study Evidence Base Appendix A2

Travel across the wider city region

September 2018

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Existing public transport networks need enhancement in coverage and capacity

Greater Manchester Accessibility Levels (GMAL) are a measurement of accessibility from a point to the public transport network, including bus, rail, Metrolink and Local Link. Table A1.1 shows the proportion of the Greater Manchester population within each GMAL Level based on postcodes. GMAL takes into account the walking access time, and the service provision. GMAL Level 1 accessibility is described as 'very low', while GMAL Level 8 accessibility is described as 'very high'.

Table A2.1: Cumulative proportion of GM population by GMAL Level¹

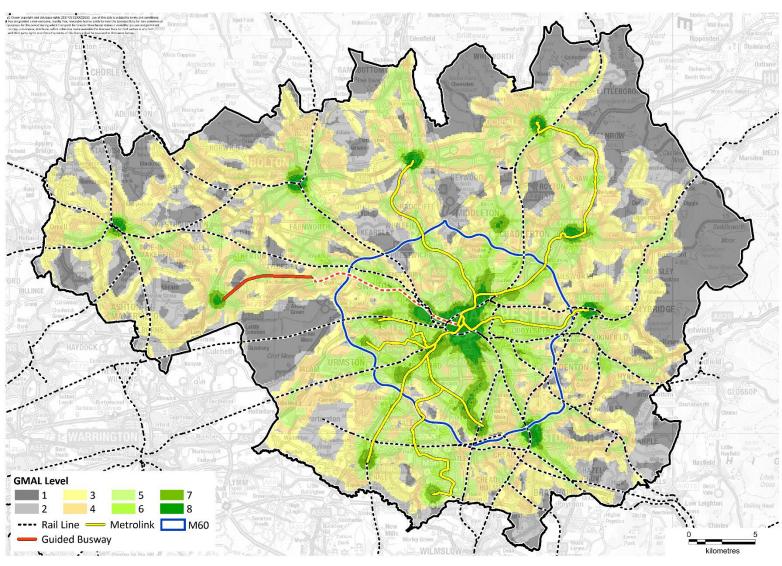
	Proportion of GM population with a GMAL level of at least							
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2013	100.0%	99.8%	98.1%	85.4%	64.3%	27.0%	11.5%	4.5%
2014	100.0%	99.8%	98.0%	85.0%	62.9%	26.1%	10.8%	4.3%
2015	100.0%	99.8%	97.8%	84.1%	62.0%	27.2%	11.4%	4.7%
2016	100.0%	99.8%	97.9%	83.5%	61.1%	25.2%	10.5%	4.5%
2017	100.0%	99.8%	98.0%	84.7%	60.5%	23.5%	9.6%	4.1%

- 2. Figure A2.1 shows the spatial distribution of GMAL Levels across GM using 100m grid squares. It is immediately noticeable that the areas with GMAL Levels 7 and 8 (which make up <5% of the total area of GM) include the Regional Centre, and the Key Centres².
- Together, Table A1.1 and Figure A2.1 demonstrate the need and potential opportunity to improve walking and cycling access to the City Centre and Key Centres in terms of enhancing opportunities to use public transport for the c. 90% of the Greater Manchester population who live outside of areas with GMAL Levels 7 and 8.

¹ Based on TfGM analysis of Greater Manchester Accessibility Levels (GMAL), 2013 – 2017.

² The eight Key Centres are defined in the Greater Manchester Transport Strategy 2040; they are Altrincham, Ashton-under-Lyne, Bolton, Bury, Oldham, Rochdale, Stockport and Wigan.

Figure A2.1: GMAL Level (GM 100m grid square)³



³ Based on TfGM analysis of Greater Manchester Accessibility Levels (GMAL)

Note: GMAL is based upon the following Timetables (Bus: November 17, Metrolink: November 17, Rail: March 16 Local Link: October 17).

Car is the dominant mode for travel across the wider cityregion

- Journeys within the wider city-region are defined as either beginning and/or ending within Greater Manchester, with both ends no further than 10km from the Greater Manchester boundary. It excludes journeys beginning or ending in the Regional Centre, non-work journeys to Manchester Airport and those under 2km.
- 5. The full spatial theme definitions are shown in Table A2.1.

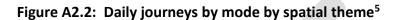
Table A2.1: Technical specification of the spatial themes⁴

	Includes	Except
Global	Journeys that begin or end at Manchester Airport and its surrounding developments	Work journeys to Manchester Airport
City-to-City	Journeys that begin or end in Greater Manchester and travel more than 10km outside the Greater Manchester boundary	 Non-work journeys to or from Manchester Airport and its surrounding developments
Regional Centre	Journeys that begin or end in the Regional Centre	 Non-work journeys that begin or end at Manchester Airport and its surrounding developments Journeys that begin or end more than 10km outside Greater Manchester's boundary
Wider City Region	Journeys that begin and/or end in Greater Manchester, with both ends no more than 10km outside the Greater Manchester boundary	 Non-work journeys that begin or end at Manchester Airport and surrounding developments Journeys that begin or end within the Regional Centre Journeys under 2km
Neighbour- hoods	Journeys less than 2km (in a straight line) that begin or end within Greater Manchester	 Non-work journeys that begin or end at Manchester Airport and its surrounding developments Journeys that begin or end within the Regional Centre

5

⁴ GMCA and Greater Manchester Local Enterprise Partnership, (2017). 'Greater Manchester Transport Strategy 2040' [online]. Available at: https://www.tfgm.com/2040 [accessed 15 January 2018]

Figure A2.2 indicates car use is dominant across the Wider City Region. It shows 80.3% of journeys (55.8% car driver and 24.5% car passenger) are made by car, which is significantly higher proportionally than the next highest mode, bus (11.7%).



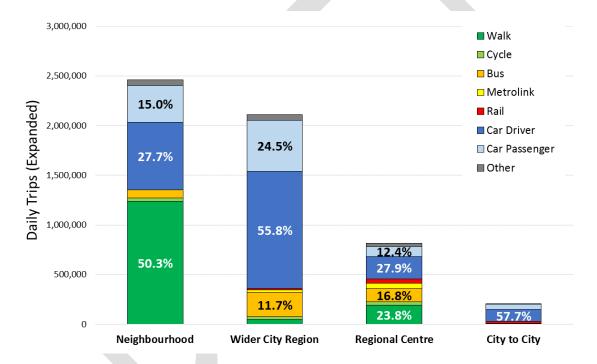


Figure A2.3 shows in terms of daily km 83.9% of journeys across the Wider City Region are made by car (60.1% car driver and 23.8% car passenger) which is significantly higher proportionally than the next most used mode of transport, bus (9.4%).

⁵ TfGM analysis of Travel Diary Surveys (TRADS) 2014 – 2016.

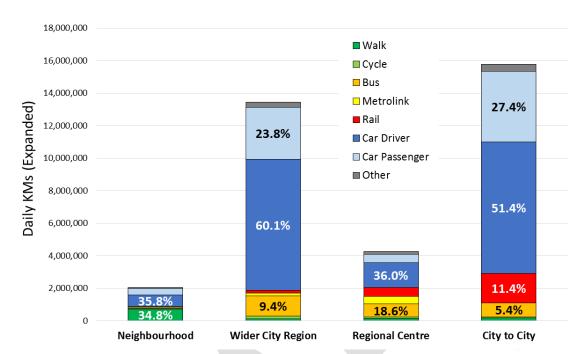
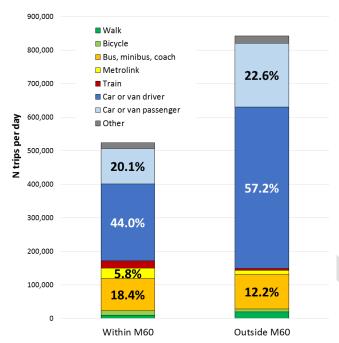


Figure A2.3: Daily km by mode by spatial theme⁶

Figure A2.4 shows that for trips over 2km to non-home destinations 60% more are made by car outside the M60 compared to within the M60.

⁶ TfGM analysis of Travel Diary Surveys (TRADS) 2014 – 2016.

Figure A2.4: Daily number of trips >2km to Non-Home destinations within Greater Manchester: Main Mode⁷



Destination (Home end purpose excluded)

Figure A2.5 shows the total distance travelled by motor vehicles has been falling within the M60 in recent years. In comparison, the distance travelled by motor vehicles across all Greater Manchester roads has been increasing, especially on motorways.

8

⁷ TfGM analysis of Travel Diary Surveys (TRADS) 2014 – 2016.

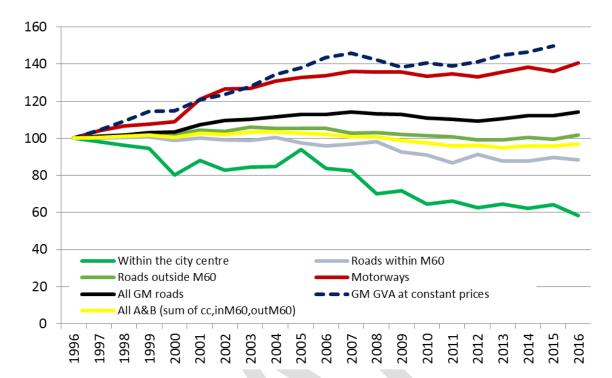


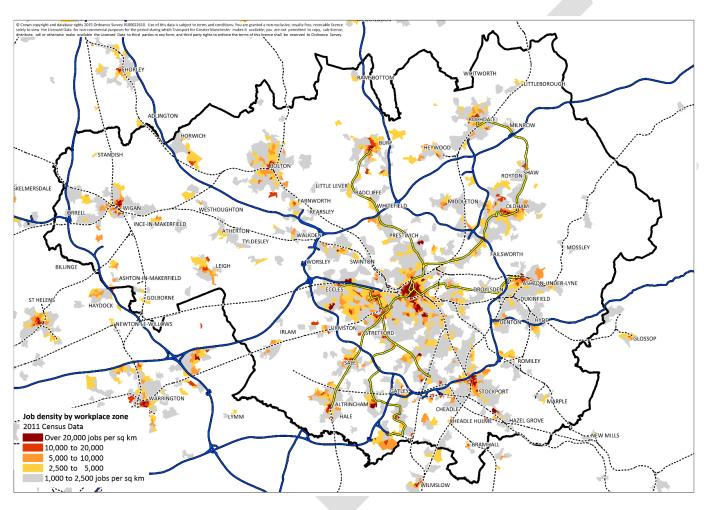
Figure A2.5: Annual Motor Vehicle KMs Index⁸

- 10. Figure A2.6 uses Census 2011 data to show employment density across Greater Manchester. This clearly demonstrates the polycentric nature of Greater Manchester, which results in complex travel patterns, with employment concentrations outside the Regional Centre at town centres, Trafford Park, Manchester Airport, and a range of smaller business parks and industrial estates.
- Figure A2.7 shows how many people drive to work across Greater Manchester, based on the 2011 Census. This show that at Trafford Park and Manchester Airport over 70% of people drive to work, which demonstrates the continued dominance of the car across the Wider City Region.
- 12. Figure A2.8 uses Census 2011 data to show commuting flows in Greater Manchester and the surrounding area across all modes of transport. This demonstrates the complexity of movements that occur across the Wider City Region.

-

⁸ Data for the all-purpose highway network from manual counts collated by TfGM HFAS. Data for the motorway network based on analysis of Highways England ATC data

Figure A2.6: Employment Density (Census 2011)9



⁹ Based on TfGM analysis of 2011 Census table WP703EW - Method of travel to work

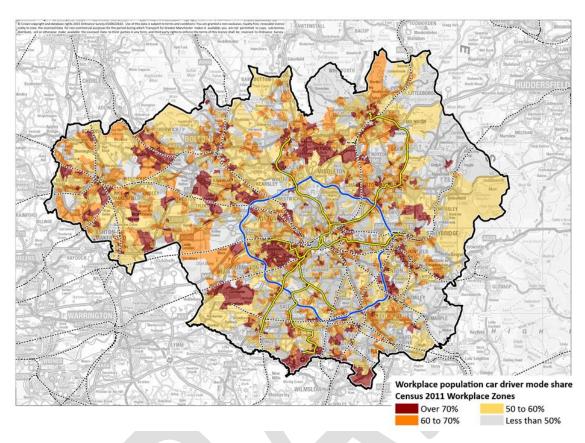
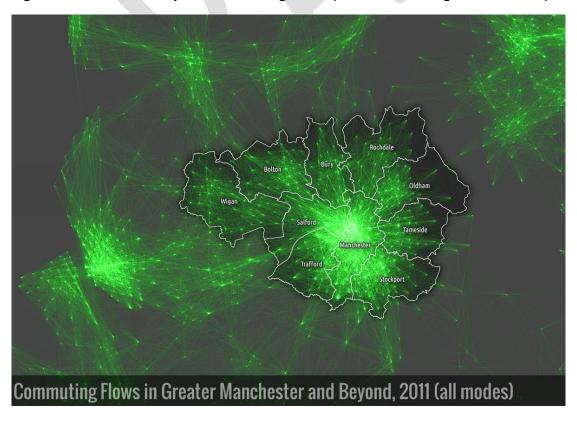


Figure A2.7: Car Driver Mode Share - Workplace Population (Census 2011)¹⁰





¹⁰ Based on TfGM analysis of 2011 Census table WP703EW - Method of travel to work

Traffic congestion on key roads

- 13. As shown in Figures A2.9 and A2.10, during peak periods (school term time) journey times on some parts of the Greater Manchester A and B road network are double the journey times of the rest of the day (shown in red)¹¹.
- ^{14.} Figures A2.11 and A2.12 show the differences in journey times between peak periods and those recorded overnight across Greater Manchester's Strategic Road Network. When interpreting differences in recorded speeds, it is important to consider the impact of reduced speeds limits (e.g. because of roadworks).



¹¹ TfGM analysis of Trafficmaster data.

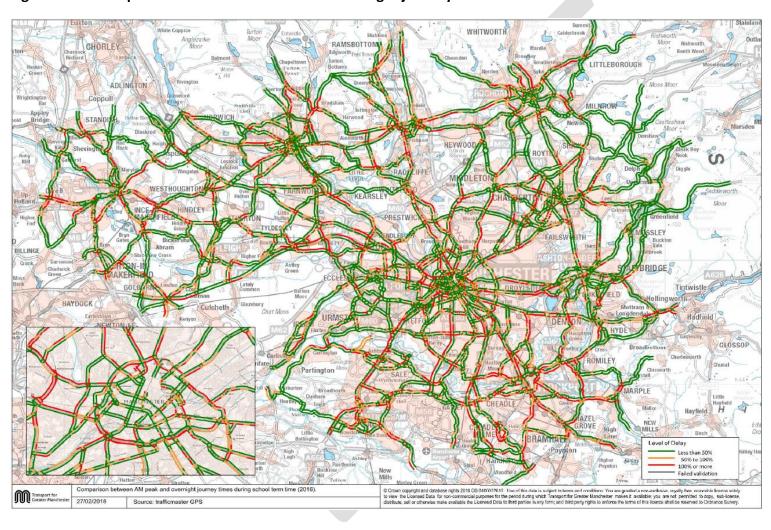


Figure A2.9: Comparison between AM Peak and overnight journey times - GM A and B roads¹²

¹² TfGM analysis of Trafficmaster data.

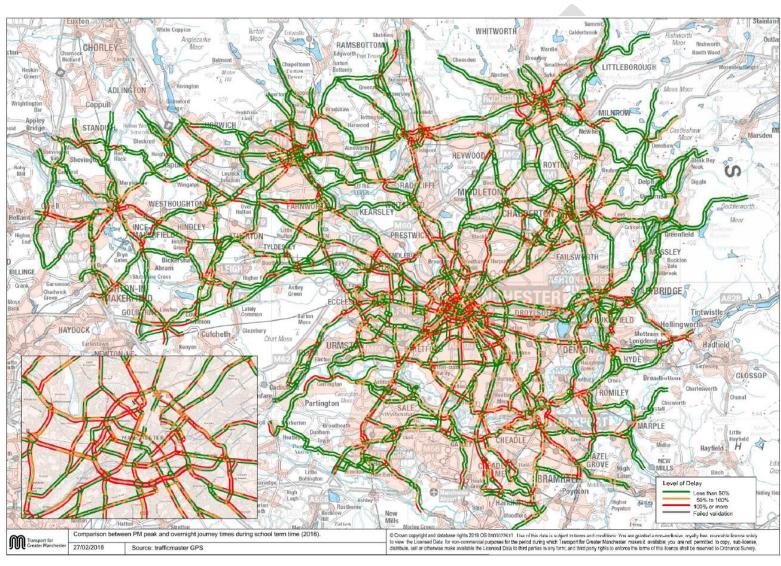


Figure A2.10: Comparison between PM Peak and overnight journey times - GM A and B roads¹²

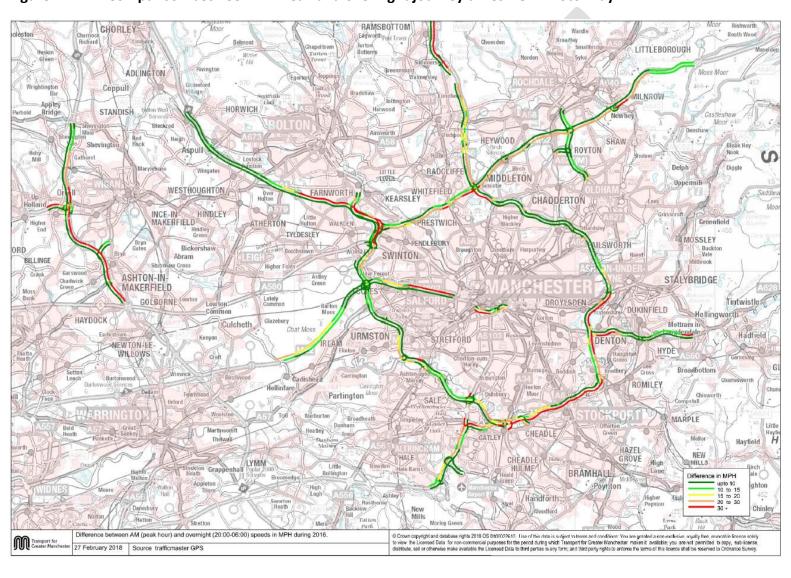


Figure A2.11: Comparison between AM Peak and overnight journey times - GM Motorway¹²

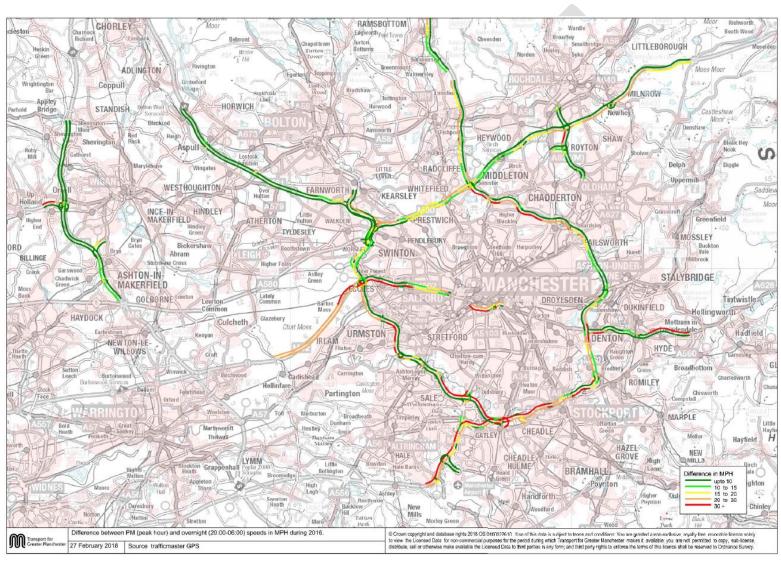


Figure A2.12: Comparison between PM Peak and overnight journey times - GM Motorway¹²

15. Figure A2.13 and A2.14 show a selection of comments received as part of the Greater Manchester Congestion Conversation.

Figure A2.13: Selected Responses - Reliability¹³

"Simple journeys are unreliable and take a frustratingly long time. It's really difficult to plan and deal with it."

(Bus passenger five or more days a week, male, 30-39)

"All **business meetings** at my company have been **relocated outside of Manchester** due to traffic"

(Car driver three to four times a week, Male 30-39)

"Trams can get **severely overcrowded**, sometimes even to the extent that nobody can board even when standing" (Metrolink user 3-4 times a week, Male, 20-29)

Figure A2.14: Selected Responses - Lost Time (Source: Greater Manchester Congestion Conversation, 2017)

"Time lost! I spend two hours a day commuting. Two hours I could be with family & friends, at the gym etc."

(Car driver five or more times a week, Female, 40-49)

"Congestion lengthens my working day by in excess of four hours! That's four hours more childcare, less time to spend with my family.."

(Car driver five or more times a week, Female, 20-29)

16. It is clear from the responses that reliability and lost time are the main areas of concern for those travelling in and around Greater Manchester. Specific complaints of unreliable journeys and overcrowding from public transport users as well as loss

¹³ TfGM Congestion Conversation, 2017: Q14. Please use the box below to express any further comments you may have on the relative impacts of road congestion

of time due to traffic congestion which have negative impacts on individuals social and personal lives.



Local highways impacts arising from major new strategic highway infrastructure proposals

17. The major proposed upgrades to the Manchester North West Quadrant as well as potential TransPennine highway upgrades to Sheffield could have major implications for travel in Greater Manchester.

TransPennine Strategic Study

- The recent TransPennine Tunnel Strategic Study¹⁴, led by Highways England, examined options for significantly improved road connectivity between Greater Manchester and Sheffield and the wider southern Pennines corridor. This has shown that although a long tunnel under the Peak District National Park would be technically feasible, the cost would be prohibitive and offer poor value for money.
- 19. Transport for the North is now leading on developing alternative options, working closely with Highways England and the Department for Transport that will provide a more cost-effective solution, while addressing sustainability. This includes ensuring that the road improvements would be an exemplar scheme that include environmental enhancements to benefit the Peak District National Park¹⁴.
- To date, this work has found that the most promising alternative option is a partially tunnelled route on the line of the existing A628, with a supporting package of wider road improvements, including on the M60, M67 and M1, which would have road user and economic benefits for Sheffield, Greater Manchester, and the wider Northern economy. This alternative option would also have the benefit of possibly being sequenced in its delivery. This work will also build on Highways England's existing TransPennine Upgrade programme, including improvements to the A57 at Mottram¹⁵.

North West Quadrant

^{21.} For the Manchester North West Quadrant Study: Stage 3 Report¹⁶ four packages of transport interventions were developed to provide distinctly different approaches to tackling the existing and future challenges within the study area as well as acknowledging the wider aspirations of the Northern Powerhouse.

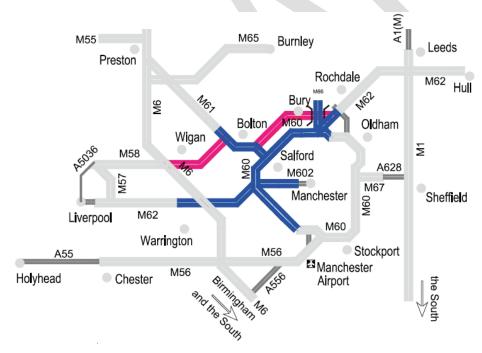
¹⁴ DfT, Highways England and TfN, (2016). 'Trans-Pennine Tunnel Study: Stage 3 Report' [online]. Available at: https://www.gov.uk/government/publications/trans-pennine-tunnel-strategic-study-stage-3-report [accessed 23 February 2018]

¹⁵ Transport for the North, (2018). 'Strategic Transport Plan: Draft for public consultation' [online]. Available at: https://transportforthenorth.com/wp-content/uploads/TfN-Strategic-Plan_draft_lr.pdf [accessed 23 February 2018]

¹⁶ DfT, Highways England and TfN, (2016). 'Manchester North-West Quadrant Study: Stage 3 Report' [online]. Available at: https://www.transportforthenorth.com/.../manchester-north-west-quadrant-strategic-stu [accessed 23 February 2018]

- 22. The objectives of the study were to 16:
 - To facilitate and support the delivery of the Northern Powerhouse by ensuring the Manchester North-West Quadrant enables transformational growth in the employment, housing and economic output of the north
 - To improve journey times, reliability, safety and resilience across the study area
 - To improve connectivity for all users so they are able to access education, employment, business and leisure opportunities
 - Minimise adverse impacts on the environment and to maximise opportunities for a net improvement to the environment particularly air quality and noise across the study area
- 23. Three broad highways led packages were developed as described below (each of which includes complementary public transport measures) together with a PTMax package, which focused exclusively on public transport interventions. The Stage 3 Report ultimately discounts the PTMax package as a viable option to address the study objectives.

Figure A2.15: Northern Corridor Package¹⁷



Northern Corridor Package: The basic concept of the Northern Corridor Package is to link the M58, M61 and M66 north of the existing M60. The aim is to provide relief to the M60 by displacing longer-distance trips, such as to and from the Port of Liverpool and provide an alternative to the M62 and M60 for trips between Liverpool, and Manchester/Leeds.

¹⁷ DfT, Highways England and TfN, (2016). 'Manchester North-West Quadrant Study: Stage 3 Report', Figure 6 – Northern Corridor Packages, p.24.

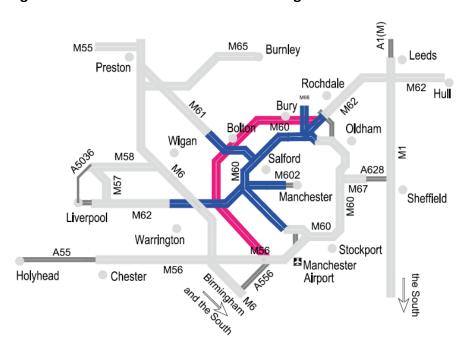
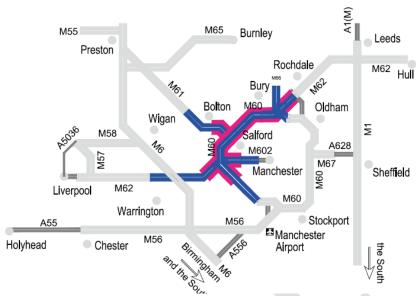


Figure A2.16: Outer Orbital Corridor Package¹⁸

Outer Orbital Corridor Package: The basic concept of the Outer Orbital Corridor Package is to create a new strategic orbital corridor around Greater Manchester. The aim is to separate strategic long-distance traffic, which would use the new outer orbital corridor, and local traffic, which would remain on the M60. Parts of the new corridor would be in tunnel to reduce impacts on local settlements.

¹⁸ DfT, Highways England and TfN, (2016). 'Manchester North-West Quadrant Study: Stage 3 Report', Figure 7 – Outer Orbital Corridor Packages, p.26.

Figure A2.17: In-Corridor Package¹⁹



^{26.} In-Corridor Package: The basic concept of the In-Corridor Package is to deliver a programme of improvements to significantly enhance the capacity, performance and resilience of the M60 within the broad existing motorway corridor.

¹⁹ DfT, Highways England and TfN, (2016). 'Manchester North-West Quadrant Study: Stage 3 Report', Figure 6 –In-Corridor Package, p.29.

Table A2.2: Northwest Quadrant Package Benefits¹⁶

Package	Transport Benefits
Northern Corridor Package	 Delivers 11.9 million hours in time savings per year to businesses and commuters: For strategic long distance users this package is estimated to shorten journey times by up to five minutes which saves 40 hours a year per person. For local M60 users this package is estimates to shorten journey times by up to three minutes which saves 24 hours a year per person. Additional resilience to strategic east-west movements is created by offering an alternative route to current users of the M62. Some resilience benefits for local M60 users is also offered as recovery time after incidents in the Manchester North-West Quadrant
	 should be shortened. A reduction in traffic on the existing M62 and M60 with some traffic being attracted to the Northern Corridor route could be beneficial in terms of safety. The new strategic east-west link offered by the Northern Corridor package provides improved connectivity. The connectivity improvements are mainly focussed across the north of Greater Manchester including Wigan, Bolton and Bury. A small number of areas suffer from connectivity disadvantages, probably due to the reconfiguration of junctions 13 and 14 on the M60 and the resulting impact on local traffic.
Outer Orbital Corridor Package	 Delivers 11.3 million hours in time savings per year to businesses and commuters: For strategic long distance users this package is estimated to shorten journey times by up to five minutes which saves 40 hours a year per person. For local M60 users this package is estimates to shorten journey times by up to three minutes which saves 24 hours a year per person. This package offers resilience to strategic east-west movements by offering an alternative route in terms of east west via the Outer Orbital Corridor. This package offers some resilience benefits for local M60 users as recovery time after incidents in the Manchester North-West Quadrant should be shortened. This package would lead to a reduction in traffic in the Manchester North-West Quadrant with traffic being attracted to the new Outer Orbital route which could be beneficial in terms of safety. Within this package there is a new strategic east-west link (from M62 J9 to M62 J19) and a new north-south link (from the M56 to the M61). The connectivity improvements are mainly in the west of Greater Manchester following the route of the proposed Outer Orbital
	 including locations such as Carrington and Bolton. A small number of areas suffer from connectivity disadvantages, probably due to the reconfiguration of junctions 13 and 14 on the M60 and the resulting impact on local traffic.

In Corridor Package

- Delivers 11.9 million hours in time savings per year to businesses and commuters:
 - For strategic long distance users this package is estimated to shorten journey times by up to 12 minutes which saves 96 hours a year per person.
 - For local M60 users this package is estimates to shorten journey times by up to five minutes which saves 40 hours a year per person.
- This package offers resilience to strategic east-west movements by offering additional lane capacity and routes along the existing corridor. This package also increases resilience to local M60 users by the provision of the additional lane capacity and routes.
- This packages reduces traffic on the existing motorway network within the study area thus improving safety on the M60, but would significantly increase traffic on the new links.
- This package provides stronger east-west connectivity which will benefit businesses, in particular freight operators undertaking long distance trips.
- Connectivity improvements from this package are spread across Greater Manchester, showing strong benefits in places such as Bolton and Middleton.
- A small number of areas suffer from connectivity disadvantages, probably due to the reconfiguration of junctions 13 and 14 on the M60 and the resulting impact on local traffic.

Table A2.3: Key growth aspirations in neighbouring authorities

Neighbouring authority	Key policy documents	Key findings
High Peak	High Peak Local Plan 2031 ²⁰	 Over the duration of the Local Plan period in 2031 it is estimated that 7,000 dwellings are required between 2011 and 2031 and a gross employment land requirement of 45.216ha. Within Glossopdale High Peak Borough Council is expecting to account for between 958 and 1,242 new houses out of the total required during the Local Plan period. Evidence from the High Peak Local Plan Transport Study indicates that future development within High Peak will further increase traffic on the A6, A57 and A628. It is the intention of High Peak Borough Council to continue improving rail services to Manchester.
Cheshire East	Cheshire East Local Plan: Local Plan Strategy 2010- 2030 ²¹ Local Transport Plan: Final Strategy 2011-2026 ²²	 36,000 homes will need to be built and a minimum of 380 hectares of land will need to be made available between 2010 and 2030. The principal town of Macclesfield expected to accommodate 20 hectares of employment land and 4,250 homes. Other key service centres are also expected to accommodate development during the lifespan of the Local Plan period including: Handforth – 22 hectares of employment land and 2,200 new homes. Poynton – 10 hectares of employment land and 650 new homes. Wilmslow – 10 hectares of employment land and 900 new homes. A number of major highway schemes have been put forward, including the A6 to Manchester Airport Relief Road, Poynton Relief Road and improvements to the A34 and A555 corridors in Handforth.
Warrington	Local Plan Core Strategy 2027 ²³	 Between 2006 and 2027 it is estimated that Warrington Borough requires 277 hectares of employment land to be developed.

²⁰ High Peak Borough Council, (2016). High Peak Local Plan Adopted.

²¹ Cheshire East Council, (2017). Cheshire East Local Plan: Local Plan Strategy 2010 – 2030.

²² Cheshire East Council, (2011). Local Transport Plan: Final Strategy 2011 – 2026.

²³ Warrington Borough Council, (2014). Local Plan Core Strategy Adopted July 2014.

Neighbouring authority	Key policy documents	Key findings
		 The housing policies in Warrington's Local Plan have been challenged in the High Court, and this has resulted in the removal of elements of the housing policies, including the housing target of 10,500 new homes (equating to 500 per year) between 2006 and 2027. The council are working ensure the housing elements of the Plan are revised in line with the ruling. Proposed improvements include the reduction of private car use in the borough, improving integration of existing public transport infrastructure as well as more specific improvements such as a new/replacement high-level crossing of the Manchester Ship Canal.
St Helens	Local Plan Core Strategy 2027 ²⁴	 The Local Plan has chosen to focus the majority of development on St Helens itself as well as the Newton-le-Willows and Earlestown area. In St Helens 20,000sqm of retail floorspace is planned to be developed and there are plans for a Strategic Rail Freight Interchange at Parkside near Newton-le-Willows. The attractiveness of St Helens Borough to businesses and residential developers is closely linked with its transport connections to major urban centres like Manchester, Liverpool and Warrington via national and regional roads (M6, M62 and A580), rail (West Coast Mainline) and airports (Manchester and Liverpool). Improving the accessibility of St Helens Borough via these and other transport links is therefore considered essential to meeting objectives of the Local Plan.

 $^{^{24}}$ St Helens Council, (2012). St Helens Local Plan Core Strategy Adopted October 2012.

Neighbouring authority	Key policy documents	Key findings
Rossendale	From East to West Making Rossendale the Best: Core Strategy Development Plan 2026 ²⁵	 Over the duration of the Local Plan period in 2026 it is estimated that 3,700 dwellings are required, equating to 247 dwellings per year, and a gross employment land requirement of 45 hecatares. It is the intention of Rossendale Borough Council to focus residential development within urban boundaries of the main settlements across the borough while economic development will be distributed amongst the largest urban centres of the borough including Rawtenstall and Haslingden. To continue to improve the strategic transport links between Rossendale Borough, wider Lancashire and Greater Manchester ideas have been put forward for improvements to be made to the key A56/M66 road links, as well as a Rawtenstall-Manchester Railway link.
Lancashire	Lancashire LEP Strategic Economic Plan 2014 ²⁶	 In the Strategic Economic Plan produced by the Lancashire LEP several targets have been set in terms of development including the creation of 50,000 new jobs, 40,000 new homes and £3 billion additional economic activity. The Strategic Economic Plan does outline several areas that will be a focus for future development, some of which are located close to Greater Manchester. It is estimated that East Lancashire has the potential to generate almost 10,000 jobs and over £500m in GVA. Skelmersdale is another area that is identified as a spatial priority with over 2,000 new homes built as well as 52 hectares of employment land to be developed. Key transport issues include congestion during peak periods on the A56/M66 route and the M60/M62 in East Lancashire impacting commuters travelling to and from

 $^{^{25}}$ Rossendale Borough Council, (2011). From East to West Making Rossendale the Best: Core Strategy Development Plan Document: The Way Forward (2011 – 2026).

²⁶ Lancashire Enterprise Partnership, (2014). Lancashire Strategic Economic Plan: A Growth Deal for the Arc of Prosperity.

Neighbouring authority	Key policy documents	Key findings
		Greater Manchester, as well as the inadequate provision of rail services to Greater Manchester.
West Yorkshire	Leeds City Region Strategic Economic Plan 2016-2036 ²⁷ West Yorkshire Transport Strategy 2040 ²⁸	 The West Yorkshire Strategic Economic Plan sets out overall delivery targets of upwards of 35,000 additional jobs and an additional £3.7 billion annual economic output by 2036. A target was also set for residential development with a headline initiative to build between 10,000 and 13,000 new homes per year between 2016 and 2036. The major cities of Halifax, Huddersfield, Bradford and Leeds are considered key urban growth centres whilst the North Kirklees Growth Zone has been identified as a key housing growth area. The focus of future economic growth will be centred mainly on the major road corridors passing through the region such as the M62 Corridor that has the Clifton Business Park (Calderdale), Lindley Moor East, Lindley Moor West and Moor Park Mirfield (Kirklees) located along its length. Efficient motorways, High Speed Rail, fast East-West rail connections through Northern Powerhouse Rail across the north of England as well as better access to international gateways are all part of the new West Yorkshire Transport Strategy 2040. For the Calderdale and Kirklees districts bordering Greater Manchester improving transport links between these two regions is essential to supporting future growth in these areas. In Calderdale improvements are required to rectify congestion hotspots such as Junction 25 on the M62 as well as the electrification of the Calder Valley Line is also a key strategic transport priority whilst in Kirklees congestion alleviation is also a major issue on key routes such as the A616, A636 and A637.

 $^{^{27}}$ Leeds City Region Enterprise Partnership and West Yorkshire Combined Authority, (2016). Leeds City Region Strategic Economic Plan 2016 – 2036.

²⁸ West Yorkshire Combined Authority, (2017). West Yorkshire Transport Strategy 2040.







GMSF Transport Study Evidence Base Appendix A3

Getting into and around the Regional Centre

September 2018

Contents

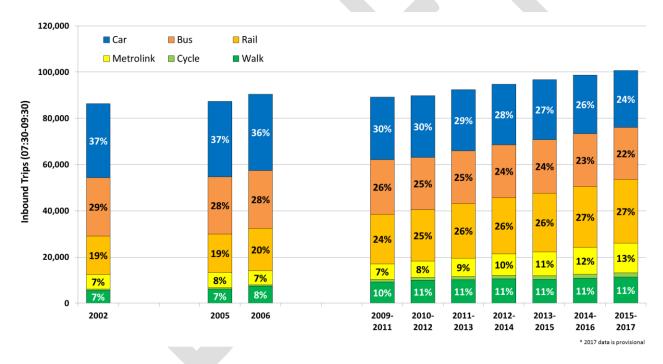
Critical heavy and light rail capacity constraints in the Regional Centre	3
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Critical heavy and light rail capacity constraints in the Regional Centre

- Figure A3.1 shows the total number of inbound trips by mode in the morning peak (07:30-09:30) across a cordon of traffic counts around the Manchester and Salford Inner Relief Route, which is used by TfGM to estimate the number of inbound trips and proportion of each mode¹.
- Over this period public transport has increased while car use has decreased. During 2015-17 rail was used for 27% inbound journeys and Metrolink for 13%; a 3 percentage-point and 6 percentage-point increase from 2009-11 respectively. Together rail and Metrolink account for 40% of all trips in the Regional Centre in 2015-17, an increase of 14 percentage-points since 2002.

Figure A3.1: Inbound Trips across the Manchester cordon (Morning Peak 07:30-09:30)²



- Figure A3.2 shows the morning peak (08:00-09:00) patronage in 2015/16 for both heavy and light rail lines in Greater Manchester. While this map does not show network capacity, it does highlight the heavy and light rail lines in Greater Manchester that have the largest passenger flows, and therefore where network constraints could have the most impact.
- In the Regional Centre the section of the City Zone Metrolink between Manchester Piccadilly, Manchester Victoria and Trafford Bar has the highest patronage during the morning peak of any Metrolink or rail line, with over 2,000 people using services on these sections of the network. The Altrincham, Bury and part of the East Didsbury Metrolink lines also experience

¹ Note that the Manchester cordon is based on the alignment of the MSIRR, as opposed to the wider City Centre or Regional Centre.

² TfGM Highways Forecasting and Analytical Services: DSD Report 1912 Key Centre Section 2016. Table 3.6 Car and Non-Car Trips into Manchester Key Centre.

- high patronage with between 1,501 and 2,000 people using the Altrincham and Bury lines as well as the East Didsbury line until St Werburgh's Road.
- 5. The rail lines that recorded the highest levels of patronage during the morning peak (08:00-09:00) are the Macclesfield Line, Warrington Central Line, Calder Valley Line, Huddersfield Line, Bolton Line and Atherton Line with between 1,251 and 1,500 people using these lines.



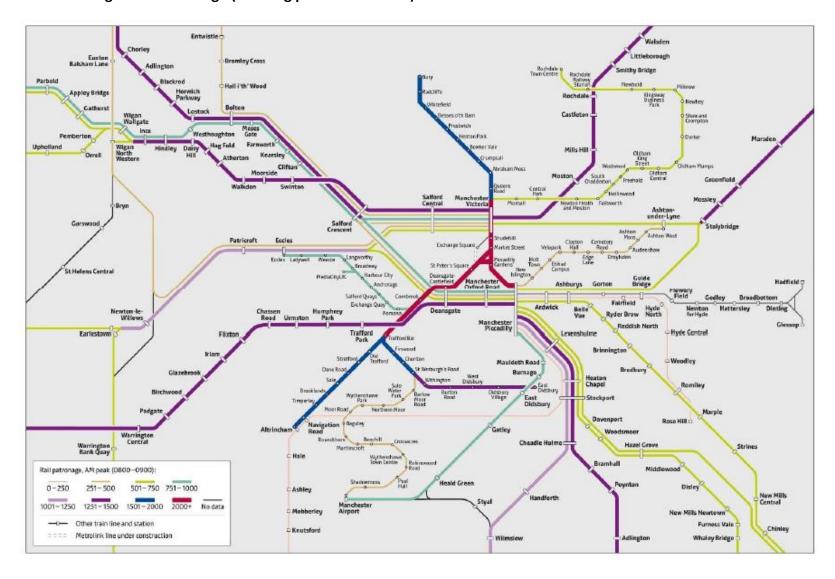
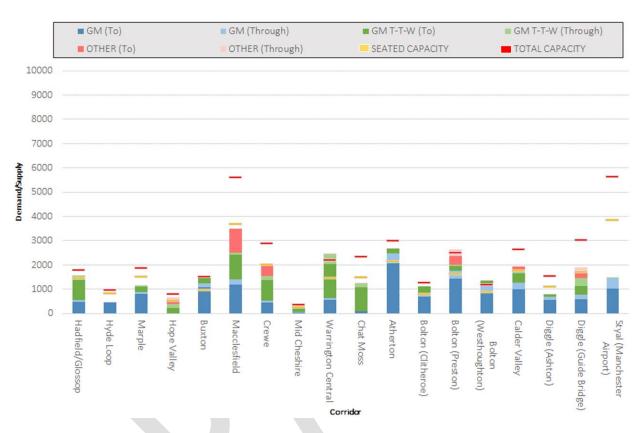


Figure A3.2: Rail and Light Rail Patronage (morning peak 08:00-09:00)³

³ Mott MacDonald and TfGM, (2017). 'Manchester Rail Network Capacity Study: Final Study Report'.

Figures A3.3 to A3.5 show the morning peak average weekday demand vs supply on rail corridors to Manchester City Centre for 2015/16, 2019/20, and 2026/27.

Figure A3.3: 2015/16 morning peak (07:30-09:30) Average Weekday Demand vs. Supply on Rail Corridors to Manchester City Centre³



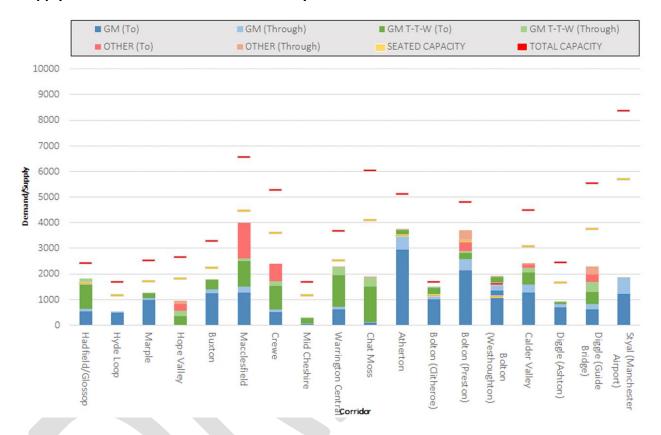
- 7. Of the rail lines shown on the graph the following lines are shown to have been over total capacity (including standing capacity) on journeys to Manchester city centre:
 - Warrington Central
 - Bolton (Preston)
 - Bolton (Westhoughton)

The following rail lines were shown to be over seating capacity only on journeys too Manchester city centre:

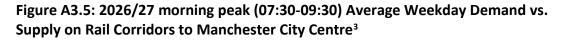
- Hadfield/Glossop
- Hope Valley
- Buxton
- Mid Cheshire
- Atherton
- Bolton (Clitheroe)
- Calder Valley
- Diggle (Guide Bridge)

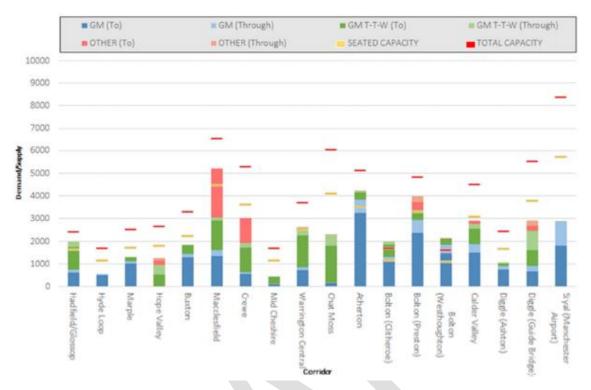
Figure A3.4 shows the morning peak average weekday demand vs supply on rail corridors to Manchester city centre for 2019/20. This forecast was dependent on the assumptions relating to frequencies, rolling stock and train lengths from the 2019 CS6 train service pattern specification, including full delivery of existing franchise commitments.

Figure A3.4: 2019/20 morning peak (07:30-09:30) Average Weekday Demand vs. Supply on Rail Corridors to Manchester City Centre³



- Of the rail lines shown on Figure A3.4 only the Bolton (Westhoughton) line is projected to be over total capacity (including standing capacity) on journeys to Manchester City centre in 2019/20. In addition however, the lines to Hadfield/Glossop, Atherton, Bolton (Clitheroe) and Bolton (Preston) are projected to be over seating capacity.
- Figure A3.5 shows the morning peak average weekday demand vs supply on rail corridors to Manchester city centre for 2026/27. This forecast was dependent on the assumptions relating to frequencies, rolling stock and train lengths from the 2019 CS6 train service pattern specification, including full delivery of existing franchise commitments.





- of the rail lines shown on Figure A3.5, the following lines are projected to be over total capacity on journeys to Manchester City centre in 2026/27:
 - Bolton (Clitheroe)
 - Bolton (Westhoughton)
- 12. In addition, the following lines are projected to be over seating capacity:
 - Hadfield/Glossop
 - Macclesfield
 - Warrington Central
 - Atherton
 - Bolton (Preston)
- 13. Figure A3.6 provides a summary of these results in the form of a network map.

M MOTT Bradford Interchange O **MACDONALD** Low Moor Entwistle Bromley Cross Hall I' Th' Wood Kirkby O Moses Gate O Farnworth St. Helens Centr O Kearsley 40 - 60% Manchester 60 - 80% Central Victoria 80 - 90% 90 - 100% +135% Warrington Bank Quay Belle Vue 🔾 East Didsbury (Navigation Road Rose Hill Marple O Marple Sheffield Q New Mills Central Heald Green (G Crewe

Figure A3.6: 2026/27 morning peak (07:30-09:30) Average Weekday Demand vs. Supply on Rail Corridors to Manchester City Centre³

Supporting economic growth while holding road traffic at or below 2016 volumes within the City Centre

- 14. Figure A3.7 shows the different ways people travel into the city centre during the morning peak (7:30-9:30). While the car remains a popular choice it is clear that its use has been decreasing since 2002.
- 15. In 2016 around 25,000 inbound car journeys were recorded in the morning peak between 7:30 and 9:30, and 15,000 between 10:00 and 12:00. In comparison, in 2002 around 32,000 inbound car journeys were recorded between 7:30 and 9:30 and around 17,500 between 10:00 and 12:00. No evening peak surveys of the city centre cordon have been undertaken.

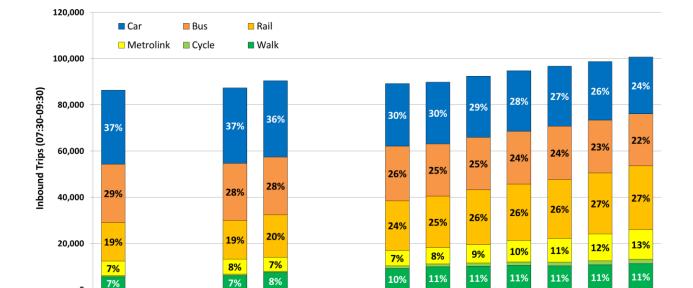


Figure A3.7: Inbound Trips across the Manchester cordon (morning peak 07:30-09:30)²

16. While Greater Manchester has conformed to the norm of economic growth increasing traffic, there have been signs of a decoupling of car use and economic growth. The greatest economic growth within Greater Manchester has been achieved alongside a decline in car use, as exemplified by the city centre.

2009-

2011

2010-

2012

2011-

2013

2012-

2014

2013-

2015

2014

2016

2015-

2017 * 2017 data is provisional

17. Figure A3.8 shows the changes in motor vehicle kilometres by area of Greater Manchester (1996 values set to 100)⁴. Between 1996 and 2016 the largest decrease of motor vehicle kilometres has been within the city centre which has seen a decrease of approximately 40%.

10

2002

2005

2006

⁴ Values for the all-purpose road network are totals for links on which traffic counts were carried out throughout the period. Values for motorway are estimated vehicle kilometres for all motors: a check has confirmed that comparing link-flow over time for motorways yields similar results (but creates complications due to the opening of new sections of motorway, specifically M60 Denton - Middleton). Note that "within M60" means within M60 but outside MSIRR. Values interpolated between 1996 and 1999.

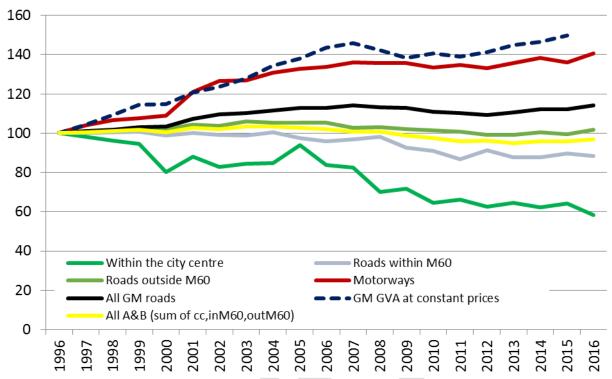
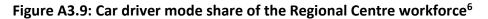
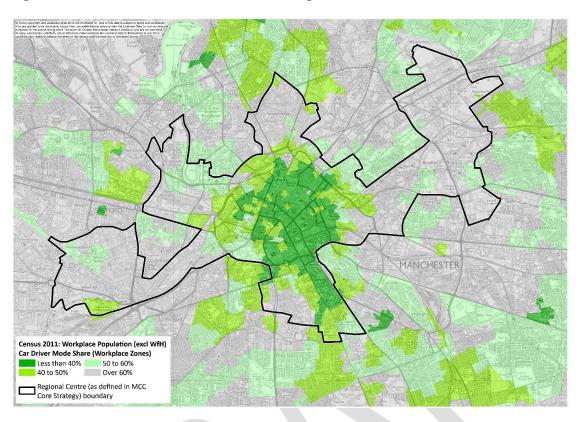


Figure A3.8: Annual Motor Vehicle KMs Index⁵

18. Figure A3.9 uses Census 2011 data to show that the areas of the Regional Centre that lie beyond the city centre typically have a greater reliance on the private car for commuting. Figure A3.10 shows the origins of workers for one such area (Salford Quays), the large catchment reflecting the jobs available in that area.

⁵ Data for the all-purpose highway network from manual counts by TfGM Highways Forecasting and Analytical Services Cordon Counts 2011-2016. Data for the motorway network based on analysis of Highways England ATC data





 $^{^{\}rm 6}$ Based on TfGM analysis of Census 2011 table WP703EW - Method of travel to work.

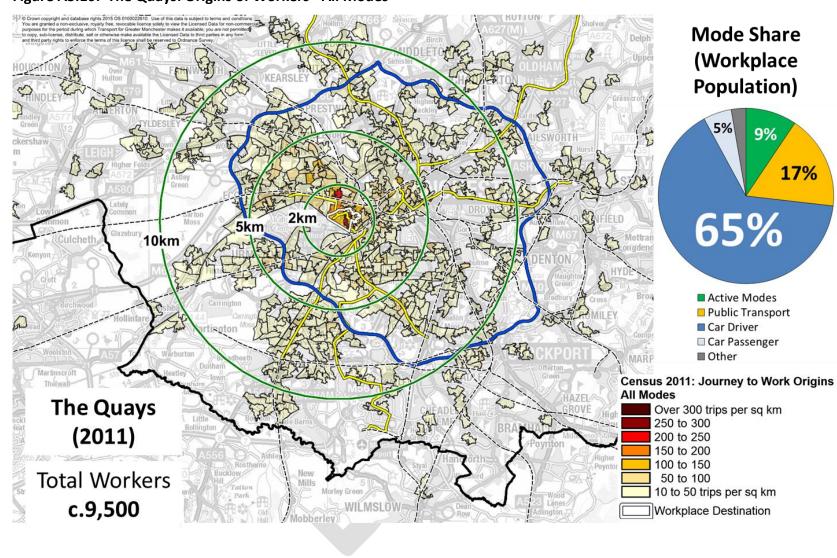


Figure A3.10: The Quays: Origins of Workers - All Modes⁷

⁷ Based on TfGM analysis of Census 2011 table WF01BEW – Location of usual residence and place of work and Census 2011 table WP703EW – Method of travel to work.

Public transport access from outer Greater Manchester communities

- 19. Figure A3.11 (produced using TRACC accessibility software) shows the public transport accessibility (based on April 2017 timetables) to the Regional Centre from Greater Manchester postcodes.
- 20. Figure A3.11 has been used to derive estimated travel times by public transport to the Regional Centre from the following locations:

Partington: 40-60 minutes

Golborne: >60 minutes

Heywood: 50-60 minutes

Standish: >60 minutes

Bamford: >60 minutes

^{21.} Figure A3.12 uses Census 2011 Origin Destination data to show the proportion of residents in employment who work within the City Centre. This shows that for the locations outlined above, typically less than 5% of usual residents in employment work within the City Centre.

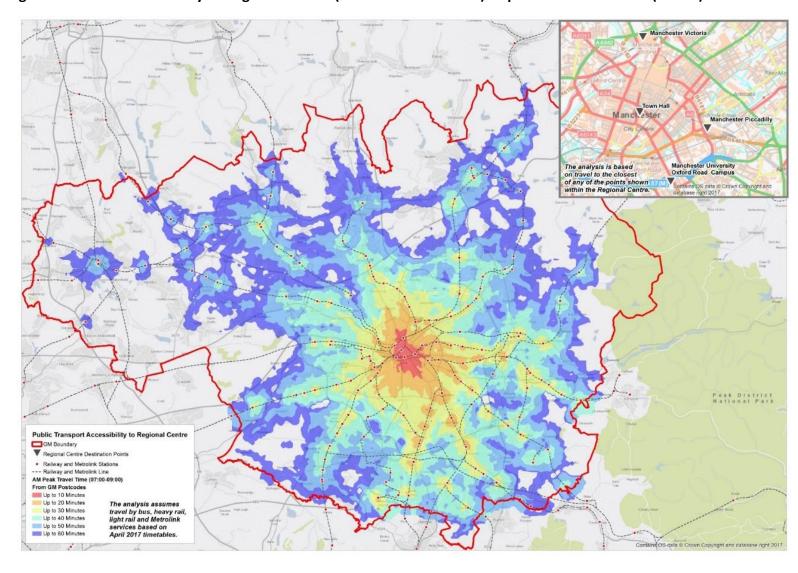


Figure A3.11: PT Accessibility to Regional Centre (selected destinations) - April 2017 Timetables⁸ (Atkins)

⁸ Source: Atkins (2017), research on behalf of TfGM using TRACC accessibility software.

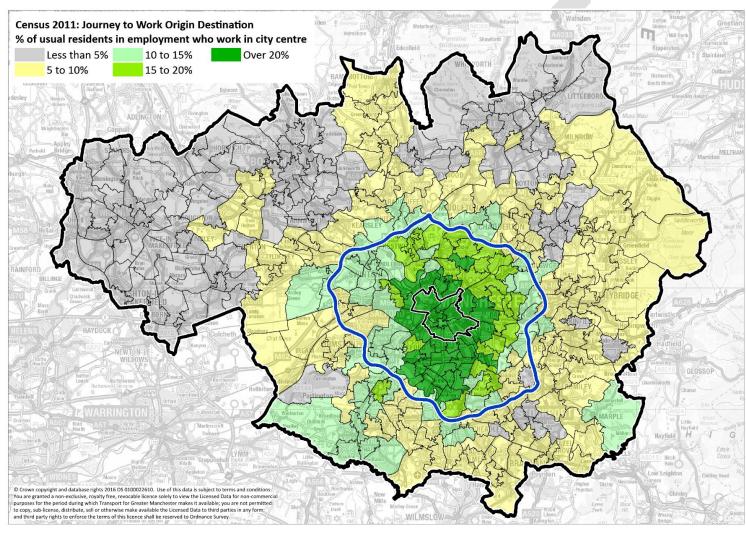


Figure A3.12: % of Usual Residents in Employment who Work in the City Centre⁹

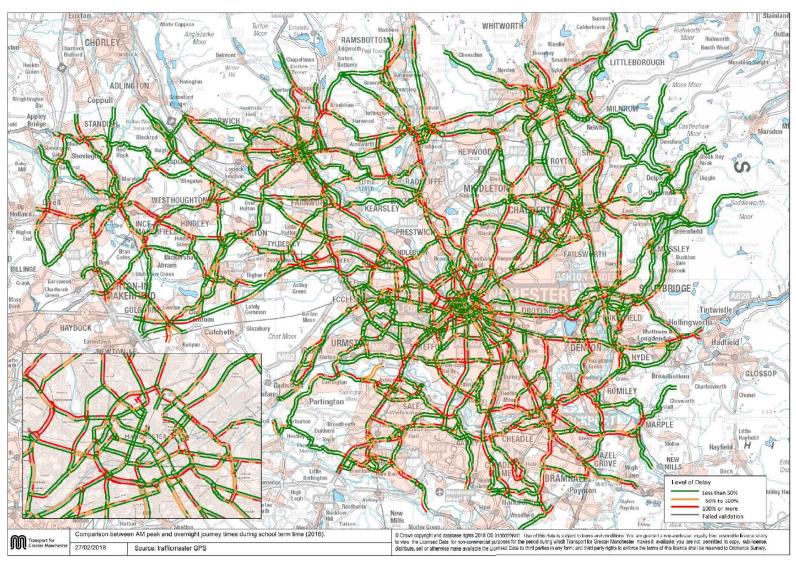
⁹ TfGM analysis of Census 2011 table WU03EW – Location of usual residence and place of work by method of travel to work (MSOA level)

Congestion on radial corridors and the Inner Relief Route

- Figure A3.13 and A3.14 show the morning peak (08:00-09:00) vs overnight (20:00-06:00) and the evening peak (17:00-18:00) vs overnight (20:00-06:00) journey time comparisons for the A and B road network in Greater Manchester.
- 23. Key radial routes between the M60 outer ring road and the inner relief route (as well as the inner relief route itself) have peak period journey times over double the time taken for the same journey taken during the night (i.e. in excess of 100% of the overnight journey time). In the morning peak these are generally inbound journeys into the Regional Centre, and during the evening peak these are outbound journeys from the Regional Centre to the M60.

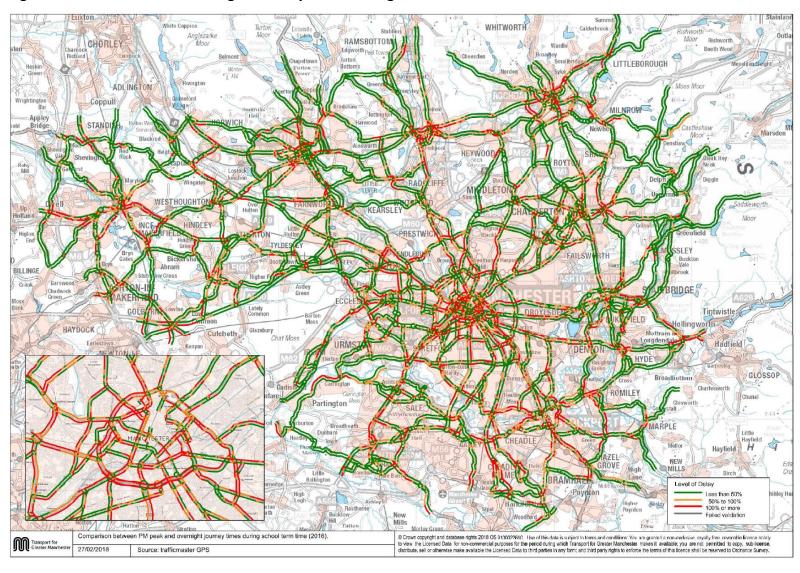


Figure A3.13: Morning peak vs Overnight Journey Times during School Term Time¹⁰



¹⁰ TfGM analysis of Trafficmaster data.

Figure A3.14: PM Peak vs Overnight Journey Times during School Term Time¹¹



¹¹ TfGM analysis of Trafficmaster data.

- 24. Greater Manchester is one of a number of major UK conurbations where NO₂ limits are exceeded. Where air quality objectives are not likely to be achieved, local authorities must designate Air Quality Management Areas (AQMAs). Figure A3.15 shows the area in Greater Manchester covered by an AQMA (declared in May 2016). It is a clear that a large proportion of the Regional Centre itself, as well as the radial routes leading into it, are covered by the AQMA.
- During the 2016 monitoring period, the Oxford Road area recorded the regional high NO_2 annual mean concentration level at $66\mu g/m^3$. This site also recorded 90 exceedances of the 1-hour mean objective ($200\mu g/m^3$), where 18 exceedances is the legal limit. The sustained construction activity in this area during the 2016 monitoring period is known to have been an influencing factor¹².

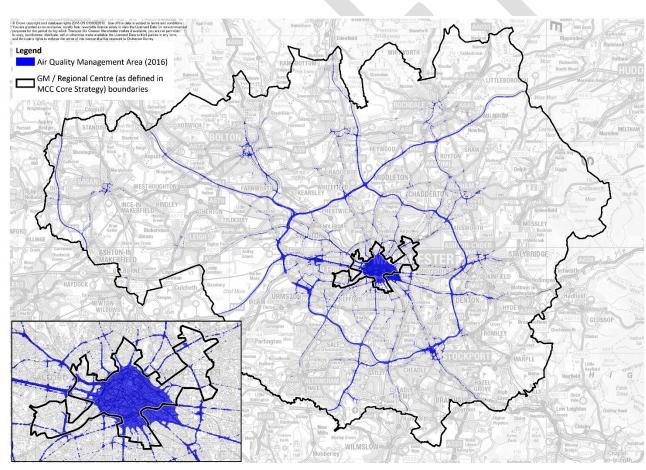


Figure A3.15: Air Quality Management Area (2016)¹³

¹² Greater Manchester Combined Authority, (2017). '2016 Air Quality Annual Status Report (ASR) for Greater Manchester' [online]. Available at: http://www.trafford.gov.uk/residents/environment/pollution/air-quality/docs/GMASR-2016.pdf [accessed 7 Feb. 2018].

¹³ Department for Environment, Food & Rural Affairs, (2016). 'Manchester AQMA' [online]. Available at: https://uk-air.defra.gov.uk/aqma/details?aqma_ref=36 [accessed 15 Jan. 2018]





GMSF Transport Study Evidence Base Appendix A4

City-to-city links

September 2018

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Resilience, reliability, speed and capacity of city-to-city strategic road and rail networks

Road networks

- The road network is crucial to everyday life and the functioning of the economy¹ in the North of England, accounting for 74% of all commutes to work, more than for the country as a whole². In linking together the cities of the North, the Strategic Road Network (SRN) bears the greatest share of the load³.
- 4. Between Greater Manchester and the Sheffield City Region, the SRN consists of largely single carriageway roads (A57/A628/A616/A6102) through the middle of the Peak District National Park, taking almost 90 minutes through one of the country's most valued habitats and landscapes⁴. The drive time between Rotterdam and Utrecht in the Netherlands, a comparable distance, is closer to 45 minutes⁵. However, options to improve road connectivity between the two have proved to offer poor value for money⁵.
- 5. The average performance of the road network in the North can be gauged through an analysis of journey times and congestion. A recent Steer Davis Gleave study found that 'even when the Strategic Road Network is not congested, journey times between many city pairs are long relative to the distance between them'⁵, with peak time journeys being considerably longer.
- 6. For example, Manchester and Leeds are less than 40 miles apart and yet on the congested M62 this often takes more than two hours by car⁶. However, strategic works to the M62 between Liverpool, Manchester and Leeds, have the potential to deliver up to a 33% increase in capacity and a 19% reduction in journey time as seen through comparable work on the M25⁶.
- 7. The M60 is the busiest road in the North⁶, serving as Manchester's orbital motorway and a critical part in the cross-Pennine M62. The busiest section, between junctions 12 and 13, carries almost 200,000 vehicles in an average day, equal to some of the busiest sections of the

commission-report [accessed 25 January 2018]

¹ National Infrastructure Commission (2016) *High Speed North,* p.57 - Good roads are seen as especially important by business. In its 2015 Infrastructure Survey, the Confederation of British Industry's (CBI) found – 'The importance of the Strategic Road Network (SRN) to business cannot be underplayed. With 89% of businesses seeing investment in the UK's motorway network as either crucial or beneficial to their business prospects.'

² National Infrastructure Commission (2016) *High Speed North,* p.57 - The national average for journeys to work by car is 68%. See DfT Statistics, Table TSGB0112

³ National Infrastructure Commission (2016) *High Speed North,* p.57 - The major arteries of the region – including the M1, M6, M62 and A1(M) – are all operated by Highways England. Similarly, some of the most important roads in key urban areas, such as the M60 around Manchester, are run as part of the national network.

⁴ TfN, (2017). 'Initial Major Roads Report: Strategic Transport Plan Evidence Base' [online]. Available at: https://transportforthenorth.com/wp-content/.../TfN-Initial-Major-Roads-Report.pdf [accessed 25 January 2018]

⁵ Steer Davies Gleave, (2014). 'Transport Constraints and Opportunities in the North of England' [online]. Available at:

https://www.gov.uk/.../Transport constraints and opportunities in the North of En [accessed 25 January 2018]
National Infrastructure Commission, (2016). 'High Speed North: A National Infrastructure Commission Report' [online]. Available at: https://www.gov.uk/government/publications/high-speed-north-a-national-infrastructure-

M25 around London⁴ and heavy congestion around the critical interchange at Simister Island means that average speeds are often below 20mph during peak periods⁶.

- 8. Figure A4.1 shows that large sections of the SRN within Greater Manchester are impacted by delays. The route between Liverpool-Manchester-Leeds that uses the M62 and M60 is in the top 10% nationally for delays.
- 9. Table A4.1 shows the key findings in respect of current transport problems as identified in the Manchester North-West Quadrant Strategic Study: Stage 1 Report (February 2016).



A1(M)

Leeds Bradford International Airport

Top 10%

Next 10%

Next 20%
Next 20%

Next 20%

Bottom 20%

No data available

Leeds Bradford M6 Burnley Blackburn Halifax M65 Wakefield Huddersfield \leq Bury **Bolton** Wigan **Barnsley** A628 M602 Manchester A628 M62 Vehicle Hours Delay (April 2012 – March 2013) Warrington Vehicle Hours Delay is an estimate of the total travel time experienced by all road users over and above the expected theoretical free-flow travel time. M56

Figure A4.1: SRN Performance: Delay (April 2012 – March 2013)⁷

Manchester Airport

⁷ Highways Agency, (2014). 'South Pennines Route Strategy Evidence Report' [online]. Available at: https://assets.publishing.service.gov.uk/government/uploads/.../South_Pennines.pdf [accessed 27 January 2018]

Table A4.1: Key Findings - Current Transport Problems⁸

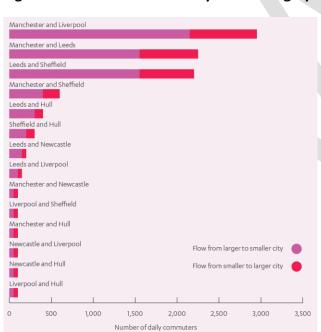
Type of Issue	Description				
Congestion	The SRN within the study area suffers from severe congestion with the majority of links falling within the worst 10% nationally in terms of journey speeds and journey time reliability. This affects not only local and regional Greater Manchester movements using the SRN in the study area but also impacts pan-northern SRN movements from origins and destinations such as Liverpool, Warrington, Preston, Leeds and Hull.				
Traffic Flows	Between junctions 12 and 18 of the M60, two way Annual Average Daily Flows (AADFs) range from 150,000 to 195,000. AADFs of this magnitude exceed those anywhere else on the SRN with the exception of the western section of M25 and the southern end of the M1.				
Peak Spreading	Since 2005, the peak periods are extending into the inter-peak periods.				
Layout and Topography	The road layout and topography of the SRN within the study area contribute to congestion and poor journey time reliability because of: • Volume of traffic on the main carriageways of the area's SRN • Significant merging and diverging flows where the M62/M60 M60/M61 M60/M62/M66 meet. • Short distances between junctions. • Narrow lanes and steep gradients				
Limited Crossings	Limited opportunities for crossing the Manchester Ship Canal pushes local traffic onto the area's SRN.				
Commuter Patterns	Given the nature of the existing radial public transport network, there are significant challenges for public transport to contribute to the reduction of commuter traffic using the strategic road network within the study area due to the disparate origins and destinations of commuters.				

⁸ DfT, Highways England and TfN, (2016). 'Manchester North-West Quadrant Study: Stage 1 Report' [online]. Available at: https://www.gov.uk/government/publications/manchester-north-west-quadrant-strategic-study-interim-report [accessed 23 February 2018]

Freight	Freight traffic on the SRN within the study area is pan-northern, regional and local. The volume of freight (15%) and the road layout and topography means that freight can be slow moving, impacting on overall network performance.				
Safety	Between 2009 and 2011 the vast majority of the motorways within the study area fell within the top 20% worst performing sections of the SRN in terms of total casualties.				
Scale of Challenge	There are a significant number of road and public transport improvements already planned. Based on the forecasting work undertaken previously, it is evident that operating conditions will continue to deteriorate on the majority of the SRN despite these improvements.				
	If the economic aspirations of the Northern Powerhouse are to be achieved a number of radical transport interventions need to be investigated, particularly on the SRN.				

Rail networks

- Journey times and frequencies in the North generally compare badly against similar intercity journeys in the South East, and comparable international journeys⁶. Currently, average speeds of rail travel across the Pennines between the major cities are below 50mph⁹. T
- This means that trains from Manchester to Sheffield travel at less than half the average speed of those between London and Milton Keynes¹⁰. The fastest current journey time on the critical Manchester to Leeds link is 49 minutes (many journeys are almost an hour) whereas a journey of equivalent length between Reading and London is under 30 minutes, with much higher frequencies of fast train departures allowing commuters to 'turn up and go'⁹.
- 12. Figure A4.2 shows inter-city rail commuting patterns across the northern cities. This highlights three particularly busy corridors Manchester/Liverpool, Manchester/Leeds, Leeds/Sheffield. After these three routes the number of commuters is much lower. For instance, Manchester-Sheffield has roughly one quarter of Leeds-Sheffield's number of daily rail commuters (500 compared to 2000, approximately).



Source: Census 2011, Travel to work area data

Figure A4.2: Northern inter-city commuting by rail¹¹

13. Crowding on train services in the North is also a serious issue, the level of crowding seen on some services makes rail travel unattractive, and suppresses demand. Using DfT rail statistics, Table A4.3 illustrates that trains arriving into Manchester during peak morning times are the

⁹ TfN, (2014). 'One North, A Proposition for an Interconnected North' [online]. Available at: https://www.manchester.gov.uk/downloads/download/5969/one_north [accessed 4 February 2018]

¹⁰ Paul Swinney and Elliot Bidgood, (2014). 'Centre for Cities, Fast track to growth transport priorities for stronger cities' [online]. Available at: www.centreforcities.org/wp-content/uploads/.../14-10-17-Fast-Track-To-Growth.pdf [accessed 4th February 2018]

¹¹ National Infrastructure Commission, (2016). High Speed North, Figure 12, p.36 [online]. Available at: https://www.gov.uk/government/publications/high-speed-north-a-national-infrastructure-commission-report

most crowded of the core northern cities. On average these trains are approximately 6% over capacity with approximately 20% of passengers standing⁶.

Table A4.3: Demand, excess demand and passengers standing (morning peak, by city of arrival)¹²

Station	Total passengers arriving in morning peak hours*	Passengers in excess of capacity (1 hour peak)**	Percentage of passengers standing (1 hour peak)***
Manchester	30,907	5.7%	20.3%
Leeds	25,897	2.5%	14.9%
Liverpool	20,155	0.0%	5.5%
Sheffield	7,224	2.3%	7.8%
Newcastle	4,447	2.2%	9.2%
London	563,354	7.2%	27.9%

[†] Hull is excluded due to lack of data availability.

Source: Department for Transport, Rail statistics 2014.

- ^{14.} Figure A4.4 shows the weekday demand vs supply on rail corridors to Manchester City Centre during the morning peak for 2015/16.
- 15. The rail lines that link Manchester with other major cities in the North are:
 - CLC Line (Manchester-Liverpool via Warrington Central) during the morning peak this rail line is over its seating and total capacity.
 - Hope Valley Line (Manchester-Sheffield) during the morning peak this rail line is over its seating capacity.
 - Bolton Line (Manchester-Preston) during the morning peak this rail line is over its seating and total capacity.
 - Diggle Line (Manchester-Leeds) During the AM Peak this rail line is over its seating capacity via Guide Bridge (to Manchester Piccadilly), and below its seating capacity via Ashton (to Manchester Victoria).

^{*} Total passenger numbers include both inter- and intra-city passengers arriving into these stations. As such, the figures shown here are considerably larger than the inter-city passenger numbers in Figure 16. Numbers are for 3 hour AM peak.

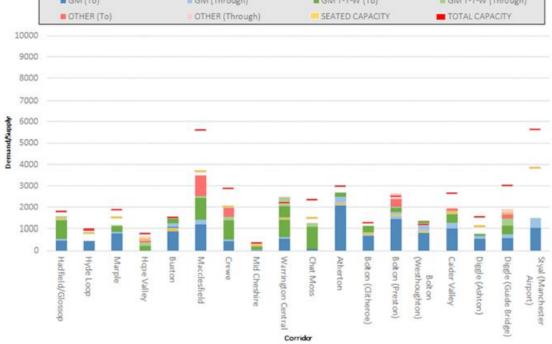
^{**} Passengers in excess of capacity and percentage of passengers standing are calculated by the Department for Transport as a percentage of the critical load. The critical load is the highest number of standard class passenger on a service on arrival at (AM peak) or on departure from (PM peak) a city. However, these values are of the same order of magnitude as if they were calculated as a percentage of the total number of passengers arriving. Numbers given are for 1 hour AM peak (3 hour peak data shows a similar pattern, but with slightly lower congestion).

^{***}Percentage of passengers standing numbers are for 1 hour AM peak (3 hour peak data shows a similar pattern, but with slightly lower congestion).

¹² National Infrastructure Commission, (2016). High Speed North, Table 4, p.38 [online]. Available at: https://www.gov.uk/government/publications/high-speed-north-a-national-infrastructure-commission-report



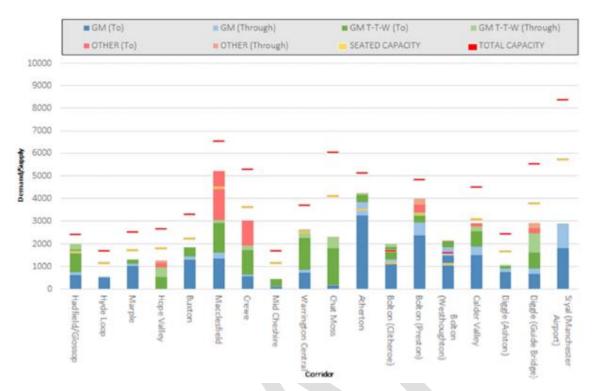
Figure A4.4: 2015/16 Morning Peak Average Weekday Demand vs. Supply on Rail Corridors to



- Figure A4.5 shows the morning peak average weekday demand vs supply on rail corridors to Manchester City Centre for 2026/27. This unconstrained demand forecast assumes frequencies, rolling stock and train lengths from the 2019 CS6 service specification, including full delivery of existing franchise commitments. No other committed enhancements to the network or increases in rolling stock were included in the assessment.
- 17. The rail lines that link Manchester with other major cities in the North are:
- CLC Line (Manchester-Liverpool via Warrington Central) During the morning peak this rail line is projected to be over seating capacity.
- Hope Valley Line (Manchester-Sheffield) During the morning peak this rail line is projected to be below its seating capacity.
- Bolton Line (Manchester-Preston) During the morning peak this rail line is projected to be over its seating capacity.
- Diggle Line (Manchester-Leeds) During the morning peak this rail line is projected to be below its seating capacity.

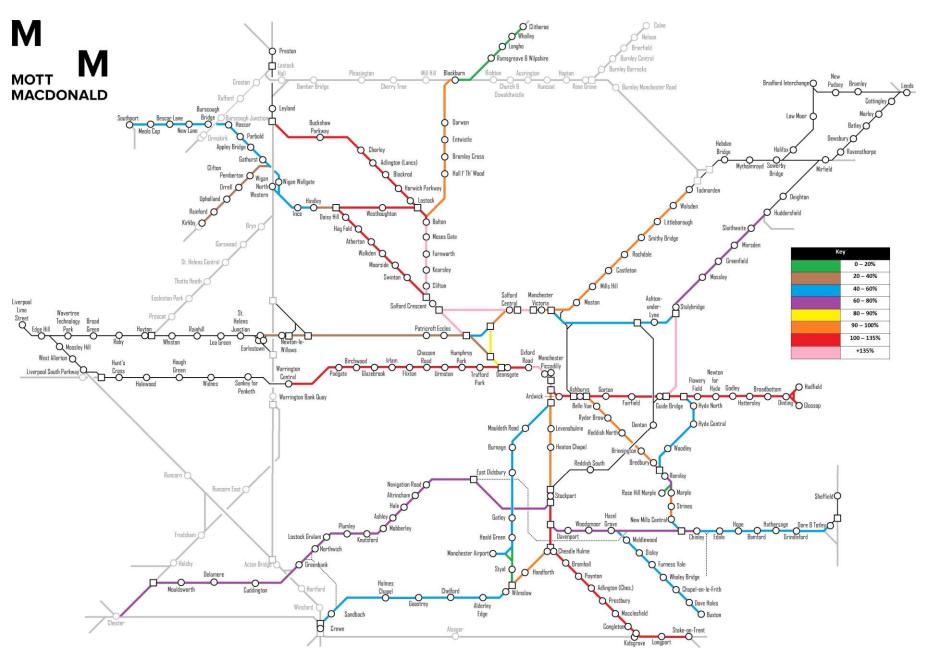
¹³ Mott MacDonald and TfGM, (2017). 'Manchester Rail Network Capacity Study: Final Study Report'.

Figure A4.5: 2026/27 Morning Peak Average Weekday Demand vs. Supply on Rail Corridors to Manchester City Centre¹³



18. Figure A4.6 provides a summary of these results in the form of a network map.

Figure A4.6: 2026/27 AM Peak (07:30-09:30) Average Weekday Demand vs. Supply on Rail Corridors to Manchester City Centre¹³



19. Figure A4.7 shows that overcrowding on public transport has the potential to influence the travel choices that GM residents make.

Figure A4.7: Selected Response - Public Transport Overcrowding¹⁴

"The main reason I avoid public transport is due to **overcrowding**. There are **not enough services** for the amount of people using public transport at **peak time**. This needs to be fixed BEFORE encouraging more people to use it."

(Drives five or more days a week, female, 20-29 years)

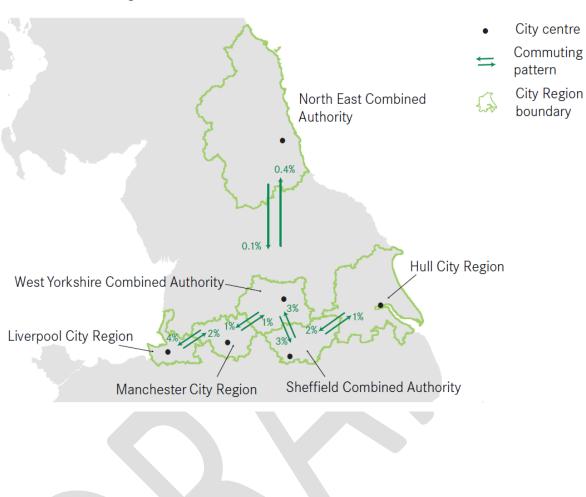
Labour catchment 'containment'

- ^{20.} The North suffers from significant historical transport constraints, particularly in relation to its intercity links, with slow and heavily congested strategic road routes and rail journeys. This limited connectivity has created a 'contained' nature of travel in the region.
- 21. Analysis of travel patterns between northern cites suggests levels of commuting below what may be expected given their size and relative proximity, with commuting between Sheffield and Manchester, for example, 38% lower than could be expected¹⁵.
- ^{22.} Figure A4.8 demonstrates that the Northern Powerhouse has a high level of containment, with relatively low levels of commuting between the main city regions.

¹⁴ TfGM Congestion Conversation, 2017: Q13. To what extent, if at all, do you think congestion has had an impact on the following in Greater Manchester (increase in pollution, overcrowding on public transport, discouraging visitors, deterred investment).

¹⁵ National Infrastructure Commission, (2016). 'High Speed North: A National Infrastructure Commission Report' [online]. Available at: https://www.gov.uk/government/publications/high-speed-north-a-national-infrastructure-commission-report [accessed 25 January 2018] - Analysis by Frontier Economics for the National Infrastructure Commission. To compare actual and expected flows between cities in the North, Frontier adopted a 'gravity' modelling approach, following the methodology used in the Northern Way report (D'Costa et al., 2009)





¹⁶ Centre for Cities, (2015). 'Northern Powerhouse Factsheet: Key figures on the city regions in the Northern Powerhouse' [online]. Available at: http://www.centreforcities.org/publication/northern-powerhouse-factsheet/15-06-01-northern-powerhouse-factsheet/ [accessed 3 May 2018]

Insufficient capacity to accommodate both frequent local and long-distance services on rail corridors

23. Table A4.3 details the frequency of trains per hour in the morning peak, inter-peak period and afternoon peak from Leeds/Liverpool to Manchester. It also provides an example of a 'local' station on each line that receives a reduced level of service in comparison.

Table A4.3: Rail Service Frequencies towards Manchester by Station (selected examples by line): February 2018¹⁷

Journey/Rail Line	Morning peak (07:30-09:30)	Inter-peak period	Afternoon peak (16:30-18:30)		
CLC Line					
Liverpool	4 trains per hour	4tph	4tph		
Flixton	2tph	1tph	1tph		
Trans-Pennine via Huddersfield					
Leeds	5tph	4tph	5tph		
Mossley	1.5tph	1tph	1tph		

- ^{24.} This evidence clearly demonstrates the difference in terms of demand for rail journeys between Manchester and other major cities in comparison with smaller, local stations within Greater Manchester.
- ^{25.} Rail North's Long Term Rail Strategy (2015) acknowledges that developing an express network between the North's urban centres means there will be an emerging pattern of limited stop services, complemented by local stopping services on all the major routes. This already happens on routes such as Manchester Huddersfield Leeds, for example, but will become more widespread across the North's strategic network. The frequency of express services will need to be matched to the level of demand on a case-by-case basis.
- 26. Rail North notes that ensuring access between residential and job areas is essential to supporting economic growth. Journey time is less important for these journeys, as the majority will be made during peak periods when there is greater highway congestion.

15

¹⁷ Source: National Rail timetables

Need to ensure good public transport access to HS2 and NPR services from across Greater Manchester

Greater Manchester HS2 and Northern Powerhouse Rail Growth Strategy

- The recently published Greater Manchester HS2 and NPR Growth Strategy sets out the region's aspirations for high speed rail. The strategy 'The Stops are just the Start' details how HS2 and NPR will deliver new jobs, new homes and new opportunities for Greater Manchester at the heart of the Northern Powerhouse, helping unlock the untapped growth potential within the North of England¹⁸.
- It also stresses the importance for Manchester Piccadilly to 'build it once and build it right' maximising benefits and minimising disruption by turning the station, and a new station at Manchester Airport, into true integrated transport hubs that link international, national, regional and local services.
- ^{29.} The strategy focuses on four key areas, designed to support the economic growth potential of both HS2 and NPR:
 - Station design and infrastructure.
 - Improved transport connectivity.
 - Regeneration of land around the stations.
 - Investment in people, skills and employability.
- 30. If Greater Manchester's preferred option of a tunnelled high-speed facility at Manchester Piccadilly is adopted, then the area around the re-developed station is expected to provide 40,000 new and sustainable jobs, 13,000 new homes and close to a million square metres of commercial development.

Rail North - Long Term Rail Strategy

Rail North's Long Term Rail Strategy (2015) notes that the development of the high-speed rail network could improve inter-city connectivity across the North. The main lines will be freed up to offer improved services for towns and smaller stations. This will likely lead to better services to these stations on West Coast Mainline. It would also lead to the possibility of leading to more direct services to London from these intermediate stations than is currently possible.

Piccadilly Strategic Regeneration Framework

Manchester City Council's Piccadilly Strategic Regeneration Framework Area identifies an underperforming zone of 140 acres around the south and east sides of Piccadilly Station where

¹⁸ GMCA, (2018). 'HS2 and Northern Powerhouse Rail Growth Strategy: The Stops are just the Start' [online]. Available at https://www.tfgm.com/press-release/hs2-npr-growth-strategy [accessed 14 February 2018]

redevelopment could deliver: 4,500 new homes; 625,000 sqm of commercial office space; 100,000 sqm of retail space; and numerous high quality public spaces⁶.

Northern Powerhouse Rail

- 33. Greater Manchester lies at the heart of the Northern Powerhouse. Through Transport for the North (TfN), Greater Manchester is working in close partnership with other key northern city regions to develop a Strategic Transport Plan for the North¹⁹.
- The Strategic Transport Plan was published as a Draft for public consultation in January 2018. One of the most important components of the plan is an emerging vision for the Northern Powerhouse Rail (NPR) network, a major strategic rail programme designed to transform connectivity between the key economic centres of the North. The NPR concept outlined in the Strategic Transport Plan includes the following (although alternative concepts will continue to be assessed; see diagram below):
- A new high-speed line to Liverpool via Manchester Airport and Warrington.
- A new high-speed line to Leeds via Bradford.
- An upgraded line to Sheffield.
- Either an underground Northern Powerhouse Rail through station or a surface turn-back station at Manchester Piccadilly.

¹⁹ TfN, (2018). 'Strategic Transport Plan: Draft for public consultation' [online]. Available at: https://transportforthenorth.com/wp-content/uploads/TfN-Strategic-Plan_draft_lr.pdf [accessed 14 February 2018]

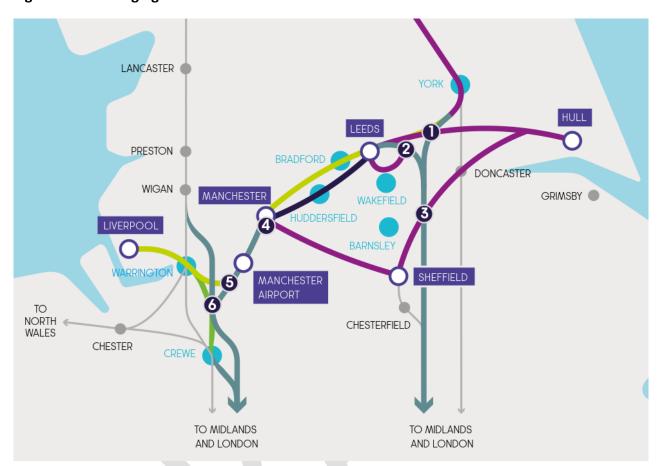


Figure A4.9: Emerging vision for the Northern Powerhouse Rail Network²⁰

²⁰ Transport for the North, (2018). 'Strategic Transport Plan: Draft for public consultation' [online]. Available at: https://transportforthenorth.com/wp-content/uploads/TfN-Strategic-Plan draft lr.pdf [accessed 26 January 2018]





GMSF Transport Study Evidence Base Appendix A5

A Globally Connected City

September 2018

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Public transport access to Manchester Airport	3
Reliability and resilience for port access and long-distance freight	12



Public transport access to Manchester Airport

- 1. The latest figures released by Manchester Airport show that 27.8m passengers travelled via the airport between January 2017 and January 2018, representing a like-for-like year-on-year growth of 7.45%¹.
- The Manchester Airport Sustainable Development Plan 2016 includes a land use plan that identifies the land, uses and facilities that are required to support the operation of an airport capable of handling c. 45m passengers a year. This long-term aspiration falls within the 55m annual passengers the airport could potentially handle (assuming its two runways are operating at full capacity)².
- Manchester Airport recognises the importance of surface access and is committed to securing a major increase in public transport use while reducing the dependence on the car for both passengers and airport staff³.
- 4. Since opening in 2002, the public transport interchange, The Station, has been at the heart of the airport's developing transport network and is now used by over 4 million passengers a year (passengers and staff)³. It provides convenient transfer between rail, tram, coach and bus and is directly linked to the passenger terminals by an enclosed elevated walkway, 'Skylink', the main pedestrian route through the site. The Station also acts as a sub-regional transport hub for surrounding communities especially for access to strategic rail and coach services. The initial two platform railway station has been expanded and developed to now include: four rail platforms, two Metrolink platforms, 13 bus and coach bays, a taxi rank and a pick up & drop off forecourt³.
- 5. The 2016 Civil Aviation Authority Passenger Survey reported that only 17.5% of passengers used public transport to access the airport, compared to 25.7% of passengers travelling to Birmingham airport and 50.9% of those going to Stansted⁴.
- 6. Currently, over 20,000 people are employed directly on site, and approximately 75% of airport staff live within Greater Manchester, with a further 15% travelling to the airport from parts of Cheshire3. Figure A5.1 illustrates the mode share of staff travel to the airport and highlights that cars are the dominant mode of transport. Notably, since the opening of the Metrolink Airport Line in 2014 Manchester Airport Group estimates that around 5% of employees have switched from other modes to Metrolink. Trams operate on a 12 minute frequency between 4am and 11pm six days a week. On Sundays and Public Holidays they operate between 8am

¹ Manchester Airport Group, (2018). Manchester Airport edges towards 28 million passengers. [online] Available at: http://mediacentre.manchesterairport.co.uk/manchester-airport-edges-towards-28-million-passengers/ [accessed 31 March 2018]

² Manchester Airport Group, (2016). 'Sustainable Development Plan 2016: Summary' [online]. Available at: https://www.manchesterairport.co.uk/about-us/sustainable-development-plan/ [accessed 31 March 2018]

³ Manchester Airport Group, (2016). 'Sustainable Development Plan 2016: Economic and Surface Access' [online]. Available at: https://www.manchesterairport.co.uk/about-us/sustainable-development-plan/ [accessed 31 March 2018]

⁴ Civil Aviation Authority, (2016). 'CAA Passenger Survey Report 2016' [online]. Available at: https://www.caa.co.uk/.../CAA/.../Passenger_survey/CAA%20Passenger%20Survey%2 [accessed 31 March 2018]

and 5.30pm. The journey time between central Manchester and the airport is approximately 45 minutes. In 2016, early morning services (from 3am) were introduced to better meet the needs of airport users3. Metrolink is a key part of Manchester Airport's green travel plan for staff which means that they are entitled to discounted fares3.

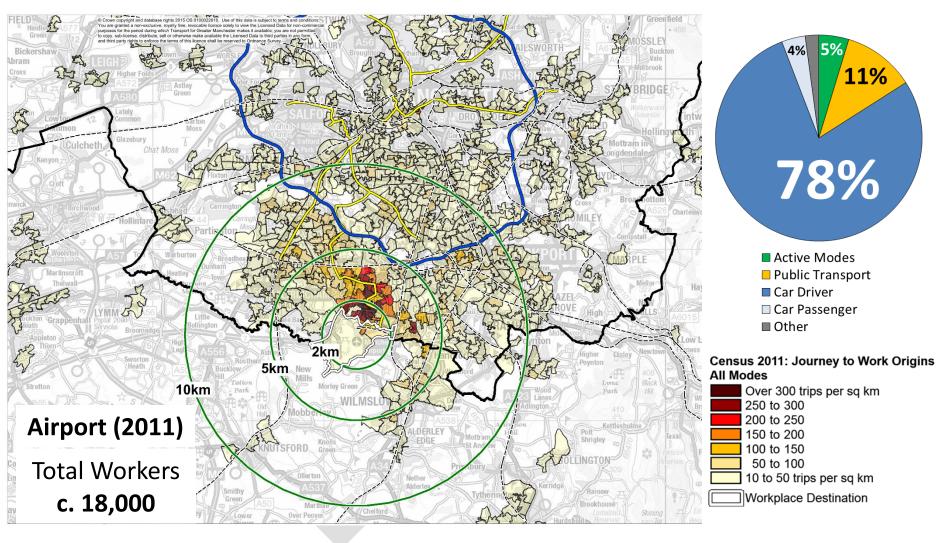
Figure A5.1: Mode Share – Staff Travel to the Airport³

Mode of Transport	Percentage of Staff	
Car Driver	71%	78.5%
Car Passenger	5.5%	_
Taxi	1%	
Motorcycle	1%	
Bus/Coach	12.5%	21.5%
Train	4%	
Metrolink	See footnote*	_
Cycling	2%	
Walking	2%	
Other	1%	

^{*} Initial estimates are c.5% of employees have switched from other modes to Metrolink

7. Figure A5.2 shows the residential origins of airport workers based on Census 2011 Origin Destination data.

Figure A5.2: Manchester Airport: Origins of Workers - All Modes⁵



⁵ Based on TfGM analysis of Census 2011 table WF01BEW – Location of usual residence and place of work and Census 2011 table WP703EW – Method of travel to work.

- 8. Manchester Airport Group has set challenging long-term mode share targets for the future to ensure that public transport use increases along with the airport's growth. These include targets for both passenger and staff travel, seen in Figures A5.3 and A5.4.
- 9. Given the forecast increase in passenger numbers, and congestion on the wider network, Manchester Airport Group understands the necessity to reduce car use. It is targeted to reduce the percentage of passengers using a car to around 50% by 45 million passengers per annum (mppa)³. In terms of staff travelling to work, the aim is to reduce the car mode share to c.60% by 45 mppa.

Figure A5.3: Passenger Mode Share Targets³

Mode of Transport	Passengers			
	Current 22mppa ³¹	30трра	45mppa	
Kiss & fly/Taxi	52%	40%	30%	
Park on Site	21%	18%	15%	
Rail	14%	18%	25%	
Park and Ride	8%	14%	17%	
Coach and Bus	3%	4%	5%	
Car Hire	2%	3%	3%	
Metrolink	0%	3%	5%	

Figure A5.4: Employee Mode Share Targets³

Mode of Transport	Employees		
	Current c. 20,000 (22mppa)	c. 42,000 (45mppa)	
Bus	12%	10%	
Rail	4%	10%	
Car	79%	57%	
Cycle/Walk/other	5%	8%	
Metrolink	see footnote*	15%	

 $^{^{}st}$ Initial estimates are c.5% of employees have switched from other modes to Metrolink

10. Rail is the busiest and most important part of Manchester Airport's public transport system and is currently served by two rail operators: TransPennine Express, which provides direct intercity services across the North of England, and Northern, which serves Liverpool, Southport and Crewe³. Nine trains per hour operate between the airport and Manchester Piccadilly, with a fast journey time of between 15 and 25 minutes³. Rail serves an extensive catchment area, with all of the largest conurbations within the North of England having at least an hourly direct

service, with a typical journey time of less than two hours. Figure A5.5 provides a summary of key rail links (at December 2015).

Figure A5.5: Summary of Key Direct Rail Journeys to Manchester Airport³

Service Provider	Origin	Approximate Journey Time	Weekday Frequency
TransPennine Express	York	2 hours	34 services a day
TransPennine Express	Leeds	1 hour 20 minutes	34 services a day
TransPennine Express	Sheffield	1 hour 20 minutes	19 services a day
TransPennine Express	Preston	1 hour	36 services a day
TransPennine Express	Blackpool	1 hour 45 minutes	18 services a day
TransPennine Express	Newcastle	3 hours	12 services a day
Northern Rail	Liverpool	1 hour 10 minutes	15 services a day

- 11. Manchester Airport Group acknowledges that their rail services are heavily skewed to the north and that services to the south are poor (there is only a limited hourly service to Crewe) meaning that large areas in the Midlands and Wales do not have a direct rail link to a major airport gateway³.
- 12. Rail North found that passengers travelling to the airport are less concerned about the time it takes and care more about a direct service, punctuality and reliability. Where possible there should be an hourly direct service from each major town/city to Manchester Airport. An aim should be to provide direct connections from each place in the North's interconnected urban matrix to Manchester Airport. At a minimum, each should have access to Manchester Airport with only a single change required⁶.
- 13. Figures A5.6 and A5.7 demonstrate recent growth in the number of passengers arriving at Manchester Airport by both Rail and Metrolink.

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⁶ Rail North (2015) Long Term Rail Strategy, p.81.

Figure A5.6: Rail Passengers- Annual Entries and Exits at Manchester Airport⁷

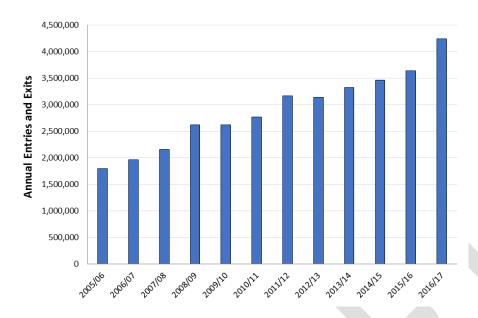
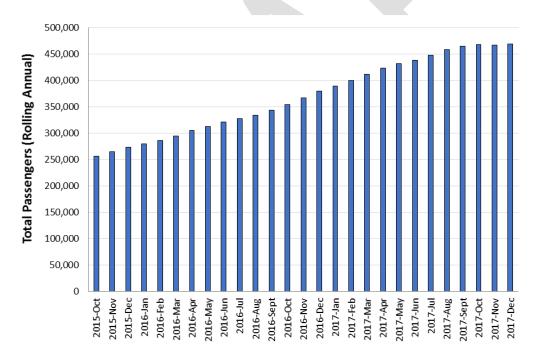


Figure A5.7: Metrolink Passengers at Manchester Airport⁸



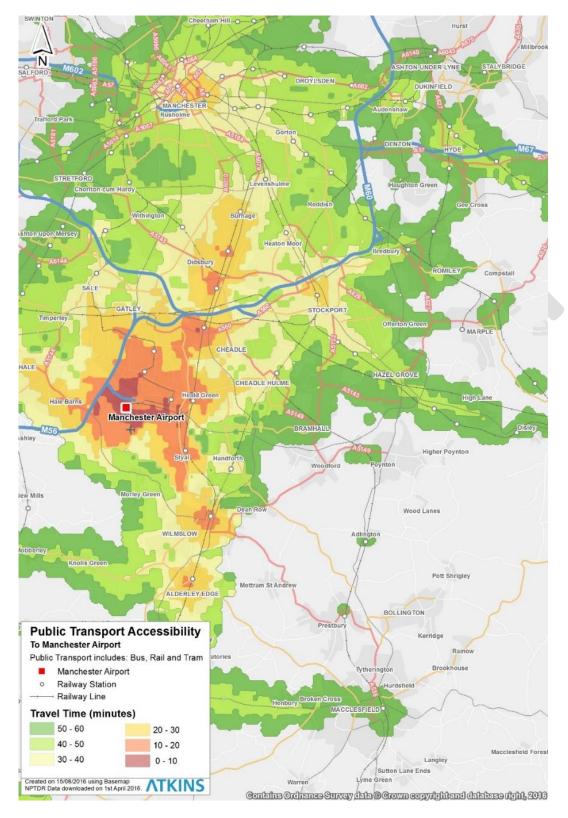
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 $^{^{7}}$ Office of Rail and Road (ORR), Station usage time series 2005/06 – 2016/17

⁸ TfGM, Metrolink Ticket Sales (October 2015 – December 2017)

14. Figure A5.8 shows public transport accessibility to Manchester Airport.

Figure A5.8: Public transport accessibility to Manchester Airport⁹



⁹ TRACC analysis, Atkins

- 15. At present the only direct public transport alternative for areas where there is no direct rail connection is a coach service. National Express operates approximately 50 direct services per day from major cities such as London, Birmingham, Sheffield, Liverpool, Edinburgh and Glasgow. Manchester Airport wants to increase the coach market to serve towns and cities without convenient rail services. Target markets are: Chester, North Wales, East Lancashire and the Midlands.
- 16. While bus is a flexible and adaptable form of public transport it is reliant on the efficiency of the road network and despite various bus priority measures, bus journeys suffer from congestion, delays and unreliable journey times. In addition, the airport's 24 hour, seven day a week operation can pose a commercial challenge for operators³. However, the size and dispersed nature of the airport, e.g. the West side and World Logistics employment areas are some distance from the public transport interchange, provide an opportunity to increase the efficiency of on-site buses.
- People want transport that is convenient, cheap and always available, which is why taxis are popular for trips to the airport. The greatest use of taxis are private hire vehicles booked direct by passengers, combined with passengers being picked up or dropped off by friends or relatives, these 'kiss and fly' trips amount to over 50% of passenger journeys³. They are the largest component of airport road traffic, as every return air trip generates four car trips. This is double the amount of car trips compared with parking on-site, and thus adds to congestion and increased CO₂ emissions.
- 18. Figure A5.9 shows the two hour car journey catchment area for Manchester Airport, within which an estimated 22 million people live.



Figure A5.9: Manchester Airport two hour car journey catchment area³

Reliability and resilience for port access and long-distance freight

- 19. The UK, as an island nation, relies heavily on water-based freight to deliver imports and ship exports to and from a wide range of global destinations. In order to achieve this a number of major ports are located throughout the North of England alongside a greater number of smaller ports serving local areas as shown in Figure A5.10.
- ²⁰. In addition to the northern ports, freight flows to and from the North of England also travel via a number of other ports, particularly the southern ports such as Felixstowe and Southampton¹⁰.



¹⁰ TfN, (2018). 'Enhanced Freight and Logistics Analysis Report: Strategic Transport Plan Evidence Base' [online]. Available at: https://transportforthenorth.com/.../Freight-and-Logistics-Enhanced-Analysis-Report.p [accessed 31 March 2018]

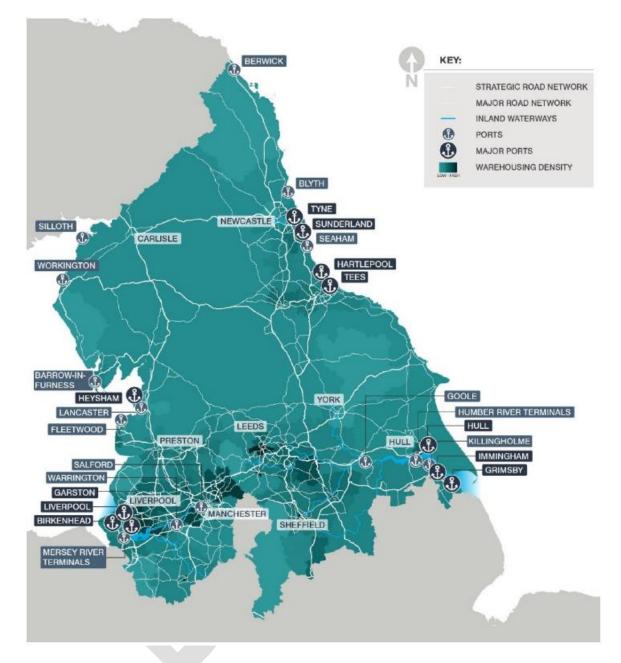


Figure A5.10: 2016 Total Annual Road Freight (cargo tonnes)¹⁰

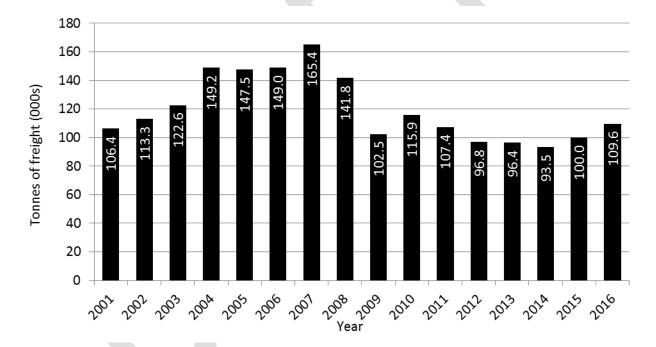
21. In the UK, a total of 1.65 billion tonnes of freight are carried by all modes of transport each year, of which 0.5 billion tonnes is taken through ports and airports. A little over a third of this takes place in the North of England¹¹.

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¹¹ TfN, (2016). 'Northern Freight and Logistics Report: One Agenda. One Economy. One North.' [online] Available at: https://www.transportforthenorth.com/wp.../TfN-Freight-and-Logistics-Report.pdf [accessed 18 March 2018]

- 22. While Manchester Airport is the predominant source of air freight in the North 12, it only handles 4% of the UK total¹², opportunities to carry more air freight are restricted by the dominance of Heathrow's long haul belly hold capacity¹¹.
- 23. Figure A5.11 shows that the quantity of freight passing through Manchester airport suffered a sharp decline post 2007, falling year on year from 2010 to 2014, recovering to 109,600 tonnes in 2016. Manchester Airport represents the greatest opportunity in the North for growth in air freight as it seeks to secure an increasing network of long distance routes with aircraft capable of carrying significant air freight¹¹. This is emphasised by latest figures released by Manchester Airport which show that 123,676 tonnes of air freight were handled between January 2017 and January 2018 representing a like-for-like year-on-year growth of 8.32%¹.

Figure A5.11: Air freight handled by Manchester Airport (thousand tonnes) 2001 -**2016**⁴



24. Figure A5.12 shows that the quantity of freight handled by Manchester ports has fluctuated significantly since the year 2000, with the 2016 figure (6.1 million tonnes) being at the lowest level since 2003.

¹² TfN, (2017). 'Initial Major Roads Report: Strategic Transport Plan Evidence Base' [online]. Available at: https://transportforthenorth.com/wp-content/.../TfN-Initial-Major-Roads-Report.pdf [accessed 18 March 2018]

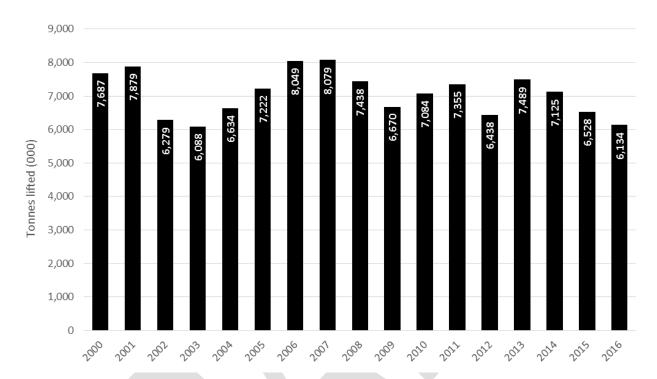


Figure A5.12: Freight lifted through Manchester Ports (thousand tonnes) 2001 - 2016¹³

- The Manchester Ship Canal is a unique inland logistics hub forming part of an innovative carbon efficient waterway. To encourage growth and container volumes, Peel Ports launched the Manchester Shuttle Service linking Liverpool and Manchester, allowing customers to transport goods along a 44-mile stretch of water without their goods ever touching the road¹⁴. The service has seen volumes on the canal rise from 3,000 containers a year in 2009 to 22,500 in 2013¹⁵, while at the same time, reducing road miles (Peel Ports saved 1.6million miles in 2013)¹⁴.
- 26. Figure A5.13 shows total annual road freight (cargo tonnes) carried in 2016.
- ^{27.} Figure A5.14 shows that large sections of the SRN within Greater Manchester are impacted by levels of delay that are ranked within the top 10% nationally. The route between Liverpool-Manchester-Leeds that uses the M62 and M60 is particularly affected.

¹³ Department for Transport, (2018). 'Port freight statistics: January to March 2018' [online]. Available at: https://www.gov.uk/government/statistics/port-freight-statistics-january-to-march-2018 [accessed 31 March 2018]

¹⁴ Multimodal, (2015). Green Highway sails away with logistics award. [online] Available at: https://www.multimodal.org.uk/news/green-highway-sails-away-logistics-award [accessed 31 March 2018]

¹⁵ Peel Ports, (2018). Unique inland logistics hub. [online] Available at: https://www.peelports.com/ports/manchester-ship-canal [accessed 31 March 2018]

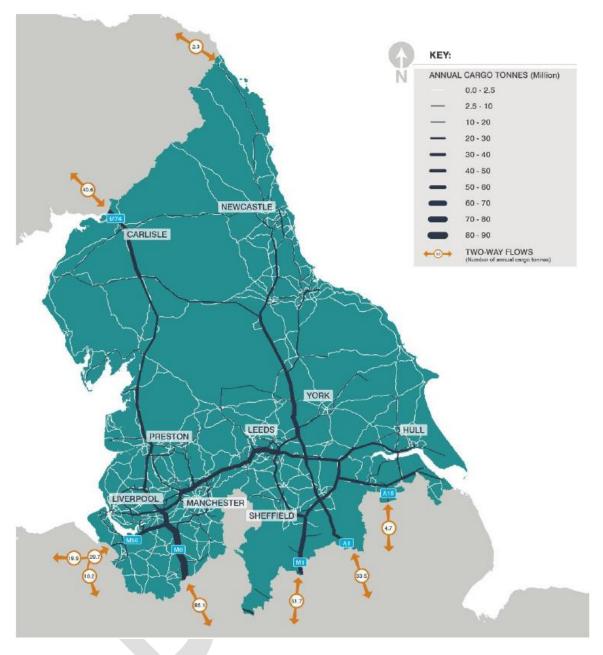


Figure A5.13: 2016 Total Annual Road Freight (cargo tonnes)¹⁰

 $^{28.}$ On average 17,000 good vehicles make trips into Greater Manchester town centres each day 16 .

16

 $^{^{16}}$ TfGM Highways Forecasting and Analytical Services, Key Centres Section

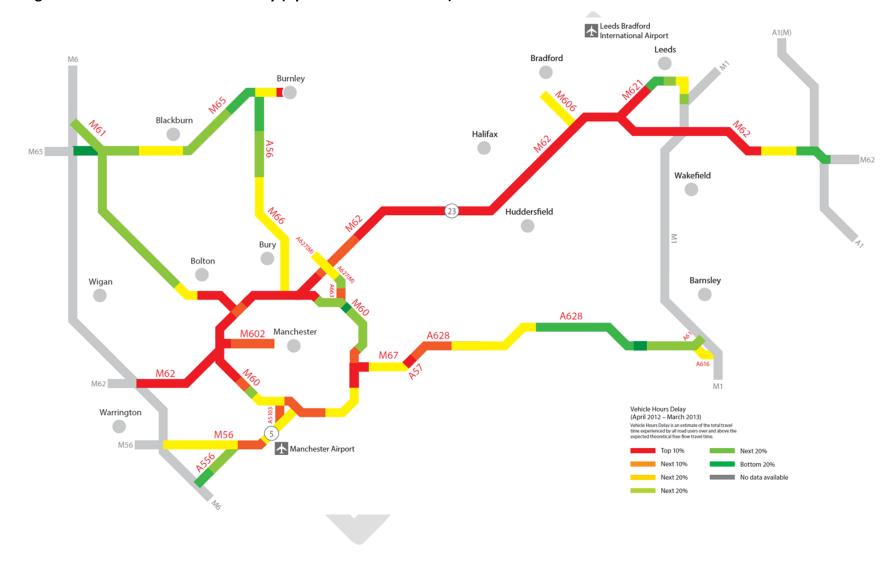
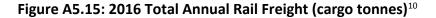
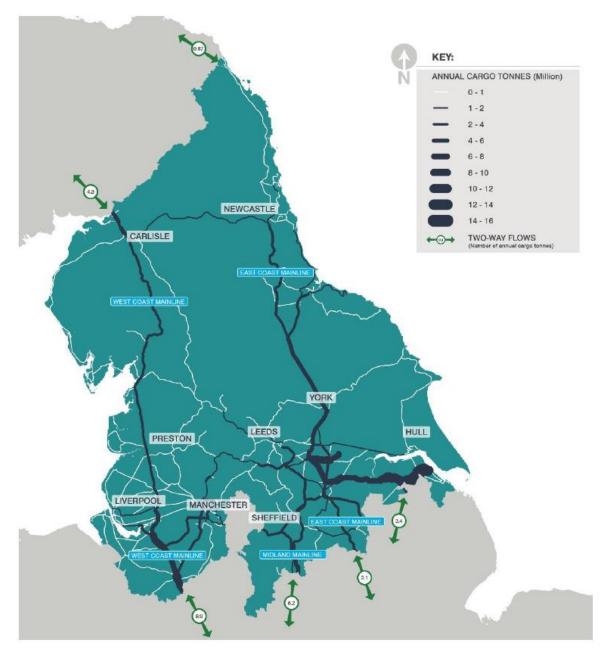


Figure A5.14: SRN Performance: Delay (April 2012 – March 2013)¹⁷

¹⁷ Highways Agency, (2014). 'South Pennines Route Strategy Evidence Report' [online]. Available at: https://assets.publishing.service.gov.uk/government/uploads/.../South Pennines.pdf [accessed 27 January 2018]

^{29.} Figure A5.15 shows total annual rail freight (cargo tonnes) carried in 2016. Analysis by MDS Transmodal (December 2016) estimated that in 2016 c. 3% of total Greater Manchester freight tonnage was transported by rail.





In 2014/15, 111 million tonnes of freight in Great Britain were transported by rail, of which 56% was to or from the North. The greatest volume of rail freight in both Great Britain and the North related to movements of coal between ports and inland power stations, where in the North these movements are predominantly between deep water ports on the Humber, Tees and Tyne and inland coal-fired power stations. These volumes are now falling as the UK switches to a lower carbon economy, which means that there is spare capacity in the rail and ports sector that can be capitalised on by other cargo sectors. During the same period, ports in the North handled some 174 million tonnes, almost 38% of the Great Britain total¹¹.





GMSF Transport Study Evidence Base Annex A6

Greater Manchester-wide Issues

September 2018

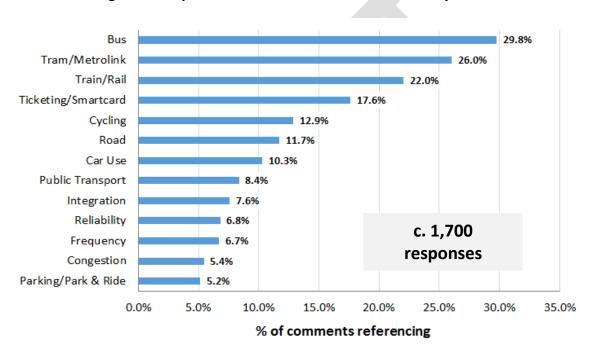
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Lack of integration on public transport

Despite 'transport integration' being a relatively complex principle to explain, there is a strong degree of support, from the 2040 Transport Strategy consultation, for facilitating easier and more cost-effective multi-leg or multi-modal journeys, particularly by public transport. A number of respondents also specifically mentioned the complexity of the current bus network¹.

Figure A6.1: % of respondents referencing different themes in answer to the question 'what one thing would improve travel in Greater Manchester for you?'



¹ GMCA and Greater Manchester Local Enterprise Partnership, (2017). 'Greater Manchester Transport Strategy 2040' [online]. Available at: https://www.tfgm.com/2040 [accessed 19 March 2018]

'Movement' and 'place' demands on streets

- The Greater Manchester Town Centres Review (2013)² recognised that high quality and attractive environments played a fundamental role in increasing the number of people visiting town centres and the time they spent there. This in turn helped grow the turnover of local businesses and raised property values, which led to new business investment. The report concluded that public realm is increasingly important as a form of infrastructure, connecting businesses to their customers and town centres to their wider hinterlands. Examples of where this approach will be important were identified as follows:
 - Oldham and Rochdale: where investment in public realm will help to connect passengers using the new Metrolink service to town centre shops, restaurants, cafes, etc;
 - Wigan: where public realm improvements across a busy road will be an important part of measures to attract students and young people in the Innovation Zone to town centre shopping areas;
 - Ashton and Bury: where public realm investment around successful markets is required to encourage new customers and increase flows between the markets and the rest of the centre; and
 - Altrincham: where a public space and movement strategy is predicated on the need to increase access to the core of the town centre.
- 3. Many of these improvements are now being implemented.
- 4. Transport for London have adopted the Healthy Streets Approach³ which puts people and their health at the centre of decisions about how they design, manage and use public spaces. Its aim is to make streets healthy, safe and welcoming for everyone. It uses walking and cycling as a tool to combat the current inactivity crisis that has been created over the past decades due to the presence of machines, cars and technology replacing tasks that previously required physical effort. Rather than providing an idealised vision of a model street, the Healthy Streets Approach is designed to be a long-term plan to improve both resident and visitor experiences of streets, while

² GMCA, (2013). 'Greater Manchester Town Centre Review' [online]. Available at: https://www.greatermanchester-ca.gov.uk/downloads/file/16/gm_town_centre_review [accessed 15 January 2018]

³ Transport for London (2017), 'Healthy Streets for London: Prioritising walking, cycling and public transport to create a healthy city' [online]. Available at: http://content.tfl.gov.uk/healthy-streets-for-london.pdf [accessed 15 January 2018]

- 5. encouraging everyone to be more active and enjoy the health benefits associated with being on the streets⁴.
- Ten Healthy Streets Indicators have been identified (see Figure A6.2). These encapsulate the necessary requirements to creating a safe, inclusive space where people will choose to walk and cycle. The two most important are 'Pedestrians from all walks of life' and that 'People choose to walk, cycle and use public transport'. The remaining eight support these main two. Together all 10 indicators interrelate as the experience of being on a street affects all of the human senses.

Figure A6.2: Healthy Streets Indicators⁵



⁷. Figure A6.3 shows the mode share of c.266,000 inbound trips to Greater Manchester's key centres: Altrincham, Stockport, Ashton-under-Lyne, Oldham, Rochdale, Bury, Bolton, Wigan taken during surveys in 2016.

⁴ Transport for London (2017), 'Key findings from the Healthy Streets Survey' [online]. Available at: http://content.tfl.gov.uk/key-findings-from-the-healthy-streets-survey.pdf [accessed 15 January 2018]

⁵ Transport for London. 'Guide to the Healthy Streets Indicators: Delivering the Healthy Streets Approach' [online]. Available at: https://tfl.gov.uk/corporate/about-tfl/how-we-work/planning-for-the-future/healthy-streets [accessed 15 January 2018]

Figure A6.3: 2016 Mode Share of Inbound Trips to Greater Manchester Key Centres Combined - All Survey Periods⁶

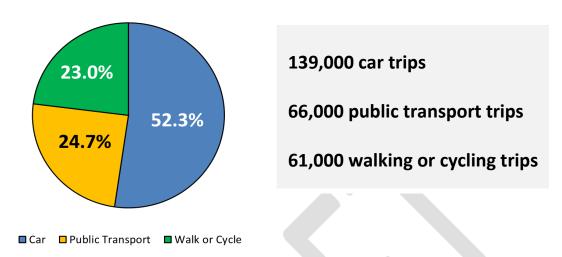
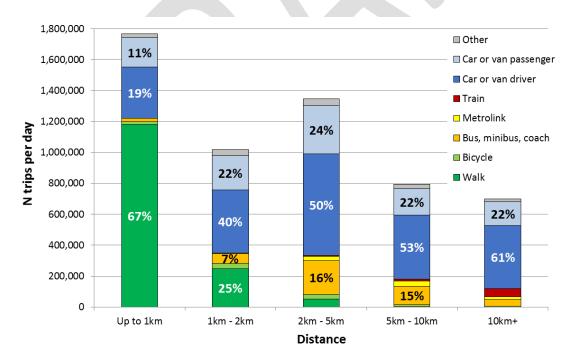


Figure A6.4 shows the mode share of trips made by Greater Manchester residents. This demonstrates the dominance of car as the main mode of transport. Despite 67% of trips under 1km being made on foot; 41% of trips under 2km are made by car or van (including as passenger), this proportions increases to 83% of all trips over 10km.

Figure A6.4: Mode of Travel by Distance Band - All Purposes⁷



⁶ TfGM Highways Forecasting and Analytical Services: DSD Report 1912 Key Centre Section, 2016 Note: HFAS Cordon Counts are undertaken across the following time periods: AM Peak: 0730-0930, Interpeak: 1000-1200, PM Peak: 1600-1800

⁷ TfGM analysis of Travel Diary Surveys (TRADS), 2014 – 2016.

Network reliability and resilience

- 9. In 2015 it was estimated that congestion costs Greater Manchester £1.3 billion each year (TfGM HFAS Report 1853, 2015).
- 27% consider reliability to be 'essential' when making travel decisions. Accessing a reliable mode of transport is particularly important for those with families (who therefore have more commitments) and older residents⁸.
- 11. Resilience across the transport network is also seen as being of critical importance, particularly in terms better managing disruption on both road and rail networks and in relation to climate change¹.
- 12. In the last 12 months, around a quarter of businesses (28%) had experienced a major business disruption. No single type of disruption was evident here and many factors were mentioned, but the most frequently was 'transport and congestion' (10% of respondents)⁹.
- 13. Figure A6.5 shows the reported impacts of congestion from the GM Congestion Conversation. This incorporated an online survey which received 6,699 responses and an on-street survey in which 822 people took part. Nine in ten of the online survey reported that congestion increases their experience of stress and anxiety; something which may diminish the attractiveness of Greater Manchester as a place to live, work and invest. The strength of response to the impact of 'I'm late for work' and 'I have missed appointments/deliveries' points to a current difficulty in planning journeys.

⁸ TfGM Segmentation Survey 2017 Report

⁹ Qa Research, (2016). 'Greater Manchester Business Survey 2016 – Report' [online]. Available at: http://www.neweconomymanchester.com/publications/greater-manchester-business-survey-2016 [accessed 19 February 2018]

14. Figure A6.5 shows a selection of comments received as part of the Greater Manchester Congestion Conversation.

Figure A6.5: Impacts of Congestion¹⁰

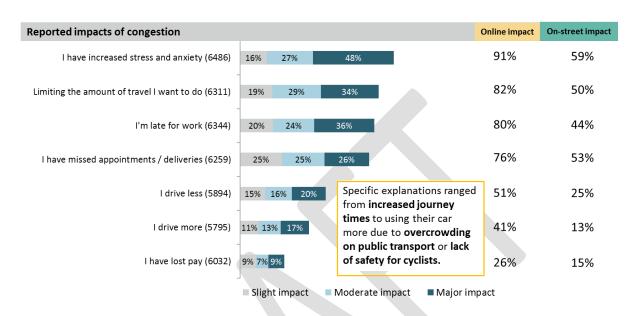


Figure A6.6: Selected Responses - Reliability¹¹

"Simple journeys are unreliable and take a frustratingly long time. It's really difficult to plan and deal with it."

(Bus passenger five or more days a week, male, 30-39 years)

"All **business meetings** at my company have been **relocated outside of Manchester** due to traffic"

(Car driver three or four times a week, Male 30-39)

"Trams can get **severely overcrowded**, sometimes even to the extent that nobody can board even when standing"

Metrolink user three or four times a week, Male, 20-29

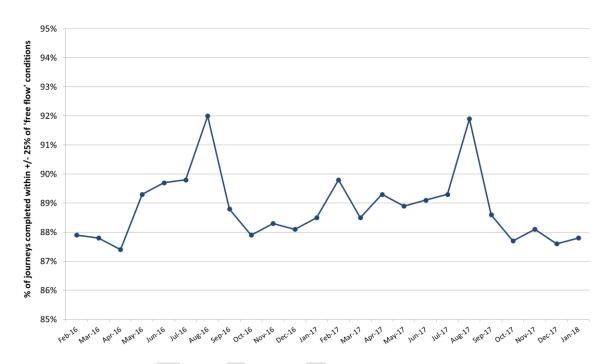
¹⁰ TfGM Congestion Conversation, 2017: Q12. To what extent have you experienced the following impacts due to road congestion?

Note for TfGM Congestion Conversation: Fieldwork dates: 22 September and 3 November 2017.

¹¹ TfGM Congestion Conversation, 2017: Q12. Please use the box below to express any further comments you may have on the relative impacts of road congestion.

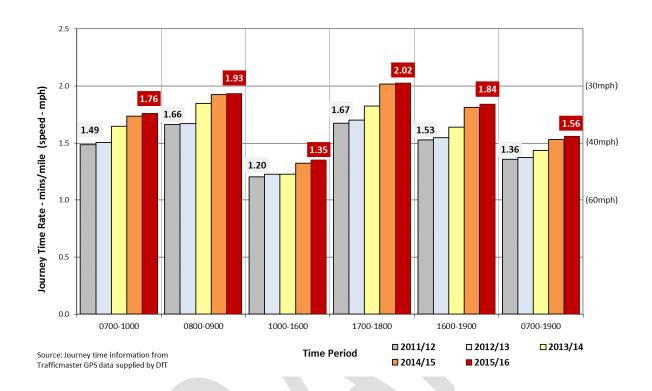
15. Figure A6.7 shows monthly (for the latest 24 months in which data is available) highway reliability on the A and B road network across Greater Manchester and serves to demonstrate the improvement in performance during August that is associated with the school summer holidays. Over the last two years, on average 88.8% of journeys have been completed within +/- 25% of 'free flow' conditions.

Figure A6.7: Highway Reliability - A and B Roads (GM)¹²



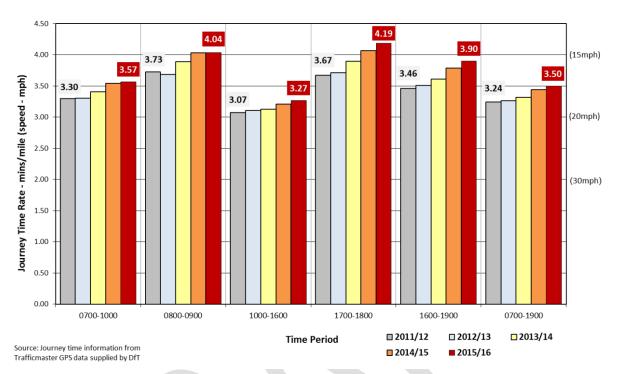
¹² TfGM Multi Modal Reports

Figure A6.8: Change in Average Journey Time Rates (mins/mile), 2011-2012 to 2015-2016 (Motorways)¹³



¹³ TfGM Highways Forecasting and Analytical Services: DSD Report 1912 Transport Statistics 2016 Road Traffic Section, Table 2.31

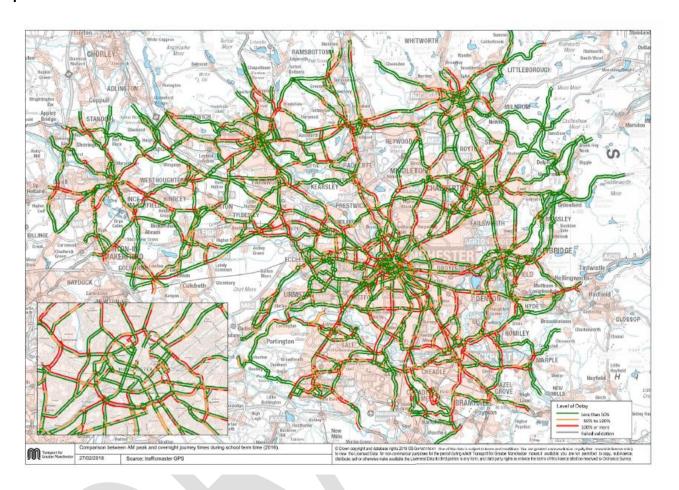
Figure A6.9: Change in Average Journey Time Rates (mins/mile), 2011-2012 to 2015-2016 (A and B Roads)¹⁴



16. As shown in Figure A6.10, during the weekday morning peak period (between the hours of 7am and 9.30am) journey times on some parts of the Greater Manchester road network, shown in red, are double the journey times of the rest of the day.

¹⁴TfGM Highways Forecasting and Analytical Services: DSD Report 1912 Transport Statistics 2016 Road Traffic Section, Table 2.32

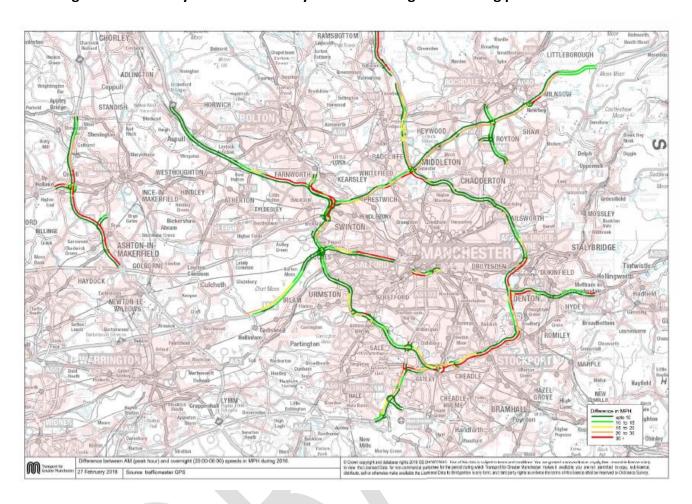
Figure A6.10: Journey times on the Greater Manchester road network during the morning peak 2016¹⁵



- 17. Figures A6.9 and A6.10 demonstrate that differences exist in journey times between the morning peak and the afternoon peak (4pm to 6.30pm), for the Strategic Road Network.
- Journeys times during the afternoon peak period have greater delays on certain parts of the road network across Greater Manchester with the M56, the A580 East Lancashire Road, and the M67 showing the biggest increase in journey times between the morning and afternoon peaks.

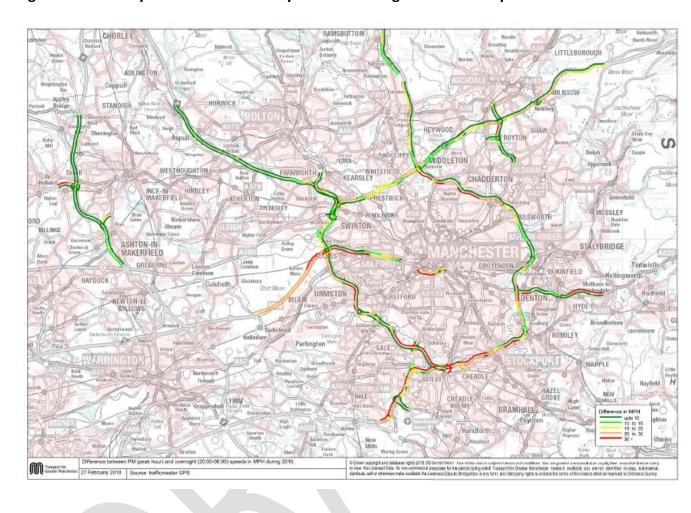
¹⁵ TfGM analysis of Trafficmaster data.

Figure A6.11: Delay on the Motorway network during the morning peak 2016¹⁶



 $^{^{\}rm 16}$ TfGM analysis of Traffic master data

Figure A6.12: Delay on the GM Motorway network during the afternoon peak 2016¹⁷

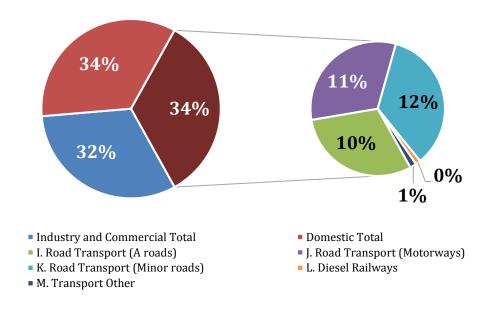


¹⁷ TfGM analysis of Trafficmaster data.

Local air pollution and carbon emissions

- 19. The Mayor for Greater Manchester has set out his ambitions to make the city-region one of the leading green cities in Europe, and has convened a Green Summit to explore the earliest possible milestones for achieving carbon neutrality¹⁸.
- 20. Department for Business, Energy & Industrial Strategy (BEIS) data shows that in 2015 transport accounted for 34% of Greater Manchester's carbon emissions. This is shown in Figure A6.13. Of this, the majority (33%) is caused by road transport including A roads, motorways and minor roads. This overall proportion of carbon emissions caused by transport was greater than the proportion attributed to industry and commercial activities and equal to the amount caused by domestic activities.

Figure A6.13: CO₂ emissions by sector in Greater Manchester (2015). The chart on the left shows total emissions across all sector, of which transport is one (34%). The chart of the right shows a further breakdown of transport's contribution to CO₂ emissions¹⁹



21. The BEIS data also shows that Greater Manchester has reduced greenhouse gas emissions in line with a 48% target. However significant reductions have notably been achieved through electricity grid decarbonisation. Transport emissions only reduced by 10% from 2005 as shown in Figure A6.14.

 ¹⁸ Greatermanchester-ca.gov.uk, (2018). Portfolio: Green City Region. [online] Available at: https://www.greatermanchester-ca.gov.uk/info/20005/green_city_region [accessed 6 March 2018]
 ¹⁹ Department for Business, Energy & Industrial Strategy, (2017). '2005 to 2015 UK local and regional CO₂ emissions – data tables' [online]. Available at: https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-2015 [accessed 6 March 2018]

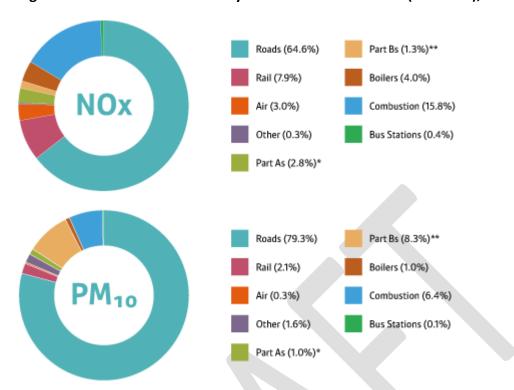
20,000 A. Industry and Commercial Electricity 18.000 ■ F. Domestic Electricity 16,000 14,000 ■ H. Domestic 'Other Fuels' 12,000 ■ D. Industrial and Commercial Other Fuels 10,000 ■ E. Agricultural Combustion 8,000 ■ C. Large Industrial Installations 6,000 4,000 G. Domestic Gas 2.000 ■ B. Industry and Commercial Gas 2011 ■ M. Transport Other

Figure A6.14: Greater Manchester CO₂e by sector¹9

- The main pollutants of concern in the UK are oxides of nitrogen, principally nitrogen dioxide (NO2), and particulates (PM). Poor air quality has a real and significant effect on people's lives, contributing to bronchitis, asthma and other respiratory illness, as well as cardio-vascular problems and cancer. Long-term exposure to air pollution is understood to be a contributory factor in deaths from respiratory and cardio-vascular disease. It is likely that air pollution contributes a small amount to the deaths of a large number of people, rather than being the sole cause of the death of individuals. This health burden is estimated as an effect on annual mortality in the UK equivalent to around 40,000 deaths (2016 figures), with the estimate for Greater Manchester being over 1,000 from particulates alone²⁰.
- ^{23.} Figure A6.15 shows that in Greater Manchester, road transport contributes to over 65% of emissions of nitrogen oxides and 79% of particulates. The majority of these emissions are produced by vehicles using Greater Manchester's road network.

²⁰ Royal College of Physicians, (2016). 'Every breath we take: The lifelong impact of air pollution' [online]. Available at: https://www.rcplondon.ac.uk/projects/outputs/every-breath-we-take-lifelong-impact-air-pollution [accessed 6 March 2018]

Figure A6.15: Emissions Inventory for Greater Manchester (EMIGMA), 2014²¹



Notes: * Part As - Installations regulated by Environment Agency (large and more complex activities, generally those with a greater potential for pollution);

Greater Manchester is one of a number of major UK conurbations where NO_2 limits are exceeded. Where air quality objectives are not likely to be achieved, local authorities must designate Air Quality Management Areas (AQMAs). Figure A6.16 shows the area in Greater Manchester covered by an AQMA (declared in May 2016).

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^{**} Part Bs - Installations regulated by local authorities (smaller activities, generally with lower potential for pollution).

²¹ Emissions Inventory for Greater Manchester (EMIGMA), 2014.

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Figure A6.16: GM Air Quality Management Area²²

- ^{25.} Given the contribution of transport to emissions, it is not surprising that the AQMA reflects the location of the confluence of the routes into central Manchester. In terms of the effect on people, this is greatest where high density residential areas coincide with major highways.
- To improve the health of the population, the EU has also set a target of a 20% reduction in urban background concentrations of PM2.5 between 2010 and 2020²³. It should be noted that the direct emission of particulates from vehicle exhausts is not the only source. Significant contributions are also made by tyre and brake wear, road surface wear and the re-suspension of particles. These sources will not be improved by Euro engine standards.

²² Defra.gov.uk, (2018). *AQMAs interactive map*. [online]. Available at: https://uk-air.defra.gov.uk/aqma/maps [accessed 20 April 2018]

²³Europa.eu, (2017). New Air Quality Directive. [online]. Available at: http://ec.europa.eu/environment/air/quality/directive.htm [accessed 15 April 2018].

Accessibility and affordability of public transport

- ^{27.} Cost is a key barrier for public transport. It is the principal reason why residents would not consider travelling by train within Greater Manchester (18%), while a similar proportion of those who would not consider travelling by bus (18%) say cost is a prohibitive factor. In Bolton a quarter of residents say they don't use the bus for this reason.
- ^{28.} Tram travel is inaccessible to young people because of the perceived high cost a quarter (26%) cite this reason as to why they do not consider it (compared to 15% overall)²⁴.

Figure A6.17: Selected Responses - Cost²⁵

"Make it easier to buy tickets that cover many modes of public transport at reasonable cost."

(Bus or Metrolink user one or two times a week, Female, 50-59)

"Tram fares are
too expensive and
it is cheaper to
take the car"

(Metrolink user five or more times a week, Male, 40-49)

"Sort out the **extortionate bus fares**. If I go to the city centre **it's cheaper to park than for a family of four to use public transport**."

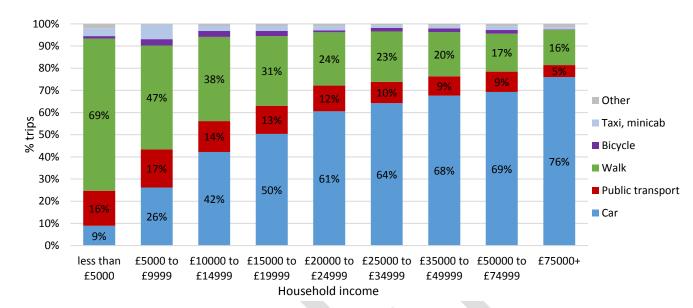
(Car driver, five or more times a week, Male, 40-49)

^{29.} For those residents with the lowest household incomes, the main modes of transport are walking and public transport (Figure A6.18). For those residents with mid to high incomes the main mode is predominantly car.

²⁴ TfGM Segmentation Survey 2017 Report

²⁵ TfGM Congestion Conversation, 2017: Answers from Q6. Please use the box below to express any further comments you may have on the cause of road congestion and Q8. Please use the box below to express any further comments you may have on the most effective way to reduce road congestion.

Figure A6.18: Main mode of travel by household income²⁶



30. Travel distances also correlate to household income, with Greater Manchester residents with the highest incomes travelling further than those on lower incomes (Table A6.1).

Table A6.1: Mean trip distance by income band, Greater Manchester residents 2013-2015²⁷

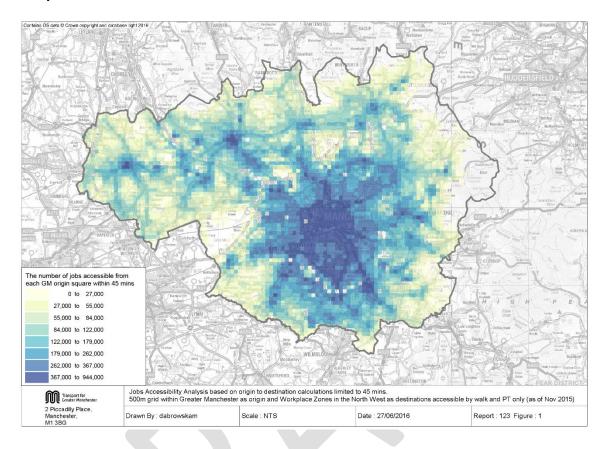
	less than £5k	£5k to £9.9k	£10k to £14.9k	£15k to £19.9k	£20k to £24.9k	£25k to £34.9k	£35k to £49.9k	£50k to £74.9k	Above £75k
Mean Trip Distance (km)	2.0	2.6	3.0	5.3	5.6	5.9	7.4	9.3	10.2

Figure A6.19 shows the number of jobs that can be accessed by walking and public transport only, within 45 mins from each 500m origin square.

²⁶ TfGM analysis of Travel Diary Surveys (TRADS) 2014 – 2016.

²⁷ TfGM analysis of Travel Diary Surveys (TRADS) 2014 – 2016.

Figure A6.19: Number of jobs accessible within 45 mins by walking and public transport²⁸



 $^{^{\}rm 28}$ TfGM TRACC Analysis - Census 2011 Workplace Population by Workplace Zone

Ongoing network maintenance requirements

- The Department for Transport collects and publishes data annually on the condition of the publically maintained road network in England. Automated survey machines are used to collect data on a range of road condition factors, which are then analysed to give an overall score for road condition. The subset of roads with the worst scores are those that are categorised as 'should have been considered for maintenance'. These are not necessarily roads that require immediate treatment, but should be inspected to determine whether further maintenance is required.
- Table A6.2 shows the condition of A roads by Greater Manchester district. In England, the proportion of local authority managed A roads that should have been considered for maintenance in 2016/17 was 3%, the same as the previous year.

Table A6.2: 'A' Road Condition²⁹

	Principal ('A' roads) - % that should be considered for maintenance									
	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17
Bolton	5	4	6	6	4	4	2	2	3	3
Bury	6	4	6	7	8	3	3	5	5	8
Manchester	6	6	6	6	11	7	6	11	5	8
Oldham	11	8	8	14	9	9	7	6	8	5
Rochdale	10	8	6		9	10	10	7	4	4
Salford	6	5	8		9	7	3	3	3	3
Stockport	5	4	4	5	5	4	6	9	10	8
Tameside	6	5	6	6	7	6	3	3	5	5
Trafford	9	8	6	9	9	6	8	5	4	6
Wigan	5	4	3	3			3	3	3	4

Note: Blank values signify that data are either not available or applicable.

Table A6.3 shows the condition of B and C roads by Greater Manchester local authority. In 2016/17, 6% of local authority managed B and C roads in England should have been considered for maintenance, the same as the previous year.

²⁹ DfT Road Conditions in England, 2017

Table A6.3: B and C Road Condition³⁰

	Non-Principal (B and C roads) - % that should be considered for maintenance									
	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17
Bolton	8	6	6	5	5	3	3	4	3	2
Bury	9	6	7	8	8	3	4	4	4	6
Manchester	6	6	5	6	8	6	8	14	9	13
Oldham	12	7	7	7	6	6	7	6	3	4
Rochdale	11	8	6		10	10	11	6	6	6
Salford	8	6	10		8	6	3	4	4	4
Stockport	5	4	4	4	4	4	11	13	11	9
Tameside	7	7	6	6	7	6	4	4	4	4
Trafford	8	7	5	8	8	5	7	5	4	5
Wigan	4	3	3	3			3	3	2	3

Figure A6.20: Selected Responses - Roadworks³¹

"Road works where no one is working on them. This just adds to the frustration."

(Car driver, five or more times a week, Female, 40-49)

"Road works should be **completed at night** on main routes into the city centre."

(Car driver, three or four times a week, Male, 30-39)

"Different companies digging up same stretch of road at different times"

(Car driver, five or more times a week, Female, 30-39)

³⁰ DfT Road Conditions in England, 2017

³¹ TfGM Congestion Conversation, 2017: Q6. Please use the box below to express any further comments you may have on the causes of road congestion.

Safety and security

- 27% consider safety to be 'essential' when making travel decisions. Safety is particularly important for women (30% consider it essential compared to 25% of men), while this is less of a concern for younger people (for whom cost is significantly more important one in five consider cost 'essential')³².
- There is a challenge around improving perceptions of personal security, particularly on Greater Manchester's public transport network¹.
- The table below outlines the proportions of Greater Manchester residents' opinions on personal safety on public transport by transport modes.

Table A6.4: Proportions of residents who felt fairly/very safe on public transport³³

Mode	Daylight Hours	When it Is Dark
Bus	94%	50%
Train	90%	49%
Metrolink	91%	47%

The table below shows selected results from Customer satisfaction surveys conducted by Transport Focus.

Table A6.5: Customer satisfaction with Safety and Security, 2016³⁴

	Bus	Rail	Metrolink	
Stop of station measures				
Personal safety at stop/security at station	77%	72%	85%	
On-board measures	•			
Personal security	83%	75%	79%	

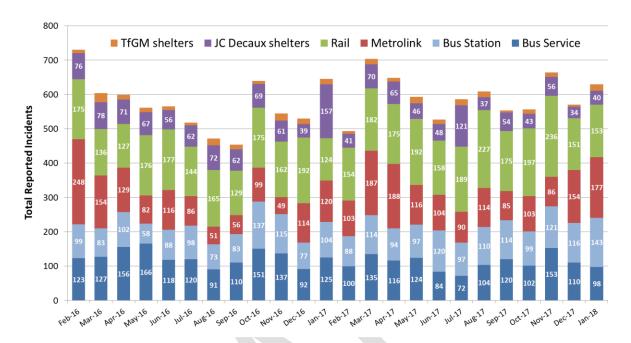
^{39.} Figure A6.21 shows the total number of reported incidents of crime and anti-social behaviour received by TfGM staff. Over the last two years, there have been c. 580 reported incidents each month.

³² TfGM Segmentation Survey 2017 Report

³³ MRUK for TfGM (2010), Multi-modal track survey. Greater Manchester Residents Survey: Overall Safety

³⁴ Transport Focus (2017) Comparisons between 2016: Tram Passenger Survey, Bus Passenger Survey, National Rail Passenger Survey

Figure A6.21: Crime and Antisocial Behaviour Statistics³⁵



- In 2015 there were 3,073 report incidents involving injury on the Greater Manchester road network resulting in 4,320 casualties (injuries and fatalities). Although both these figures are the lowest on record for Greater Manchester, they still highlight the present danger to road users in Greater Manchester³⁶.
- Figure A6.22 shows the total number of reported road casualties across Greater Manchester between 2012 and 2016. This demonstrates a downward trend in terms of the absolute numbers of casualties (all levels of severity) being recorded on an annual basis.
- 42. Figure A6.23 shows data for killed or seriously injured reported road casualties only.

Note: Incidents of crime and antisocial behaviour are reported to TfGM by Operators, TfGM Station staff, JC Decaux and BTP (Rail).

³⁵ TfGM Crime Reduction Team (Feb 2016 – Jan 2018)

³⁶ TfGM Highways Forecasting and Analytical Services: DSD Report 1875 - Reported Road Casualty Statistics Greater Manchester 2015.

Figure A6.22: GM Reported Road Casualties: All Levels of Severity³⁷

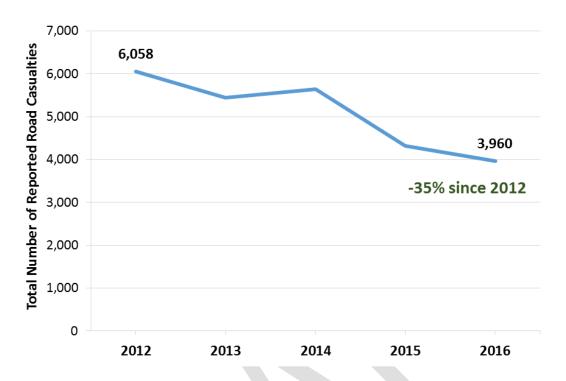
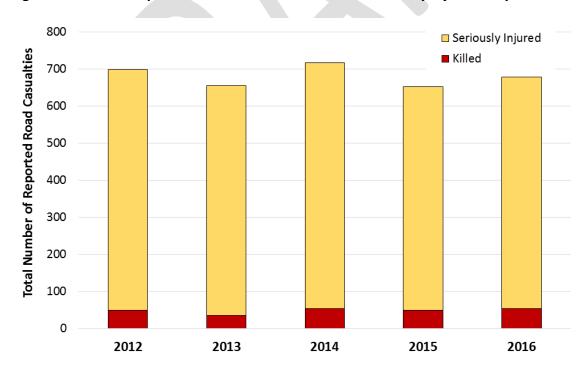


Figure A6.23: GM Reported Road Casualties: Killed or Seriously Injured only³⁸



³⁷ DfT (2017), Casualties involved in reported road accidents - table RAS30058 (analysis using all levels of severity)

³⁸ DfT (2017), Casualties involved in reported road accidents - table RAS30058 (analysis using KSI only)

Exploiting the potential of new technologies

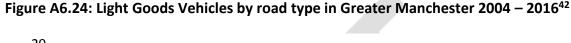
- ^{43.} The consumer market supports the digital requirements of Mobility as a Service (MaaS): a recent study shows that 57% of respondents would not mind sharing their personal data in order to get a better transport service, and approximately half of smartphone users already consider the smartphone as essential to their travel experience³⁹.
- The growth of service-based platforms in other sectors has been strong in recent years, with industry analysts predicting further growth. Notable examples include Spotify, Netflix, and Amazon Prime. The fact that many cars are parked for over 90% of the time may provide an opportunity for the 'as a service' model to offer consumers better value than offered by the car ownership model³⁹.
- 45. While vehicle ownership is still dominant, attitudes to car ownership are shifting. In the UK, this is particularly pronounced amongst younger people, where the number of under 20s owning a driving licence has decreased by 40% since 1995³⁹.
- 46. Greater Manchester is determined to follow the national policy to increase the uptake of electric vehicles and provide the infrastructure required. The Greater Manchester Electric Vehicles (GMEV) scheme was introduced to help the population access support and advice when making the switch to electric vehicles. The impact of this scheme can be seen by the increase in the number of drivers registering from 48 in 2013 to 1,808 in January of 2018⁴⁰.
- 47. In terms of supporting infrastructure Greater Manchester installed 324 public charging sockets comprised of 160 dual headed 15kKW posts (7KWper unit) with 4 rapid chargers across the region. Since the introduction of these charging point 127,560 Individual charging sessions have been registered with an average 39,000 KW/h drawn from the GMEV network each month⁴⁰.
- The UK Climate Change Commission has set a target for all car sales to be ULEVs by 2040. Within Greater Manchester, this would mean sales of 6,300 vehicles in 2020, increasing to 25,600 sales in 2025⁴⁰.

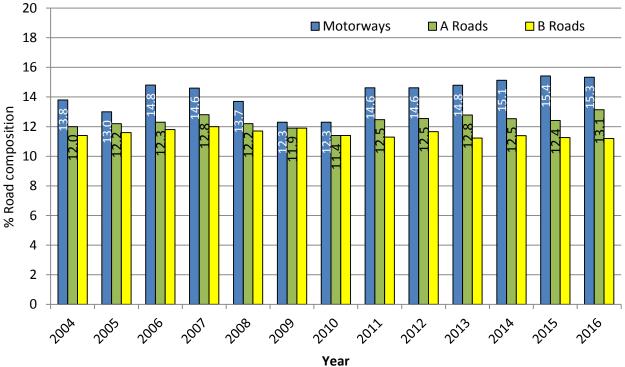
³⁹ Transport Systems Catapult, (2016). 'Mobility as a Service: Exploring the opportunity for Mobility as a Service in the UK' [online]. Available at: https://ts.catapult.org.uk/.../Mobility-as-a-Service_Exploring-the-Opportunity-for-Maa [accessed 20 April 2018]

⁴⁰ Barlow. N. (2018). *Greater Manchester powers ahead with electric vehicle charging network* [online]. Available at http://aboutmanchester.co.uk/greater-manchester-powers-ahead-with-electric-vehicle-charging-network/ [accessed 20 April 2018]

Urban logistics and distribution

^{49.} Britain has the highest rate of online shopping in Europe. In 2013, 72% of British adults shopped online, up from 53 per cent in 2008. The Freight Transport Association Logistics Report (2014) suggests that the business-to-consumer parcel market (including deliveries and returns) is expected to grow at a rate of 4.8% per year to 2018, driven by online retail⁴¹.



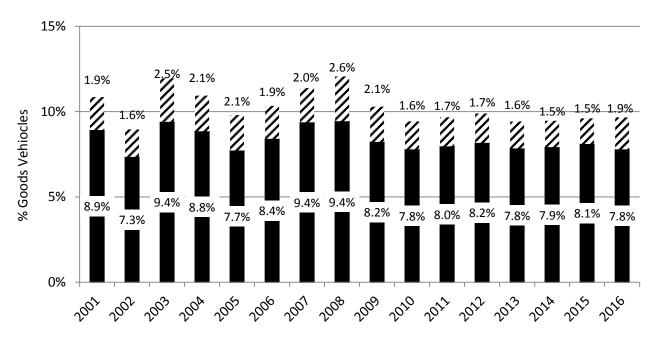


The proportion of light goods vehicles on both Motorways and A Roads in Greater Manchester is higher than at any point in the previous 12 years. In contrast, the overall percentage of Goods Vehicles entering town centres across Greater Manchester has been just below 10% for the previous seven years following the recession in 2009/10 (Figure A6.25). This could be an indication that LGVs are increasingly being used for deliveries in residential areas, including for online shopping.

⁴¹ TfGM and GMCA, (2017). 'Greater Manchester Freight and Logistics Transport Strategy' [online]. Available at: https://www.tfgm.com/freight [accessed 20 April 2018]

⁴² TfGM Highways Forecasting and Analytical Services: DSD Report 1912 Road Traffic Section 2016.

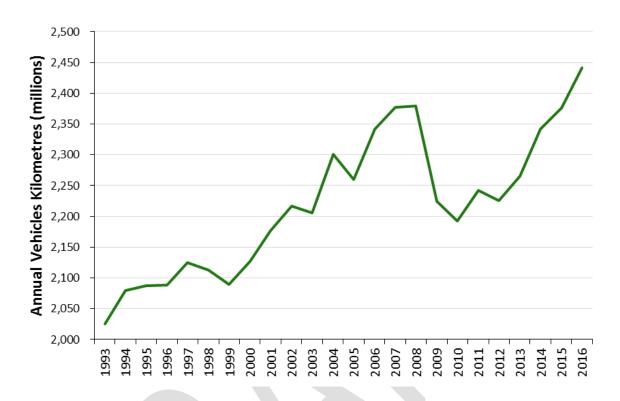
Figure A6.25: Light Goods Vehicles and Other Goods Vehicles Crossing Town Centre Cordon Points during the AM peak period (07:30 - 09:30) Greater Manchester 2001 - 2016⁴³





 $^{^{43}}$ TfGM Highways Forecasting and Analytical Services: DSD Report 1912 Key Centre Section 2016.

Figure A6.26: Annual Vehicle Kilometres Travelled by All Goods Vehicles on All Roads, 1993-2016⁴⁴



 $^{^{44}}$ TfGM Highways Forecasting and Analytical Services: DSD Report 1912 Transport Statistics 2016 Road Traffic Section, Table 2.29

Figure A6.27: Annual Vehicle Kilometres Travelled by All Goods Vehicles on A and B Roads in Greater Manchester, 1993-2016⁴⁵

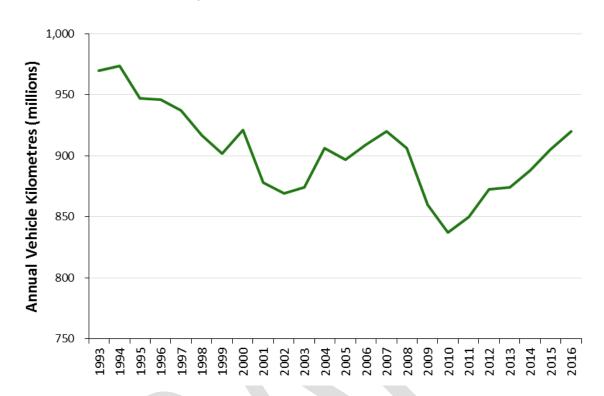
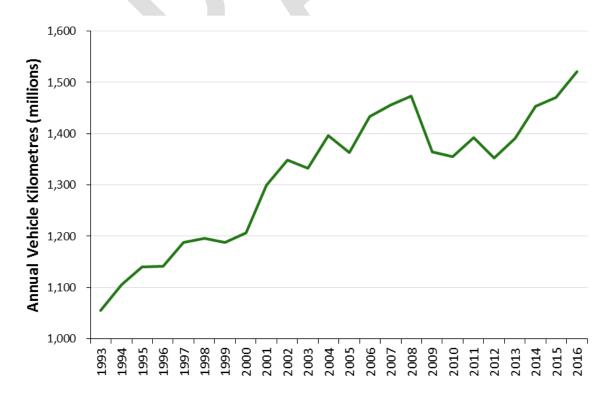
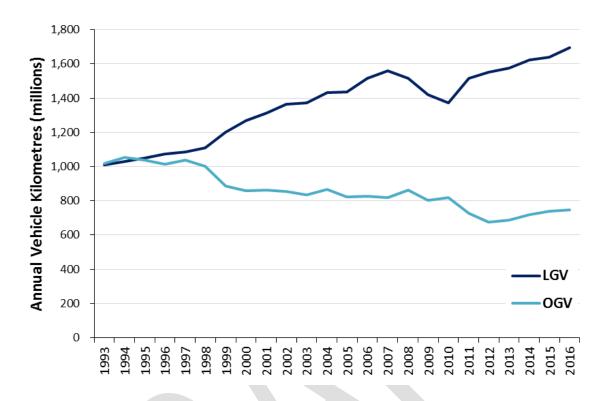


Figure A6.28: Annual Vehicle Kilometres Travelled by All Goods Vehicles on Motorways in Greater Manchester, 1993-2016⁴⁵



⁴⁵ TfGM Highways Forecasting and Analytical Services: DSD Report 1912 Transport Statistics 2016 Road Traffic Section, Table 2.29

Figure A6.29: Annual Vehicle Kilometres Travelled by Light Goods Vehicles and Other Goods Vehicles (including Heavy Goods Vehicles) on All Roads in Greater Manchester, 1993-2016⁴⁵



Severance caused by motorway and ship canal infrastructure

- Using case studies, Figure A6.30 and Figure A6.31 demonstrate the severance impact major transport infrastructure in Greater Manchester can have on the ability to make short trips by sustainable modes. Figure A6.30 shows the impact that the Manchester Ship Canal and M62 have on limiting the extent of the area that is within 3km of Irlam station (routes that are entirely undertaken through the defined walking network). Figure A6.31 is a similar output, but instead looks at walking access (in terms of time) to Salford Royal Hospital. The irregular shape of the distance/time isochrones reflect the fact that walking access is impeded by the limited number of crossings over the M602.
- TfL's Healthy Streets approach has acknowledged that streets beneath structures can create severance for pedestrians and cyclists who can feel vulnerable to crime and road danger. In Southwark, innovative and appealing lighting was installed in four street locations beneath railways to make them more welcoming to pedestrians, increase the sense of place and reduce the severing effect of the railway line. Following the improvements pedestrians reported feeling safer and more women were observed to be using the tunnels than before⁴⁶.

⁴⁶ Transport for London, (2014). 'Improving the health of Londoners: Transport action plan' [online]. Available at: content.tfl.gov.uk/improving-the-health-of-londoners-transport-action-plan.pdf [accessed 27 April 2018]

Figure A6.30: Walking distances to Irlam Rail Station⁴⁷

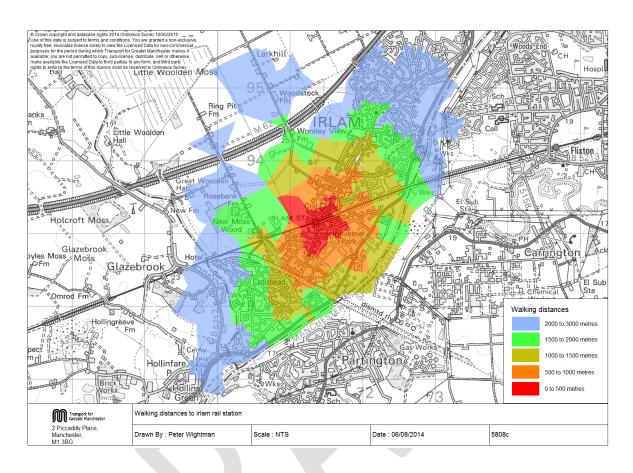
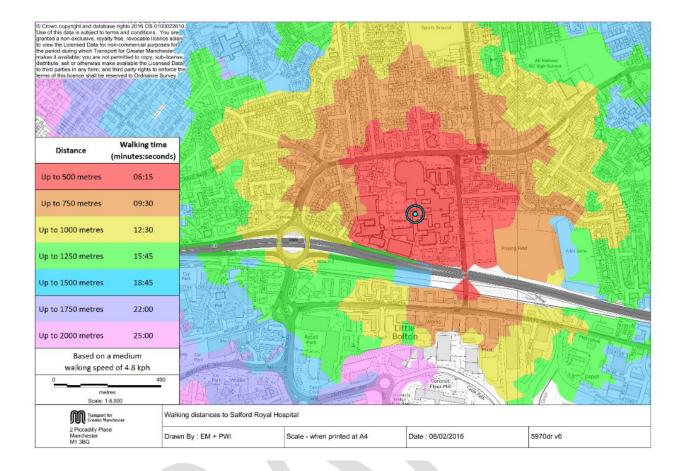


Figure A6.31: Walking distances to Salford Royal Hospital⁴⁸

⁴⁷ Based on TfGM analysis of Ordnance Survey ITN Urban Path data, 2014

⁴⁸ Based on TfGM analysis of Ordnance Survey ITN Urban Path data, 2014



Appendix B: Study Area transport issues and maps

Bound separately







Greater Manchester Spatial Framework Transport Study

Appendix B: Study Area transport issues and maps

September 2018



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Eastern Study Area Issues Summary

Based on the insights from the stakeholder workshop and the evidence base, the key transport issues for the Eastern Study Area have been identified by the study team. These are discussed below, grouped by the five Spatial Themes of the Greater Manchester 2040 Transport Strategy. For each Spatial Theme, a schematic map is included to illustrate the issues identified.

Connected neighbourhoods

- Form and design of new development: Alongside their location, the form and design of new developments will be a key factor in determining worker and residents future travel choices. To maximise sustainable journeys it will be crucial to design them around existing corridors and transport hubs that already have high density populations, walkable connections and local bus connections. Concepts such as filtered permeability that prioritises walking and cycling for local journeys will need to play an important role.
- 6. Access to public transport: Some parts of the Eastern study area are already well served by radial public transport, including areas along the Ashton Metrolink line, various heavy rail lines, and frequent bus routes. However, local connections to public transport services are often perceived as being unattractive or unsafe. Better connections to and from stations (including better walking routes, better cycle parking, and links to bus services), as well as better facilities at existing and new public transport facilities, could encourage more people to use sustainable transport.
- In many parts of the Eastern Study Area the design and quality of residential streets do not encourage people to make sustainable short journeys, like walking and cycling. This is a common theme across all Greater Manchester's study areas, as identified in the workshops. The vast majority of trips in Greater Manchester either start, end or take place entirely within local neighbourhoods, so the design of local streets will have a major influences on the way people travel. Highways can also cause issues for pedestrians with major roads often dividing communities and missing footpaths or difficult crossing points causing road safety problems. Similar to the rest of the city-region, there is a significant opportunity in the Eastern study area to reduce road congestion by delivering more 'healthy streets' in residential areas and by improving pedestrian infrastructure.
- Extent and quality of the cycle network: An important issue for the Eastern Study Area and for Greater Manchester as a whole is the need to build joined-up, continuous and direct cycling networks on-highway and off-highway that effectively connect local neighbourhoods to nearby jobs, shops, schools and other facilities. This issue was identified in the study area workshops. Significant investment in these networks has already taken place over the past years, but many parts of the network in the Eastern Study Area remain piecemeal or of substandard quality. A better used cycling network could free up valuable capacity on other modes for new journeys including journeys from new Greater Manchester Spatial Framework (GMSF) developments.

Opportunity to create more attractive centres that encourage healthy sustainable modes and attract new development: The Eastern Study Area includes the major town centre of Ashton-under-Lyne, as well as secondary centres such as Stalybridge and Hyde. It is also close to two other major town centres in Stockport (in the Southern study area) and Oldham (in the Northern study area). In most of these centres, the needs of 'place' have traditionally been secondary to the need for car access. This has resulted in car-dominated, rather than peoplefriendly centres. While car access needs to be maintained, there are opportunities to create more walkable centres and environments that are more permeable by bike, reducing congestion on nearby roads. This issue was discussed at a broad level in the study area workshops.



I. Connected neighbourhoods Quality of local streets disincentives to walking Access to public transport **Opportunity to** create more attractive centres Form and design of new development **Extent and quality** of the cycle network

Figure 1: Eastern Study Area Issues Summary Map – Connected Neighbourhoods

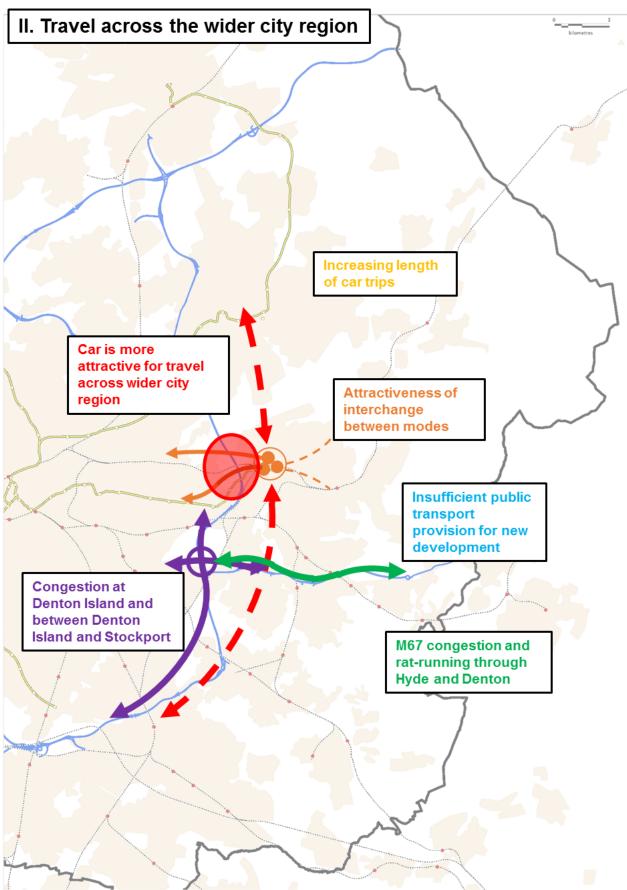
Travel across the wider city-region

- 10. Car is a more attractive option for travel across the wider city-region: Dependence on the car in the Eastern Study Area has caused major issues on the road network in this region, as well as in the wider Greater Manchester area, such as congestion, delays and air pollution. The study area workshops felt that greatly improved connections between the outer towns were necessary to encourage a cultural shift toward public transport use and, ideally, they would like to see metro or guided bus-way solutions. The business case for new orbital public transport infrastructure would depend on sufficient demand to make future services viable.
- Given the relatively dispersed pattern of employment and the historic reliance on the car, it could be difficult to make the case for large-scale orbital investments such as Metrolink or Bus Rapid Transit corridors, based on current demand in the Eastern Study Area. However, there is significant scope for interventions that improve bus journey times, such as short-sections of busway, and improving the general attractiveness of bus travel, such as integrated ticketing, fleet upgrades and timetable changes. Key connections where these improvement are needed include Oldham to Ashton, and Ashton to Stockport. It also needs to be recognised that for some public transport journeys— such as trips to Manchester Airport there is a point on any orbital journey where it will inevitably be best made via Manchester city centre. In recognition for the need for cross-city centre trips, there is scope to try and improve interchange and integrated ticketing in the city centre to improve the connectivity of the Eastern Study Area. For example, the Ordsall Chord will substantially improve public transport access from parts of the Eastern Study Area to Manchester Airport.
- 12. Longer car journeys are contributing to congestion and air quality problems: Although there has been little change in recent years in the number of journeys or the way people travel across the wider city-region, the volume of car travel has increased due to longer journeys. This has been caused by lower fuel prices and the dispersed destinations people travel to, especially outside the M60. Reducing the length of car journeys requires a mix of travel demand management, planning to favour locations with good sustainable transport access, and improvements to public transport and active travel. This issue was briefly addressed by the study area workshops but was not a focus of the discussion.
- 13. Some new development locations may not be well served by existing public transport: While parts of the Eastern Study Area are relatively well connected in terms of public transport links into the Regional Centre, for example by existing heavy rail and Metrolink lines, improved public transport connections would be required to support new development. While the bus network within the Eastern Study Area is extensive, journeys can often be slow and unreliable. Similar to other Study Areas, demand for orbital travel remains a key issue. This will be a determining factor for any business case which would be used to seek funding.
- 14. Attractiveness of interchange between different public transport modes: The workshops identified Ashton-under-Lyne as a good location for multi-modal interchange in the Eastern Study Area. The town centre is one of the largest in the Eastern Study Area and is near many jobs and important social facilities as well as having good bus rail and Metrolink links to the Regional Centre. However, currently these three public transport modes are not as well connected as they could be, with poor connections between the bus/tram interchange and the railway station, and a lack of integrated ticketing leading to 'interchange penalties' for

passengers. The physical connectivity issues will be improved by the proposed Wellington Road scheme and the wider issues of seamless ticketing is anticipated to be addressed under bus reform proposals. There are other opportunities to improve the interchange at less high-profile locations that need to be explored further.

- 15. Complex travel demands on, and approaching, the M60 (short trips and long-distance movements) results in congestion at Denton Island, and between Denton Island and Stockport: The motorways between M60 Junction 24 (Denton Island) and the M56 extends across the Eastern Study Area and into the Southern Study Area, passing through the major urban centre of Stockport. Denton Island has been recognised as a major pinch point on the motorways, affecting north-south as well as east-west travel across the Eastern Study Area both by the study area workshops and in the highways evidence. As a roundabout interchange, it struggles to cope with the demand placed on it from the M60, M67 and A57. The completion of Highways England's planned Mottram Link Road and A57(T) to A57 Link Road will release further traffic onto the M67 and into Denton Island. The M60 between Denton Island and Stockport also needs to balance the demands of both strategic and local commuters. This frequently results in delays to journeys.
- High levels of demand on routes from neighbouring authorities resulting in congestion on the M67 and rat-running through Hyde and Denton: The short length of the M67 means that while the main motorway is relatively free-flowing, there is significant pressure on its two ends: to the west, Denton Island (see above), and to the east, Hattersley Roundabout and the Mottram lights. This issue was identified by the workshops and can be verified by the transport evidence. Due to the increased levels of congestion and delays at these junctions there is the potential for road users to choose alternative A roads and B roads that are less well equipped to cope with strategic through traffic, such as the A57 through Hyde and Denton. This raises problems along the A57 for other users: local traffic, buses, cyclists and pedestrians. The M67 and, to an extent, the A57/A57(T) especially around Mottram create severance issues for pedestrians and cyclists, both between and at junctions.

Figure 2: Eastern Study Area Issues Summary Map – Travel across the wider city-region



Getting into and around the Regional Centre

- 17. **Potential for growth along the Ashton Metrolink corridor:** Compared to other Metrolink lines which are near or at capacity, such as the Bury and the Altrincham line, there is still significant spare capacity on the line to Ashton. In part, this can be attributed to competition from local bus services (e.g. the 216 which follows almost exactly the same route as the Metrolink), which can be cheaper and more frequent. The spare capacity on the Ashton line could be used to accommodate public transport trips created by new growth. The workshop recognised the potential for growth along the Ashton Metrolink corridor and thought that a lot was already being done to encourage this.
- Poor connectivity into the Regional Centre from rural and semi-rural areas and development sites in the east of the Eastern Study Area: The Eastern Study Area is characterised by a divide between the western side of the study area closest to the Regional Centre, and the eastern side bordering the Peak District National Park. The western side benefits from greater transport connectivity with the Regional Centre through bus, Metrolink, and rail services. Conversely, the eastern side has more limited connectivity to the Regional Centre being more rural and being outside the Metrolink network and having more limited rail services. The workshops recognised the problem of public transport connectivity in rural areas and raised the concept of 'rail deserts' in areas like Denton and Haughton Green. This disparity in transport connectivity within the Eastern Study Area could lead to issues for the sustainability of certain development sites identified in the GMSF.
- Heavy rail services are crucial for longer distance city-to-city journeys through the Eastern study area but presently fail to serve stations within the M60 effectively: The line between Ashton-under-Lyne and Manchester Victoria skirts the edge of the built up area and does not have any local commuter stations. As the Manchester Rail Capacity Study has shown, there is spare seating capacity on this line, in contrast to the southern section of the Huddersfield line (via Guide Bridge and Ashburys) which is forecast to be over capacity by 2026/27. Timetable changes will introduce new services which terminate at Stalybridge and may be suitable for intermediate stations. Historically, there were four stations between Manchester Victoria and Ashton-under-Lyne (Miles Platting, Park, Clayton Bridge and Droylsden), but these have all closed. Current passenger experience is that heavy rail is not providing the optimum service for journeys inside the M60. The workshops stated that they would like to see more local services from stations within Greater Manchester where possible.
- 20. Critical heavy rail capacity constraints in the Regional Centre need to be addressed to enable long-term growth and improved connectivity with Hyde/Glossop/Marple: The issue of rail capacity in the Regional Centre is a common issue across all study areas identified in the workshops. The Regional Centre lies at the centre of the city-region's heavy and light rail networks, with several lines offering direct services that connect with a large proportion of the wider conurbation's population. There has been significant growth in rail patronage into the Regional Centre over the last 10-15 years and locally there is clear latent demand for rail that could be filled up quickly. However the standard of existing rail services falls below customer expectations in terms of quality, frequency and accessibility.
- There is scope to increase heavy rail capacity by acquiring additional rolling stock, which would need to be accompanied by platform lengthening although there would be complications

with this at some stations including Dinting. However, key constraints are the lack of through capacity for rail within the Regional Centre, the lack of platform capacity at major stations and the need to accommodate freight. While schemes such as the Ordsall Chord will provide some new journey options, in the long term the physical limitations of the rail network and station capacity within the Regional Centre will constrain passenger growth and higher service frequencies. The Northern Hub programme may temporarily address this issue, assuming it is fully delivered, but this additional capacity will quickly be filled and these issues will return.

22. Congestion on the radial corridors into the Regional Centre leads to long and unreliable journey times for road users and negatively affects local communities (air quality, severance etc): There is significant pressure on the radial highways routes into the Regional Centre, including the A57 from Denton and the A635 from Ashton. This was raised as a key issue in the workshops. Large sections of these routes have average vehicle speeds of less than 15mph in the morning peak (see section 3), which impact on all road users, including buses, and on local communities. Both the A57 and the A635 pass through the built-up urban area of East Manchester, and as a consequence the space for new infrastructure is limited. Buses are delayed in general traffic and can't offer a real viable alternative unless bus priority is in place. In particular, there is a need for interventions that get buses to the front of queues wherever possible. This highways congestion is also linked to overcrowding on trains, especially on the Glossop line, and limitations on running additional services stemming from lack of rail capacity in the Regional Centre.

III. Getting into and around the regional centre Poor connectivity into the Regional Centre from the east of the Study Area Critical heavy and light rail constraints in the Regional Centre **Potential for growth** along the Ashton **Metrolink corridor** Congestion on radial highway corridors Areas within the M60 not effectively served by heavy rail

Figure 3: Eastern Study Area Issues Summary Map – Getting into and around the regional centre

City-to-city links

- 23. Competition between local and long-distance trips on the motorways results in congestion and air quality problems: The motorways within the Eastern Study Area performs multiple roles, supporting both strategic long-distance and local travel. This mix of traffic both increases demand and reduces capacity by disrupting the flow vehicles, especially around junctions. Together with weaknesses in the public transport network highlighted elsewhere, and the resulting reliance on the car in many parts of the study area, this causes the motorways, key roads and other local roads to come under considerable pressure in the peak periods. The consequent congestion and air quality issues, and a lack of reliability and resilience, impacts disproportionately upon local residents.
- Lack of fast and reliable city-region to city-region connectivity to South Yorkshire and the East Midlands: Within the Northern Powerhouse, Manchester and Sheffield are the two major cities that are currently not well connected by road. Journey times are long and unreliable, and rely on single-carriageway trunk roads across the Peak District such as the A628(T) and the A57(T) which are the responsibility of Highways England. As a result, travel demand between Manchester and South Yorkshire is currently quite limited, and the Manchester and South Yorkshire labour markets function relatively independently. However there is substantial rail commuting from Dore/Sheffield to Manchester city centre.
- 25. Transport for the North, Highways England and the Department of Transport are currently investigating long-term options for providing significantly improved road connectivity between Greater Manchester and the Sheffield city region. According to Transport for the North's Draft Strategic Transport Plan, this work has so far found that the most promising option is a partially tunnelled route on the line of the existing A628, with a supporting package of wider road improvements, including on the M60, M67 and M1.
- 26. Although rail connections to Sheffield are faster than road options they may not be fast enough and frequencies are limited. This level of service on the current Hope Valley Line falls far short of the aspirations for city-to-city connectivity set out by the Northern Powerhouse Rail concept: six trains per hour between Manchester and Sheffield, with journey times of 30 minutes. Increased city-to-city rail connections between Manchester and Sheffield could also bring wider benefits to the Eastern Study Area, such as extra capacity for local stopping services into the Regional Centre, although additional capacity for this would have to be provided. If these longer distance services are added to the existing network it risks reducing capacity for local services. The issue of rail connectivity outside of Greater Manchester was briefly mentioned in the study area workshops but the discussion was not lengthy.
- 27. Capacity and speed on the Huddersfield Line to Leeds and West Yorkshire: The Huddersfield Line, which is the main rail artery between Greater Manchester and West Yorkshire, also passes through the Eastern Study Area. The line accommodates five TransPennine Express services per hour to Leeds and beyond, and as a result local stopping services are limited. For long-distance rail travellers, the limited speed of the Huddersfield Line is a key issue: journeys to Leeds take between 50 and 55 minutes, and the line is not electrified. Northern Powerhouse Rail will look to address Manchester to Leeds connections.

IV. City-to-city links Competition between local and long-Capacity on the Huddersfield line to West Yorkshire distance trips on the motorways Lack of fast and reliable connectivity to South Yorkshire and East Midlands

Figure 4: Eastern Study Area Issues Summary Map – City-to-city links

A globally connected city

- Weak competitive position of public transport for travel to the Airport: From almost all urban centres in the Eastern Study Area, public transport to the Airport struggles to compete with the car. For example, if travelling from Ashton-under-Lyne to the Airport the journey time at peak times by car is between 30-60 minutes, the public transport route via the city centre is around 60 minutes and the bus journey is around 90 minutes (bus 330). The workshop's view was that connections to the airport were too slow and convoluted from the area and that either an orbital metro or bus rapid transport route would be the ideal solution.
- 29. At present it is generally quicker for residents of the Eastern Study Area to travel to the Airport via the city centre by public transport. It would be extremely difficult to create new orbital public transport links that penetrate the Eastern study area, are as quick as travelling through the city centre, and that pass through enough areas of high demand to create a sustainable business case. Another important factor is the early-morning start-times of many flights, when public transport services are more limited. The weak competitive position of public transport for travel to the Airport is one of many contributors to congestion and air pollution on the road network in the Eastern and Southern Study Areas, as well as near the Airport itself.
- 30. Resilience of the M60: Related to the above issue, there is a lack of resilience for travel between Ashton, Stockport and the Airport by road. Work to complete the A6 to Manchester Airport Relief Road section of the former SEMMMS Road Scheme was completed in October 2018. However, proposals for a further extension to connect the A6 to the M60 are only at an early stage of the study process, with a final business case yet to be determined and no funding as yet secured. The M60 is therefore currently the main route for most travellers in the Eastern Study Area and the east side of Stockport to access the Airport. This puts significant pressure on the M60, contributing to peak period congestion and delays in the event of incidents. These issues that will only be partly addressed by the committed Managed Motorway scheme. This issue was a key concern of the workshops and it was deemed to be related to the lack of an orbital public transport offer alongside the need to increase the capacity of alternative highway routes.

V. A globally connected city Resilience of the Weak competitive position of public transport to the

Figure 5: Eastern Study Area Issues Summary Map – A globally connected city

North Western Study Area Issues Summary

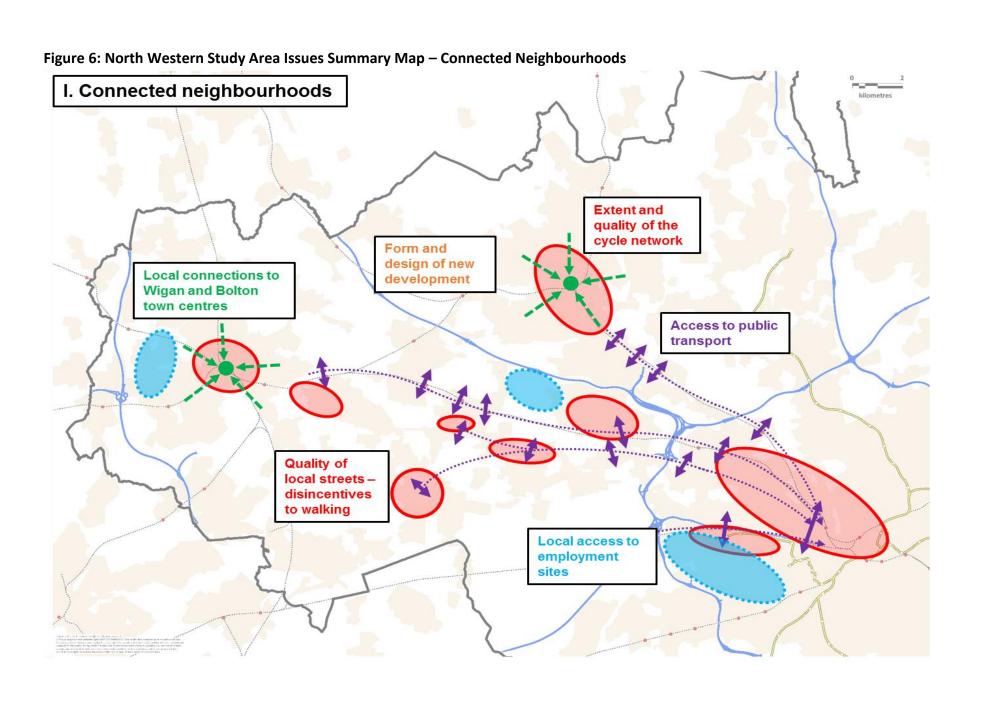
31. Based on the insights from the stakeholder workshop and the evidence base, the key transport issues for the North Western Study Area have been identified by the study team. These are discussed below, grouped by the five Spatial Themes of the Greater Manchester 2040 Transport Strategy. For each Spatial Theme, a schematic map is included to illustrate the issues and opportunities identified.

Connected neighbourhoods

- Form and design of new development: Alongside their location, the form and design of new developments will be a key factor in determining worker and residents future travel choices. To maximise sustainable journeys it will be crucial to design them around existing corridors and transport hubs that already have high density populations, walkable connections and local bus connections. Concepts such as filtered permeability that prioritises walking and cycling for local journeys will need to play an important role.
- 33. Accessibility of public transport: Across the North Western Study Area, local connections to and from rail stations, bus stops and interchanges, and other public transport services are often perceived as being unattractive or unsafe. Better connections to and from stations (including better walking routes, better cycle parking, and links to bus services), as well as better facilities at existing and new public transport facilities, could encourage more people to use sustainable transport. The workshop highlighted the importance of improving access to and interchange between public transport.
- Variable design and quality of local streets and the general highway network can discourage walking: In many parts of the North Western study area the design and quality of residential streets does not encourage people to make short journeys by walking and cycling. This is a common theme across all Greater Manchester's study areas, as identified in the workshops. The vast majority of trips in Greater Manchester either start, end or take place entirely within local neighbourhoods, so the design of local streets will have a major influences on the way people travel. Highways can also cause issues for pedestrians, with major roads often dividing communities and missing footpaths or difficult crossing points causing road safety problems. Similar to the rest of the city-region, there is a significant opportunity in the North Western study area to reduce road congestion by delivering more 'healthy streets' in residential areas and by improving pedestrian infrastructure.
- and for Greater Manchester as a whole is the need to build joined-up, continuous and direct cycling networks on-highway and off-highway that effectively connect local neighbourhoods to nearby jobs, shops, schools and other facilities. This issue was identified in the workshop. Significant investment in these networks has already taken place over the past years, but many parts of the network in the North Western Study Area remain piecemeal or of sub-standard quality. A better used cycling network could free up valuable capacity on the road network, including journeys from new GMSF developments.

- Opportunity to improve local connections to and from Wigan and Bolton town centres that create more attractive centres, encourage healthy sustainable travel and attract new development: The workshop highlighted that across the North Western Study Area, there is potential for more walking and cycling. This is particularly true for the major town centres of Wigan and Bolton and the central Salford area, where a large amount of local journeys start or finish. Better local connections, for example between Wigan town centre and Wigan Pier, into Bolton town centre could play a major part in the regeneration and revitalisation of these areas. There is also potential to improve local connections into the many other centres such as Swinton, Walkden, Pendleton, Westhoughton, Hindley, Atherton and Leigh.
- 37. **Local access to employment:** New employment areas such as Middlebrook and Logistics North have contributed to a dispersed pattern of employment that is inevitably harder to serve by sustainable transport. The workshop highlighted that further allocated employment sites identified in GMSF such as M61 Junction 6 and East Lancashire Road Pocket Nook sites may contribute to the issue as they are hard to reach by public transport and remote from local residential areas.





Travel across the wider city-region

- Longer car journeys are contributing to congestion and air quality problems: Although there has been little change in recent years in the number of journeys or the way people travel across the wider city-region, the volume of car travel has increased due to longer journeys. This has been caused by lower fuel prices and the dispersed destinations people travel to, especially outside the M60. At the same time some rail fares in Greater Manchester have risen significantly over the past year. Reducing the length of car journeys requires a mix of travel demand management, planning to favour locations with good sustainable transport access, and improvements to public transport and active travel. This issue was briefly addressed by the workshops but was not a focus of the discussion.
- The dispersed nature of the North West study areas towns means they are difficult to serve by public transport, making private cars more attractive: In large parts of the North Western study area, particularly in between the M6, M61 and A580, residential development has historically been dispersed. This includes towns such as Atherton, Hindley, Westhoughton and Golborne that all have between 20,000 and 25,000 residents. As a result, they generate significant travel demand, but are often not large enough to justify investment in rapid public transport on their own. Journeys in the area are generally more dispersed than in the other study areas, with most commuters using a range of key and local roads to access jobs at destinations across Greater Manchester, Warrington, Merseyside, Preston, other parts of Lancashire and elsewhere. The dispersed nature of trips in the area makes it more difficult to deliver high-quality, high-frequency public transport, which needs to attract sufficient patronage to be viable.
- 40. Long distance and local travel demand puts pressure on the M60 North West Quadrant: The workshop highlighted that congestion on the M60 leads to both unreliable journey times and poor air quality for local communities. While the opportunities for a shift towards public transport should be maximised, there will unavoidably still be an increase in car trips in the area if the housing and employment growth along the East Lancashire Road corridor and the M61 corridor, as envisaged by the draft GMSF, is delivered. Beyond the additional pressure this will put on the M61 and A580, which themselves are already congested, this will also place extra demands on the M60 North West Quadrant, (already the busiest stretch of motorway in the North) which connects to Salford Quays, Trafford Park and other major employment locations. The North West Quadrant is also a major through route for freight, for example from the Port of Liverpool, and in the future, from interchanges such as Port Salford.
- 41. A key challenge will therefore be how the additional demand placed on the North West Quadrant of the M60 can best be accommodated and air quality issues be addressed, in the context of the planned population, housing and employment growth. Any interventions to address the pressure on the North West Quadrant, whether delivered on the M60 itself or on alternative corridors elsewhere, are likely to present major feasibility challenges.
- 42. **Network legibility and congestion on local roads particularly associated with historic road patterns:** Aside from congestion on the motorways including the M60 North West Quadrant, the workshop highlighted that local roads in the area are already congested. This is particularly true for the area in between the M6 and the M61, where the capacity of the road network is limited, especially in an east-west direction. An additional problem is that the network of local

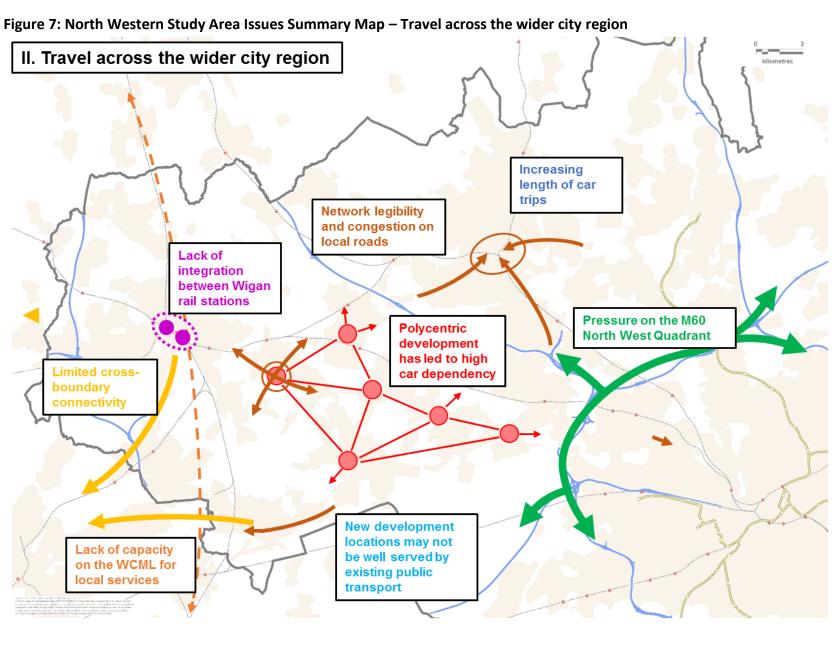
roads is relatively complex. Finding alternative routes through the network is therefore quite difficult for drivers unfamiliar with the area. All this contributes to problems with reliability and resilience. The historic nature of the local road network means a lot of residential and retail development is directly adjacent to the highway, which reduces the ability to increase capacity and also means that congestion, severance, safety and air quality all contribute to a poor quality environment within a number of smaller towns due to the volume of traffic. Key pinch points on the local road network at peak times include Hindley junction (A577 / A58); all approaches into Bolton and Wigan town centres; the A580 between Astley and Salford and at Lowton; and the east-west connection directly through Wigan Town Centre via the A49 or A577.

- 43. Some new development locations may not be well served by existing public transport: Public transport connections that currently serve the existing dispersed pattern of development in the area are difficult to adapt to new growth areas so that they can offer a sufficiently attractive alternative to the car. There needs to be clear demand to justify either new bus routes or investment in radical public transport interventions, such as Bus Rapid Transit or new rail infrastructure. Detailed work will be needed to identify whether the new development allocated close to the Leigh-Salford-Manchester guided busway will create the demand to justify further extensions, particularly if the sites can be designed around existing public transport connections. The workshop highlighted the need to improve public transport provision for the proposed development.
- 44. There is limited cross-boundary connectivity between the outer urban and rural areas of the study area and St. Helens, Warrington, Skelmersdale and Central Lancashire by public transport. Compared to the other study areas, much of the North Western Study Area is located relatively far away from the Regional Centre. As a result, there is a lot of commuting between the North Western Study Area and destinations outside Greater Manchester, including Warrington, St. Helens, Skelmersdale, Merseyside and Central Lancashire. Despite this the study area workshop highlighted that the public transport and cycling offer for travel to these destinations is still relatively underdeveloped. For example, Wigan, Warrington, St. Helens and Preston are all covered by different transport authorities, and as a result the ticketing options, service levels and customer facilities vary. Rail fares are also usually more expensive when travelling beyond the Greater Manchester boundary. There are also limited cross boundary cycle routes. All these can prevent people traveling by public transport, or walking and cycling and therefore result in missed opportunities to reduce car use. The existence of large out-of-town-centre employment sites in the neighbouring areas, such as Birchwood and Omega in Warrington and Haydock in St Helens, is a further challenge. Such areas are inevitably harder to serve by public transport than town centre locations.
- The lack of integration between the two Wigan rail stations: Although Wigan sits on the periphery of Greater Manchester, it benefits from its central position on the West Coast Main Line and its position roughly equidistant between Manchester and Liverpool. This location gives Wigan fast and direct access to London, Birmingham, Preston, Warrington and Scotland, as well as links to Manchester and Liverpool. However these are not fast. A long-standing issue that prevents Wigan from reaching its full potential as a rail hub is that services are split roughly equally in terms of passenger numbers between long-distance services using Wigan North Western, and local services using Wigan Wallgate. Despite the short distance between the two stations, this makes changing at Wigan less attractive and limits the town's potential

as a major rail hub for Greater Manchester alongside the Regional Centre. There is also a lack of suitable walking and cycling connections to and from the stations, for example between the stations and Wigan Pier, and a lack of promotion of the existing interchange connections between Wigan Wallgate and Wigan North Western.

46. Competition between long-distance and local rail services on the West Coast Main Line limits the capacity of rail to introduce new stations and offer local services: To introduce new local stations and local commuting services on to the West Coast Main Line would be currently be impractical because of the need to accommodate faster long-distance services and limited track capacity. The workshop identified that in the longer term, further capacity upgrades may be required to meet the level of demand that exists. This may entail greater separation between local and long-distance rail corridors.



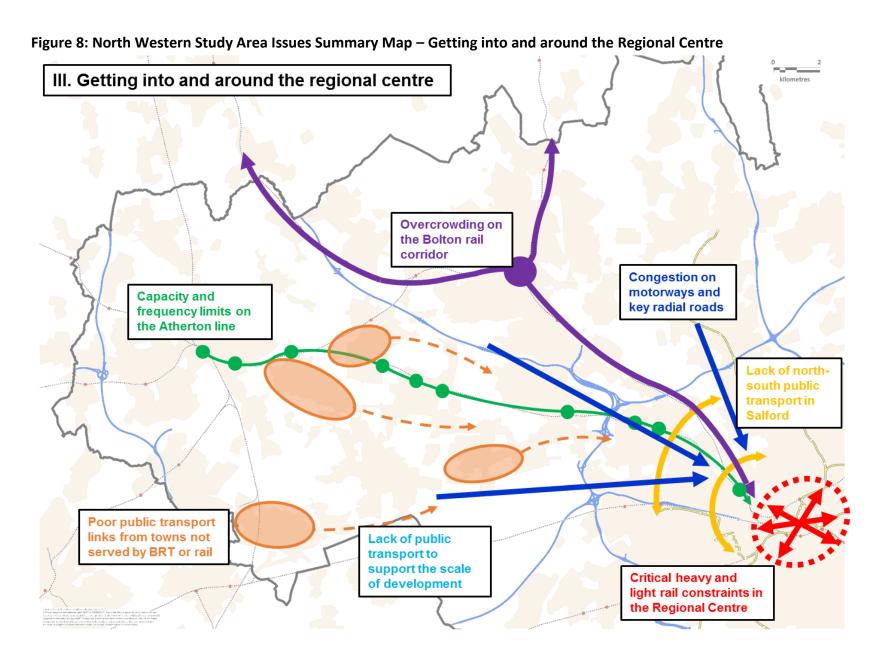


Getting into and around the Regional Centre

- 47. **High levels of demand resulting in congestion on motorways and key radial roads, including the M61, M60, A580, A572 and the A6:** This was raised as a key issue within the workshop. Large sections of these routes experience average vehicle speeds of less than 15mph in the peak period, which affects all road users, including buses. This means bus services are unreliable and unable to offer a viable alternative to the car unless bus priority measures are in place.
- 48. Public transport connections into the Regional Centre are currently insufficient in coverage and capacity to support the scale of new development proposed: While compared to the rest of Greater Manchester this area has less of a Regional Centre focus, the study area workshop still highlighted that, based on current public transport, there is a lack of fast and frequent services to support growth at the major sites. To facilitate growth at these locations in a sustainable manner new connections into the Regional Centre will likely be needed. It will be important to consider all potential kinds of public transport and deliver the right mix of services, since in the early phases of development, demand may not be sufficient to sustain high-capacity solutions. For bus it will also be necessary to consider additional bus priority on the most important corridors and to ensure new developments are accessible.
- 49. High levels of demand and limited capacity leads to overcrowding on the Bolton rail corridor: As the evidence from the Manchester Rail Network Capacity Study shows, the rail corridors in the North Western Study Area are among the most crowded in the cityregion. The line between Bolton Interchange and Manchester city centre is particularly busy, and is forecast to be at over 135% of seating capacity in the morning peak by 2026/27 if there are no interventions beyond those already planned. There are already capacity issues evident further back along the line towards Preston. A number of improvements are due to delivered in the short-term that can be implemented on existing infrastructure. This includes the electrification of the Manchester-Bolton-Preston line. Given the demand for transport into the Regional Centre from the North Western Study Area and the crowding issues which are already evident, it is expected that this new capacity will be filled up very quickly.
- 50. Capacity and frequency limits on the Atherton line: The rail line to Atherton and Wigan is also forecast to be over 100% seating capacity by 2026/27. The line is highly popular with residents in the North Western Study Area, bringing commuters from towns such as Atherton and Westhoughton into the Regional Centre. However, the frequency of services on the line is limited, caused particularly by the capacity constraints in the Regional Centre (see below). At present, there are only two trains per hour to Manchester Victoria outside the peak periods on an irregular timetable, although this will increase to four trains per hour (for some stations) under the new Northern franchise agreement. The high number of stations on the line and the high proportion of demand from local commuters could, in the longer term, provide an opportunity for even more frequent services to encourage shift from road to rail.
- 51. Poor public transport in North Western towns that are not served by Bus Rapid Transit or frequent rail contributes to car dependency: The workshop identified that there are

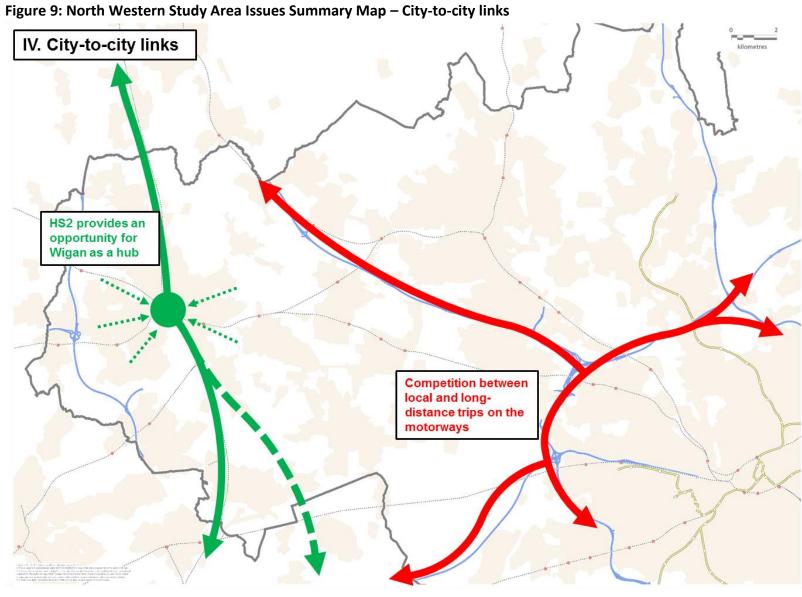
still a number of towns in the North Western Study Area that are not served by any form of rapid transit towards the Regional Centre, such as Astley, Lowton, Golborne and Ashton-in-Makerfield. It is understood that some commuters drive over the Greater Manchester boundary to access rail services at Newton-le-Willows. Building on the success of the guided busway to Leigh and Atherton, there could also be opportunities to extend Bus Rapid Transit to places that are currently not served by rapid transit, or to improve bus connectivity to existing rail services.

- 52. Critical heavy rail capacity constraints in the Regional Centre need to be addressed: This is a common issue across all study areas identified in the workshops. The Regional Centre lies at the centre of the city-region's heavy rail network, with several lines offering direct services which connect with a large proportion of the wider conurbation population. There has been significant growth in rail patronage into the Regional Centre over the last 10-15 years and locally there is clear latent demand for rail that could be filled up quickly. The growth and popularity of the rail network has led to a number of emerging capacity issues. There is scope to increase heavy rail capacity by acquiring additional rolling stock, although this would need to be accompanied by platform lengthening. Completion of the Northern Hub programme may begin to address this issue. Where any extra capacity is provided it will be taken up in the short term by rail services to be delivered through the new Northern franchise agreement. However, key constraints are the lack of through capacity for rail within the Regional Centre and the need to accommodate freight. While schemes such as the Ordsall Chord provide some new journey opportunities (although the benefits of that particular improvement will not affect many North Western study area trips), in the long term the physical limitations of the rail network within the Regional Centre will be the key constraint to the delivery of extra passenger capacity and higher rail frequencies to and from the area.
- Area not well served by high quality, high-frequency public transport: In Salford, travel demand to and from the Regional Centre is catered for by a dense and frequent bus network, including services towards Bolton and via the guided busway to Leigh. However, the study area workshop highlighted that north-south radial public transport connectivity is more limited. This is particularly true for Salford Quays/MediaCityUK, as there is a lack of direct routes from Bolton and Wigan to these destinations. Although there is a frequent bus connection from Salford Crescent Station to Salford Quays and MediaCityUK, direct bus links from the residential areas in the north of Salford such as Swinton and Pendlebury are particularly weak, especially considering the proximity of these locations.



City-to-city links

- HS2 provides an opportunity for better connections to the south from Wigan: In the longer term, HS2 provides a clear opportunity for Wigan to strengthen its position as a major rail hub for Greater Manchester. With direct access onto the dedicated HS2 network (which will link into the West Coast Main Line near Golborne), Wigan would become more attractive as an interchange from places such as Bolton, St. Helens and Southport. This position as an HS2 hub could bring significant economic benefits to the town, if local connections into the hub can be delivered as well. This could include measures to better integrate Wigan North Western and Wigan Wallgate, which could be delivered in the short term.
- 55. Competition between local and long-distance trips on the motorways: The motorways in the North Western Study Area performs multiple roles, supporting long distance through traffic, for example between Mersey and Humber ports; traffic between the wider region (and beyond) and points in Greater Manchester; and large amounts of short distance Greater Manchester traffic. Alongside this, in the peak periods, commuter traffic uses the motorways. The multiple roles of the motorways means that city-to-city traffic both generated by the Regional Centre and within the study area often has to cope with significant delays and unreliable journey times. The Manchester Northwest Quadrant Study is the Government's response to this issue but the scale of challenge means that any significant interventions emerging are unlikely to be delivered until the latter part of the next decade and beyond. The workshop noted the requirement to ensure that the short to medium term pressures on the motorways are addressed.

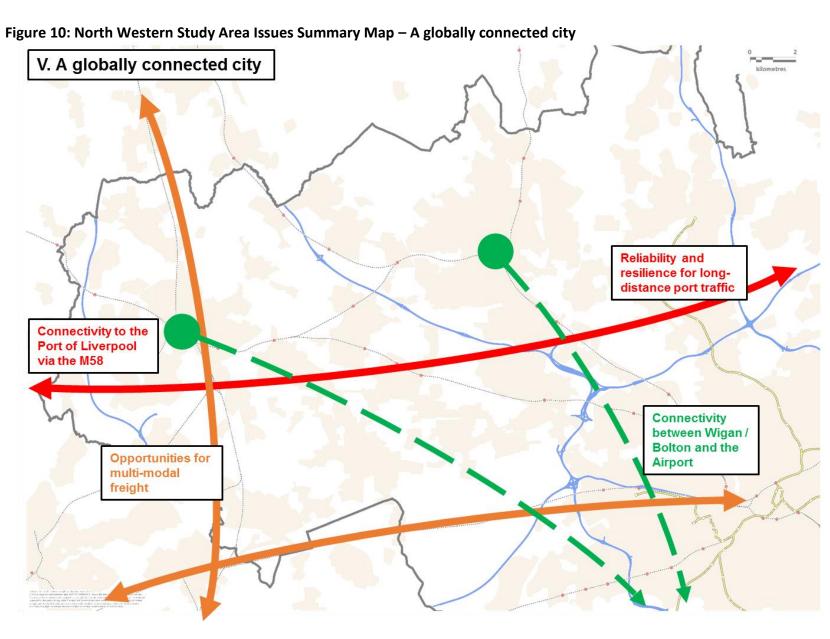


A globally connected city

- 56. Connectivity between Wigan/Bolton and the Airport: Direct, fast connections to Manchester Airport from both Wigan and Bolton are required to provide connections for global travel and to support growth of both town centres as well as at the Airport and Airport City. These will make jobs at these locations available to residents in North Western Study Area. Currently, there are two direct trains per hour from the Airport to both Bolton (to Southport and Blackpool North) and Wigan (to Southport and Scotland). Under the new Northern franchise agreement, the Scotland-Airport services will be rerouted via Bolton, the Barrow/Windermere services routed via Wigan to the Airport, and the Southport-Airport service withdrawn, leaving Wigan with only a one train per hour direct service to the Airport. Journey times by car via the M6/M56 or M61/M60 are faster in most cases. Partly as a result (although other factors, including the earlymorning departures required to access many flights, are also important) rail use is limited for journeys from the North Western Study Area to the Airport and planned rail service reductions from Wigan to the Airport could lessen this even further. There could be potential for a new and much faster route from Wigan (but not Bolton) to the Airport if the HS2 'Northern Chord' were delivered, also enabling a return to the present two trains an hour frequency.
- Lack of reliability and resilience for long-distance port traffic: The workshop highlighted that with the existing Logistics North site along with further allocations for industrial, logistics and warehousing employment along the M61 corridor and the M6 corridor at junctions 25 and 26, the North Western Study Area could become a major logistics hub for Greater Manchester and the North. The North Western Study Area is on the key axis for long-distance TransPennine freight traffic, for example between the Port of Liverpool and Yorkshire and between the Humber Ports and most of the North West. The North West Quadrant of the M60 is heavily used by this long-distance freight traffic, alongside local travel within Greater Manchester. The North West Quadrant is already one of the most congested motorways in the country, and has some of the highest daily traffic flows outside the M25 and M1. The lack of reliability and resilience on the M60 is therefore a key strategic issue for the North as a whole. Particularly in the North West Quadrant, the M60 performs different functions providing international, national, regional and local connectivity. Air quality and noise are also significant concerns, and have historically presented barriers to traditional highway capacity solutions.
- The M60 North West Quadrant is currently subject to a strategic RIS2 study, led by Highways England and sponsored by TfN and DfT. It will be important to ensure the North West Quadrant strategic study and the GMSF are aligned, to ensure that the preferred interventions deliver benefits both for the North and for local growth in Greater Manchester.
- 59. Connections to the Port of Liverpool via the M58: The M58 provides a direct connection between the North Western Study Area and the Port of Liverpool and it is anticipated that this route will become more important as connections between the port and the western terminus of the motorway are improved. The links between the North Western Study Area and the M58 will be enhanced by completion of the proposed M58 and Pemberton links and the committed A49 Links and associated junction improvements at

M6 Junction 26. Further interventions and improvements may emerge over the long term through the Northwest Quadrant Study. However, in the intervening period further improvements to junction 26 may be required and a review of connectivity at the limited access junctions 24 and 25 of the M6 may be beneficial to ensure that development sites to the south of Wigan are adequately connected to the Port.

- of the North West has excellent rail and water connections such as the West Coast Main Line and the Manchester Ship Canal, which provide opportunities for the growth of multi-modal freight. Port Salford has been recognised as a key opportunity for multi-modal freight in the 2040 Transport Strategy, given its connections to the, M62, Chat Moss Line and the Manchester Ship Canal. Although Port Salford is located just outside the boundaries of the North Western Study Area, it provides a significant opportunity to address some of the issues identified in this section, including congestion on the Strategic Road Network by reducing car use. Both ports could be valuable for the shipment of goods to and from businesses in the study area, if connecting road links are reliable and resilient.
- 61. Multi-modal freight sites such as Port Salford (and potentially others in the future) could also form a major source of employment for local residents in the North Western Study Area. It will therefore be important that these sites are made easily accessible by public transport, cycling and walking.



Northern Study Area Issues Summary

62. Based on the insights from the stakeholder workshop and the evidence base, the key transport issues for the Northern Study Area have been identified by the study team. These are discussed below, grouped by the five Spatial Themes of the Greater Manchester 2040 Transport Strategy. For each Spatial Theme, a schematic map is included to illustrate the issues and opportunities.

Connected Neighbourhoods

- Form and design of new development: Alongside their location, the form and design of new developments will be a key factor in determining the travel choices of future residents and workers. To maximise sustainable journeys and minimise the impact on already congested local road networks, it will be crucial to design them around existing public transport corridors and potential new public transport infrastructure. Master planning will need to ensure walking and cycling connections within neighbourhoods and to other communities, facilities and local jobs. The importance of this was highlighted in the workshops.
- 64. Access to public transport: Parts of the Northern Study Area are relatively well served by radial public transport routes, including the Bury and Oldham/Rochdale Metrolink lines, the Rochdale heavy rail line, and frequent bus routes. However, local connections to and from rail stations, bus stops and interchanges, and other public transport services are often perceived as being unattractive or unsafe in many parts of Greater Manchester. Oldham for example has no direct rail or Metrolink access to Manchester Piccadilly. Better connections to and from stations (including better walking routes, better cycle parking, and links to bus services), as well as better facilities at existing and new public transport facilities could encourage more people to use sustainable transport, rather than drive.
- Design and quality of local streets and the general highway network can discourage walking: In many parts of the Northern study area the design and quality of residential streets do not encourage people to make short journeys by sustainable modes, like walking and cycling. This is a common theme across all Greater Manchester's study areas, as identified in the workshops. The vast majority of trips in Greater Manchester either start, end or take place entirely within local neighbourhoods, so the design of local streets will have a major influences on the way people travel. Highways can also cause issues for pedestrians, with major roads often dividing communities and missing footpaths or difficult crossing points causing road safety problems. Similar to the rest of the city-region, there is a significant opportunity in the Northern study area to reduce road congestion by delivering more 'healthy streets' in residential areas and by improving pedestrian infrastructure. The current poor condition of some streets discourages walking and cycling and prevents active travel contributing to town centre renewal, particularly in Oldham and Rochdale, which have higher than average shop vacancy rates.

- 66. **Extent and quality of the cycle network:** An important issue for the Northern Study Area and for Greater Manchester as a whole is the need to build a cycling network onhighway and off-highway that effectively connect local neighbourhoods to nearby jobs, shops, schools and other facilities, particularly bus stops, rail stations and Metrolink stops. This issue was identified in the workshops. Significant investment in these networks has already taken place over the past years, but many parts of the network in the Northern Study Area remain piecemeal or of sub-standard quality. A better-used cycling and pedestrian network could free up valuable capacity on other modes of transport.
- 67. Severance and air quality impacts of major roads around town centres: The Northern Study Area has a number of town centres that are surrounded by busy ring roads, including Oldham and Bury. These ring roads have made these town centres more accessible by car, but they have restricted crossing points and facilities for pedestrians and cyclists are limited. In some cases such as in Bury, retail development has spread across the ring road increasing the demand for pedestrian travel. This has led to significant severance issues. As a result, there is an impact on the attractiveness, liveability and viability of the centre these towns, which have a high number of short car trips from surrounding residential areas. This issue was discussed at a broad level in the workshops.
- 68. Local access to employment sites: Bus is the most used public transport mode for commuting in the town and district centres, and has the potential to play a greater role to link places sustainably, particularly where investments in bus lanes gives buses an advantage over private cars. An important issue for the Northern study area is that many current employment sites that are not located in the town or district centres, such as Stakehill Industrial Park and Oldham Broadway Business Park, have poor public transport connections, particularly outside of weekday business hours. These points were raised in the workshops. Dependency on the car is high for existing employees, and accessing jobs in these locations can be a problem for those without access to a vehicle.

I. Connected neighbourhoods **Extent and** quality of the cycle network Major roads around town centres – severance and air quality impacts Form and design of new development Access to public transport **Quality of local streets** - disincentives to Local access to walking employment sites

Figure 11: Northern Study Area Issues Summary Map – Connected neighbourhoods

Travel across the wider city-region

- 69. Longer car journeys are contributing to congestion and air quality problems: Although there has been little change in recent years in the number of journeys or the way people travel across the wider city-region, the volume of car travel has increased due to longer journeys. This has been caused by lower fuel prices and the dispersed destinations people travel to, especially outside the M60. Reducing the length of car journeys requires a mix of travel demand management, planning to favour locations with good sustainable transport access, and improvements to public transport and active travel infrastructure. This issue was briefly addressed by the workshops but was not a focus of the discussion.
- 70. Public transport connections are not strong enough to support the scale of new development proposed and this will put pressure on local and strategic roads. An objective for the GMSF in the Northern Study Area is to deliver inclusive growth, which will create new jobs for residents. This will put pressure on local roads in the surrounding area, and it will also result in additional demand for orbital travel around Greater Manchester on the M60 and M62, and major motorways junctions, such as Simister Island. The difficulties of providing alternative modes of travel at the population, housing and employment growth sites were discussed at the study area workshops.
- 71. **Motorway severance creates a physical and perceived barrier:** Multiple motorways run through the Northern Study Area, including the M60, M62, M66 and A627(M). There are a number of crossing points, but they are frequently attached to key motorway junctions that can be intimidating, unsafe and unpleasant for cyclists and pedestrians. This has contributed to residents only commuting to jobs on the same side of the M60 to which they live. This point was raised in the workshops. The motorways are also associated with high levels of air pollution and a negative impact on the quality of the nearby environment in terms of noise and visual intrusion.
- 72. The M60 attracts users for local and strategic journeys with 'junction hopping' contributing to delays: Due to the large number of junctions in close proximity, many use the orbital M60 only for a short stretch, before exiting and re-joining radial routes. This leads to a high volume of weaving and merging traffic, which in turn causes considerable congestion at intersections, journey time unreliability (reflected by large variances in journey times), low average speeds, and a poor safety record. The workshops recognised the role the M60 plays for local journeys and the negative impact congestion has on these journeys.
- 73. Car is a more attractive option for travel across the wider city-region: The north of Greater Manchester has four key town centres in relative close proximity: Oldham, Rochdale, Bury and Bolton. Other than the Metrolink connection between Oldham and Rochdale, orbital public transport between these key towns is by bus. Currently demand is not high enough for investment in extra rapid transport services. Buses are frequent: for example, bus 471 between Rochdale and Bolton runs every 10 minutes and they are vital for serving intermediate communities. However end-to-end journey times are long and these bus journeys cannot compete with the private car for speed of flexibility. The

complex pattern of travel demand in and around the northern towns and the inherently dispersed nature of the orbital travel market, which limits the opportunities to provide attractive public transport, contributes to high levels of car dependency, and congestion on the M60 and A58 as the key orbital routes. New development could generate the demand needed to deliver new public transport services that could benefit the wider area and the smaller communities between the main centres. The workshops felt that improved connections between the outer towns and the main GMSF sites were important, ideally they would like to see a Metrolink or guided busway.

- 74. Development around and improvement to public transport hubs: In each of the Northern Study Area's key town centres (Oldham, Rochdale and Bury), there are still significant opportunities to strengthen their role as public transport hubs. Public transport access in these town centres has already improved significantly in recent years, for example by extending the Metrolink line through Oldham and Rochdale's town centres. Bury town centre also has a strong asset in its Interchange, which brings Metrolink and bus together in one location. A key challenge is to enhance the attractiveness of these public transport hubs, in particular for multi-modal Metrolinkand-bus journeys. The potential of multi-modal public transport is currently still limited by the lack of integrated fares, but if this barrier can be overcome, this would provide a significant opportunity for Bury, Rochdale and Oldham town centres to strengthen their roles as regionally significant transport hubs. However, due to the relatively attractive travel times by rail and Metrolink (for example, Oldham Mumps to the city centre), this could lead to overcrowding on already busy services. This topic was discussed in principle and the workshop participants highlighted the planning difficulties involved in bringing a site to fruition, including remediation and land consolidation issues that make sites technically inviable or unavailable for inclusion in the GMSF.
- 75. Some new development locations may not be well served by existing public transport: Public transport that currently serves dispersed developments can be difficult too adapt to meet the needs of new developments. There needs to be sufficiently demand to justify new bus routes or investment in radical public transport interventions, such as Bus Rapid Transport or new rail infrastructure. The workshop highlighted the need to improve public transport provision for any proposed development.

Figure 12: Northern Study Area Issues Summary Map – Travel across the wider city-region II. Travel across the wider city region Increasing length of car trips Car is more attractive **New development** than public transport locations may not be for travel across well served by existing wider city region public transport **Opportunity for** development around public 'Junction hopping' transport hubs on the M60 Motorway severance creates a barrier to local movement

Getting into and around the regional Regional Centre

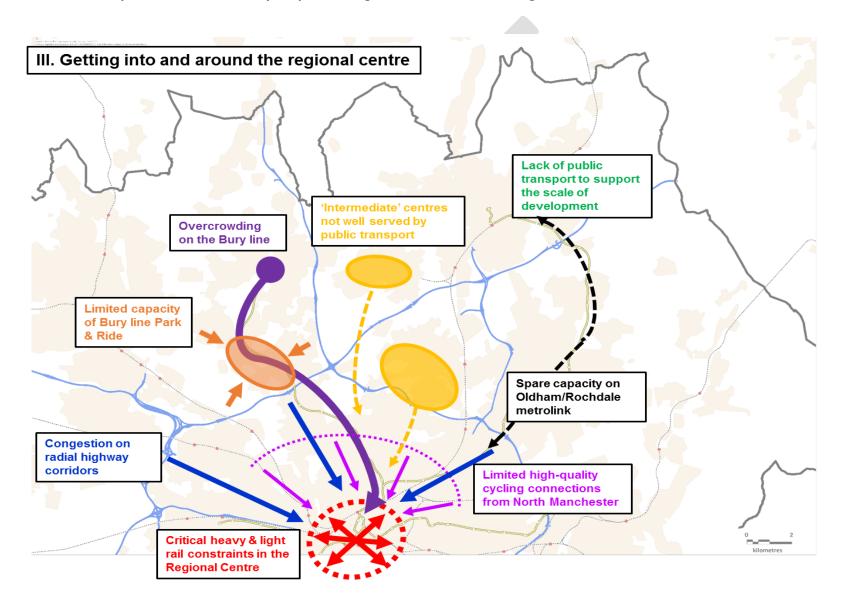
- Congestion on the radial corridors into the Regional Centre leads to long and unreliable journey times for all road users and negatively affects local communities (air quality, severance etc.): There is significant pressure on radial routes into the Regional Centre, including key highways such as the A56 Bury New Road, and rapid transit routes such as the Bury Metrolink line. Passing through the built-up areas of north Manchester, the space for infrastructure expansion is limited. There is a disproportionate impact upon local communities and the attractiveness of these areas, severed by busy transport corridors, dominated by a high number of through-trips. Local roads come under considerable pressure in the peak periods, with congestion linked to significant air quality issues, while buses are delayed in general traffic and are often hindered in providing a quality service unless bus priority is in place. This was a common theme across all the workshops.
- 77. High levels of demand and capacity constraints on the Bury Metrolink results in over-crowded peak services: The Bury line is one of the busiest lines on the Metrolink network. As a converted former rail line without any on-street running, the line provides highly competitive, high frequency and consistent journey times (23 minutes between Manchester Victoria and Bury, at 10 trams per hour). It is highly popular with commuters in Bury, Radcliffe, Whitefield and north Manchester, and regularly suffers from overcrowding in the morning and afternoon peaks. Existing proposals for upgrading power supplies and introducing additional vehicles (subject to approval of investment) are planned to accommodate passenger growth over the medium term. Increased capacity will be required in the long term and if not addressed this could lead to further increases in car use, not only in existing residential communities in Bury and north Manchester, but also from new GMSF developments such as the Elton Reservoir Area (3,460 dwellings proposed). This was a key area for discussion in the workshops.
- 78. Key constraints to the introduction of more radial services in the longer term will be the bottlenecks at Victoria Station and Irk Valley junction, and a general lack of sufficient spare capacity in the Regional Centre. Recently completed improvements such as the Metrolink Second City Crossing, are providing some highly necessary capacity expansion and reliability improvements. There is scope to operate more double trams (i.e. two vehicles coupled together) with investment in an additional sub-station at Whitefield. There is also scope to maximise the potential of the Bury line by increasing the number of ways commuters can access it, such as by bicycle or by bus. However, in the medium to long term, Metrolink operational capacity in the Regional Centre will once again be the key constraint on extra passenger capacity into the Regional Centre.
- 79. **High demand and limited capacity at Bury Metrolink Park & Ride sites:** The Bury line is also characterised by significant demand pressure on its Park & Ride locations, which include Bury (100 spaces), Radcliffe (369 spaces, the largest of any stop on the network) and Whitefield (216 spaces) as well as sites at Derker, Oldham Mumps, Rochdale, Hollinwood, and Shaw & Crompton. The main Park & Ride car parks operate at maximum capacity on weekdays, with regular overspill parking on neighbouring residential streets, particularly in Radcliffe. Both the wider issues of encouraging and

- enabling people to use Metrolink and the local problems associated with limited parking availability were highlighted by the workshops.
- With parking limited, travellers will make other choices. In a few cases, commuters may choose private car for their whole journey (on average about 20% of Park & Ride trips in Greater Manchester would otherwise travel all the way into the Regional Centre). In the majority of cases, intending Park & Ride users will access the Bury line by other means, for example by driving to another stop/station, accepting a lift to the stop or by walking to it. Park & Ride is unattractive for cyclists at a number of the unmodified original stops along the Oldham and Bury lines, with the road network surrounding stops not conducive to cycling. The design of some of the stations and approaches means that the success of Park & Ride coupled with pick-up/drop off can discourage walking and cycling.
- Spare capacity on the Oldham/Rochdale Metrolink line would indicate that this line would be a good candidate for development focus at metro stations: This issue was not specifically raised in the workshops. In contrast to the mature Metrolink Bury Line the Oldham and Rochdale Line opened fully in 2014. Consequently passenger use is still in the initial period of ramping up to the fully forecast demand level. As passenger growth continues it will reach a level where additional passenger capacity may be required to accommodate growth, most likely by the purchase of additional trams so more double-units can run on some or all services. There is also an issue with limited capacity of the Oldham Mumps and Derker Metrolink Park & Ride sites. In the longer term Metrolink operation with either full double unit or single longer higher-capacity vehicles may be required to accommodate all the development on this corridor. Failure to provide appropriate Metrolink capacity could lead to highway congestion and undesirably long car journeys.
- 82. Critical heavy and light rail capacity constraints in the Regional Centre need to be addressed to enable long-term growth: This is a common issue across all study areas identified in the workshops. The Regional Centre lies at the centre of the city-region's heavy rail and metro networks, with several lines offering direct services, which connect with a large proportion of the wider conurbation's population. There has been significant growth in rail patronage into the Regional Centre over the last 10-15 years and locally there is clear latent demand for rail that could be filled up quickly. At the same time, the Metrolink network has significantly expanded with new lines opened to Rochdale and Oldham and Manchester Airport. The growth and popularity of these networks has led to a number of emerging capacity issues. There is scope to increase heavy rail capacity by acquiring additional rolling stock, although this would need to be accompanied by platform lengthening which is not always practically achievable at acceptable cost or environmental impact. Another constraint is the lack of through capacity for rail within the Regional Centre and the need to accommodate freight movements. Limited Metrolink capacity through Manchester Piccadilly has meant there is no direct Metrolink service between Oldham and Rochdale and Manchester Piccadilly.
- While schemes such as the Ordsall Chord will provide some new journey opportunities, in the medium to long term the physical limitations of the rail network within the Regional Centre will be the key constraint to the delivery of extra passenger capacity and higher rail frequencies. Completion of the Northern Hub programme may begin to

address this issue, although it was not planned to accommodate levels of growth now being predicted, including demand for local rail services. In the case of Metrolink, ongoing investment in sub-stations at Brooklands and Whitefield will allow more services to operate on the Bury and Altrincham lines as double units. In the medium term, it will be necessary to acquire additional rolling stock to permit further operation of longer vehicles. However, by 2035 it is expected that demand on Metrolink will start to test the absolute limits of capacity in the Regional Centre, particularly the critical onstreet sections between Victoria and St Peter's Square and Piccadilly where slower speeds and high footfall at stops reduce the practical capacity, compared to the higher speed segregated sections on the approaches to the Regional Centre.

- Manchester: With some exceptions, there is a general lack of safe, efficient and attractive cycling connections into the Regional Centre from nearby northern residential areas such as Prestwich, Cheetham Hill and Moston. Cycling remains a niche activity, with most journeys into the Regional Centre still undertaken by bus, Metrolink or car. The workshops did not discuss in much detail the role of cycling into the Regional Centre but did recognise the role that cycling could play for shorter trips within communities. A particular issue close to the boundary with the Regional Centre is the lack of effective walking and cycling connections across the Inner Ring Road (Trinity Way/Ring Road) to provide the 'last mile' connection into the Regional Centre. There could be an opportunity for a clearly designated cycling corridor in this area, similar to the Oxford Road/Wilmslow Road corridor to the south, to encourage more cycling.
- Public transport connections are currently not strong enough to support the scale of new development. Bus travel is the most frequently mode of travel and the wider area benefits from a number of high frequency services through key centres. However, as new development comes forward through the GMSF, careful planning will be needed to establish routes and services that are commercially viable. The workshop participants were particularly concerned about access into the Regional Centre from potential new developments in the Northern study area.
- Intermediate' centres (such as Middleton and Heywood) are not as well served by public transport as other centres in the area: There are a number of towns in the Northern Study Area which do not benefit from the same level of fast and frequent public transport connectivity as centres such as Prestwich, Radcliffe or Failsworth. Most notably, this includes Middleton, which is heavily reliant on the bus corridor along the A664 Rochdale Road to reach with the Regional Centre. Public transport is also limited in Heywood, where most residents rely strongly on the car. These issues were raised in the workshops. If sites are well designed there is potential for the larger growth areas of the GMSF to generate the level of demand necessary to support proposals for new high capacity public transport routes xpress bus services for Middleton and Heywood from the Regional Centre, including the potential to support the regeneration of Middleton.

Figure 13: Northern Study Area Issues Summary Map – Getting into and around the Regional Centre



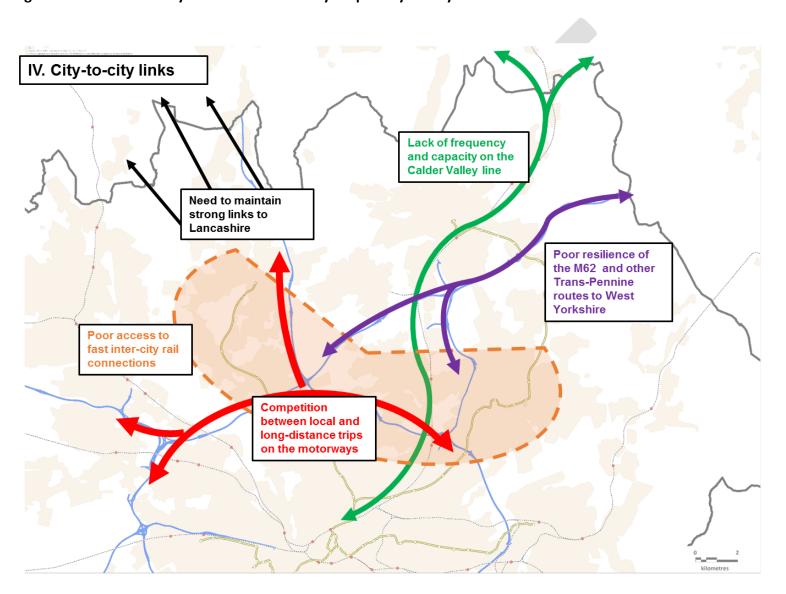
City-to-city links

- congestion and air quality problems: The motorways within the Northern Study Area performs multiple roles, supporting both strategic long distance and local travel. This complexity both increases demand and impacts on capacity through disruption to free-flow, especially around junctions. Together with the weaknesses in the public transport network highlighted elsewhere and the resulting reliance on the car in many parts of the study area, this causes the motorways, key roads and other local roads to come under considerable pressure in the peak periods, with consequent congestion and air quality issues, and a lack of reliability and resilience, affecting particularly local residents.
- 88. Need to maintain strong links to Lancashire: The Northern Study Area has strong links with East Lancashire, provided by the M66/A56 corridor. The M66 corridor not only provides a vital link for drivers, but is also used as a long-distance bus corridor between East Lancashire and Greater Manchester (X41 to Blackburn, and X43 to Colne). This, in addition to the rail services from Manchester to Blackburn and Burnley, represents a key public transport link between the two areas. Bus journey times have increased significantly in recent years due to congestion particularly in the Prestwich area and the approaches. While proposed improvements to the M66/M60 interchange at Simister (for possible delivery in RIS2) may go some way to mitigating existing congestion, traffic on the M66 corridor is likely to increase further due to significant planned development at both ends. Connections to Lancashire was a key area of discussion in the workshops largely because it is associated with a number of highway problems in the area. Although there may be scope to consider adjusting the routing of bus services to avoid Simister Island – these would need to be agreed in partnership with operators, and the reliability of journey times will be difficult to maintain without future investments in bus priority.
- Lack of frequency and capacity on the Calder Valley Line: Other than at Rochdale, passenger services on the Calder Valley Line are currently restricted due to the capacity constraints of the line and poor quality of some ageing rolling stock. Imperfect services on the Calder Valley Line were raised as a concern in the workshops. There are two trains per hour at Castleton and Mills Hill, and only one train per hour at Moston station, an insufficient frequency to sustain significant levels of commuting into the Regional Centre. The new Northern franchise agreement will provide improved frequency of service, providing five inter-regional trains per hour at Rochdale (four to West Yorkshire and one to East Lancs) and half-hourly services between Rochdale and Manchester. In the long term, more could be made of the Calder Valley Line as an asset for commuting into the Regional Centre, including the use of longer trains. There is also an opportunity for Rochdale to play a stronger role as a hub between Manchester, Calderdale and West Yorkshire.
- Poor access to fast inter-city rail connections from most of the Northern study area:
 Compared to other study areas, most of the Northern Study Area is relatively poorly connected to inter-city rail services. In other study areas, centres such as Stockport,
 Bolton and Wigan are significant rail hubs with frequent long-distance services, which draw passengers from a wide catchment area. There is no equivalent secondary rail hub

in the Northern Study Area, and as a result most residents rely on rail interchanges in the Regional Centre. The busiest station in the Northern Study Area, Rochdale, is used by just over 1.1m passengers a year, compared to more than 3m passengers at Wigan, Bolton and Stockport. In the future, there could be an opportunity for Rochdale to develop as a more important rail hub for Greater Manchester, depending on the future of the Calder Valley Line (see above), and long-term programmes such as Northern Powerhouse Rail. However, this should not be at the expense of connectivity of local stations. This issues was raised by a facilitator in one of the workshops.

91. Resilience of the M62 to West Yorkshire: The M62 and other Trans-Pennine routes provide a critical east-west link between Greater Manchester and West Yorkshire. It is one of the most heavily used motorways in the country, and suffers from frequent congestion. It can also be susceptible to closures or restrictions due to adverse weather (or resultant incidents). These issues were mentioned within the workshops. A Smart Motorway scheme is currently being delivered between Junctions 18 and 20 near Rochdale, and in the long-term Highways England's aspiration is to deliver a Smart Motorway all the way from the M60 to M62 Junction 30 east of Leeds. In the context of the planned Northern Gateway growth, this will generate significant additional demand on the M60, M62 and other Trans-Pennine routes, a key issue will be how connectivity between the Northern Study Area and West Yorkshire can be maintained. City-to-city journey times between Greater Manchester and West Yorkshire are relatively poor compared to other city-region pairs of a similar size in Europe.

Figure 14: Northern Study Area Issues Summary Map – City-to-city links



A globally connected city

- Pressure on the motorways for long-distance freight: As highlighted under 'city-to-city links' the M62 is a key transport axis for the Northern Study Area. The M62, and the North West Quadrant of the M60 in the North Western Study Area, are also a key axis for long-distance Trans-Pennine freight traffic, for example between the Port of Liverpool and Yorkshire and between the Humberside Ports and most of the North West. Reliable access to the Port of Liverpool will be vital for new development in this area given the emphasis on warehousing and logistics land uses. The lack of reliability and resilience on the M62/M60 is therefore a key strategic issue for the North. The role of the motorways for freight was briefly mentioned in the workshops.
- Prom the Northern Study Area there is a relative lack of direct and frequent public transport connections to the Airport. Public transport connections to the Airport generally require interchange and complex ticketing. This is a common theme across most study areas, but it is particularly the case for the Northern Study Area since heavy rail options are limited, as passengers have to change onto the rail network at Piccadilly or Victoria. Reducing interchange penalties will be important to ensuring that public transport can compete against the potentially quicker journey times offered by the M60/M56 at certain times of the day. Metrolink will also operate frequent services directly from Victoria Station to Manchester Airport. Although journey times to the Airport by tram will not be competitive with rail, they will be consistent and frequent for the whole period of operation (typically 18 hours on weekdays and 19 hours at weekends). The need for access to Manchester Airport was briefly mentioned in the workshops.

Figure 15: Northern Study Area Issues Summary Map – A globally connected city V. A globally connected city Pressure on the motorways for long-distance freight movements Need for better access to the Airport

Regional Centre Study Area Issues Summary

The key conclusions identified by stakeholders and an interrogation of the existing evidence base are outlined below. The section is structured around the five 2040 Spatial Themes, introduced within the Greater Manchester 2040 Transport Strategy. For each Spatial Theme, a schematic map is included to illustrate the issues and opportunities identified.

Connected neighbourhoods

- 95. **Form and design of new development:** Alongside their location, the form and design of new developments will be a key factor in determining worker and residents' future travel choices. Development close to the Regional Centre should be permitted only with sustainable travel at its core, with due consideration of parking provisions, cycle parking facilities, and accessible connections to the primary walking and cycling networks. Car parking policy and standards will be a key factor in determining future travel behaviour.
- 96. Within the Regional Centre, it is also important to consider the future allocation of space to ensure that public space and green spaces are accommodated into the evolving urban landscape. To complement the development in the Regional Centre more public space, where people can gather and spend time, is important. This will be particularly key to enhancing the quality of life of people who live in there, in what is often high-density housing without access to private outdoor spaces.
- 97. **Severance impacts of transport infrastructure:** As with all other cities of its size, Greater Manchester is served by a wide range of transport infrastructure that helps to efficiently transport people, goods, and services into and away from the Regional Centre. While this infrastructure is often essential, it can create severance for local journeys.
- 98. Within the Regional Centre, there are railway viaducts, main strategic highway routes (including the Inner Relief Road), the M602 motorway, and the Ship Canal which can each cause severance and make local journeys through and across the centre more challenging. As the Regional Centre grows, there will be an increasing challenge to ensure the area remains easy to get around, and the barriers caused by the historic transport system are mitigated. This will require development of walking and cycling facilities with more crossings and new links which can better penetrate these barriers.
- 99. Access to essential services: The Regional Centre has traditionally featured a large proportion of commercial, office, and retail floor space. However over the last 20 years, many parts of the Regional Centre have undergone a renaissance, and the residential population has increased annually. To support the regeneration and the growing population of the Regional Centre, it will be critical to embed essential local services such as schools, healthcare, leisure centres, and local retail. Due to land costs, it is recognised that providing these services to support the communities within the Regional Centre could be difficult. The challenge needs to be approached by providing local services where possible, but also ensuring Regional Centre neighbourhoods are

appropriately connected into the transport network so people are able to access wider services.



I. Connected neighbourhoods Access to essential services Severance impact of transport infrastructure Form and design of new development

Figure 16: Regional Centre Study Area Issues Summary Map – Connected neighbourhoods

Getting into and around the Regional Centre

- High demand and a lack of available capacity on the rail and Metrolink networks: The Regional Centre lies at the centre of the region's heavy and light rail networks, with several lines offering direct services which connect with a large proportion of the wider conurbation population. There has been significant growth in rail patronage over the last 10-15 years. At the same time, Metrolink has significantly expanded with new lines opened to Ashton, Oldham, East Didsbury and Manchester Airport. Both modes are now very popular with commuters, and with visitors to the Regional Centre, and have increasing importance for the Greater Manchester transport system. The popularity of these networks has however led to a number of emerging capacity issues.
- At present, many rail and Metrolink services are at full capacity in peak periods by the time they reach the Regional Centre, with passengers often finding it difficult to board services. This problem is not confined to inner-urban stops, but extends to locations outside the M60 such as Sale and Mills Hill. Given the ambition to accommodate growth without any increase in car trips entering the Inner Relief Road in the morning peak, there will be a need for rail and Metrolink services to carry more people.
- There is considerable scope for increasing capacity through lengthening of trains and trams. In the case of heavy rail, the Northern franchise commits to providing longer trains, with selective door opening where platforms are insufficiently long. In the medium term, there is further scope for train-lengthening, which will also require investment in platform-lengthening.
- In the case of Metrolink, investment in sub-stations at Brooklands and Whitefield will allow more double trams on the Bury and Altrincham lines. In the medium term, it will be necessary to acquire additional rolling stock to permit increased operation of longer vehicles. This could include purchasing higher capacity 60m trams that can carry more passengers than today's doubles. The maximum length of Metrolink vehicles is governed by the 60m length of the platforms in the city centre, which cannot be extended.
- There is also potential on the Metrolink network to better match capacity and demand between lines. A tram every five minutes (compared to six today) could be achieved on the busiest line the Altrincham line by tram-train operation (i.e. sharing of track with heavy rail services) through the present single-line capacity constraint of Navigation Road, which would require infrastructure investment.
- Although there is potential to accommodate growing demand on heavy rail and Metrolink in the short and medium term by lengthening trains and platforms, major investment in infrastructure is likely to be necessary to accommodate this in the long term, especially considering a timeframe extending to 2040 and beyond.
- There are multiple constraints in the Regional Centre affecting the capacity of both the heavy rail and Metrolink networks/passenger capacity. One of the key benefits of tramtrain services in Greater Manchester would be to release rail capacity, including platform capacity at the Regional Centre's stations.

- 107. Additionally, journey times on some Metrolink services are quite slow. In particular, the Eccles Metrolink line suffers from slow journey times, which makes public transport journeys to and from Salford Quays less attractive.
- High subsidy requirement for suburban heavy rail services: Greater Manchester's suburban heavy rail services e.g. services to Glossop, Warrington and Hazel Grove are vital to bringing commuters and visitors to the Regional Centre. However, a high proportion of their costs are presently covered by subsidy: although it is difficult to estimate values for individual lines, subsidy probably accounts for more than 50% of their costs.
- As rail patronage increases, there is potential to increase coverage of costs by revenue, especially since many rail costs are fixed. However, costs also have potential to increase: for example, the replacement of Pacer units by more attractive rolling stock will lead to higher costs.
- The high subsidy requirement for suburban rail in Manchester presents a long-term threat to the growth of the Regional Centre. The negotiation of rail franchise deals is strongly influenced by national politics, and therefore lies outside Greater Manchester's control. There is a real risk of cuts to suburban rail services (in favour of more profitable urban services) or pricing away of 'excess demand' is very real.
- The high subsidy requirement for heavy rail contrasts with Metrolink, which covers its operating costs and generates a surplus to contribute towards capital costs.
- Densification of the outer parts of the Regional Centre has changed travel patterns with a greater number of longer journeys necessary within the Regional Centre itself. The Regional Centre has expanded over the last decade to areas including The Quays, east Manchester and the University Corridor. While this investment has resulted in positive transformation, further benefits and investment could be stunted if people cannot easily travel to and from these areas.
- There is now increasing need to travel to these outer areas of the Regional Centre, so the transport system will need to adapt to meet this demands. This needs to be both for people traveling from outlying areas, who need direct access, but also people who travel to the Regional Centre's traditional transport hubs and then need to make onward 'last mile' journeys. The expansion of the Regional Centre means that these journeys cannot always be made on foot. Therefore the bus, cycle, Metrolink and walking networks will need to adapt to better serve the geographical growth of the Regional Centre.
- Metrolink services offer good links out towards The Quays, and the eastern extension to Metrolink has provided a connection into New Islington. However, some of these links are slower than those provided on sections of Metrolink using former railway lines. These slower journey times could prevent these areas being seen as 'open for business'. A faster connection between Manchester city centre and The Quays is an important priority to boost its attractiveness to businesses. In the longer term, one of the aims of the recent study looking at reorganisation of the bus network is to examine the role cross-city bus services can play in providing access to the more distant areas of the Regional Centre.

- Variable quality and capacity of the built environment and mixed levels of permeability for pedestrians: The Regional Centre is at the heart of the Greater Manchester economy, and is the main work, retail and leisure destination. This means it has the highest pedestrian levels in the city-region. With the planned population, housing and employment growth, the number of people who will be visiting the Regional Centre will increase, which will mean even more pedestrians. The residential population in the Regional Centre has also been rapidly rising over the last 10-15 years and this growth is predicted to increase. As a major global city, it is important that Greater Manchester's built environment and its landmarks are of sufficient quality to support its status.
- both its environment and the experience of being there. Footways will be busier and public and green spaces will become increasingly congested as more people gather in them. The role of these spaces should not be underplayed as they offer places of calm and relaxation and can be of great value to visitors and residents, increasing their enjoyment of the Regional Centre.
- 117. Pedestrians' needs must be recognised and investment targeted at expanding infrastructure to accommodate the greater number of journeys that will be made on foot. There will be a need for suitable space and permeability so people can move around the Regional Centre freely and conveniently. This will be particularly relevant in the central core alongside the major transport interchanges where increasing numbers of people will be boarding and alighting bus, rail and Metrolink services. This will require wider footways, better wayfinding, and clearer designated routes between landmarks.
- Impacts of motorised traffic within the Regional Centre on the quality of the built environment and the vitality of streets: The Regional Centre is complex with many different modes of transport competing for space to function effectively. With the growth of the Regional Centre there will be an increasing challenge to ensure its attractiveness is not affected by vehicular traffic, particularly with increasing numbers of pedestrians and cyclists.
- While motorised traffic benefits from good access into the Regional Centre, and the movement of buses and goods vehicles through the centre is essential, this traffic can have an adverse effect on the quality of the built environment and the vitality of streets. These negative impacts includes congestion, severance and noise and air quality issues.
- 120. It will therefore be important to plan the development of the Regional Centre's transport network as whole. This will mean considering areas where different kinds of transport may be more or less permissible and the ways these traffics flows can be managed. The balance between 'movement' and 'place' is a challenge in many areas of Greater Manchester, and especially in the Regional Centre where walking and cycling demand is highest and so conflicts between movement and place cause the highest levels of friction.

- The structure of a future bus network in the city centre is currently being reviewed by TfGM in the context of devolution and bus reform powers, the regeneration of Piccadilly with its new HS2 station, and the current operation of terminus sites such as Parker Street in Piccadilly Gardens. This bus network review, along with wider considerations, must find a solution which balances the essential needs of the transport system with the requirement to provide a high-quality public environment in landmark areas with high footfall, and the pressure from developers to acquire sites in the city centre.
- The challenge of providing the right parking supply: Parking, including its availability and cost, is one of the factors that influences whether people drive into the Regional Centre. Parking supply across the Regional Centre is varied, but currently includes a number of temporary surface car parks which have emerged on undeveloped land within the Inner Relief Route.
- 123. While these are a vital source of parking, increasing growth will make these sites increasingly attractive to developers and they are likely to be built upon, reducing the number of spaces. Given the attractiveness of the land supply, it will be challenging to provide alternate parking areas within the central core. If inadequate parking is available this could cause motorists to travel around the Regional Centre in search of empty spaces. This could cause more congestion and discourage people from travelling into the Regional Centre at all.
- However, parking supply can also help regulate car travel into the Regional Centre. Excessive car parking could generated more traffic that can be accommodated on congested radial routes or city centre streets. This congestion could have a greater detrimental effect on Manchester city centre than providing too little parking.
- There is a particular risk around private non-residential parking at new office and leisure developments on the fringes of the Regional Centre, including just inside the Inner Relief Route. At present car use at these locations is higher than in the core of the Regional Centre, but public transport usage and active travel will need to increase as these area becomes more densely developed. This can be encouraged by proportionally decreasing the amount of private parking available at these sites.
- While TfGM has set a target that car trips into the Inner Relief Route in the morning peak should not increase, car travel is important for many non-commuter journeys, especially retail and leisure. Car can be particularly important for the night-time economy, when public transport does not always run late enough to be a viable option. However, as the Regional Centre economy grows, congestion at presently off-peak times will worsen without an increase in public transport use or active travel. Appropriate policies on parking supply, and late night public transport, will be needed to avoid congestion spreading beyond the current peak period.
- 127. Linking city centre residents to destinations outside the Regional Centre: As outlined previously, the renaissance of the Regional Centre has led to an increase in the resident population. Growth plans suggest this will continue to rise with more people drawn towards city centre living. Regional Centre residents will have good access to the many services across the centre, but will inevitably also want to make use of the employment, retail and leisure opportunities which exist elsewhere in the wider conurbation. It is

- therefore important to ensure that connectivity is considered for these 'inverted' flow movements.
- 128. As Greater Manchester has a 'hub and spokes' public transport network it is important that any new major developments are accessible from the Regional Centre. This will allow people to access these sites by changing there.
- 129. It is also worth noting that Regional Centre residential development should be promoted as highly sustainable, so that residents can be encouraged to not own their own vehicles. This means public transport, or other options such as car clubs, should be viable alternatives.
- successes of recent infrastructure investment has been the rise in safer cycling into the Regional Centre. Schemes such as the Oxford Road/Wilmslow Road corridor sustainable travel package have provided better cycle facilities alongside radial highway corridors, and most of the main arterial routes which provide access into the Regional Centre include adjacent or on-highway cycle facilities.
- with the ambition to encourage more commuter travel by bicycle, the suitability of these routes will require a review, and additional capacity may be required to keep up with demand. It is also recognised that off-road routes, and particularly canal towpaths, offer opportunities for walking and cycling corridors which can pass safely right into the middle of Manchester city centre. Options to improve these towpath routes should also therefore be considered as a part of expanding capacity on the cycle network.
- Levels of demand result in congestion on major road corridors to/from the Regional Centre: The majority of the highway routes serving the Regional Centre suffer from congestion in the peak periods, often over substantial lengths. Traffic can often be slow moving over the entire journey between the M60 outer ring road and the Inner Relief Route. Connecting orbital routes are also often suffer congestion. These levels of congestion result in unreliable journey times and inevitably give rise to severance and poor air quality, which affect the areas beside these routes. Bus priority measures have been introduced on some of these corridors, but in many cases they are discontinuous and buses are therefore subject to the same unreliability as other motor vehicles. This makes bus journeys a less attractive option as an alternative for private car journeys.
- 133. Congestion on the highway network results in poor air quality: Congestion, and the types of vehicles that often cause it, mean that the Regional Centre's air quality is often poor, especially near key access roads and the Inner Relief Route. A range of possible interventions will need to be examined to address air quality concerns. Developments in battery technology offer potential for more use of electrically-powered vehicles, including buses, which could use battery power while travelling on sensitive city-centre streets.
- Road: Road space within the Inner Relief Route is progressively being allocated away from general traffic. This has led to an increase of pressure on the Inner Relief Route as car drivers traveling into and out of the Regional Centre are being encouraged to go via

that route, minimising the distance within the ring road to their city centre car parking space.

- 135. As well as a route into and out of the city centre the Inner Relief Route also carries a significant volume of through traffic. This includes traffic accessing areas in the outer parts of the Regional Centre, such as The Quays and MediaCityUK, and other locations within the M60. While the Inner Relief Route may represent the most direct route for some of these trips, a significant number could in principle use the designated Intermediate Ring Road (mainly consisting of the A576/A6010). However, the Intermediate Ring Road is of variable quality and lacks legibility for drivers. It therefore acts as an effective route (and alternative to the Inner Relief Route) only around the east side of the Regional Centre.
- The width of the Inner Relief Route (mainly four lane, generally dual-carriageway and at surface level) and the levels of traffic it carries mean that it creates significant severance for pedestrians and cyclists, particularly (but not exclusively) around the west and north sides where the regeneration of Central Salford and Ancoats respectively have seen the effective expansion of the city centre core across the Inner Relief Route.
- Freight and servicing demands are increasing: Efficient freight access is important to the success of the Regional Centre and congested highway networks are cited as a key concern for freight and servicing industries and for business reliant on deliveries. Influencing freight and service patterns is inherently complex due to the number of private operators involved, the just-in-time demands of the industry, and the difficulty of finding effective solutions. There is a risk that the benefits of decreasing car use for personal travel in the Regional Centre could be offset by increases in freight and servicing travel. Some of this mileage may be wasteful and unnecessary, for example, parcels for private individuals being delivered to the Regional Centre offices where they work. There is a wider issues that freight and servicing vehicles are typically diesel-powered, with adverse effects on air quality.
- High demand and a lack of capacity on selected bus corridors: On some of the most popular routes, bus services can operate at capacity during peak periods, creating difficulties for people who live in areas closest to the Regional Centre. Vehicles arriving already full of passengers will not always stop, and multiple services can pass before passengers waiting at bus stops can catch a service. On corridors where multiple services operate, this can be less of an issue as there may be alternative, less packed, services which users can board within a short waiting time. Where there is less competition, the waiting time for passengers at bus stops can be excessive. The popularity of the Leigh-Salford-Manchester V1 and V2 bus services was highlighted in the workshops as one example where passengers can face difficulties boarding during busy periods.
- 139. The GMSF will plan for population, housing and employment growth across different parts of Greater Manchester, many of which will have a strong reliance on the bus network to provide public transport connectivity. Some of these may not be aligned to existing rail or Metrolink stops and so may be strongly reliant on bus. The additional development is likely to demand changes to the bus networks, with potentially new routes being operated, or existing routes being diverted to provide access. When

- arriving towards the Regional Centre, services are likely to be increasingly full unless additional capacity is provided on the most popular routes.
- ^{140.} In the short term, bus reform offers the opportunity to rationalise bus services which compete within corridors to ensure that the overall vehicle fleet is better utilised to provide the right provision in the right areas. Nevertheless, there will need to be an increase in the number of vehicles in the future to meet demand.
- Heavy rail and Metrolink resilience: Presently the rail-based public transport systems (heavy rail and Metrolink) in Greater Manchester are vulnerable to random incidents, which often result in delays. This vulnerability is increased because the systems are often running to maximum capacity. The number of incidents reported on the Metrolink suggest that it is particularly vulnerable. This poor resilience undermines public confidence in public transport and can cause people to choose to travel by private car, with obvious adverse effects.
- The new GMSF developments will create more demand and this will put additional pressure on the network, and therefore make disruption more likely, as well as more severe.

Figure 17: Regional Centre Study Area Issues Summary Map – Getting into and around the Regional Centre (Map 1) III. Getting into and around the regional centre (map 1) High demand and lack of capacity on Metrolink and rail networks Challenge of providing the right parking supply Congestion on Need to accommodate radial highway longer journeys within corridors the Regional Centre as it expands **Conflicting roles** of the inner relief route High demand and a lack of capacity on selected bus Congestion networks on the highway network results in poor air quality

III. Getting into and around the regional centre (map 2) Heavy rail and Metrolink resilience Increasing freight Mixed levels of and servicing permeability for **Cycling capacity** demands on radial corridors pedestrians and within the **Regional Centre** High subsidy requirement for suburban heavy rail services Impacts of motorised traffic on the vitality of streets Linking residents to destinations outside the Regional Centre

Figure 18: Regional Centre Study Area Issues Summary Map – Getting into and around the Regional Centre (Map 2)

City-to-city links

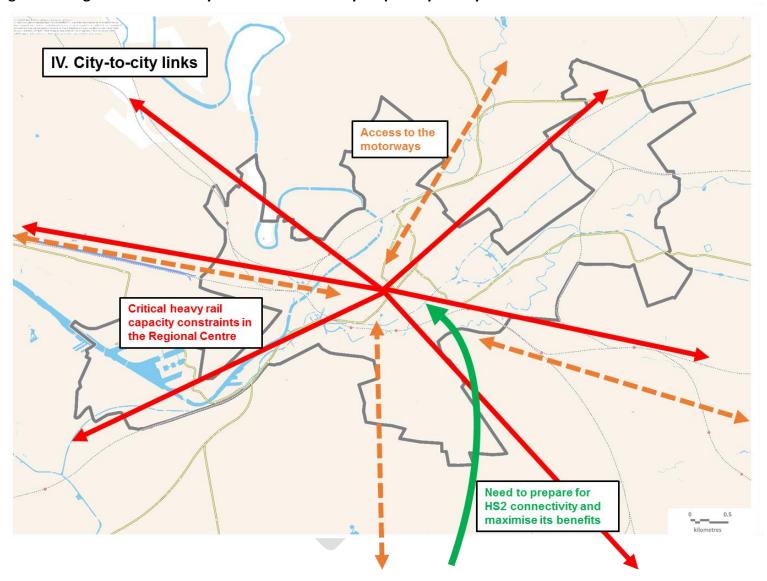
- 143. Critical heavy rail capacity constraints in the Regional Centre hinder long-term growth across the region and Northern Powerhouse Rail aspirations: Central Manchester is well located in the regional and national rail network, and benefits from a wealth of connections to other UK destinations. Some of these links do however, vary in quality, service frequency and journey time.
- The Northern Hub rail investment programme has been developed to specifically improve rail services across Northern England. However, there remains uncertainty about whether the full programme will be delivered and many elements are yet to secure funding commitments. While the Ordsall Chord has been delivered, constraints such as Oxford Road station passenger circulation and platform lengths, and Piccadilly platforms 13 and 14 will become increasingly important to resolve, as they'll limit the capacity of the region's central rail network. Even with improved rolling stock and platform lengthening elsewhere on the network, these bottlenecks will prevent more transformational change. There is therefore a need to ensure that these major strategic projects or appropriate alternatives continue to be supported and promoted.
- Northern Powerhouse Rail is a wider proposal to boost rail in Northern England, focused on connecting the region's urban centres and Manchester Airport. If progressed, Northern Powerhouse Rail will provide Manchester with world-class city-to-city links with destinations across the North, including 30 minute journey times to Leeds and Sheffield. However, in order for the full benefits of this investment to be felt, it is essential to ensure that an effective and reliable local transport network exists to link Greater Manchester's population to the upgraded rail network.
- Highway links, and the role of the motorway to provide strategic connections, are covered in the other five study area issues papers.
- High Speed 2 connectivity and benefits maximisation: High Speed 2 will provide a major change to the UK's rail network, creating additional capacity for north-south travel between Manchester and London, as well as significantly reducing journey travel times. Greater Manchester will benefit from two HS2 stations, one at Manchester Airport and the other a terminus station at Piccadilly alongside the traditional heavy rail station. This new infrastructure offers a transformational change to the rail offer between Manchester, and Birmingham and London, which should bring these economies closer together. There are also wider benefits for the city-region as a result of the improved connectivity. It will be important to ensure that the Regional Centre is well prepared to accommodate the additional people movements which HS2 will provide, as well as the benefits to business and the wider economy. This means consideration of how the new HS2 station will interlink with existing rail and Metrolink routes, but also the walking and cycling accessibility of the new station, as a part of a wider transformational masterplan for Piccadilly.
- ^{148.} Maximising the benefits of HS2 requires addressing the issues identified under the heading "Getting into and around the Regional Centre". The ambitious plans for the growth area adjacent to Piccadilly Station accommodating an estimated additional

49,000 jobs – will only be achieved if those connectivity and capacity challenges are addressed.

Access to the motorways can be problematic: Access to the national motorways will continue to be important to many businesses, employees and residents within the Regional Centre, both for car journeys to other towns and cities across the northwest and beyond and for freight traffic servicing the Regional Centre. Routes such as the A57 Hyde Road, A57 Regent Road, and A5103 Princess Parkway are especially important in that they provide direct links to key interchanges on the motorways (M60/M62 (via the M602), M60/M56 and M60/M67 respectively). The routes providing connections to the motorways are of a variable standard, and all have junctions at surface level and significant frontage or adjacent development. They are also used by buses, which require priority measures to support reliability. Inevitably levels of demand and the need to allocate road space in a way which balances the needs of all users and adjacent communities means congestion is quite common during peak periods – leading to slow and unreliable journey times - and communities along these routes have to tolerate significant severance and air quality issues.



Figure 19: Regional Centre Study Area Issues Summary Map – City-to-city links



A globally connected city

- 150. Access to Manchester Airport: Manchester Airport is one of the most significant airports outside London. Alongside its significant position as a major passenger traffic terminal, the wider area is a significant centre of employment, with the Airport City Enterprise Zone acting as a catalyst for further growth and investment. Consequently, access to the whole area for leisure, business, and employment is paramount.
- The Airport connection with the Regional Centre is generally good with rail, bus and Metrolink services all offering alternative opportunities. This also provides a good level of resilience when there is network disruption. Rail is the fastest travel option, and improvements to services should be continued, through the current rail franchise agreements and beyond. It should also be understood that the growth of the Airport site will increasingly create a 24/7 operation, which transport connections will be required to support. Options for transport to better integrate with flight times and worker shift patterns, and public transport timetables which are viable across a full day will be needed.
- While the Airport has published ambitious plans to expand its passenger terminals, the details on the transport infrastructure which will support this is less defined. It is known that the works will rebuild Terminal 2 as the main passenger terminal, however there is currently a significant distance from the Terminal to the rail and Metrolink interchanges, which would make it harder to promote sustainable travel. A coordinated plan to ensure connectivity will be essential, which may include the extension of the Metrolink line to Terminal 2.
- Access to Port Salford: The other major global hub in Greater Manchester is Port Salford, which is a key part of the Atlantic Gateway corridor. Port Salford itself is being developed as a tri-modal logistics park and development zone which will improve access to global markets via the Port of Liverpool and which will lead to the creation of a significant number of jobs outside the city centre. While this is covered more comprehensively in the Western Issues Paper, the need for connectivity with the Regional Centre will be critical to Port Salford's success, especially for workers.

Figure 20: Regional Centre Study Area Issues Summary Map – A globally connected city V. A globally connected city Access to Port Salford Access to a growing Manchester Airport

Southern Study Area Issues Summary

The key conclusions identified by stakeholders and an interrogation of the existing evidence base are outlined below. The section is structured around the five 2040 Spatial Themes, introduced in the Greater Manchester 2040 Transport Strategy. For each Spatial Theme, a schematic map is included to illustrate the issues identified.

Connected neighbourhoods

- Form and design of new development must promote sustainability to minimise its impact on highway congestion: The Greater Manchester Spatial Framework proposes a number of significant development sites which will provide much needed new housing and jobs. It is vital, however, to ensure the form and design of this new development gives the necessary consideration to accessibility, and integration with the transport system.
- In order to maximise the sustainability of these developments, it will be essential to provide public transport as early as possible. This will embed better travel choices from the very first users. However the potential for public transport will always be limited in peripheral developments that are distant from existing networks where people need to make journeys of over 6km.
- Need for better access to public transport, to give opportunities for more people to use services: Many parts of the Southern Study Area are relatively well penetrated by radial public transport routes, including several rail lines, and the Metrolink routes to Altrincham, Manchester Airport and East Didsbury. There are also many bus services, with the density of the network being particularly strong inside the M60, and many routes feeding into the Oxford Road corridor which has had investment to make it fit-for-purpose as a major sustainable travel gateway to the Regional Centre.
- However across the Southern Study Area, there are areas where accessibility to some of the stations and stops can be limited, particularly by bicycle, and where accessing rail-based public transport on foot is not feasible. As a result, some people find it challenging to access these services.
- 159. Stockport benefits from having good bus and rail connectivity, but improvements to the facilities at the town centre rail and bus stations would provide a better quality of service. TfGM are already developing plans for a new Stockport Interchange and the Council have a wider masterplan covering the area around the rail station which would offer improved access. There would also be benefit to having a more direct pedestrian link between the bus and rail stations in Stockport town centre to support linked trips.
- 160. Focus on the quality of local streets to promote a healthier society: In many parts of the Southern Study Area local residential streets do not encourage people to take safe, healthy and pleasant short trips by sustainable transport. This is a common theme across all study areas in Greater Manchester. Local neighbourhoods act as the start or end point of the vast majority of journeys, and many short trips take place entirely

within them. Local streets therefore have a major influence on how people travel and where they choose to go. Similar to the rest of the city-region, there is a significant opportunity in the Southern Study Area to manage demand better and reduce pressure on congested road networks by delivering more 'healthy streets' in residential areas.

- Ensure the extent and quality of the cycle network will support and encourage walking and cycling wherever possible: An important issue for the Southern Study Area and for Greater Manchester as a whole is the need to build joined-up, continuous cycling networks that effectively connect local neighbourhoods to nearby jobs, shops, schools and other facilities. Significant investment in these networks has already taken place over the past years, but many parts of the network in the Southern Study Area remain piecemeal or of sub-standard quality. Investment such as the Wilmslow Road/Oxford Road corridor is a good example from the Southern Study Area of how this investment can deliver clear benefits, with high flows observed on these links since the work was completed. A better used cycling network could free up valuable capacity on the road network for new journeys, including journeys from new GMSF developments. Cycling is one of the key modes and main growth areas that should be targeted by infrastructure investment.
- 162. Protecting centres as places which are walkable centres to promote local vitality, as travel demands increase: The Southern Study Area includes a number of key centres including the main town centres of Stockport and Altrincham, as well as many smaller town centres include Wythenshawe, Hazel Grove, Bramhall, Chorlton, and Levenshulme. Parts of the Southern Study Area are densely populated, and there are several retail and local centres set within the urban landscape. In many of these centres, the needs of 'place' have traditionally been secondary to the need for car access. This has resulted in car-dominated, rather than pedestrian-friendly centres. An example within the Southern Study Area is the A6 corridor, where this major strategic highway route passes through the centres of Hazel Grove, Stockport town centre and Levenshulme. In each area, the road link creates severance and public spaces that are harder to move through. While vehicular access must be maintained, it is important to balance this against an opportunity to create more attractive key centres which promote active modes and good environmental quality. Building on Stockport Council's Town Centre Access Plan (TCAP), the Council have been considering future proposals which would improve the conditions for walking, cycling and movement along and across the A6 through Stockport town centre.

Figure 21: Southern Study Area Issues Summary Map – Connected neighbourhoods I. Connected neighbourhoods Access to public transport **Quality of local streets** - disincentives to walking Extent and quality of Need to protect centres the cycle network as walkable spaces as demand increases Form and design of new development

Travel across the wider city-region

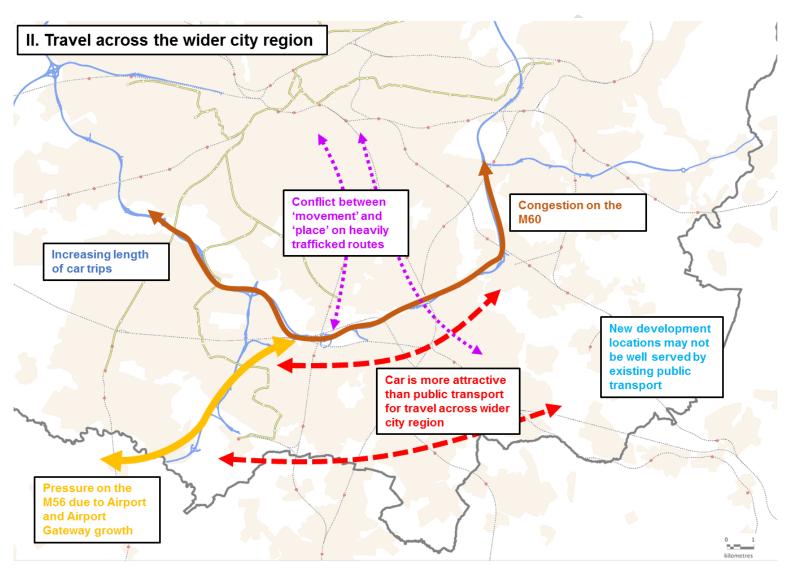
- Some new development locations may not be well served by existing public transport: While the Southern Study Area is generally well served by public transport, strategic allocations are located relatively poorly for public transport connections to the Regional Centre. Existing rapid transit is limited, and the bus network, while extensive, can be slow and unreliable, due to limited stretches of quality bus priority within a congested local highway network. Similar to other study areas, demand or potential demand for orbital connections is a key issue. This is important because this will be linked to any business case, which will be used to secure funding.
- Public transport connections are insufficiently attractive compared with car for travel across the wider city region: The lack of fast and frequent orbital public transport connections affects the Southern Study Area, limiting residents' opportunities and adding to congestion as people choose to drive to make journeys which are faster, or not easily achievable by other means. Congestion on routes like the A560 reflect some of the pressures created by current car use.
- The Southern Study Area has strong links with the neighbouring study areas to the east and west. There are currently strong links and high numbers of people travelling to and from Trafford and Tameside, which are only likely to increase in the future as a result of further growth around Port Salford, Carrington, Manchester Airport, as well as Bredbury and Ashton West. Journey times for many of these trips, if made by public transport, will be more efficient when routed via the city centre.
- Stronger orbital public transport connections between Altrincham, Manchester Airport and Stockport would enable greater and more efficient accessibility across the Southern Study Area but also within Greater Manchester. However, as stated above this would depend on sufficient demand justifying the business case.
- The Airport is a critical link which has strong north-south public transport connections (via a number of communities), but limited orbital connectivity (see section 8.5). More widely, Stockport town centre is affected by limited orbital connectivity from some other parts of the study area.
- The A6MARR (A555) was developed from the South-East Manchester Multi-Modal Study (2001), to help address some of the orbital connectivity gap, and will provide an eastwest alternative for some trips that presently use the M60. A6MARR may provide an opportunity for new express bus services to the Airport and bus priority could be considered on this link in the future to support such services. The route will pass close to GMSF sites (as well as the North Cheshire Growth Village site due to be developed by neighbours Cheshire East), which can provide the demand to support better bus links, although locations such as these may be better served by bus services on local roads. There are also other potential opportunities such as the mid-Cheshire Line which has no stations on it between Altrincham and Stockport, and the rail line operating via Reddish South which currently has a single nominal passenger call per week.
- 169. Congestion on the M60 resulting from complex travel demands and physical constraints: The motorway network in Greater Manchester has a high number of

junctions, and hence serves both local and strategic functions for local journeys around the conurbation.

- The section of the M56 near Manchester Airport, extending up and onto the M60, and the M60 itself in the Southern Study Area passing Stockport have major congestion pinch points, especially during the morning and afternoon peak periods. The strategic road network in this area struggles to cope with the demand, with this section providing links between the M56 and M62 to the west and M67 to the east, as well connecting frequent junctions which offer access to destinations across the east and south of Greater Manchester and to key routes such as the A6 and A34 which serve adjacent areas. Parts of this section of the motorway network are constrained by its design, which has resulted in narrow lanes on the section through central Stockport, which has a history of accidents, and a tight curve near Bredbury, which is subject to a 50mph speed limit. Nevertheless, accidents still occur on a regular basis causing disruption and creating delays to journeys which have a widespread impact on a wide section of both the motorways and the adjacent local road network. Diversion routes involve traffic rerouting through the urban area creating severe congestion and negative effects on local communities.
- Longer car journeys are contributing to congestion and air quality problems: Although there has been little change in recent years in the number of journeys or the way people travel across the wider city-region, the volume of car travel has increased due to longer journeys. This has been caused by lower fuel prices and the dispersed destinations people travel to, especially outside the M60. Reducing the length of car journeys requires a mix of travel demand management, planning to favour locations with good sustainable transport access, and improvements to public transport and active travel. This issue was briefly addressed by the study area workshops but was not a focus of the discussion.
- The conflict between 'movement' and 'place' on heavily used routes in the Southern area: The northern parts of the Southern Study Area lie inside the M60, and, partly resulting from their relatively high population density and proximity to the Regional Centre, benefit from some of the most comprehensive public transport connectivity in the region. The area has been able to support numerous bus routes, frequent rail services and three Metrolink lines to Altrincham, Manchester Airport and East Didsbury.
- 173. In understanding the transport challenges for the area, it is apparent that connectivity gaps are less of a concern, however the consequence of the rising demand for travel caused by growth could be more congestion on the roads, and more crowding on public transport services.
- Given the ambitions of GMSF (and growth in neighbouring areas), it is possible that more people from the south will be wanting to travel towards the Regional Centre, and so pass through the more northern parts of the Southern Study Area. The challenge will therefore to be preserve the sense of 'place' within the local communities inside the M60 given possible increases in people wanting to move through the area as quickly as possible. It is also important to ensure that available capacity on the highway and public transport networks is retained for people living closer to the Regional Centre.

- The growth of Manchester Airport and surrounding area as an employment location will place increased pressure on the surrounding highway network and on the M56 in particular: The evolution of the Manchester Airport area into a multi-purpose subregional hub will require a step-change in public transport use and active travel for commuting. The development of the Enterprise Zone will result in increased trips to the Airport area, as well as diversifying the types of journey to the area. Any absolute increases in traffic are likely to contribute to further levels of congestion, affecting journeys to the Airport and those that are passing the Airport on the M56. These delays would have a detrimental impact upon the wider strategic road network.
- Therefore, it will be necessary to provide public transport alternatives for access to the Manchester Airport area. The transport networks around Manchester Airport must accommodate increased growth resulting from the allocated sites and from wider regional growth. The development of the Enterprise Zone will also mean that the Airport and its rail station is not the primary destination, and public transport trips will need to be redistributed throughout the site. Furthermore, the Airport has a very complex travel market and this is set to become even more complicated as it develops. There will be a requirement to target the right mode for the right market. Holiday makers are more likely to accept higher prices for convenience, whereas workers in freight distribution centres will need cheaper travel options that align with their shift patterns.
- The recent Growth Strategy study of Connectivity of Manchester Airport HS2 Station and Surrounding Area considers the local connectivity requirements of the Manchester Airport area given the varying needs of local residents, onsite businesses and employees and national and international travellers. The study proposes a package of schemes including improvements to cycle connectivity, the local highway network, bus priority and to existing rail stations. The package also proposes new Bus Rapid Transit routes, new metro routes, new heavy rail routes expansion and major road upgrades. The schemes are intended to facilitate a shift away from car travel towards public transport and active travel.

Figure 22: Southern Study Area Issues Summary Map – Travel across the wider city region



Getting into and around the Regional Centre

- Heavy rail and Metrolink resilience: Presently the rail-based public transport systems (heavy rail and Metrolink) in Greater Manchester are vulnerable to random incidents, which often result in delays. This vulnerability is increased because these systems operate at near maximum capacity. The numbers of incidents reported on the Metrolink system suggest that it is particularly vulnerable. Poor resilience undermines public confidence in the public transport network and can make it harder to encourage people to use their cars less. Due to the importance of rail-based transport for access to the Regional Centre and commuter travel within the Southern Study Area, the resilience of rail is a particular problem for this area.
- A lack of available capacity on the heavy and light rail networks: Greater Manchester's heavy and light rail networks provide some of the quickest journey times between outlying areas and the Regional Centre and there has been significant growth in the use of both over the past decade. Metrolink in particular has expanded, as a result of major investment and the construction of new lines including to Rochdale, Ashton, East Didsbury and Manchester Airport.
- Despite the investment, the networks are struggling to keep pace with demand and overcrowding is an issue on a number of lines, especially during peak periods. However, there is potential in the short and medium term to provide additional capacity without substantial investment in infrastructure.
- In the case of the rail network, the latest rail franchises commit to providing additional rolling stock, although this will only meet capacity issues in the short term. In the medium term, works such as longer platforms, in addition to further rolling stock investment, are required on a number of lines to enable longer trains to stop. From 2027 onwards, HS2 will have a significant impact on the rail network in the Southern Study Area. In the period between 2027 and 2033, the arrival of HS2, together with the need to replace links currently provided by London-bound trains, will place particularly severe pressure on rail capacity in the Southern area, and there is a risk that local rail services could be cut back. Once HS2 is fully completed, longer distance trains will be reallocated onto the High Speed line, which will ease the capacity situation on the existing Southern area rail network. However, without major investment in additional infrastructure, there is unlikely to be any potential to improve services beyond the committed level in the present Northern franchise: indeed, by that time, substantial investment could be needed to retain existing rail connectivity.
- On the Metrolink network, analysis has shown that the most constrained lines for morning peak inbound travel are those in the Southern Study Area, including Altrincham and East Didsbury. Some additional capacity can be achieved by running more double-units and by improving the sub-stations, but longer term there will be capacity challenges facing the network which will need to be addressed to keep pace with demand.
- Poor public transport connectivity into the Regional Centre from the south of the study area: Existing rapid transit is limited, and bus journeys are often slow and

unreliable, due to limited stretches of quality bus priority within a congested local highway network.

Congestion on key radial roads, including the A34 and A6, caused by high demand for travel, including to the Regional Centre: There are several highway corridors aligned on a north-to-south axis through the Southern Study Area, each serve a local function, as well as often providing access for long-distance travel to/from the Regional Centre. These routes all carry large volumes of traffic and experience congestion problems. The A34, A6 and A5103 are particularly affected by congestion in the peaks, with large sections of these routes having average speeds of less than 15mph in the morning peak (see section 3). The A34 also suffers from lengthy sections with sub 15mph average speeds, but is generally slightly more free-flowing.



Figure 23: Southern Study Area Issues Summary Map – Getting into and around the Regional Centre III. Getting into and around the regional centre Lack of capacity on heavy and light rail networks **Congestion on radial** Heavy rail and Metrolink resilience key radial roads including A34 and A6 Poor public transport into the Regional Centre from the south of the study area

City-to-city links

- M60 and M56 congestion, affecting strategic access to the Southern Study Area:
 Greater Manchester is accessible by a relatively dense motorway network, with the Southern Study Area served directly by the M56 and M60. These motorways fulfil an important role by providing wider connectivity within and beyond the city-region to businesses and residents in the Southern Study Area. They also provide the same connectivity for businesses and residents of neighbouring areas like High Peak and parts of Cheshire East which access the motorways via routes such as the A6 and A34.
- The strategic road network (M60 and M56 plus the A5103(T)) in the study area suffers from significant congestion and reliability issues. Highways England have announced plans to introduce Smart Motorway technology on M60 between Junctions 24 and 27 and 1 and 4, and on the M56 west of Manchester Airport. However these plans are still under development. Longer term, it is unclear if this scale of improvement would provide enough additional capacity to meet rising travel demand.
- Within the Southern Study Area is Manchester Airport, which is a globally significant transport hub. Highway congestion on the M56 affects access to the Airport from the wider North of England, an issue which will only worsen due to the growth of the Airport, more employment at the Airport City Enterprise Zone, the new High Speed 2 rail station, and the proposed GMSF development sites to the west of the motorway.
- 188. Managing the interface between the local public transport network and High Speed 2: High Speed 2 (HS2) will transform connectivity between the North of England, Birmingham, and London through the provision of a new high speed rail line which will lead to reduced journey times and increased capacity. It is important, however, to ensure that HS2 is appropriately integrated into the existing local rail network and with the Metrolink and bus networks to ensure services can be easily accessed, and existing connectivity is retained.
- In the case of HS2, there is concern that the long-term timetable changes will remove nationally-connecting rail services from Stockport station, and only be provided on the High Speed line. This would be to the detriment of Stockport town centre, whose economic appeal is enhanced by its connections with many other UK destinations by rail.
- Lack of fast and reliable city-to-city connectivity to South Yorkshire and the East Midlands: With the exception of the Manchester/Stockport to Sheffield rail connection, connectivity between the Greater Manchester and Sheffield city-region is poor and has led to limited demand for travel between the two areas. Highway journey times between Manchester/Stockport and Sheffield are long and unreliable, and rely on single-carriageway roads across the Peak District such as the A628 and the A57. The proposed improvements to the A57(T)/A628(T) TransPennine road corridor within RIS1 will improve resilience and capacity at each end but will not significantly improve capacity along the greater part of the route. The rail route between Manchester and Sheffield provides quicker and more reliable city-to -city connectivity than road but wider onward connectivity to many locations beyond the city centres, including much of the Southern study area, is reliant on interchange.

191. Although rail connections are faster than road options they may not be fast enough and frequencies are limited: there are currently two fast trains per hour (via Stockport), and only one stopping train every two hours (via Bredbury and New Mills Central) which will increase to one per hour as part of the Northern franchise commitment. This level of service on the current Hope Valley Line falls far short of the aspirations for city-to-city connectivity set out by the Northern Powerhouse Rail concept: six trains per hour between Manchester and Sheffield, with a journey time of 30 minutes. Increased city-to-city connectivity between Manchester and Sheffield by rail could bring wider benefits to the Southern Study Area, such as extra capacity for local stopping services into the Regional Centre, but this would be dependent on the provision of a new alignment. If these longer distance services are added to the unmodified existing network it risks reducing capacity for local services. The issue of rail connectivity outside of Greater Manchester was briefly mentioned in the study area workshops but the discussion was not lengthy.



Figure 24: Southern Study Area Issues Summary Map – City-to-city links IV. City-to-city links Congestion on the M60 and M56 affects strategic access to the Study Area Lack of fast and reliable connectivity beyond Greater Manchester Need to manage the interface between local public transport and HS2

A globally connected city

- Unreliable highway access to the Airport: Within the Southern Study Area is Manchester Airport, which is a globally significant transport hub. Highway congestion on the M56 affects access to the Airport from the wider North of England, an issue which will only worsen from growth of the Airport, more employment at the Airport City Enterprise Zone, and the new High Speed 2 rail station. Current Highways England plans include Smart motorway on the M56 from Junction 6 to 8.
- 193. The opening of the A6MARR will provide an alternative connection across the Southern Study Area which will offer a more direct alternative route to the Airport for motorists on the A6 corridor and provide some relief to the M60 corridor. The operation of the M56, and especially its link into the M60 around Sharston remains a key source of congestion and delay which will require co-ordinated planning with Highways England. Although A6MARR will in some respects improve access to the Airport, it will also route more through-traffic via the Airport.
- 194. Weak competitive position of public transport for travel to the Airport: While Manchester Airport railway station features frequent rail services, these largely connect the Airport to the Regional Centre, and then onwards to other UK destinations. Rail services to the south of the Airport are presently limited to a single train per hour, and there is no direct link directly east such as to Stockport town centre.
- Orbital bus services between Manchester Airport and the wider Southern Study Area are similarly limited in frequency and destination choice. Key services, such as the 199 (Airport-Buxton) or the 330 (Airport-Ashton), travel via the congested motorways and miss many of the communities in southern Greater Manchester. The 368/368A is the only local running service which routes via Cheadle Hulme.
- 196. The poor public transport to the Airport from much of the Southern study area especially for orbital movements adds to the pressure on the local highway network and adds to the risk that Manchester Airport's success could be restricted by unreliable car access. Improved local public transport access to the Airport will reduce car use for both travel to work in the Airport area and for access to air travel. Both will contribute to the continuing success of Manchester Airport.
- 197. Complementary travel demand management in the Manchester Airport area will be needed if the benefits of improved public transport are to be maximised, and if major investment in local public transport improvements are to be justified.
- The congested nature and lack of resilience of the motorways hinders access to Ports: Access to the Port of Liverpool and Port Salford from the Southern Study Area depends largely on the motorways. For the Port of Liverpool, road traffic has a choice of routes via the M60 and M62, or M56, M6 and M62. With the completion of the new Mersey Crossing direct accessibility to the Port of Liverpool from the M56 will be improved. Access to the future tri-modal facility at Port Salford similarly relies on the M60 around the west of the conurbation. Within the Northern Powerhouse, access to the Humber Ports is also dependent upon the motorways and is impacted by slow and unreliable journey times from Greater Manchester. As noted above, the M60 and M56 within and beyond the Southern Study Area are subject to significant congestion and lack resilience, undermining their ability to provide the reliable journey times on which businesses and logistics operators rely.

Figure 25: Southern Study Area Issues Summary Map – A globally connected city V. A globally connected city Hindered accessibility to Port facilities Weak competitive position of public transport to the Airport Unreliable highway access to the Airport

Western Study Area Issues Summary

199. Based on the insights from the stakeholder workshop and the evidence base, the key transport issues for the Western Study Area have been identified by the study team. These are discussed below, grouped by the five Spatial Themes of the Greater Manchester 2040 Transport Strategy. For each Spatial Theme, a schematic map is included to illustrate the issues and opportunities.

Connected neighbourhoods

- Form and design of new development: Aside from the location of new developments, another key factor which will determine the travel choices of future residents and workers is their form and design. This was briefly discussed at the workshop. In the Western Study Area there are multiple opportunities for public transport orientated development. For both existing and new public transport hubs, it will be crucial to ensure that developments are designed around these corridors and public transport hubs, where there are higher density populations, walkable connections and opportunities for local bus connections on well-designed roads. Concepts such as filtered permeability, that prioritise walking and cycling for local journeys, to schools, shops and public transport will need to play an important role.
- Severance between local centres and between residential and employment areas: The Western Study Area is characterised by significant severance caused by the Manchester Ship Canal. A recurring issue raised in the stakeholder workshop was the shortage of crossing points, both for walking and cycling and vehicular traffic including buses, affecting communities in areas such as Partington, Cadishead and Irlam. The M60 and M602 are also major sources of severance between local neighbourhoods and centres, such as between Urmston and Stretford/Trafford Park, and between Monton and Eccles.
- Walking and cycling access to public transport: Many parts of the Western Study Area are relatively well penetrated by radial public transport routes, including the CLC line and the Eccles and Altrincham Metrolink lines (and the new Trafford Park Metrolink line, which is expected to be operational by 2020/21), and by frequent bus services. However, local connections to and from rail stations, bus stops and interchanges, and other public transport services are often perceived as being unattractive or unsafe in many parts of Greater Manchester. Better connections to and from stations, including better walking routes, better cycle parking, and links to bus services, as well as better facilities at existing and new public transport facilities and hubs, could encourage more people to use sustainable transport, rather than drive.
- Design and quality of local streets and the general highway network can be a disincentive to walking: In many parts of the Western Study Area local residential streets do not encourage people to make short trips by healthy sustainable modes, such as cycling and walking. This is a common theme across all study areas in Greater Manchester. Local neighbourhoods are the start and end point of the vast majority of journeys in the city-region and many short trips take place in them entirely. Local streets therefore have a major influence on people's travel choices and destinations. The general highway network also causes issue for pedestrians, with major roads often dividing communities and missing footpaths or difficult crossing points causing road safety problems. Similar to the rest of the city-region, there is a significant opportunity in the Western Study Area to manage demand better and reduce pressure on

congested road networks, by delivering more 'healthy streets' in residential areas. If streets were improved for pedestrians and cyclists, this would encourage more walking and cycling and contribute to town centre renewal.

- ^{204.} **Extent and quality of the cycle network**: An important issue for the Western Study Area and for Greater Manchester as a whole is the need to build joined-up, continuous and direct cycling networks on-highway and off-highway that effectively connect local neighbourhoods to nearby jobs, shops, schools and other facilities. This issue was identified in the workshop. Significant investment in these networks has already taken place over the past years, but many parts of the network in the Western Study Area remain piecemeal or of substandard quality. A better used cycling network could free up valuable capacity on other modes for new journeys, including journeys to/from new GMSF developments.
- Improved public transport to Partington: Partington is one of the more deprived areas in the Western Study Area, access to new employment sites will therefore be integral to improving the quality of life in this area. However, due to its location there are limited public transport services operating in Partington, which restricts the social and employment opportunities available to its residents. Improvements to public transport services to Partington, in particular bus services, could have far-reaching benefits across Partington and the wider Western Study Area, and could form part of the transformation of nearby Carrington.

I. Connected neighbourhoods Access to public transport **Quality of local streets** - disincentives to walking Improved public transport access to Partington Severance between Form and local centres, design of new residential and development employment areas Extent and quality of the cycle network

Figure 26: Western Study Area Issues Summary Map – Connected neighbourhoods

Travel across the wider city-region

- 206. Some new development locations may not be well served by existing public transport: While parts of the Western Study Area are relatively well connected in terms of public transport links into the Regional Centre, provided for example by the existing Altrincham and Eccles Metrolink lines, and the new Trafford Park Metrolink line which is currently under construction, the study area workshop considered that greatly improved public transport connections would be required to support new development, including orbital links. For example, the Carrington area is not currently well served by public transport in any direction, while bus services linking communities along the A57 corridor from Cadishead and Irlam towards Eccles are quite slow and often unreliable. The range of destinations served by public transport is in general quite limited. Similar to other study areas, the demand or potential demand for orbital public transport is a key issues. This is particularly important as this will be critical for the business case, which will be used to secure funding. There are few orbital public transport connections within the Western Study Area. Key orbital connections where improvements are needed include Irlam and Cadishead to Carrington, and Carrington to Altrincham and Manchester Airport.
- Trends of increasing car length are contributing to congestion and air quality problems:

 Although there has been little change in recent years in the number of journeys or the way people travel across the wider city-region, the volume of car travel has increased due to longer journeys. This has been caused by lower fuel prices and the dispersed destinations people travel to, especially outside the M60. Reducing the length of car journeys requires a mix of travel demand management, planning to favour locations with good sustainable transport access, and improvements to public transport and active travel. This issue was briefly addressed by the study area workshops but was not a focus of the discussion.
- Car is a more attractive option than public transport for connections between outer towns and district centres: Dependence on the car in the Western Study Area has caused major issues on the road network in the area, as well as in Greater Manchester more widely, leading to congestion, unreliable journey times (not least by bus) and air pollution. The workshop considered that greatly improved public transport connections to the more outlying communities such as Irlam and Cadishead and Partington and Carrington were necessary to encourage a cultural shift towards public transport use, including enhanced rail and bus services and metro or busway solutions. This view was taken partly because such investment has the scope to shape future land use and lifestyle choices and therefore lead to less dispersed development in the future.
- The level and complexity of existing demand results in congestion on the motorways and key roads: The motorways within the Western Study Area performs multiple roles, supporting both strategic long distance and local travel. The complexity of travel both increases demand and impacts on capacity through disruption to free-flow, especially around junctions. Together with the weaknesses in the public transport network highlighted elsewhere and the resulting reliance on the car in many parts of the study area, this causes the motorways, key roads and other local roads to come under considerable pressure in the peak periods, with consequent congestion and lack of reliability and resilience, issues highlighted by contributors to the area workshop.
- ^{210.} As the evidence on journey speeds suggests, there is significant peak time congestion on routes such as the A56. Other key roads, such as the A6144/Carrington Spur and the A57 in Salford, are already showing signs of stress. The M60 and M62 within the study area suffer

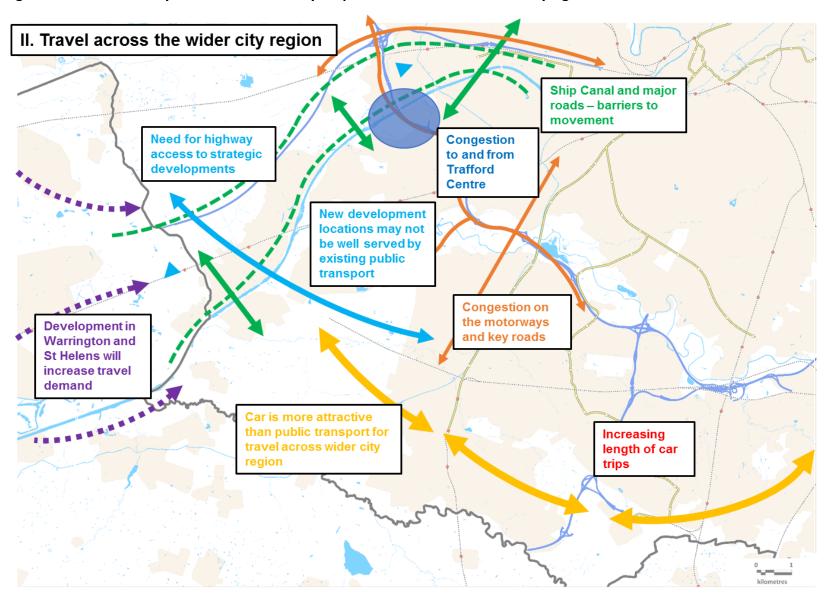
from congestion in the evening peak period in particular. In part this is because of the dual role played by the M60 in supporting both city-to-city and intra-city-region movements, and the impact this has on key interchanges and junctions. In the short to medium term the pressure on the motorways and key roads may increase due to the delivery of agreed development.

- Need for appropriate highway access to strategic developments: Some of the largest proposed allocations in the Western Study Area are located relatively poorly in relation to the existing highway network. The area workshop suggested that if these are to be delivered as planned in the draft GMSF, there will need to be significant infrastructure investment to fully unlock these sites. New Carrington is currently linked to the M60 via the A6144/Carrington Spur; as shown above, this route is already congested. Finally, while the current Part WGIS (Western Gateway Infrastructure Scheme) and future Full WGIS (if funded and delivered) will improve access to Port Salford from the M60, connections to the west (including the M6 corridor and the Liverpool City Region) would still be limited by the lack of direct access from the M62.
- The Manchester Ship Canal and major roads form barriers to movement between communities and work: The Manchester Ship Canal and road links such as the M602 and M60 are major economic arteries which run through the Western Study Area. They provide important strategic connections for Greater Manchester as a whole, but, echoing the issues raised in the context of neighbourhoods, the workshops highlighted that locally they often form a barrier to orbital movements due to the limited number of crossing points. Without better and more frequent crossings, poor connections across these routes will remain a key issue for growth at Port Salford, and for existing sites within Salford and Trafford. Investment in better connections across such barriers for walking and cycling (and in the case of the Ship Canal possibly also for light rail and vehicular traffic) could allow residents in areas such as Partington, Cadishead and Irlam to access a wider range of jobs. It would also help to reduce pressure on the existing crossings.
- Increased travel demand on transport routes due to development in adjacent areas, including Warrington and St Helens: At the workshops, it was raised that the growth aspirations of adjacent authorities outside Greater Manchester had to be recognised. For example, Warrington has ambitious plans for significant development to the south and east of the town around Stretton and Grappenhall, which could see over 7,000 new homes constructed, alongside employment areas. The Omega site to the north of Warrington alongside the M62 is also continuing to be built. In St Helens, significant expansion of the Haydock employment area is planned, alongside the development of the freight hub at Parkside and large numbers of residential units around Newton-le-Willows. These developments are likely to increase the demand for travel in both directions across the Greater Manchester boundary and will inevitably put pressure on roads such as the M62, A57 and possibly the A6144 within the Western Study Area, and on the CLC and Chat Moss rail lines. However, they may also create some opportunities for improving transport provision by enlarging markets for potential new services.
- 214. Congestion to and from the Trafford Centre has an adverse impact on the Flixton and Urmston areas: The Trafford Centre is one of the largest and most popular retail centres in Greater Manchester. The majority of journeys to there are made by car as public transport links are limited. This dependence on the car for journeys to and from the Trafford Centre has led to significant congestion issues on the road network surrounding the site which impacts on local centres like Flixton and Urmston. Improvements in public transport links from the

Trafford Centre, possibly including onward connections from the Trafford Park Line, could address some of the congestion issues in these areas.



Figure 27: Western Study Area Issues Summary Map – Travel across the wider cityregion



Getting into and around the Regional Centre

- 215. Critical heavy and light rail capacity constraints in the Regional Centre need to be addressed: This is a common issue across all study areas identified in the workshops. The Regional Centre lies at the heart of the city-region's heavy and metro networks, with several lines offering direct services which connect with a large proportion of the wider conurbation's population. There has been significant growth in rail patronage into the Regional Centre over the last 10-15 years and locally there is clear latent demand for rail that could be filled up quickly. At the same time, Metrolink has significantly expanded with new lines opened to Rochdale and Oldham and Manchester Airport. The growth and popularity of these networks has led to a number of emerging capacity issues.
- There is scope to increase heavy rail capacity by acquiring additional rolling stock, although this would need to be accompanied by platform lengthening. However lack of through rail capacity is a key issue, as well as the need to accommodate freight. While schemes such as the Ordsall Chord have provided some new connections, in the long term the physical limitations of the rail network within the Regional Centre will be the key constraint to the delivery of extra passenger capacity and higher rail frequencies to and from the area. Completion of the Northern Hub programme may begin to address this issue. In the case of Metrolink, ongoing investment in sub-stations at Brooklands and Whitefield will enable more trams to operate on the Bury and Altrincham lines as double units. In the medium term, it will be necessary to acquire additional rolling stock to permit further operation of longer vehicles. However, by 2035 it is expected that demand on Metrolink will start to test the absolute limits of capacity in the Regional Centre, particularly the critical section between St Peters Square and Cornbrook.
- Lack of public transport (coverage and capacity) to support the scale of new development proposed: The workshop highlighted that based on the current public transport network, there is a lack of fast and frequent public transport services to support growth at major sites such as Port Salford and Trafford Waters. To facilitate growth at these locations in a sustainable manner, new connections into the Regional Centre are likely to be required. It will be important to consider all potential public transport modes and deliver the right 'mix' of services, since in the early phases of development, demand may not yet be sufficient to sustain high-capacity solutions such as Metrolink. Bus is by far the most well used form of public transport at present, and to encourage even greater use it will also be necessary to consider additional bus priority on the most important corridors and to ensure that any new developments are accessible by bus.
- Congestion on radial highway corridors into the Regional Centre leads to long and unreliable journey times for all road users: Congestion on radial key roads such as the A56 and A57 was raised at the workshops. The A56 corridor, which includes parts of Altrincham, Sale and Stretford, should benefit from its close proximity to the Altrincham Metrolink line. However, the Altrincham line is near its current capacity and demand is likely to grow as a result of continuing growth in Trafford. If not addressed, this capacity issue on the Altrincham line could increase the pressure on the A56. Equally the A57 corridor in Salford which links Cadishead and Irlam to the M60/M602 and to Eccles, Central Salford and the Regional Centre, experiences peak period congestion at various

locations, especially approaching the M60. This congestion impacts both on general traffic and on the reliability of bus services to/from the Regional Centre, preventing buses from offering a viable alternative to the car for many journeys.

- High demand for travel to/from Liverpool/Warrington combined with limited line capacity and frequency prevents the CLC line from offering good local services: The CLC line between Liverpool, Warrington and Manchester is a highly popular commuter line which is operating at its maximum capacity, although there is potential for running longer trains. Comparatively the CLC lags behind other parts of the network in terms of a cohesive strategy for increased growth and capacity. Timetabling constraints due to a lack of passing loops, and a need to integrate stopping services with fast services on the line have led to an irregular timetable with a requirement for skip-stopping and hourly (or lower) service levels at some stations. A particular issue for communities in the Western Study Area is seating capacity in the morning peak. By the time inbound trains reach stations in the Western Study Area peak-hour trains are simply full. The workshops considered that this represents a major missed opportunity for mode shift from residential communities such as Irlam and Urmston, where there is significant demand for public transport into the Regional Centre.
- High levels of demand on Altrincham Metrolink line results in crowded peak period services: As with rail services, there is clear untapped demand for Metrolink that could be better used. The workshops highlighted that Altrincham line operates at capacity at peak periods and existing proposals to operate more double unit services will meet this demand in the short to medium term. However, the operational capacity of the city centre network will be exceeded in the longer term thus restricting the ability to enhance service frequencies on radial routes including the Altrincham Line. The section of the Metrolink network between Cornbrook and Deansgate-Castlefield will increasingly constrain capacity, and consequently TfGM will investigate options for expansion of this key node. Improvements such as the Metrolink Second City Crossing, which opened in early 2017, are providing the opportunity to extend Airport services into the Regional Centre, and will also be used for services on the upcoming Trafford Park Line.
- There is scope for investment in new rolling stock and some increase in frequency to increase capacity. However, increasing the frequency of services south of Timperley would require more radical intervention, for example one potential solution being tramtrain operation through Navigation Road including the acquisition of a new fleet of longer tram-train-compatible vehicles. There is also scope to maximise the potential of the Altrincham line by increasing the number of ways commuters can access it, such as by bicycle or by bus. Infrastructure enhancements to encourage cycling for trips into the Regional Centre, certainly from areas as far out as Sale is also a possibility, However, as noted above, in the long term, Regional Centre capacity will once again be the key constraint to the delivery of extra capacity. This issue has a direct impact on the A56 corridor which also links Altrincham, Sale and Stretford.
- Poor public transport access to Salford Quays, Trafford Park and new development sites from the north and west: Along the northern boundary of the Western Study Area, Eccles and Salford Crescent are located on key rail and Metrolink lines leading into the

Regional Centre. These two locations are also closely linked with the important economic hubs of Salford Quays and MediaCityUK. However, the workshops noted that both Eccles and Salford Crescent are currently under-utilised as interchanges. The potential benefits of intercepting trips at Eccles and Salford Crescent include decreased travel times to Salford Quays and MediaCityUK, and freeing up valuable capacity at Regional Centre stations.

223. Communities in Eccles and Patricroft do not benefit from frequent rail services despite being close to stations: Eccles and Patricroft both benefit from stations on the Chat Moss line with services to the Regional Centre but the workshops noted that they are served by one train per hour in each direction, which is insufficient to support and attract regular commuting for most residents. The lack of service frequency at Eccles, and absence of direct connectivity to Metrolink at the station limits its attractiveness as an interchange for commuters and, in particular, restricts its ability to serve as a hub into Salford Quays/MediaCityUK from the west (see above).

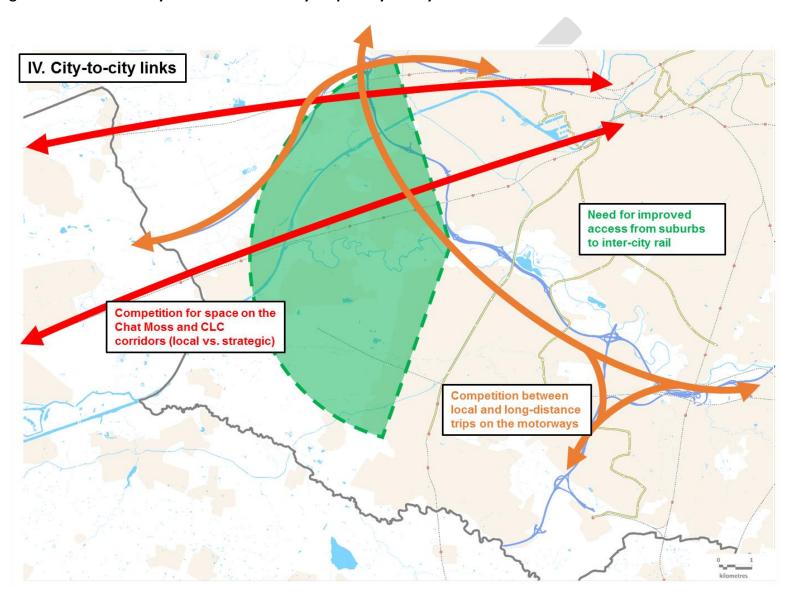
Poor PT access to Salford **Quays and Trafford Waters** from the north and west Lack of frequent rail Critical heavy and services in Eccles light rail constraints and Patricroft in the Regional Centre Peak period crowding on the Lack of good Altrincham line local services on the CLC line Congestion on radial highway Insufficient public corridors transport to support the scale of new development III. Getting into and around the regional centre

Figure 28: Western Study Area Issues Summary Map – Getting into and around the Regional Centre

City-to-city links

- 224. Competition between local and long-distance services on the CLC and Chat Moss corridors: The workshop expressed some concern that many residents and commuters within the Western study area suffer from significant transport issues caused by the joint use of key transport networks for both long distance and local journeys. Greater Manchester benefits from effective strategic links with major urban areas in the North West and across the wider UK via road and rail. In many cases, these city-to-city movements use the same networks as local commuters and this can cause conflict.
- The competition between long-distance and local commuting movements is perhaps currently most evident on the CLC line but will also become more apparent on the Chat Moss route from the May 2018 timetable change. Both corridors have to accommodate both semi-fast services between Liverpool and Yorkshire and local stopping services, leading to irregular service frequencies in which many stations on the CLC route are only served by one train per hour or one train every two hours. Similar issues can be observed on the Chat Moss line, which can only accommodate limited stopping services at Patricroft and Eccles. Future investment in Greater Manchester's western corridors will therefore need to strike the right balance between long-distance and local journeys. In doing so, investment will also need to protect urban settlements along these corridors to support quality of life objectives.
- Need for improved access from suburbs to inter-city rail at Piccadilly: Manchester Piccadilly is the city-region's most important transport hub for city-to-city rail travel. Over the coming years, its status as a hub for city-to-city travel will change, with loss of Trans-Pennine trips to Victoria being offset by the continuing implementation of Northern Hub, and longer-term projects such as HS2 Phase 2 and Northern Powerhouse Rail. The workshop noted that it will therefore be important to ensure that Manchester Piccadilly is easily accessible from the suburbs, so that the city-to-city rail offer is an attractive option for as many residents as possible and an attractive alternative to city-to-city driving. This need will span across all modes, including: local rail services into Manchester Piccadilly; Metrolink capacity and frequency; bus accessibility; walking and cycling; taxis/private hires and Mobility as a Service.
- 227. Competition between local and long-distance trips on the motorways: The M60 and M62 in the northwest of Greater Manchester performs multiple roles, supporting long distance through traffic, for example between Mersey and Humber ports; traffic between the wider region (and beyond) and Greater Manchester; and large amounts of relatively short distance traffic within Greater Manchester. In the peak periods a lot of commuter traffic uses the motorways, which in the Western study area provides one of the few crossings of the Manchester Ship Canal. The multiple roles of the motorways means that city-to-city traffic, both generated by the Regional Centre and within the study area, often has to cope with significant delays and unreliable journey times. The Manchester Northwest Quadrant Study is the Government's response to this issue but the scale of challenge means that any significant interventions emerging are unlikely to be delivered until the latter part of the next decade or beyond. Discussion at the workshop suggested that there will be a need to consider interventions to address or mitigate some of these issues in the shorter term.

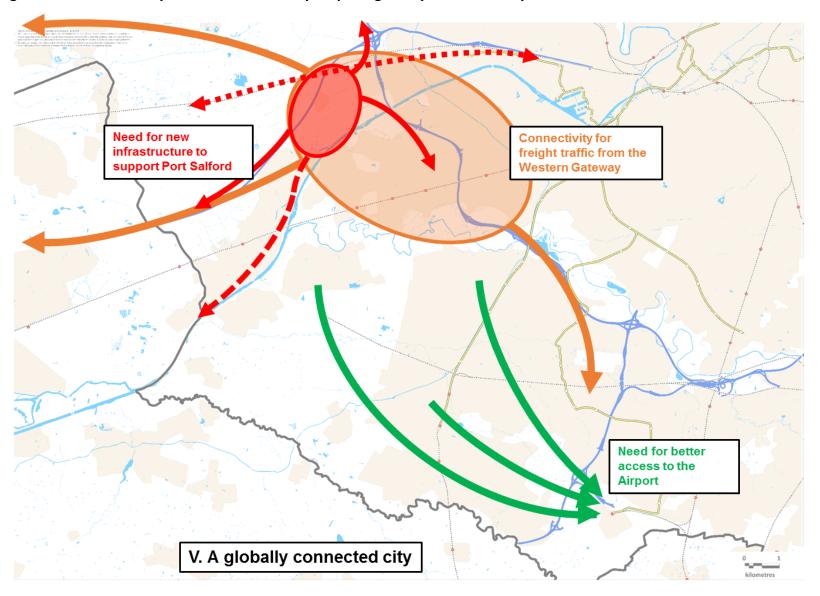
Figure 29: Western Study Area Issues Summary Map – City-to-city links



A globally connected city

- Need for better access to Manchester Airport, especially by public transport: From almost all parts of the Western Study Area public transport to the Airport struggles to compete with the car. The early-morning nature of many flight departures and weak public transport connections to the Airport from the Western Study Area leads to high car use for journeys to the Airport. Reliance on the car for Airport trips has contributed to major issues on the road network, such as congestion, poor journey time reliability, and air pollution. The new Manchester Airport-Liverpool service on the CLC route from May 2018 will help this situation. As the Airport seeks to expand over the coming years, a key issue will be how to encourage more public transport from areas such as Altrincham, Carrington, Port Salford and Irlam. New orbital public transport links are also likely to be part of the solution.
- Need for suitable infrastructure to support growth at Port Salford: Within the Western Study Area, Port Salford is expected to become UK's first (modern) inland tri-modal port, accessible by rail, road and water. This will provide a significant boost to the local economy through providing a globally connected freight and logistics hub. The creation of an inland tri-modal port at Port Salford will attract freight and logistics businesses to the area thus creating jobs in a variety of sectors. There will also be an additional transport benefit in that significant quantities of freight could be transported via rail and water and no longer via the motorways. However, discussion at the workshop highlighted the need for improvements to existing transport infrastructure in the area to support growth at Port Salford and to accommodate the increase in nearby employment land. These improvements would include the delivery of the Port's immediate road, rail and water infrastructure, but are likely to also entail improvements across the wider transport network to remove upstream/downstream constraints (e.g. to accommodate rail freight paths see below).
- 230. Connectivity for freight traffic generated within the Study Area: The workshop highlighted that with both Trafford Park and Port Salford within its boundary, the Western Study Area will be a major logistics hub for Greater Manchester and the North. Compared to today, this will likely result in an increased demand for freight on the Strategic Road Network and additional rail freight traffic. Port Salford provides an opportunity to shift long-distance freight traffic from road to rail and water, but at the same time it will also act as a catalyst for further freight and logistics locally, serving markets across the northwest as a whole. The servicing of this market is likely to be undertaken primarily by road. It will therefore be vital to ensure that road links to major regional markets and across Greater Manchester are reliable and resilient and that capacity is available to support increases in rail freight movements between the study area and the rest of the country. It will also be important to ensure that the competitiveness of rail connections is not undermined by long journey times caused by rail capacity issues on the wider network.

Figure 30: Western Study Area Issues Summary Map – A globally connected city





Appendix C: How the transport issues in this GMSF Transport Study Report have been identified

The GMSF Transport Study: Understanding the Issues process

- ^{144.} As part of the GMSF Transport Study process, a series of workshops were held with officers from the GMCA, TfGM and the ten Greater Manchester local authorities, as well as other statutory stakeholders. The aim of these workshops was to gain a better understanding of the current and future requirements of the transport network across the GMSF plan period.
- In addition to these stakeholder workshops, the study team also conducted a review of the available transport evidence, including socio-economic evidence, public transport provision, congestion, and car ownership levels. The outcomes of the evidence review and the stakeholder workshops were captured for each of the six Study Areas, in the form of a narrative and visual summary of the key transport issues. The key issues and associated conceptual maps are included in Appendix B.

Issues Workshops

Over the course of 2017 a series of workshops were held in each of the six Study Areas to gain a better understanding of the current and future requirements of the transport network across the GMSF plan period. The workshops used facilitated group working to identify the critical transport issues in each Study Area.

Review and Validation Workshop

- ^{147.} In late 2017, a Review and Validation Workshop was hosted, to provide the Greater Manchester local authorities with an additional opportunity to shape the outcomes of the Understanding the Issues report by:
 - Reviewing and validating the transport issues identified in each area through the six Study Area workshops.
 - Providing guidance and direction to the study team on the relative priority of the various issues identified, to inform the final Undertanding the Issues report.
- During the workshop, attendees were split into six groups representing the six Study Areas. Attendees were asked to review the issues and interventions identified, and indicate the relative priority of the issues in the Study Area. Attendees were also invited to identify issues that they felt had not been adequately represented at the workshop. The discussions took place over several rounds to ensure that the attendees could share their views on multiple Study Areas.

Appendix D: Analysis of transport-related consultation responses to the 2016 draft of the GMSF

- Following the publication of the first draft of the GMSF in October 2016, an initial formal public consultation period ran from October 2016 to January 2017. More than 27,000 responses were received during this period. The majority of the responses related to one or more specific allocations, although responses were also received on the transport aspects of the GMSF as a whole.
- In terms of general transport issues, over half of the transport-related responses stated that existing traffic congestion and pollution from cars was already unacceptable and would only get worse with additional development. Responses also stated that there would be increased pressure on existing local facilities and services which GMSF currently makes no provision for. Many responses stated the need for investment in the highway network, public transport and walking and cycling. Over one in five responses actually challenged or questioned the ability to deliver the required transport infrastructure and/or if the necessary funding would be made available. Finally, a number of responses stated that GMSF needed to be better integrated with the 2040 Transport Strategy.
- 151. Many responses stated that accessibility was vital to the overall success of the GMSF, and that further investment in public transport and walking and cycling networks were key priorities alongside the highways networks. Over a third of all responses stating that existing congestion on the highway network in the peak period is already a serious problem stagnating economic growth. Some of these responses also suggested that there were congestion issues on the highway network in Greater Manchester outside of peak times in certain areas. Many responses also reported that the public transport network was overcrowded, inadequate and did not cater for the needs of the population. However, some responses relating to accessibility challenged the ability of the GMSF to deliver the required transport infrastructure or if the funding required would be made available, therefore making the entire GMSF flawed.
- infrastructure policies expressed in the GMSF. Suggestions included giving a more in-depth explanation of the requirement for green space for health and well-being and focussing the policy more specifically on the provision of high-quality green space. A few responses to the green infrastructure policies questioned the viability of the aspirations. Many responses to the wider infrastructure policies stated that existing infrastructure, including transport, are incapable of dealing with current levels of demand that would only be made worse given future expected levels of development. Responses also stressed the need for investment and development in the highways network and public transport infrastructure before other any economic or residential development.

