GREATER MANCHESTER
DOING THINGS DIFFERENTLY

GREATER MANCHESTER TRANSPORT STRATEGY 2040

Appendix 1: Right Mix Technical note

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Greater Manchester Transport Strategy 2040 – 'Right Mix' Technical Note

Introduction

1. Greater Manchester's ten local authorities are currently preparing strategic planning documents that will provide a spatial interpretation of the Greater Manchester Strategy. These documents, which set out how Greater Manchester should develop over the next two decades, will:

    - identify the amount of new development that will come forward across the ten Local Authorities, in terms of housing, offices, and industry and warehousing, and the main areas in which this will be focused;
    - ensure we have an appropriate supply of land to meet this need;
    - protect the important environmental assets across the conurbation;
    - allocate sites for employment and housing outside of the urban area;
    - support the delivery of key infrastructure, such as transport and utilities;
    - define a new Green Belt boundary for Greater Manchester.

2. The plans will focus on making the most of Greater Manchester's brownfield sites, prioritising redevelopment of town centres and other sustainable locations. The plans are required to demonstrate that Greater Manchester has enough land to deliver the homes and jobs people require in the future, and whilst there is an expectation that the focus of development will be on brownfield sites in the early years, it is recognised that some land will need to be released from the green belt to fully meet Greater Manchester's combined housing and employment requirements.

3. The consultation process of draft plans to-date have highlighted respondents' concerns about the ability of the transport network to accommodate growth in Greater Manchester. This note explains Greater Manchester's current pathway to achieving the 'Right Mix' transport vision to reduce car's share of trips to no more than 50%, with the remaining 50% made by public transport, walking and cycling. This will mean approximately one million more trips each day using sustainable transport modes in Greater Manchester by 2040.

Background

4. We recognise that the world around us is likely to change significantly over the next twenty years, in ways that we cannot always predict. For example, the spread of COVID-19 throughout 2020 has had a profound impact on people's lives and wellbeing in a way that would have been difficult to imagine previously. While it is rare for an external event to have such a huge impact on people's everyday lives - and travel behaviours (people stopped travelling or changed the way they get around) - there is always the potential for our plans to be knocked off course by external events.

5. That is one of the reasons why Greater Manchester has adopted an adaptive, vision-led approach to transport planning. This means that the steps needed to achieve our 'Right Mix' transport vision will be continually monitored, and adjusted if needed, to achieve our goals. The 'Right Mix' transport vision involves creating a better transport system for Greater Manchester, so that we can reduce car's share of trips to no more than 50%, with the remaining 50% made by public transport, walking and cycling.

6. Although it is intended that this overall Right Mix vision will remain the same, changes in the way we achieve the Right Mix - necessitated by external events such as COVID-19, but also factors such as population growth – will lead to changes to the type of interventions set out in Greater Manchester's transport plans. This is one of the reasons we update our Greater Manchester Transport Strategy 2040 suite of documents on a regular basis.

7. This Right Mix Technical Note sets out adjustable steps – a 'pathway' – to achieving the Right Mix transport vision, in a way that supports existing worldwide trends that are being seen in Greater Manchester, including: the increased preference for high-density urban living, the growth of major city centres and the increased popularity of travelling by bike, rapid transit and inter-urban rail.

Relationship to Other Strategic Planning and Land Use Evidence

8. This document will be a supporting document for both the Greater Manchester Transport Strategy 2040 and any future strategic land use planning documents prepared. It is part of a suite of documents that examine the implications of the land use strategies on transport in GM. The other documents include:

    - GM Transport Strategy 2040 and supporting 5 Year Delivery Plan. These documents together set out our strategic aspirations for transport in GM and articulate our plan for delivery.

- An Existing Land Supply and Transport Technical Note: This note examines the spatial distribution of the Existing Land Supply and the transport interventions highlighted in the 5-Year Delivery Plan that will support key clusters of growth.
- A series of potential development site Locality Assessments. These assessments examine the likely local impact of potential development on the transport network and identifies where mitigation may be needed.
- A Strategic Modelling Technical Note. This provides analysis of the potential strategic impact of growth on our transport network in a "policy-off" scenario.

9. Together these documents examine the local and strategic implications of growth. This Right Mix technical note underpins the GM Transport Strategy 2040 by outlining our adaptive vision-led approach to transport planning.

10. The Locality Assessments focus on identifying the local and strategic interventions necessary to deliver each individual potential development site, while the Existing Land Supply note highlights the transport interventions needed to support the delivery of the Existing Land Supply.

11. Finally, we test a worse-case "policy-off" forecast in the Strategic Modelling Technical Note so that we can understand the degree to which potential growth affects the network if we were to take no further steps to achieving the 'Right Mix'. The strategic modelling forecast assumes that only committed / funded schemes and those schemes directly associated with potential development sites proceed – but policy changes such as bus reform, integrated ticketing or behavioural change initiatives, and longer-term interventions such as Quality Bus Transit, Tram-train, or Metrolink extensions are omitted.

12. For the avoidance of doubt, the Right Mix vision is not in any sense a 'rival' to that forecast. The Right Mix is a transport vision for achieving policy objectives, not a forecast. Unlike the "policy-off" forecast for the Strategic Modelling, there is no prediction that a specific set of interventions will lead to a specific set of outcomes in the future. Instead, there is a pathway comprising a set of targets for changes in travel behaviour that will be modified in the light of monitoring of progress to achieving the vision for 2040.

Our transport vision for 2040

13. Our 'Right Mix' vision for 2040 was first set out in January 2019 in the draft Greater Manchester Transport Strategy 2040: Delivery Plan (2020-2025). The proposed pathway to the Right Mix was published at the same time in the Evidence-Base Update of the 2040 Transport Strategy.

14. It was noted at the time that the steps in the pathway will be reviewed in the light of monitoring progress towards achieving the Right Mix. It is too soon to get any results from monitoring, but some changes to the pathway have already been made. These result from:

    - Changes to population projections for Greater Manchester
    - Improvements and adjustments to baseline data which forms our understanding of the present situation
    - Changes and additions to some of the steps to better reflect the potential for achieving changes in mode share.

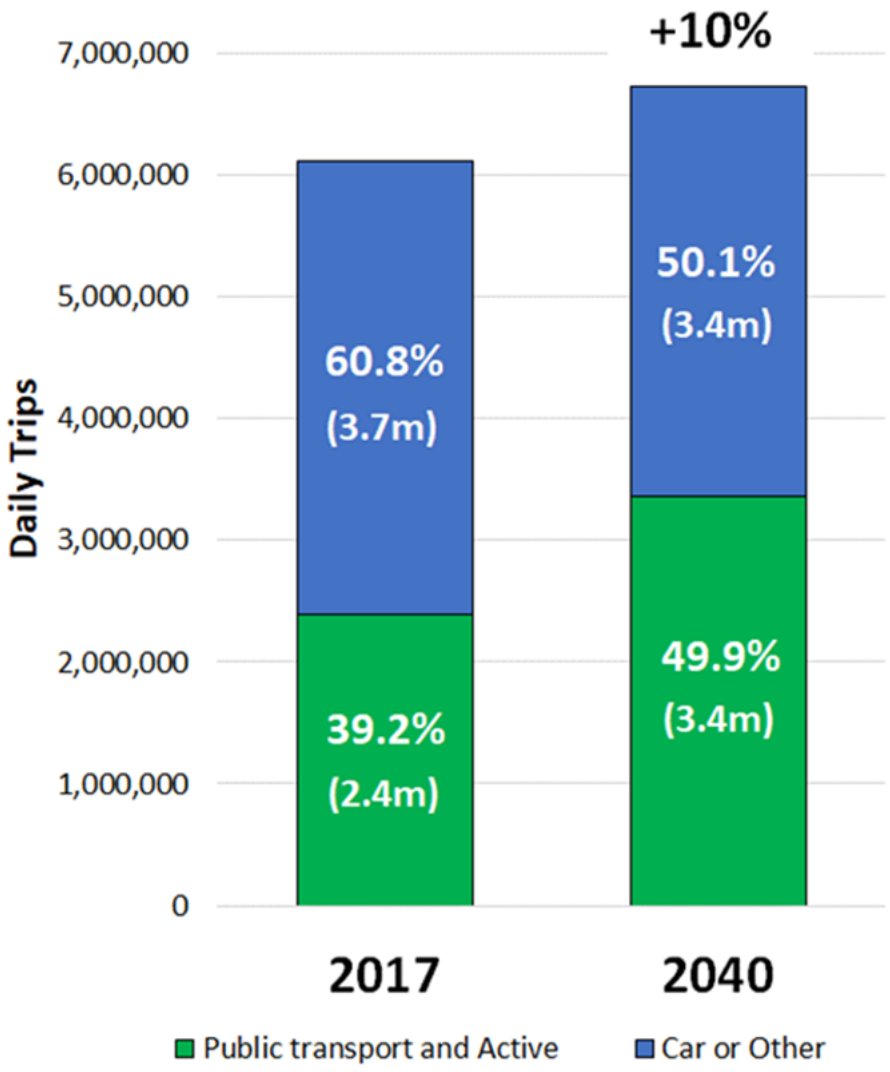
15. The Right Mix vision itself is unchanged - to improve our transport system so that we can reduce car use to no more than 50% of daily trips, with the remaining 50% made by public transport, walking and cycling. This will mean approximately one million more trips each day using sustainable transport modes in Greater Manchester by 2040 – see Figure V1, which contains some changes to the numbers that underlie the vision compared with the 2019 version.

16. Our analysis suggests that achieving this vision will enable us to deliver our economic growth ambitions without increasing overall motor-vehicle traffic in Greater Manchester.

17. The vision of no net increase in motor-vehicle traffic includes trips by Greater Manchester residents, as well as trips by non-residents and goods vehicle movements, which will also be influenced by our transport and land-use interventions - but less so. We expect no net increase in motor-vehicle traffic to be achieved by a net reduction in residents' traffic (the great majority of motor vehicle-km in Greater Manchester); an increase in light goods vehicle movements; and – potentially, but not necessarily – some net increase in car-travel by non-residents.

18. The analysis is based on "TRADS" data which is Greater Manchester's household travel diary survey, in which a representative sample of Greater Manchester residents are interviewed about their recent trips. It is the Greater Manchester equivalent to the DfT's National Travel Survey, although there are some differences in survey methodology.

Figure V1: The Right Mix vision for 2040:



A pathway for achieving the "Right Mix"

19. In this section of the report, a proposed pathway is set out for achieving the Right Mix. The pathway is set out as a series of steps, which would, in reality, be made at the same time, but which are described as separate steps to assist explanation. It incorporates the changes referred to above.

20. The steps in the pathway will be reviewed in the light of monitoring progress towards achieving the Right Mix. It is expected that the pathway will change in response to the results of monitoring. The changes could comprise changes in the interventions needed to achieve particular steps within the pathway, or changes to the steps themselves. To take one example of how this "adaptive planning" approach will work, there is presently little understanding of how "Future Mobility" – which can be broadly defined as disruptive technological and social change facilitating new and improved transport services – will affect travel behaviour. There is also much uncertainty about any longer-term effects on travel behaviour of the Covid-19 pandemic of 2020. As those effects become apparent, changes will be made to the proposed pathway to the Right Mix.

Spatial themes

21. The steps in the pathway to the Right Mix are defined using the framework of the spatial themes in the Greater Manchester Transport Strategy 2040. Trips by Greater Manchester residents have been categorised into the spatial themes.

22. The spatial themes have been represented within the Greater Manchester TRADS Years 3-5 (2014-2016) person-trip dataset through the application of the following criteria (Table V1).

23. Note: The spatial theme, 'A Globally Connected City' (i.e. non-work trips to Manchester Airport) has been excluded from the analysis. TRADS surveys cannot accurately pick up these trips since residents making trips to Manchester Airport will likely be outside Greater Manchester (e.g. on holiday abroad) at the time at which surveys would be carried out. The number of 'A Globally Connected City' trips is likely to be very small compared to the other spatial themes, so this is not considered to have a material impact on the results.

24. Figure V2 and V3 show the change in volume of trips by mode for 'Now' and '2040' within each spatial theme in the Right Mix vision.

Table V1: Allocation of trips to the spatial themes defined in the 2040 Transport Strategy

Spatial Theme	Includes	Except
Neighbourhood	Trips less than 2km (straight line) with at least one end within Greater Manchester	• Trips with a non-work attraction end at Manchester Airport and surrounding developments • Trips with an end within the Regional Centre
Wider City Region	Trips with at least one end in Greater Manchester, and both ends no more than 10km outside the Greater Manchester boundary	• Trips with a non-work attraction end at Manchester Airport and surrounding developments • Trips with an end within the Regional Centre • Trips under 2km
Regional Centre	Trips with an end in the Regional Centre	• Trips with a non-work attraction end at Manchester Airport and surrounding developments • Trips with an end more than 10km outside the Greater Manchester boundary
City to City	Trips with one end in Greater Manchester, and the other more than 10km outside the Greater Manchester boundary	• Trips with a non-work attraction end at Manchester Airport and surrounding developments

25. Note: The spatial theme, 'A Globally Connected City' (i.e. non-work trips to Manchester Airport) has been excluded from the analysis. TRADS surveys cannot accurately pick up these trips since residents making trips to Manchester Airport will likely be outside Greater Manchester (e.g. on holiday abroad) at the time at which surveys would be carried out. The number of 'A Globally Connected City' trips is likely to be very small compared to the other spatial themes, so this is not considered to have a material impact on the results.

Figure V2: "Right Mix Vision" change in volume of trips by mode for 'Now' and '2040', by spatial theme

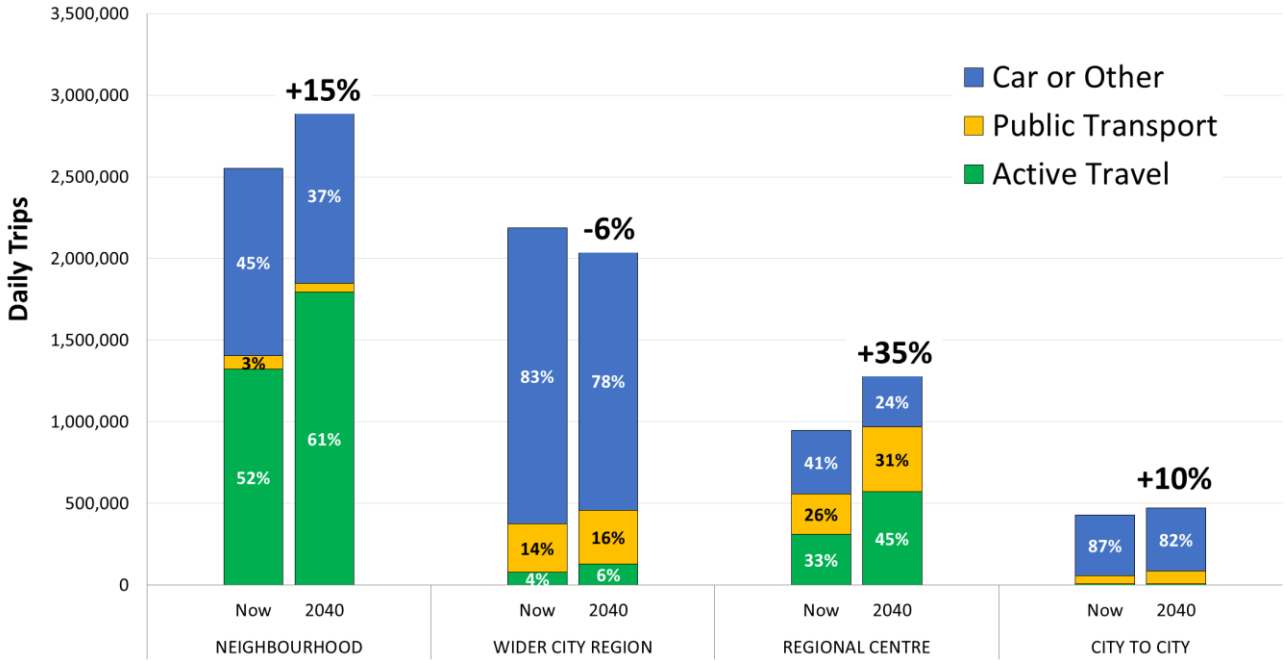
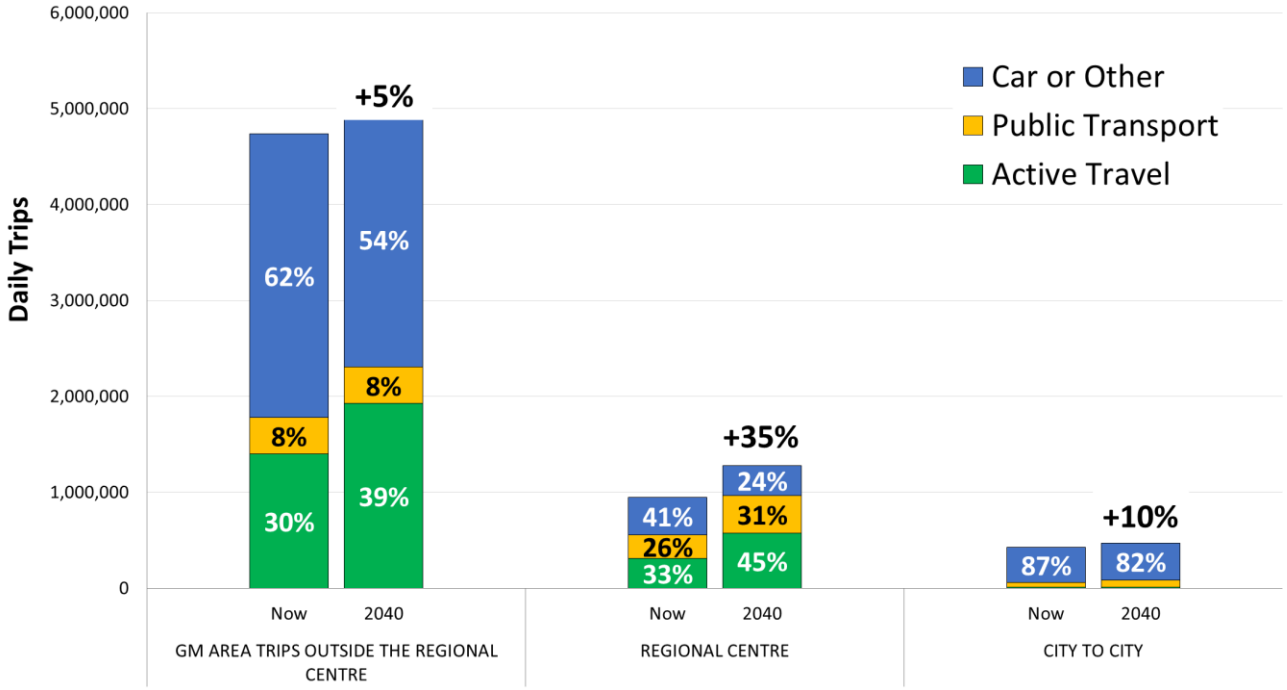


Figure V3: "Right Mix Vision" change in volume of trips by mode for 'Now' and '2040', by spatial theme, with Neighbourhood and Wider city-region trips combined



Comparing Table V2 with Table V3, it can be seen that, outside the Regional Centre, a reduction in Wider city-region trips is expected to be outweighed by an increase in Neighbourhood trips.

The steps to achieve the "Right Mix"

26. The steps in the pathway to achieve the Right Mix are as follows. Steps that have changed – or been added - since January 2019 are preceded by a '*'.

- *Step 1: 10% population growth leads to 10% growth in trips (and trip-kilometrage) by all modes.
- Step 2: Land-use and transport policies (plus changes in individual preferences) lead to a redistribution of 5% of trips from Wider City Region to Neighbourhood.
- Step 3: Land-use and transport policies (plus changes in individual preferences) lead to a redistribution of 10% of Wider City Region trips to Regional Centre.
- Step 4: Land use change and transport interventions lead to a higher mode share for walking for Regional Centre and Neighbourhood trips.
- Step 5: Transformational cycling policies lead to a switch to cycle from other modes – reaching a 10% mode share for Regional Centre and Neighbourhood trips and a 5% mode share for Wider City Region trips by 2040.
- *Step 6: Improved metro, suburban rail, and bus rapid transit services, plus complementary policies, cause these rapid transit modes to increase their mode-share, taking 8% of Wider City Region trips.
- Step 7: Transport policies (including travel demand management) lead to a 5% reduction in trip-length of Wider City Region car-trips.
- *Step 8: Improved inter-urban public transport leads to a 5% reduction in car mode-share for city-to-city trips.

27. Each of the steps in the pathway to the Right Mix is described below, together with the evidence behind them. The changes in travel behaviour that they represent comprise a set of adjustable targets which will be reviewed and modified within the adaptive planning approach outlined in paragraph 6 above.

Step 1: 10% population growth leads to 10% growth in trips (and trip-kilometrage) by all modes

28. Step 1 assumes that the expected 10% growth in Greater Manchester population between 2017 and 2040 leads to a 10% increase in the number of trips – i.e. that trip-rate per person remains constant. In the early years of this century, trip-rates per person – both across England (see Figure V3) and in Greater Manchester (see Figure V4) - declined sharply, possibly as a result of the growth of the digital economy. There are some signs that the decline has levelled-off in recent years.

29. It is not expected that Greater Manchester's transport and land-use interventions will have much effect on trip-rates per person, and that factors outside Greater Manchester's influence will be the main driver of any changes in trip-rates.

30. Note that in the January 2019 version of the Right Mix, population growth to 2040 was expected to be 15%: the change reflects revised population projections.

Figure V3: Trend in trip rates, miles travelled per person and hours per person spent travelling: England 1972/73-2017, National Travel Survey (NTS0101)

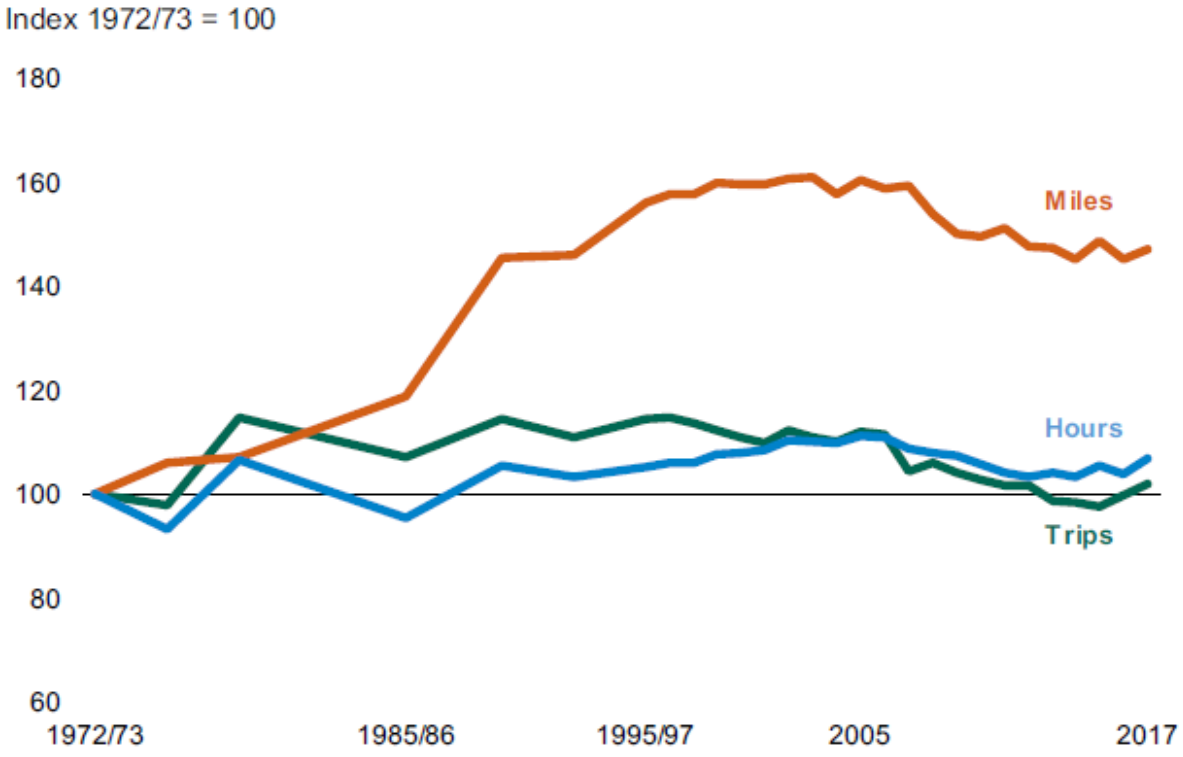
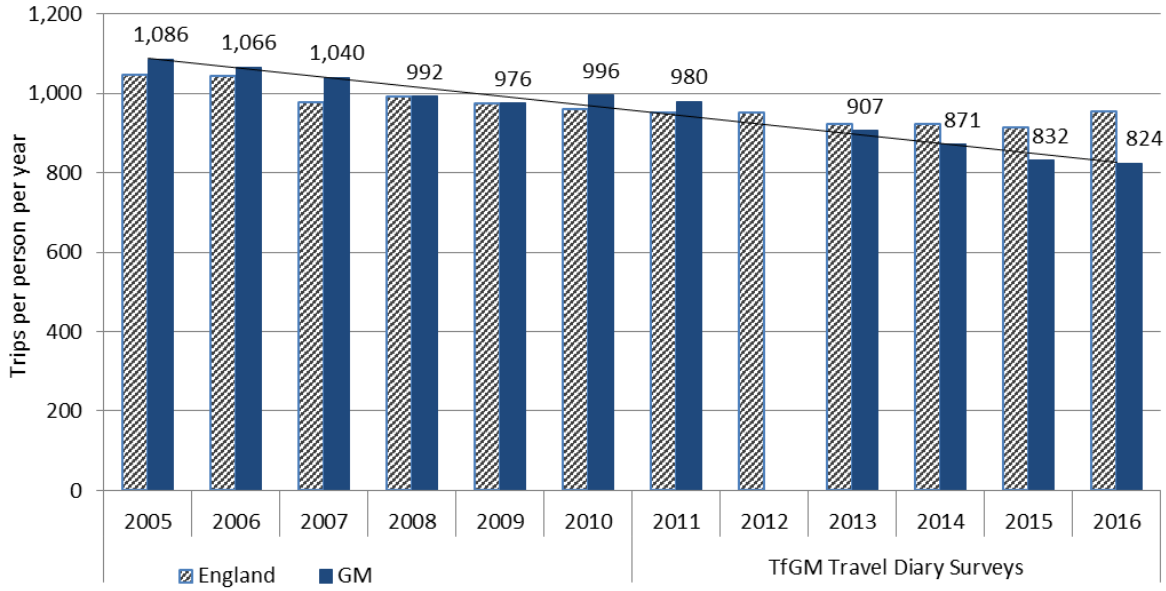


Figure V4: Trips per person per year 2005 – 2016 Greater Manchester



31. The table above is based on TfGM analysis of the Department for Transport National Travel Survey (2005 – 2016) and TfGM Travel Diary Surveys (2011 – 2016). N.B. DfT have recently changed the method for recording short walks – amended values for the trend for trips in England excluding short walks are reported in the Greater Manchester Transport Strategy 2040 Evidence Base - Travel in Greater Manchester section.

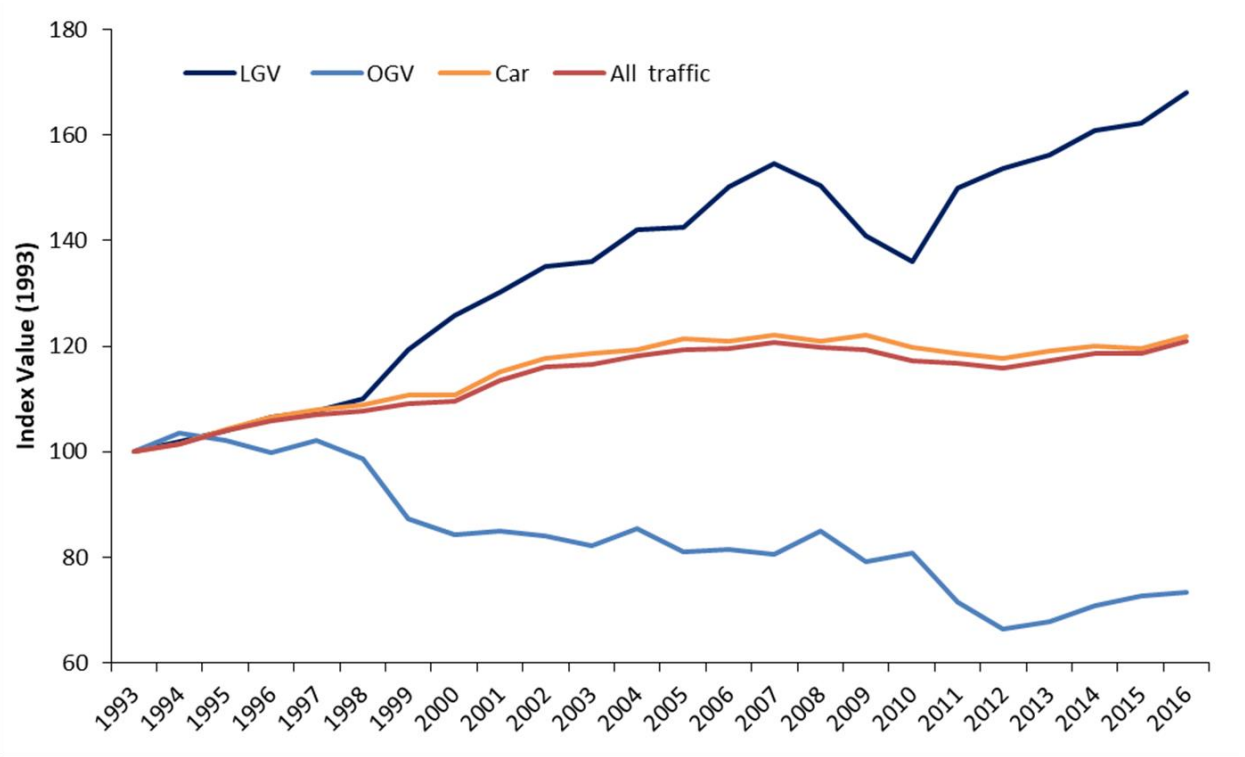
32. In recent years, the effect of falling trip-rates on motor-vehicle traffic has been at least partly offset by an increase in light-van movements, with an important cause being the growth of the digital economy leading to replacement of shopping-trips by movements of delivery vehicles. The growth of light-van movements has not been explicitly allowed for in this analysis, and the assumption that trip-rates will not continue their recent decline provides a balancing element of caution in estimating how externally-driven factors will affect volumes of motor-vehicle traffic in 2040.

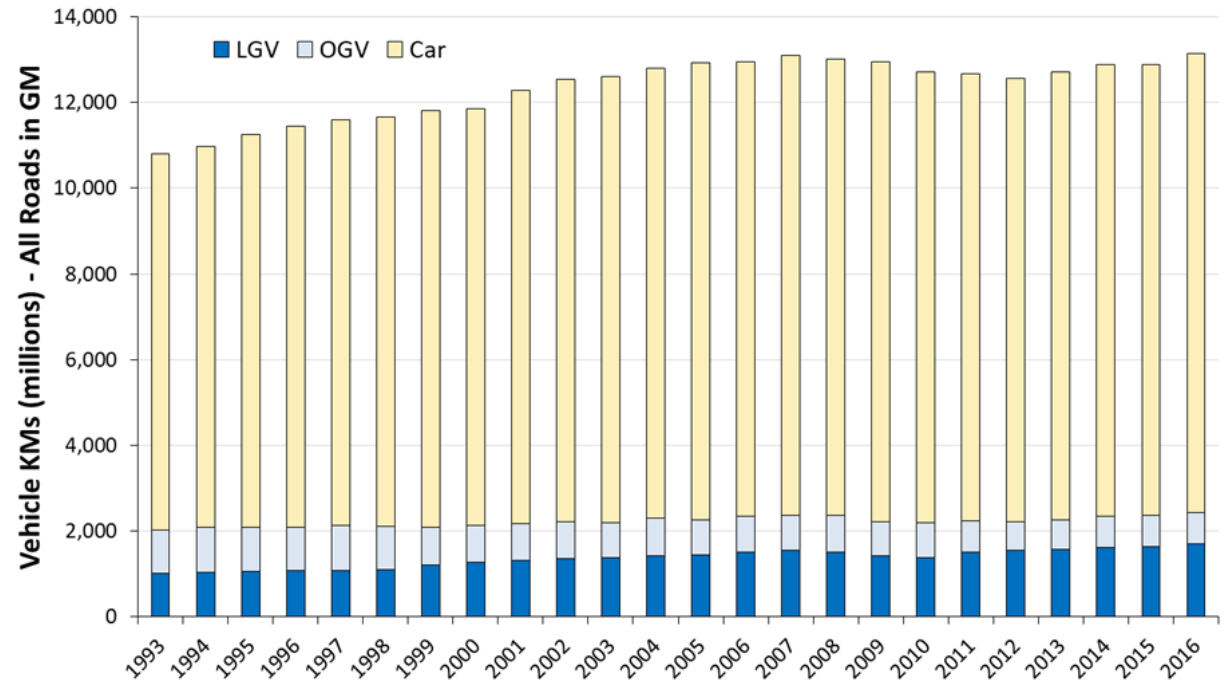
33. Figure V5 shows that between 1993 and 2016 traffic in Greater Manchester increased by around 21% whereas LGV kilometrage on Greater Manchester roads increased by around 68% in the same period. LGVs now account for c. 1.7 billion kilometres on Greater Manchester roads, representing 13% of all traffic (up from 9% in 1993).

34. It is important to note that the majority of this growth in LGV traffic has taken place on motorways, where the total distance travelled by LGVs has more than doubled between 1993 and 2016. In comparison, A roads have seen a 27% increase, and B roads a 21% increase over the same period. In 2016, motorways accounted for 56% of total Greater Manchester LGV kilometres travelled, up from 41% in 1993.

Figure V5: Growth in Light Goods Vehicle traffic on Greater Manchester roads

Source: TfGM Highways Forecasting and Analytical Services: Report 1912 Transport Statistics 2016 Road Traffic Section.





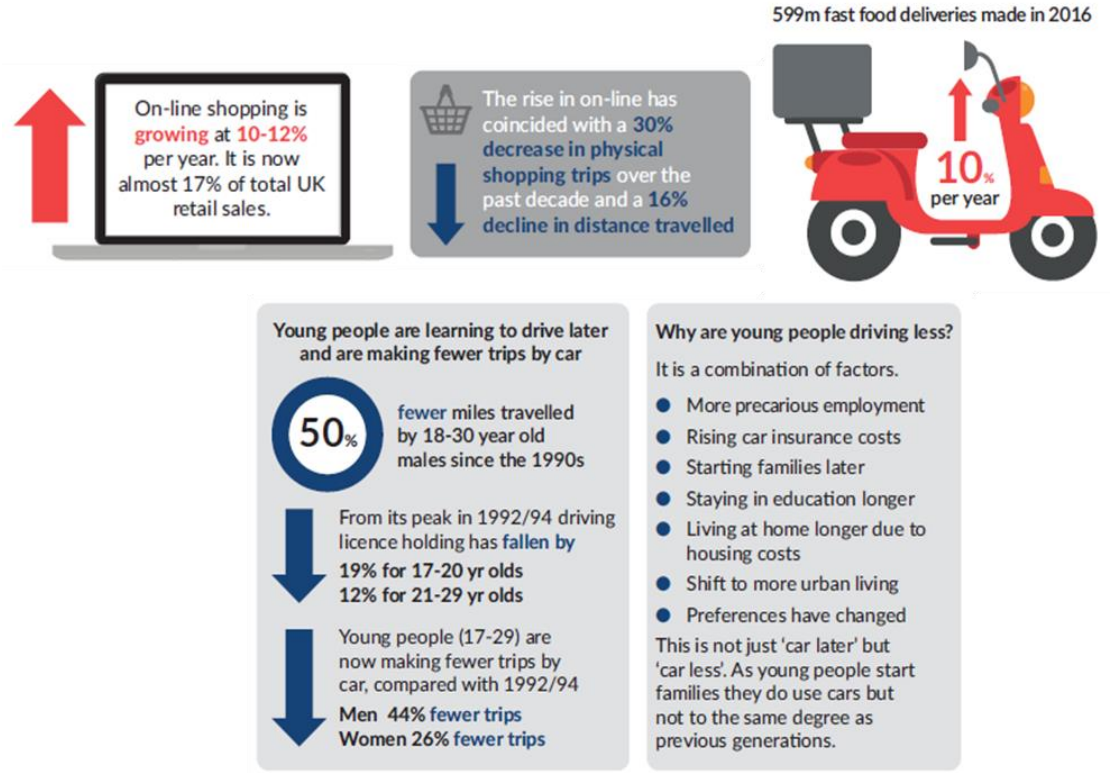
Step 2: Land-use and transport policies (plus changes in individual preferences) lead to a redistribution of 5% of trips from Wider City Region to Neighbourhood

35. There is a growing body of evidence that highly skilled young professionals want to live in attractive walkable urban environments. For example, in a recent survey of millennials aged 18-34 in ten major US cities, three in four said it is likely they will live in a place where they do not need a car to get around (Source: Transportation for America (2014), Survey: To recruit and keep millennials, give them walkable places with good transit and other options. Available from: http://t4america.org/2014/04/22/survey-to-recruit-and-keep-millennials-give-them-walkable-places-with-good-transit-and-other-options/)

36. We anticipate that these preferences will translate into more Neighbourhood trips. Processes by which that might occur include (as reflected further by Figure V6):

- Trips to the supermarket being replaced by online delivery plus trips to the local convenience stores for top-up shopping.
- More walk-friendly neighbourhoods causing travel to local restaurants to replace travel to more distant eating venues.
- Reduced car-ownership among younger age-cohorts leading to a switch to neighbourhood trips that are more suitable for other modes of transport.

Figure V6: Evidence from 'All Change?' (Commission on Travel Demand)

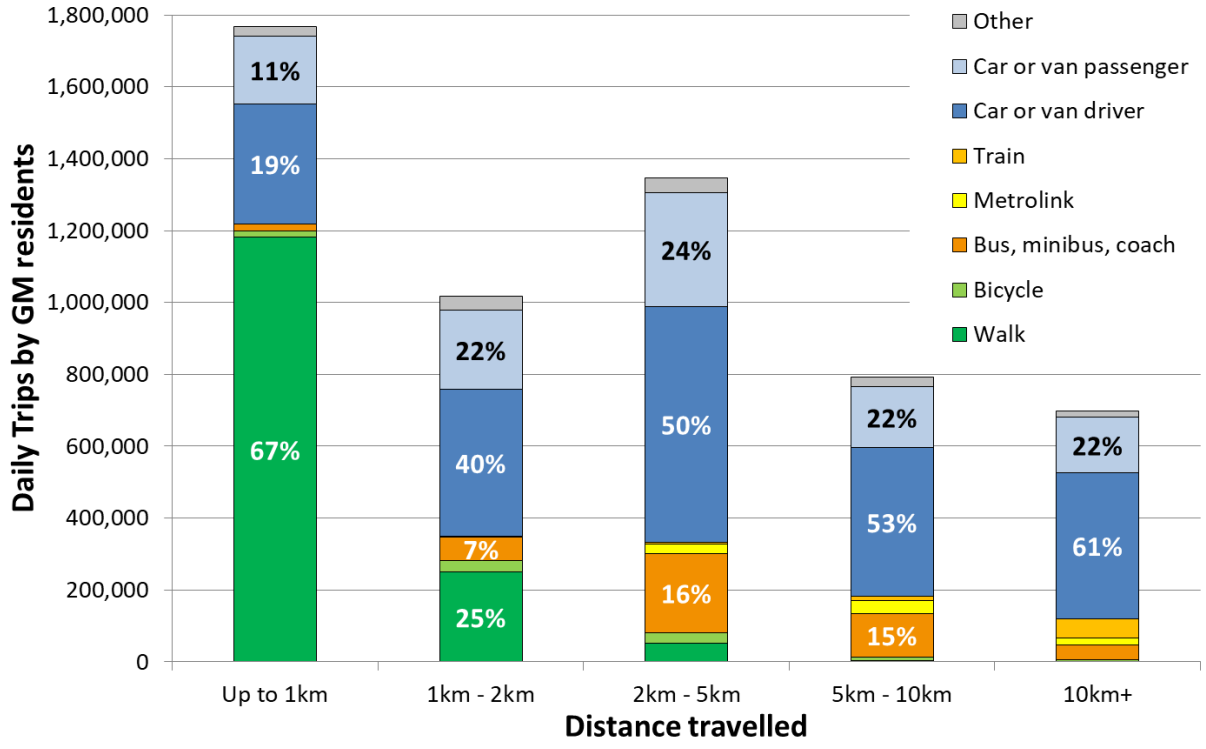


Source: Commission on Travel Demand (2018), All Change? The future of travel demand and the implications for policy and planning. Available from: http://www.demand.ac.uk/commission-on-travel-demand/

37. The targeted regeneration of town centres (including - but not confined to - the eight largest town centres in Greater Manchester – Altrincham, Stockport, Ashton-under-Lyne, Oldham, Rochdale, Bury, Bolton and Wigan.) will reinforce this preference and increase the potential for Neighbourhood trips. More residents in town centres will lead to more demand for local services, which will result in more people being employed to provide those services.

38. Many of these local trips will be made by walking. Figure V7 shows that the vast majority of walking trips made by Greater Manchester residents are under 2km in length.

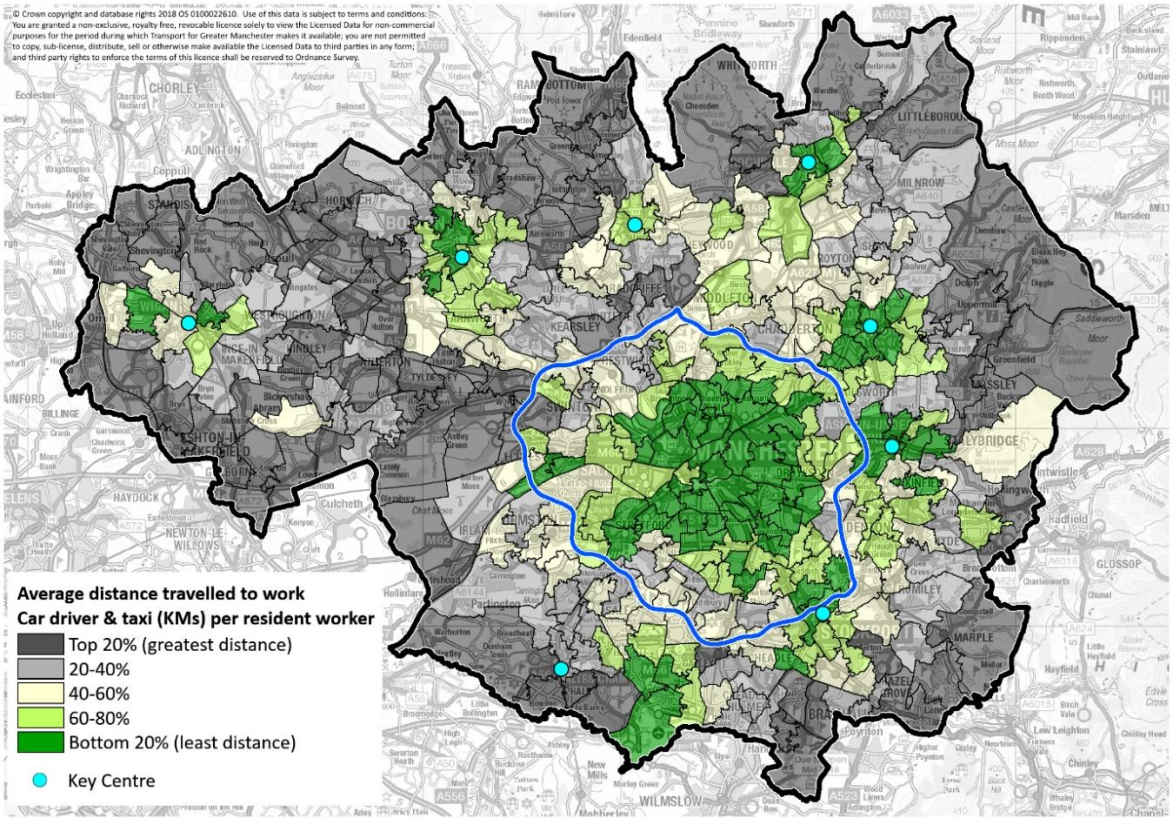
Figure V7: Main mode and distance travelled, Greater Manchester TRADS Years 3-5 (2014-2016)



39. The Mayor's Town Centre Challenge will provide a new and concerted effort to support Greater Manchester's local authorities to realise the potential in town centres, with a particular emphasis on achieving sustainable communities featuring thriving housing markets. These sustainable communities will provide their residents with greater scope to adopt non-car lifestyles by increasing the likelihood of being able to access the majority of what they need (across the full spectrum of journey purposes) without needing to travel further than 2km.

40. Figure V8 highlights the existing potential of the eight largest town centres and the urban area within the M60 for delivering beneficial travel outcomes by showing that residents within these areas tend to travel less distance (measured by car-driver-km per head) to travel to work (when compared to areas on the periphery of Greater Manchester).

Figure V8: Average distance travelled to work (km) as car-driver per resident worker, Census 2011



41. Note that this map shows average car-driver-km to work across all workers in each zone, including those who don't travel by car.

42. To support the 2040 Transport Strategy, Greater Manchester is planning to implement "Streets for All". Streets for All is Greater Manchester's new way of thinking about the role of streets in creating sustainable, healthy and resilient places. It focuses on balancing the movement of people and goods alongside the creation of more people-friendly and less polluted streets and places. Specific Streets for All investments will depend on the specific needs of each locality, but they are likely to reflect a greater emphasis on "place" in densely populated residential areas, thereby encouraging the development of walkable communities which generate Neighbourhood trips.

43. Figure V9 shows the tendency within Greater Manchester for densely-populated areas to hold above-average (in comparison to Greater Manchester as a whole) concentrations of no-car households. This is complemented by Figure V10 which shows how these densely-populated areas are also generally characterised as having above-average (in comparison to Greater Manchester as a whole) levels of public transport accessibility.

44. In Figure V10, public transport accessibility is measured by GMAL (Greater Manchester Accessibility Levels), which is a detailed and accurate measure of the accessibility of a point to both the conventional public transport network (i.e. bus, Metrolink and rail) and Greater Manchester's Local Link (flexible transport service), taking into account walk access time and service availability. GMAL gives particular emphasis to bus accessibility and are not affected by the higher speeds offered by National Rail or Metrolink services.

Figure V9: Total Cars & Vans per head and Resident Population Density, Census 2011

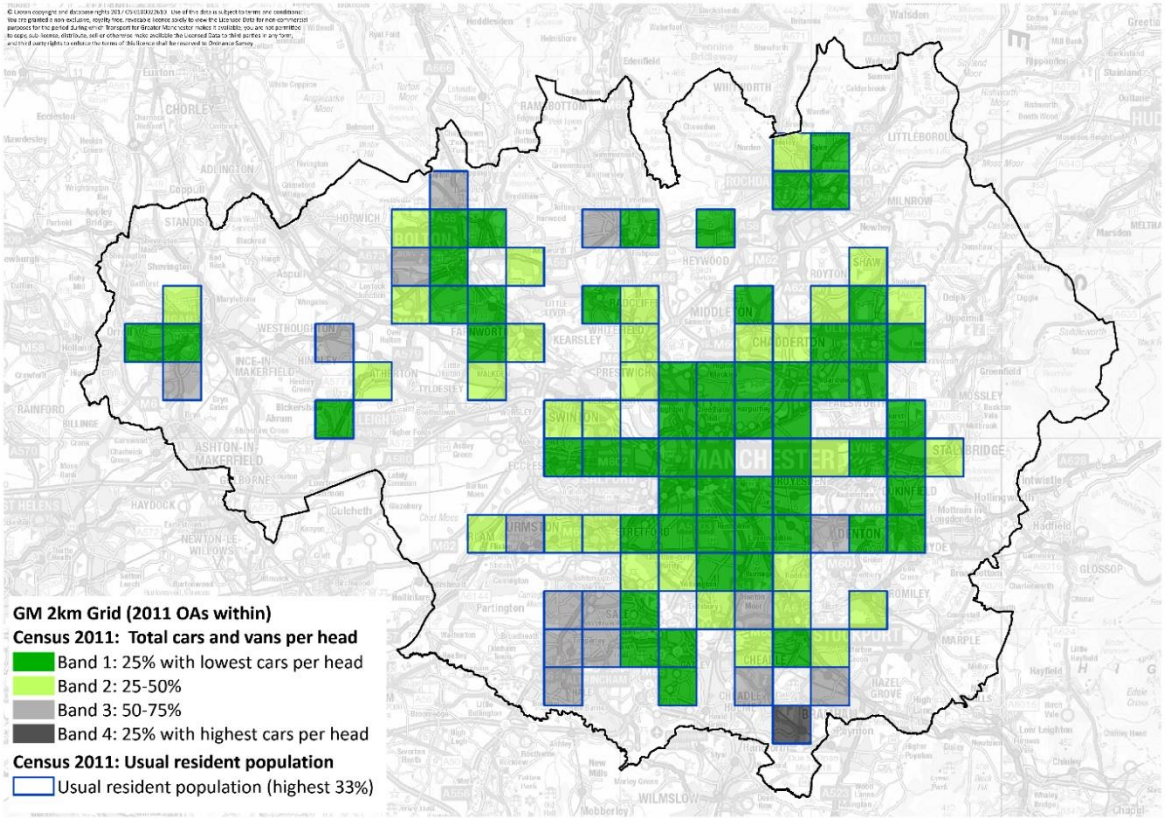
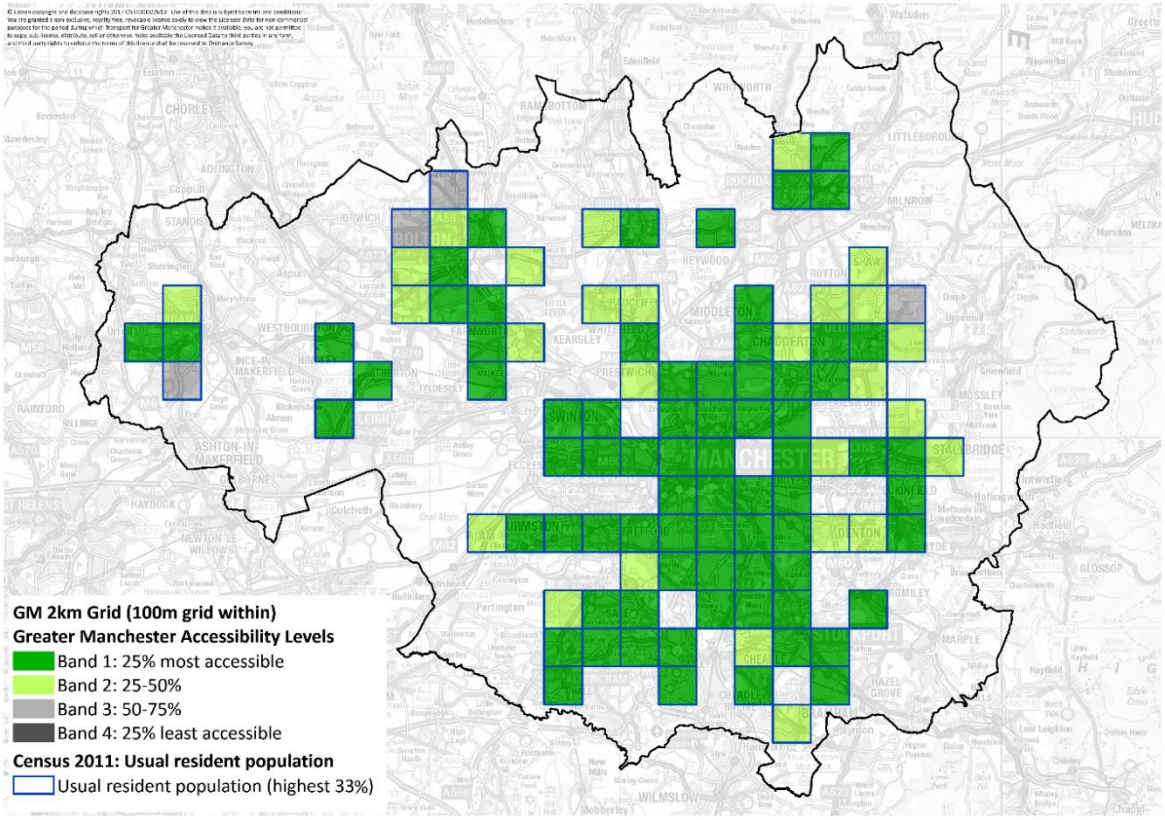
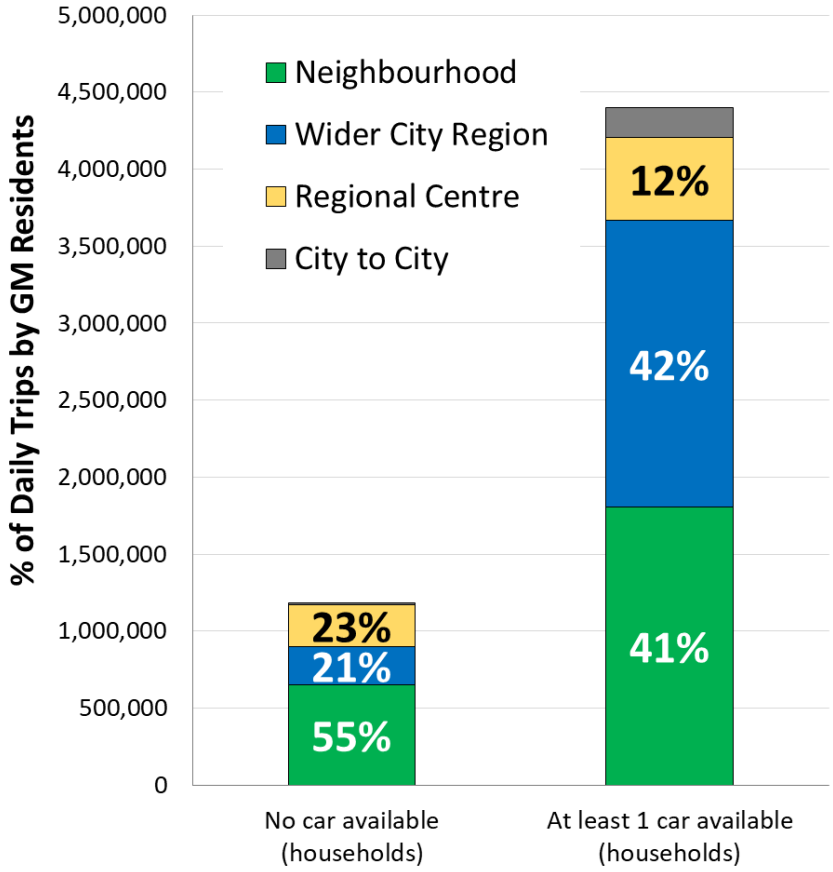


Figure V10: GMAL (October 2017) and Resident Population Density, Census 2011



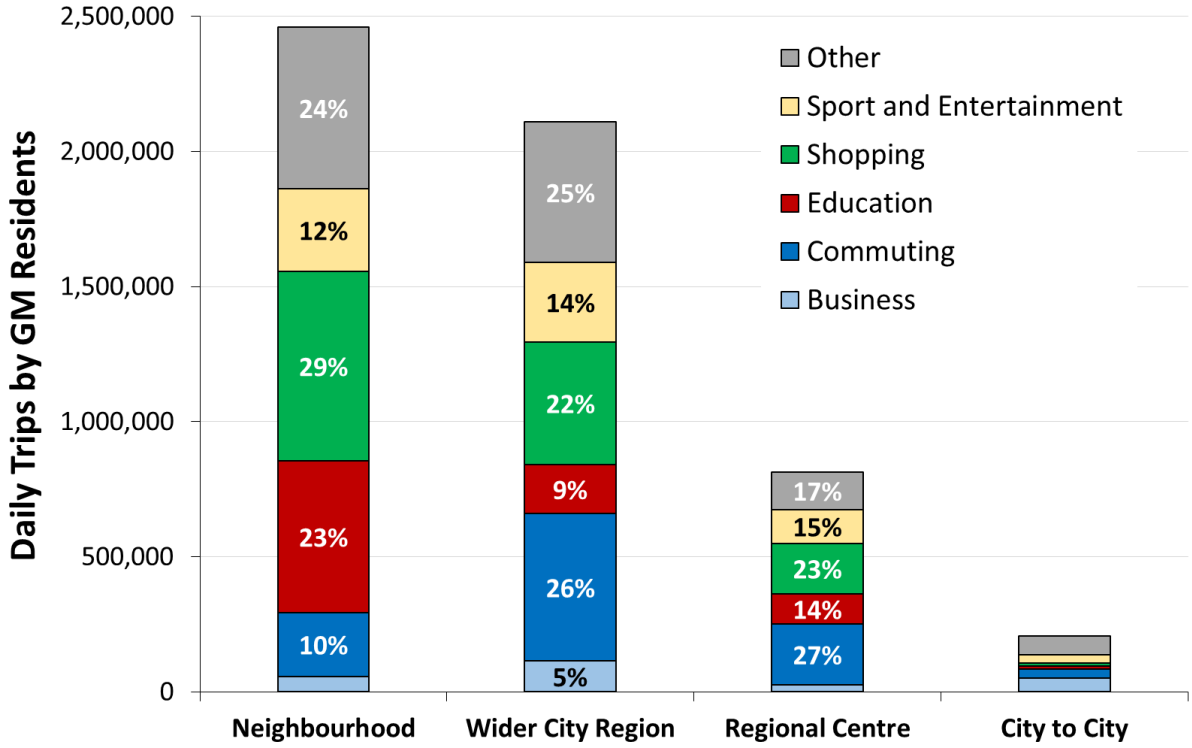
45. Together, Figure V9 and Figure V10 highlight the importance of attractive and frequent bus services in facilitating non-car-dependent lifestyles. Investment in bus priority will be important in facilitating those attractive and frequent bus services. Figure V11 shows that people who don't own cars are likely to make more Neighbourhood trips.

Figure V11: Daily Trips by Spatial Theme: No car households vs. Car available households, Greater Manchester TRADS Years 3-5 (2014-2016)



46. Figure V12 shows journey purpose by spatial theme. This analysis highlights the dominant role of education and shopping within the Neighbourhood spatial theme, when compared to the Wider City Region and Regional Centre spatial themes where there is a much greater emphasis on commuting.

Figure V12: Journey Purpose by Spatial Theme (Daily Trips by GM residents, GM TRADS 2014-16)



47. There are some counteracting forces against a move to more Neighbourhood trips: for example, increased choice for both primary and secondary education and increased centralisation of healthcare facilities. There are also potential major employment growth areas in locations such as Manchester Airport and North-East Corridor, which will attract most of their workers from outside the immediate neighbourhood. Interventions to minimise any growth in motor-vehicle traffic resulting from developments such as these are detailed in Our Five Year Transport Delivery Plan and in associated Locality Assessments.

48. In sum, with land-use and transport policies which reinforce strong changes in individual preferences, we consider a net redistribution of 5% of Wider City-Region trips to Neighbourhood trips by 2040 to be a realistic target.

Step 3: Land-use and transport policies (plus changes in individual preferences) lead to a redistribution of 10% of Wider City Region trips to Regional Centre

49. Step 2 represented how land-use and transport policies will combine to promote sustainable travel outcomes that will be focused upon the regeneration of existing urban areas outside of the Regional Centre. Step 3 accounts for the opportunities provided by the intensification of both the residential and employment markets within the Regional Centre.

50. Major growth in jobs in the Regional Centre is anticipated continuing a trend seen in the past two decades. A growing Regional Centre – with its high mode-share for non-car travel – is strongly supportive of the 2040 Right Mix vision.

51. It is expected that more jobs in the Regional Centre will lead to more Regional Centre trips, not just for work, but for other purposes, for reasons that include:

- Regional Centre workers will take trip-chaining opportunities to visit Regional Centre shopping and leisure attractions (i.e. combining several activities through linked trips – e.g. city-centre shopping on the way home from work).
- More jobs in the Regional Centre will cause an increase in population density in locations well-located for travel to the Regional Centre, which will have a relatively high propensity to travel to the Regional Centre for other purposes. This will be an additional effect to the increase in Regional Centre walk-trips resulting from more residents within the Regional Centre considered in Section 4 below.
- The developments that create the additional jobs in the Regional Centre will themselves attract trips for other purposes.

52. As will be seen from Figure V3, the net result of the Right Mix trip targets is that Greater Manchester area trips wholly outside the Regional Centre are expected to increase, but by less than Regional Centre trips.

53. The growth of Regional Centre trips is expected to take place without any net growth in car trips, reflecting the constraints on the highway network and an increased focus on "place" in allocating highway space. Annual counts of movements crossing the MSIRR inbound show that car volumes crossing the MSIRR cordon inbound have fallen substantially over the past fifteen years, both in the AM peak (see Figure V14) and inter-peak periods.

54. The growth of Regional Centre trips will place substantial demands on the public transport network. More details of public transport capacity requirements are given under Step 6 below.

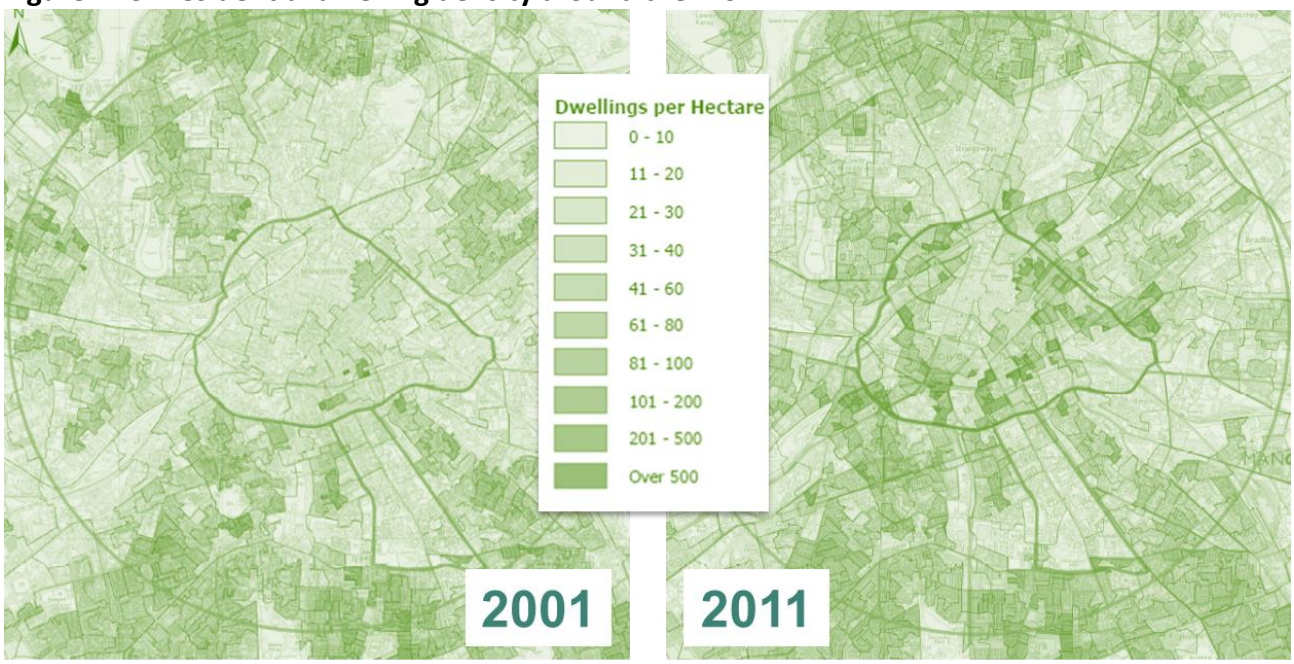
Step 4: Land use change and transport interventions lead to a higher mode share for walking for Regional Centre and Neighbourhood trips

55. The population of the Regional Centre is expected to roughly double by 2040, which is expected to lead to an increase in the proportion of Regional Centre trips made by walking. A cautious allowance has been made for this by increasing the walk mode share of Regional Centre trips from 30% in 2017 to 38% in 2040 (an increase of approximately 25%) and reducing the mode share of other Regional Centre trips by the same proportion. Note that in the January 2019 pathway to the Right Mix, the share of walking for Regional Centre trips in 2017 was only 24%. That has now been revised upwards after adjusting for under-recording of trips by residents of Regional Centre apartments.

56. Greater Manchester's Streets for All approach will reflect a greater emphasis on "place" at the local street level, thereby encouraging the development of walkable communities. This is estimated, at a high level, to support an increase in walk mode-share for Neighbourhood trips from 50% to 55% (the effect of interventions to improve cycling is allowed for under Step 5, "Transformational Cycling Policies" below). As noted under Step 2, attractive bus services – and hence investment in bus priority – will be important in increasing walk-trips.

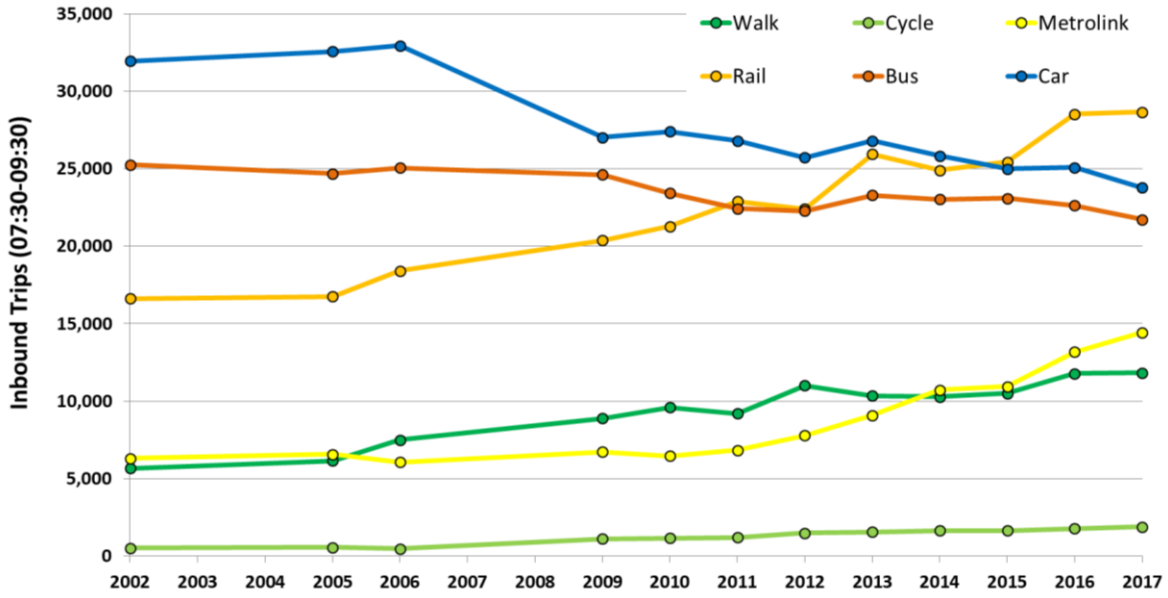
57. Figure V13 and Figure V14 indicate how the increase in dwelling density in the vicinity of the MSIRR (located in close proximity to the extensive range of facilities offered within the city centre) between 2001 and 2011, coincided with a rapid increase in the volume of inbound walk movements across the city centre cordon during the AM Peak. In interpreting Figure V14, it is important to note that the walk movements across the MSIRR include walk-egress legs of car trips, by which motorists park outside the MSIRR and walk across it to their city-centre destinations. It is believed that the number of such walk-egress legs of car trips has reduced over time, and so the increase in walk trips across the MSIRR by local residents is probably greater than the overall observed increase in walk movements.

Figure V13: Residential dwelling density around the MSIRR



Source: TfGM analysis of Census 2001 and 2011 data

Figure V14: Inbound Trips by Mode across the City Centre cordon (AM Peak)



Source: TfGM Highways Forecasting and Analytical Services

Step 5: Transformational cycling policies lead to a switch to cycle from other modes – reaching a 10% mode share for Regional Centre and Neighbourhood trips and a 5% mode share for Wider City Region trips by 2040

58. The adjustable targets for cycle mode shares for Greater Manchester in 2040 are set out below.

- Neighbourhood: 10%
- Wider City Region: 5%
- Regional Centre: 10%.

59. These cycle mode shares targeted in Step 5 represent Greater Manchester's ambitious aims for growing levels of cycling, in line with current policies.

Greater Manchester's current ambitions for cycling

60. Greater Manchester's ambitious vision for cycling is set out in the 'Made to Move' report, by Greater Manchester Cycling and Walking Commissioner Chris Boardman. Among other actions, it calls for a ring-fenced, 10 year, £1.5 billion infrastructure fund, starting with a short-term Mayor's Challenge Fund to kick-start delivery for walking and cycling (now committed through the Transforming Cities Fund, totalling £160m). The goal of the Made to Move report is described as follows:

> "To double and then double again cycling in Greater Manchester and make walking the natural choice for as many short trips as possible."

61. If this goal is aligned with the suggested 10-year fund, that would mean a 300% increase in cycling levels by 2028. Based on the current Greater Manchester cycling mode share (from TRADS) of 1.7%, a 300% increase (equivalent to doubling and then doubling again) would equal a 6.8% mode share across all spatial themes. This suggests that the adjustable targets for mode shares above should be achievable by 2040, if current policies are fully delivered.

62. Interventions needed to achieve these adjustable targets for cycle mode share in Greater Manchester will include:

- Reallocation of road space towards cycling in appropriate locations as part of Greater Manchester's Streets for All approach.
- Implementation of the Cycling and Walking Commissioner's proposed Bee Network.
- Increases in capacity of the cycle network, especially in and around the Regional Centre and areas of high cycle demand elsewhere in Greater Manchester.
- Provision of cycle parking.

Evidence from other city regions

63. Benchmark evidence from other city regions also suggests that rapid growth in cycling levels is possible. For example:

- The central aim of the Mayor of London's Transport Strategy is to achieve an 80% mode share for sustainable (non-car) modes by 2041. Cycle mode share in London was approximately 3% in 2018. Current projections prepared by TfL to support the Strategy range from a 6% mode share for cycling in the 2041 'Core reference case', through to a 15% mode share by 2041 in the most aspirational scenario. The Greater London Authority (2018), Mayor's Transport Strategy 2018 is available from: https://www.london.gov.uk/what-we-do/transport/our-vision-transport/mayors-transport-strategy-2018

- In Seville, cycle mode shares were negligible in 2006 but rose to 5.6% by 2011 following the implementation of a cycle investment programme. Research by Marques, R., Hernandez-Herrador, V. and Calvo-Salazar, M. (2014) entitled "Seville: a successful experience of bicycle promotion in a Mediterranean context" within The Sustainable City, Volume 1, pages 769-781. Available at: https://www.witpress.com/Secure/elibrary/papers/SC14/SC14065FU1.pdf?_smnck=1

- In Dublin, less than 2.3% of people travelled into the city centre by bike, in 2006, but by 2015 this figure had more than doubled to 5.4%. Research from Dublin City Council. (2016). Dublin City Council Transport Study. Available at: https://consultation.dublincity.ie/traffic...transport/traffic.../Dublin%20City%20Centre

Abstraction of trips from other modes

64. DfT's meta-analysis of studies of abstraction, which has informed DfT's Active Mode Appraisal toolkit (Department for Transport (2018), TAG data book table A.5.4.7. Available from: https://www.gov.uk/government/publications/tag-data-book) – has been used as the basis for estimating how cycle trips are abstracted from other modes. It has however been necessary to substantially modify the source-mode shares reported in that analysis in order to allow for variations in baseline mode shares by spatial theme.

65. The abstraction from rail-based modes is very high in the DfT meta-analysis, which suggests that it is based on metropolitan areas with higher shares for rail-based modes than Greater Manchester. Since (developed-world) cities with high rail-based mode shares typically have relatively low car mode-shares, there is reason to believe that the use of the DfT's values without adjustment would understate the reduction in car trips resulting from transformational cycling policies.

Table V2: Estimated breakdown of additional cycle trips by mode

Mode	Wider City-Region: % breakdown of cycle trips abstracted	Neighbourhood: % breakdown of cycle trips abstracted	Regional Centre: % breakdown of cycle trips abstracted
Bus	25	5	23
Car/taxi	56	41	23
Rail	7	0	17
Metro	8	3	14
Walk	4	51	24
Total	100	100	100

66. The values in Table V2 – which represent a change from the January 2019 pathway to the Right Mix – assume that improved cycling facilities do not affect the overall trip-rate. The changes in mode of travel resulting from improved cycling facilities will partly take place through redistribution of trips towards those more suited to cycling. That will lead to a reduction in total person-kilometrage because cycle trips within most of the spatial themes (although not Neighbourhood) are shorter than average.

Step 6: Improved metro, suburban rail, and bus rapid transit services, plus complementary policies, cause these rapid transit modes to increase their mode-share, with their share of Wider City Region trips increasing to 8%

67. At present in Greater Manchester, approximately 60% of metro and suburban rail trips have an end in the Regional Centre. Although the Regional Centre will always be a very important trip attractor for rapid transit, Greater Manchester aims that rail-based rapid transit (meaning metro and suburban rail) should in the future serve a wider range of trip-origins and destinations, thus greatly extending the benefits of these rapid transit modes. For example, there is a need to provide better rapid transit connections for residents of the north of Greater Manchester to reach job opportunities in the southern half of the city-region, in locations that include Manchester Airport and Trafford Park. Traffic congestion on the highway network and slow public transport links mean that many of these trips are at present difficult, especially at peak times.

68. The present limited focus of metro and suburban rail on the Regional Centre reflects:

- Limited peak capacity has in the past prevented offering attractive metro fares to cross-city trips serving a wider range of trip-origins and destinations. These trips will be more fare-sensitive because alternative modes to metro are typically more attractive than for travel to Manchester city centre – e.g. car-parking is much cheaper outside Manchester city centre.
- Journey-times through the city centre are slow on the street-running section of Metrolink, and cross-city connections for suburban rail are often difficult.
- Fares for mixed-mode trips are high: many non-Regional-Centre trips require travel on more than one mode if made by public transport.

69. At present, Greater Manchester TRADS data shows that about 2% of Wider City Region trips use metro or National Rail services, a majority of which will comprise short trips within corridors. To attract as many as 8% of Wider City Region trips to rapid transit modes, it would be necessary to attract demand from a much wider base than just intra-corridor trips served by metro, bus rapid transit, or National Rail lines. Instead it would need to attract the middle-distance trips – especially longer middle-distance trips – for which rapid transit can compete with car. These are mostly trips that would route via the M60 if using car, and would route via the Regional Centre if using rapid transit.

70. Therefore Step 6, together with Step 3 above (redistribution of 10% of Wider City Region trips to Regional Centre without any increase in Regional Centre car trips) will have substantial implications for public transport capacity and service-levels on rapid transit services to and through Manchester city centre. Several considerations indicate that only a major increase in metro capacity in the city centre - probably through a Regional Centre metro tunnel - would create a sufficient step-change to achieve these adjustable targets. This was the rationale in the January 2019 pathway to the Right Mix of focusing the target specifically on metro services. However, reflecting the potential to increase usage of National Rail and bus rapid transit services, Step 6 now applies also to these forms of rapid transit.

71. A step-change in metro capacity in Manchester city centre would enable shorter-distance-focused suburban rail services to be converted to metro, releasing capacity on the National Rail network to accommodate demand growth on remaining National Rail services, which would remain a very important part of the overall rapid transit service-offer.

72. Besides providing a step-change in metro capacity, a Regional Centre metro tunnel would also reduce the journey-times of cross-city trips by avoiding the city-centre street-running of the existing Metrolink system, whilst retaining its high service-frequencies. That will be very important in achieving the target of 8% of Wider City-Region trips using metro or National Rail.

73. To achieve 8% Wider City-Region trips using metro or National Rail, these networks would need to be supported by better access to stops and stations, since many Wider City-Region trips have at least one end located outside easy walking-distance to a rapid transit service. Future Mobility has great potential to improve access to the "first and last mile" of rapid transit journeys. Finally, integrated fares between public transport modes will be important in increasing the use of rapid transit, and especially for Wider City-Region trips.

74. The greatest capacity requirements in achieving the targets in Step 3 and Step 6 will be placed on metro. Initial analysis by TfGM suggests that a Regional Centre metro tunnel accommodating 24 trains per hour in each direction using trains of 150m length would be sufficient to meet the adjustable targets in Step 3 and Step 6. That would mean using trains that are more than twice as long as a present Metrolink double unit (two vehicles coupled together).

75. National Rail services would also need to accommodate substantial demand growth. As noted above, a step-change in metro capacity in Manchester city centre would release capacity on the National Rail network to accommodate demand growth. There is also considerable scope for increasing National Rail network capacity in Greater Manchester by running longer trains.

76. Buses are expected to make a substantial contribution to accommodating the growth of travel demand to the Regional Centre. However, the growth in the metro network – as discussed above – would abstract demand from bus. Integrated fares between bus and metro would also reduce bus travel into the city centre by increasing use of buses as feeders to metro, rather than as a mode for travelling all the way into the city centre.

77. Despite the above negative factors, a net increase in bus travel to the city centre is nonetheless expected to be necessary to achieve the targets in the Right Mix.

78. Bus capacity constraints are more flexible than for rail-based transport, in that they can be overcome by allocating more roadspace to bus, and there is potential to introduce such measures in response to demand growth. Bus terminus capacity in Manchester city centre is another constraint which will need to be resolved: plans for accommodating buses in the city centre are contained within the City Centre Transport Strategy.

Step 7: Transport policies (including travel demand management) lead to a 5% reduction in trip-length of Wider City Region car-trips

79. Trip redistribution – leading to either longer or shorter trips – is the main driver of long-term change in travel behaviour. For example, the roughly ten-fold increase in car travel in the UK since 1950 is almost entirely due to trip redistribution, with short trips by walk and bus being replaced by much longer car trips. Trip redistribution also caused average car trip-length to increase during the second half of the twentieth century.

80. Trip redistribution effects are allowed for in Steps 2 to 5 above, represented by Wider City Region trips redistributing to Neighbourhood (Step 2) and Regional Centre (Step 3). Steps 4 and 5 allow for a shortening of Neighbourhood and Regional Centre trips due to greater use of active modes.

81. Step 7 allows for a shortening of average car trip-length in the Wider City-Region category, due to roadspace reallocation to improve "place" and prioritisation of modes that make most efficient use of limited roadspace through Greater Manchester's Streets for All approach.

Step 8: Improved inter-urban public transport leads to a 5% reduction in car mode-share for city-to-city trips

82. City-to-city trips (see Figure V2) show a very high car mode-share, which reflects the fact that most of these trips are not between city centres, for which the public transport mode share is much higher than the average for this spatial theme (see the definition of "City to City" under "Spatial Themes" at the start of this chapter).

83. Major rail projects – notably HS2 and Northern Powerhouse Rail – can be expected to increase already-high rail mode share for travel between city centres. They can also be expected to redistribute trips, leading to an increase in the proportion of city-centre-to-city-centre trips within city-to-city trips. The land-use changes and other policies and interventions referred to in Step 3 can also be expected to increase rail mode-share to the Regional Centre for longer-distance commuting trips – from locations such as Blackpool and Chester, which are included within the city-to-city spatial theme.

84. A reduction in car mode-share by five percentage points has therefore been targeted: this spatial theme is expected to remain dominated by long car trips dispersed across a very wide range of trip origin-destination combinations. The targeted public transport mode-share represents an increase of approximately 50% in trip-volumes from the present.

Conclusion: the achievability of the 2040 Right Mix

85. Greater Manchester has many possible pathways available to achieving its Right Mix vision for 2040. Following an adaptive approach facilitates changes in policies and interventions to respond to the many uncertainties that lie ahead, avoiding the risks inherent in an inflexible plan. The pathway set out in this report aims to enhance existing trends that support the achievement of the Right Mix, including the increased preference for high-density urban living (Steps 2 and 4, facilitated by interventions that will support Step 7); the growth of major city centres (Step 3); and the increased popularity of travelling by cycle, rapid transit, and inter-urban rail (Steps 5, 6, and 8).