Chapter 6: A connected city

Strategic overview

For a city to be successful it needs to be well connected – internationally, nationally and locally. The level of connectivity of a city is determined by its capacity to connect people with each other, and people with goods, services and places. Historically, people needed to be in the same place to connect, but modern technology is increasingly enabling these connections to happen virtually. This chapter considers physical connectivity brought about by transport, but also digital connectivity.

Connections are necessary so that people can access work opportunities, education and services, and so that businesses can access markets and their customers. Connectivity is not an end in itself, but a means to an end, underpinning all the other objectives contained in this Report. It is only through excellent connectivity that the economy can continue to grow, educational standards can increase, and the city can become more equitable and liveable.

To enable Manchester to compete on the world stage, it needs connections that are more effective and efficient in comparison to other cities. To fulfil its potential, it needs the capacity of the connections to not be a restriction on development and progress. To increase its competitiveness it needs to be able to increase the capacity of these technological connections and physical connections. A key challenge for Manchester and the wider region is how to continue to grow the city centre and the Airport as economic and cultural hubs.

This chapter sets out the present status of Manchester's level of connectivity, but also seeks to assess the direction of travel by reviewing the preceding years from 2015 to 2019. In relation to connectivity, the speed of change is often gradual, and so the measures throughout the chapter are included over a longer period to provide a better feel for the underlying trends.

The chapter takes account of the Greater Manchester Transport Strategy and is structured around the relevant themes contained in the Our Manchester Strategy, creating a city that is:

- **Connected** – considering connectivity by mode of travel and by virtual links
- **Integrated** – about the connections between these modes to enable door-to-door journeys
- **Sustainable and thriving** – about how demand is met and managed, and how technological opportunities are exploited to ensure that carbon emissions are reduced while enabling the city to grow
- **A place to live and innovate** – looks at how people are put at the centre of how we manage, maintain and develop our streets, and how we accommodate and support innovation.

Analysis of progress

Having effective connectivity locally, nationally and internationally makes cities far more attractive places for people to live and for businesses to invest, leading to the creation of better-quality jobs. Manchester already benefits from strong connections, but is continuing to make improvements through major investment in infrastructure. It is essential that Manchester has world-class connections to realise the city's ambitions for economic growth and prosperity.

Working collaboratively with Transport for Greater Manchester (TfGM), we are taking a strategic approach to planning our city's transport network. In 2016, residents and businesses were consulted on the **Greater Manchester 2040 Transport Strategy**, which was adopted in 2017. We are continuing this strategic approach with the development of a refreshed City Centre Transport Strategy, which is to be published in 2020.

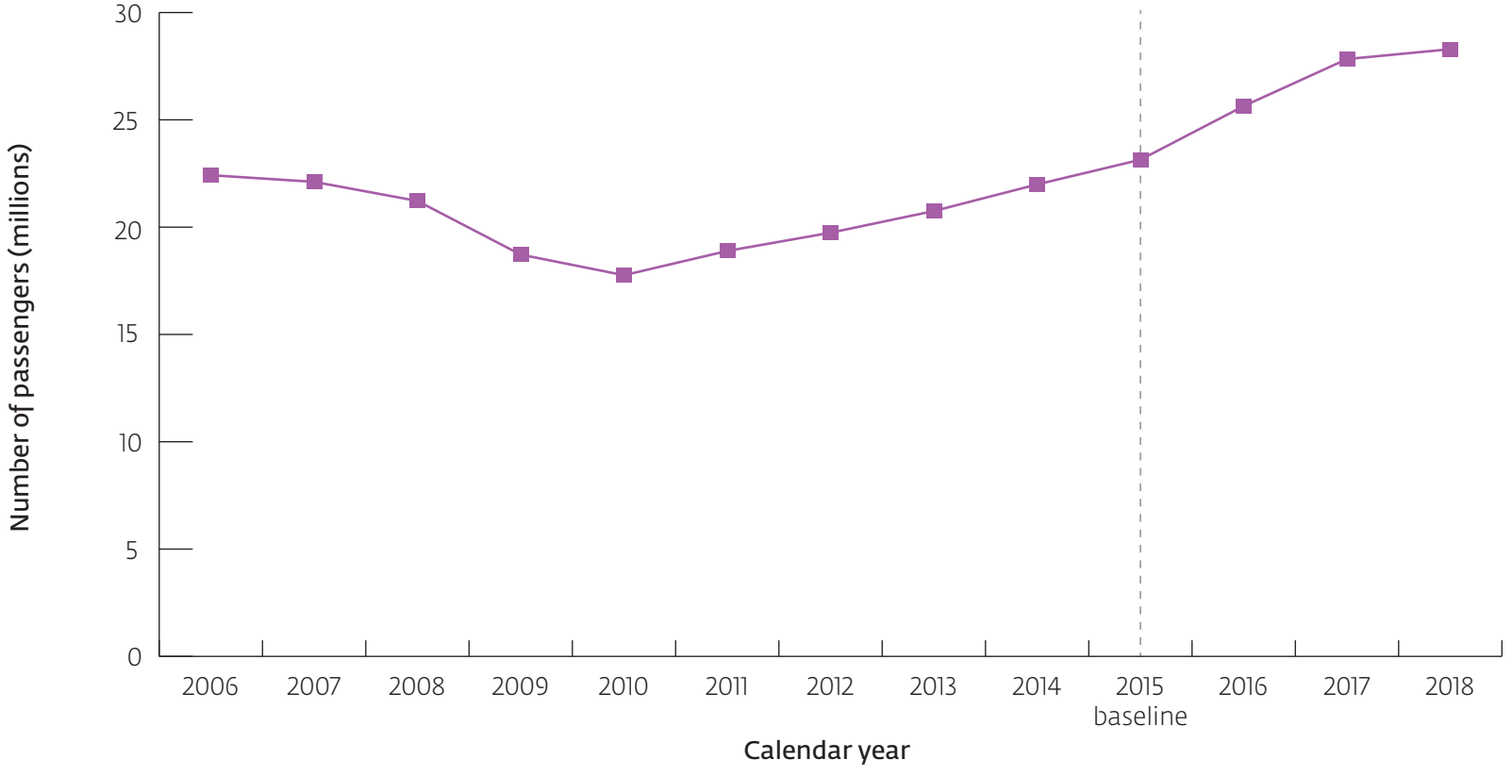
Connections by air

Manchester Airport

Manchester Airport provides national and international connectivity. It is the third-busiest airport in the UK in terms of passenger numbers and is the busiest outside of the two major London airports. Figure 6.1 shows that passenger numbers at Manchester Airport are continuing to grow, with a rise of 5.2million passengers since 2015, increasing the figure to 28.3million passengers in 2018. Manchester Airport is the only two-runway airport outside the south east of England.

The Airport is currently undergoing a £1billion transformation programme, which is due to be fully completed in 2024. This work will significantly increase the size of Terminal 2, and also involve other improvement and enhancement work, increasing the capacity of the Airport to carry 55million passengers a year.

Figure 6.1:
Number of passengers travelling through Manchester Airport



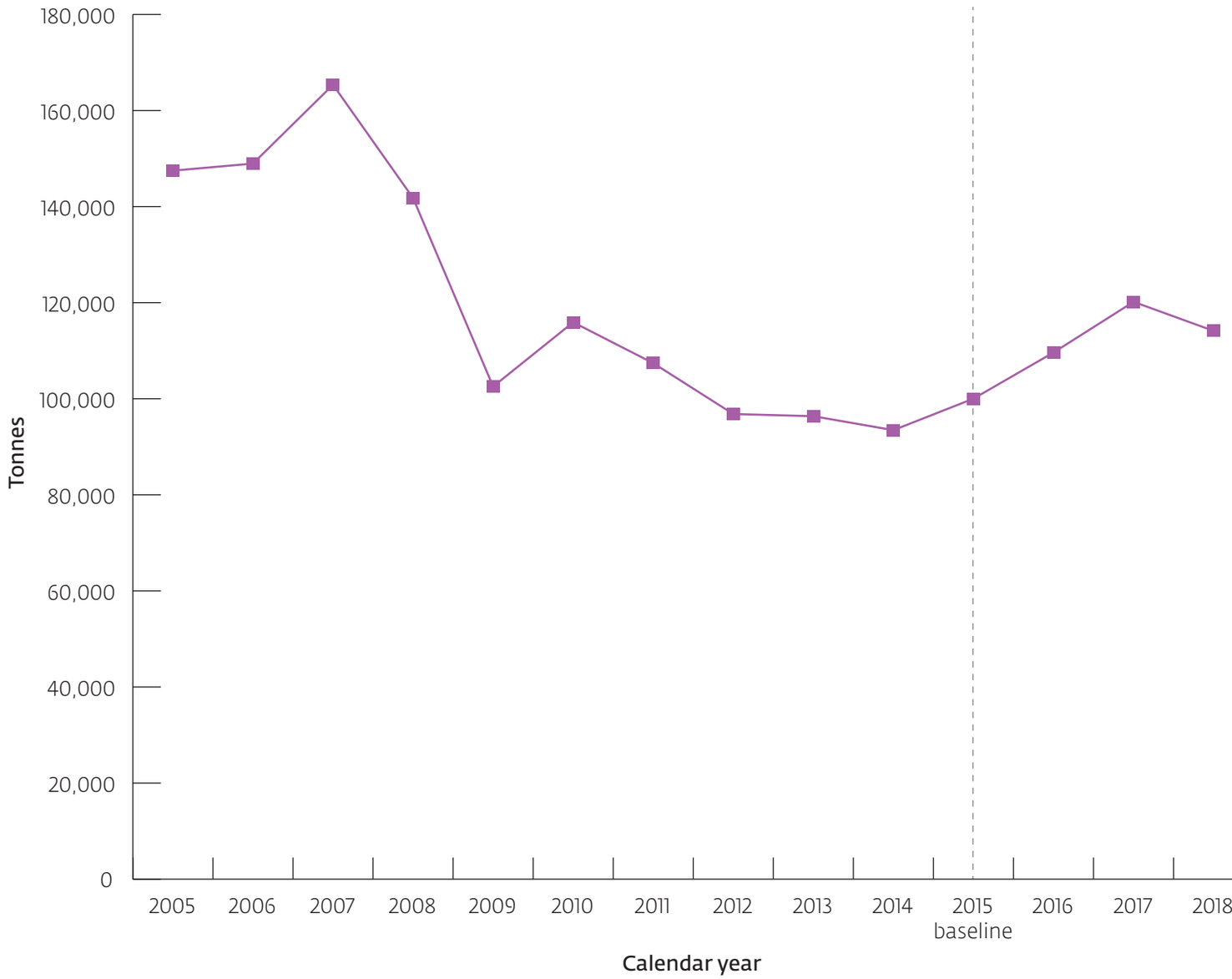
Source: Civil Aviation Authority © Crown Copyright 2018

Air freight

The World Freight Terminal located at Manchester Airport includes a dedicated cargo freight facility providing a base for approximately fifty freight-forwarding firms. Freight cargo can pass through the terminal in either freight-only flights or as cargo transported in the holds of passenger aircraft. The largest freight markets are North America, the Middle East and the Far East, with imports representing 55%–60% of the cargo volume.

Figure 6.2 shows that a significant decline in freight tonnage was experienced between 2007 and 2009. This was mainly as a result of the global recession and a spike in oil prices. Following the recession, the industry has shown signs of recovery and ongoing stability.

Figure 6.2:
Amount of freight through Manchester Airport



Source: Civil Aviation Authority © Crown Copyright 2018

Connections by rail

HS2

Work to develop the second phase of the High Speed 2 (HS2) rail line, connecting Manchester and the Airport with Birmingham and London, was approved by the Government in November 2016. The route will approach Manchester through a ten-mile tunnel, emerging at Ardwick, where the line will continue to its terminus at Manchester Piccadilly. It is planned that a major new station will be constructed at Manchester Piccadilly, supporting the regeneration of the surrounding area. A further station is planned to serve Manchester Airport. Prior to starting construction, a bill needs to be passed through Parliament placing in statute the necessary powers to construct and operate HS2. It will be submitted to the Government in June 2020. Construction is due to start on the leg to Manchester in 2023 and the scheme is expected to be completed in late 2033.

Northern Powerhouse Rail (NPR)

Plans for high-speed rail links connecting Manchester to the other cities of the North of England are being developed by Transport for the North (TfN) – the UK's first statutory subnational transport body. Formed in 2018, its role is to make the case for strategic transport improvements across the North of England in order to improve connectivity and drive economic growth.

TfN are driving forward NPR, which is a major strategic rail programme to transform the connectivity between the key economic centres in the North of England, including Manchester. The Strategic Outline Business Case for the programme to increase capacity, speed and resilience received agreement from the TfN board in February 2019, and represents an overall investment of £39billion. It is hoped that this programme will be delivered over the next 30 years, subject to funding.

Northern Hub

The proposed improvements to rail capacity at Piccadilly and Oxford Road Stations, along with the Ordsall Chord, were key projects for improving rail connectivity in the North of England. To date, only the Ordsall Chord has been delivered. A decision is awaited from the Secretary of State for Transport in relation to the scheme, which would add two additional through platforms at Piccadilly Station and lengthen the platforms at Oxford Road. The additional rail capacity that this scheme would deliver remains vital for Manchester and the wider region.

Rail operations

May 2018 saw the introduction of one of the most comprehensive rail-timetable changes in modern times. The changes added new routes and additional passenger capacity. However, significant and well-publicised delays and cancellations ensued. There were numerous factors for the disruption, which has been the subject of a public inquiry. These ranged from delays and major infrastructure programmes, to insufficient rolling stock, although the main finding was that 'nobody took control'. The full findings of the inquiry can be found here. The report makes recommendations to address the failings; a key recommendation is to address the governance of the rail industry.

Highway connections

The strategic and key route road networks are essential to the economy of the city and wider region, and support the movement of people and freight locally and across the country.

Strategic road network

An efficiently operating M60 is important to Manchester, as it not only distributes traffic throughout the city, but also provides a means of travelling around rather than through Manchester for longer journeys. The M60 supports local travel within Greater Manchester, national travel between Merseyside and Yorkshire, as well as international freight routes from the region's ports and airports. In 2018, work to improve the operation of the M60 was made by creating a section of smart motorway between junction 8 of the M60 to junction 20 of the M62. This is the first scheme of its kind in north west England. Smart motorways allow active traffic management, using variable speed limits and driving on the hard shoulder to create freer-flowing traffic with less congestion. This makes the motorway a more attractive option to less suitable routes through our urban centres.

Further improvements to the region's major roads are being actively considered by the Department for Transport, Highways England and Transport for the North. The M56 between junctions 6 and 8 are to be made into a smart motorway; work is due to commence in 2020 and completion is expected in 2022. Capacity improvement proposals are also being considered for the north west quadrant of the M60. These look at potential improvements to both the road network and public transport in order to provide better options for local and long-distance trips. It is expected that such schemes could be implemented during the 2020–25 period.

The Trans-Pennine Tunnel Study is assessing the feasibility of providing a direct strategic route to link the city regions of Manchester and Sheffield, partly through the construction of a tunnel. This particular journey has the worst per-mile journey time between any pair of UK cities.

Key route network

Within Manchester, the Manchester and Salford Inner Relief Road (MSIRR) is vital for distributing traffic around the city centre, and significant investment is now planned to improve this route. Improving this route will result in less traffic diverting from the key route network onto less suitable routes. The improvements being made at Regent Road and Water Street will improve orbital movements around the MSIRR, reducing the amount of traffic routing through the city centre and other parallel routes, which will enable further improvements to be made in and around the city centre.

Improvements are also under way on the MSIRR along Great Ancoats Street and at the junction of the Mancunian Way and Princess Parkway. The total investment is in the region of £30million and will not only improve the flow of traffic around the MSIRR, but also improve access across the MSIRR into the city centre for cyclists and pedestrians. As the city centre expands, these links across the MSIRR will enable the city centre to grow and thrive.

There is limited scope to increase the extent of the highway; however, work is underway to improve the operation of the network to reduce congestion and increase the capacity of the network. Manchester has secured programme entry for over £30million of projects in the Mayor's Challenge Fund (MCF) programme. This programme will deliver improvements to the highway network to make it easier and more attractive for people to make more of their shorter journeys on foot or by bike. Investment in active travel modes helps to promote healthier lifestyles, can reduce pollution and carbon emissions, offers the potential to increase the capacity of our finite highway network, and can free up space on public transport.

Work is also underway to strike a better balance between the movement function of our roads with the creation of better and more attractive places through the Streets for All pilot. Streets for All is about creating better places by creating streets that balance the movement of people and goods with the inclusion of more people-friendly places.[1] A current programme of pilot study areas is focusing on orbital, radial and city centre corridors within the region. TfGM is developing its Streets for All strategy for publication in the next 12 months, which will help to achieve TfGM's aspiration of a million more sustainable journeys per day by 2040. The Streets for All initiative will help enable economic growth and regeneration, reduce congestion and improve air quality. Ultimately, it will help to improve the health of people in the region, and support community cohesion by creating places where people want to live and spend time. This is particularly important for many of our district centres that are on the key route network.

1 Places where people want to spend time. It is easier for people to move around on foot or by bike, there is less traffic so it is quieter and the air is cleaner, and areas are provided for rest and shelter

Case Study: Highways network five-year investment plan

Manchester's highway network includes over 1,350km of road length, 2,600km of footway length, and over 350 bridges and structures. Based on the latest valuations, the total highway asset has an indicative gross replacement value of more than £2.7billion, making it the Council's most valuable asset.

The network is used daily by the majority of people who live and work in the city, and is fundamental to the economic, social and environmental wellbeing of the community. Our ability to offer a reliable and resilient highways system is not only important for existing businesses; it is also a determining factor in attracting new businesses, particularly those with a time-critical need for logistics and commercial transport links.

The current five-year (2017–2022) £100million highway investment programme is underway, with a primary goal of improving the condition of Manchester's roads, footways and drainage, as well as supporting maintenance of the bridge network.

The year-one and year-two programme delivery included the following outputs:

- Road resurfacing – 213 roads completed (around 470,000m² – 42 linear miles), value £10.2million
- Preventative maintenance schemes – 700 roads treated (approximately 1,254,000m² – 117 linear miles), value £10.6million
- Footway maintenance schemes – 43 roads treated (approximately 80,000m² – 13 linear miles), value £1.6million
- Large patching works – 18,000m² treated, value £380,000
- Small patching works – 29,000m² treated, value £2.1million
- Drainage repairs – some 11,300 gullies on roads that have been resurfaced or had preventative treatments have been cleaned and tested, with around 2% requiring repairs, value just over £2million.

The year-three (2019/20) programme of work is currently progressing and will include:

- 92 road resurfacing schemes
- 281 preventative road maintenance schemes
- 27 footway maintenance schemes.

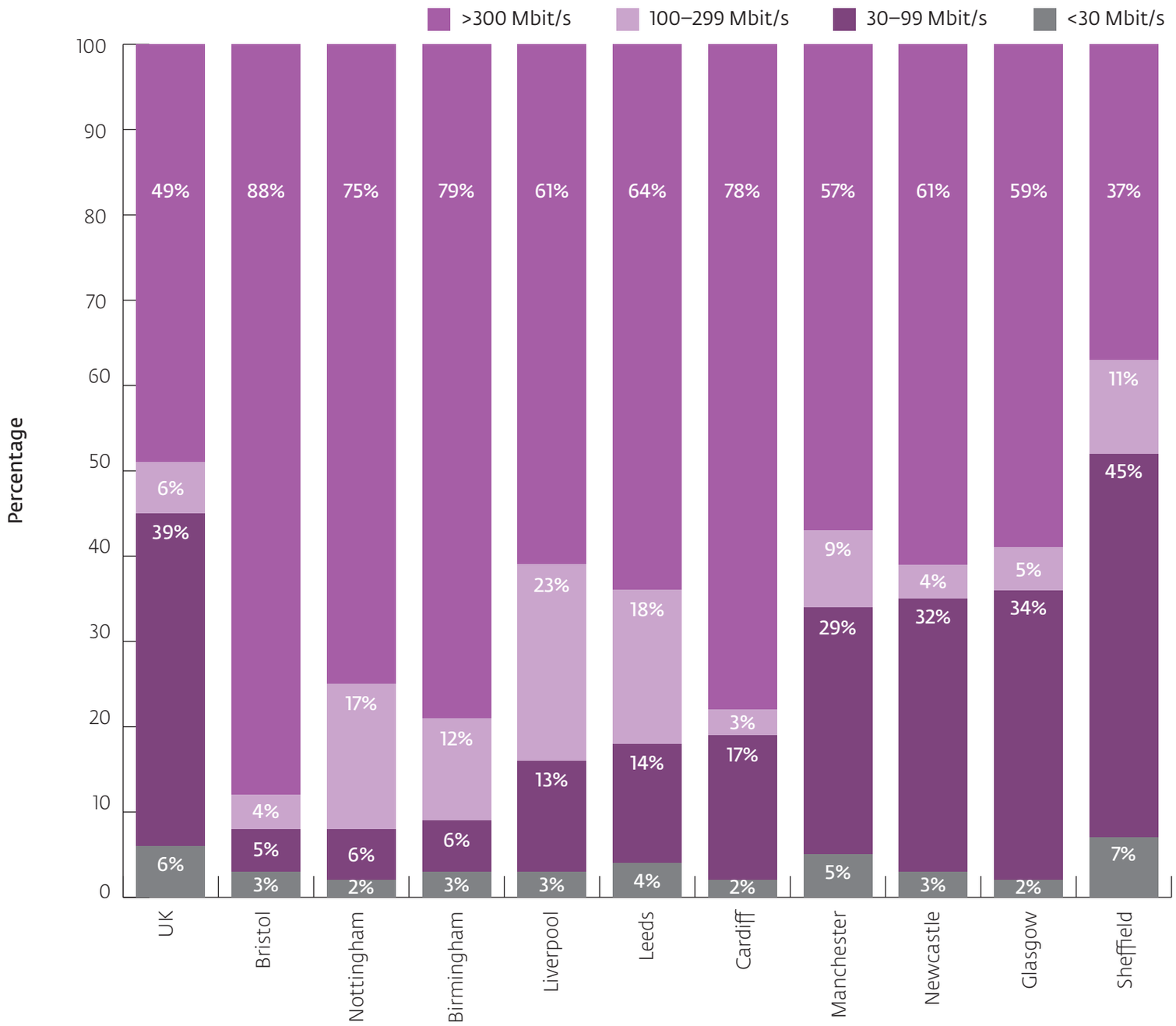
The draft year-four and year-five programme delivery proposals have been formulated and are awaiting approval.

Digital connectivity

Despite superfast broadband being available to more than nine in ten premises in the UK and momentum behind full-fibre broadband, 2018 Ofcom statistics show that people do not always sign up to faster broadband packages where they are available. Superfast broadband is available to 94% of homes and businesses in the UK, but only 45% have taken up these superfast services. Similarly, although 95% of premises in Manchester have access to superfast broadband, only 53% of them have an active broadband service that delivers a download speed higher than 30Mbit/s.

Figure 6.3 shows that ultrafast broadband (>300Mbit/s) was available to 57% of Manchester's homes and businesses in 2018, and a further 9% of homes and businesses had available speeds of between 100Mbit/s and 299Mbit/s. This compared well to the UK average, but Manchester was lagging behind other Core Cities such as Bristol, where 88% of homes and businesses had available speeds of more than 300Mbit/s.

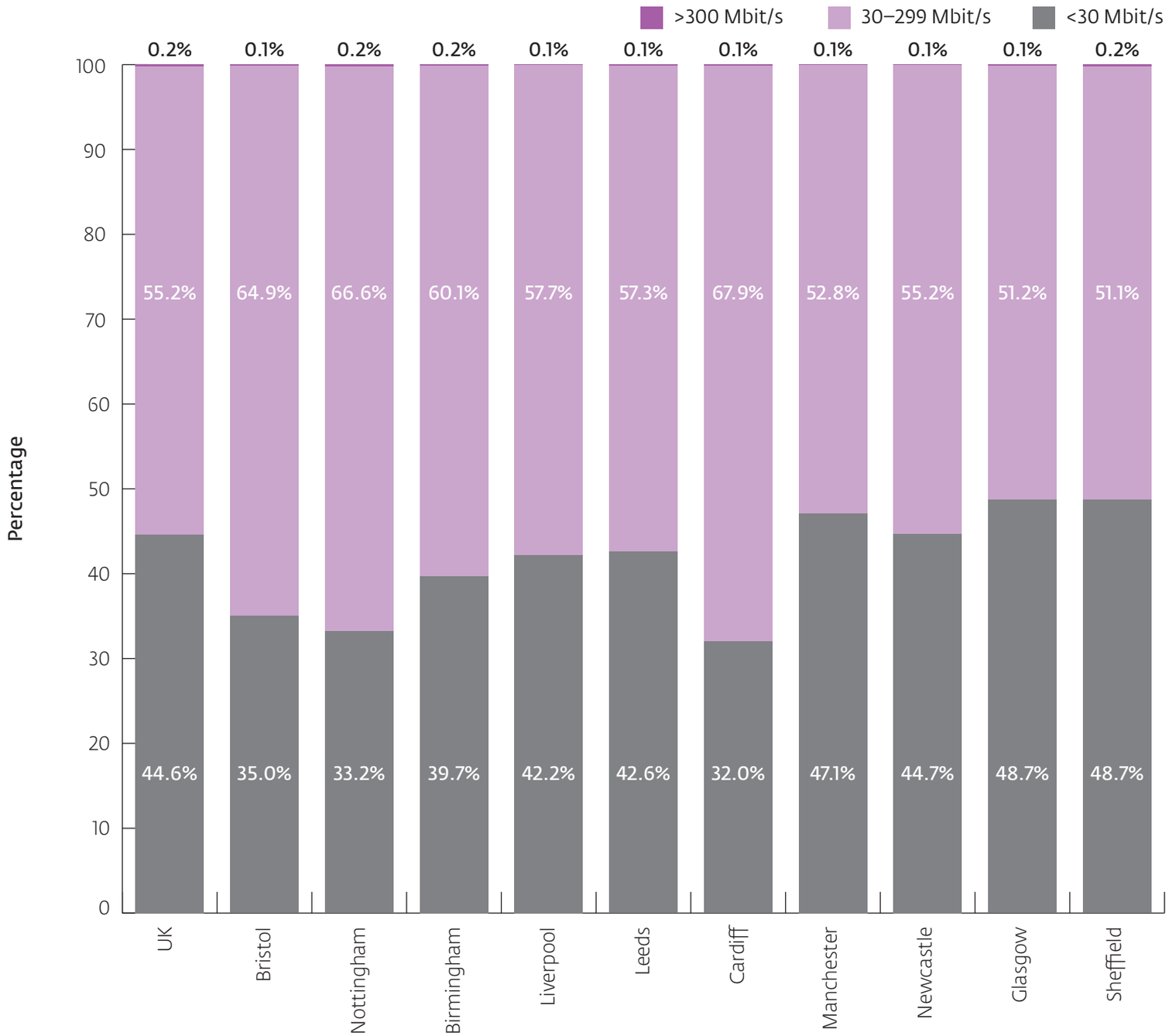
Figure 6.3:
Fixed broadband coverage by speed (Mbit/s), 2018



Source: Ofcom 2018 Connected Nations report

However, Figure 6.4 shows that a very small proportion of homes and businesses across the UK were signing up to an ultrafast broadband service in 2018. In Manchester, the 0.1% take-up in 2018 equates to just 200 homes and businesses. A similar picture is reported across all Core Cities, despite ultrafast broadband availability being much higher.

Figure 6.4:
Fixed broadband take-up by speed (Mbit/s), 2018



Source: Ofcom 2018 Connected Nations report

Manchester is continuing to make progress in improving the coverage of digital connectivity to both residential and SME premises throughout the city. The availability of superfast broadband (>30Mbits/s) to residential and SME premises has risen from 88% in 2015 to 95% in 2018. At the same time, the take-up of superfast/ultrafast broadband by residential and SME premises has increased from 34% in 2015 to 52% in 2018. Average download speeds have also improved in this period by 17.2Mbits/s (2015: 28.6Mbits/s; 2018: 45.8Mbits/s).

There is a pressing need to increase broadband coverage in Manchester at a faster pace to secure the city's status as a leading digital centre. It is hoped that the pace of progress will quicken with the delivery by Openreach of fibre connections direct to premises, following the announcement in February 2018 that Manchester was to be one of the eight cities[2] that it is targeting with its Fibre First programme. Full-fibre broadband can offer speeds of 1Gbit/s. In 2018, full-fibre coverage had reached 14,907 premises in Manchester: 6.5% of premises compared to 6% across the UK. Although full-fibre coverage is still quite low across all the Core Cities, with the highest being in Leeds at 7.8%, Manchester ranks joint fifth with Glasgow, ahead of Nottingham (4.8%), Liverpool (3.8%), Birmingham (3.1%) and Sheffield (1.5%).

An integrated transport system

An integrated network is more resilient, more accessible and provides greater choice. In order to enable residents to easily access jobs, education and services, our network of connections needs to be fully integrated, attractive to users, and affordable.

Integrated transport systems should allow for combining several different modes of transport across a journey to provide a seamless end-to-end service. Integrated journeys can include elements that are active, and when integrated with virtual connectivity, time spent travelling can become more productive.

A fully integrated transport network should be easy to use and provide efficiency for the users in terms of time, costs, comfort, safety, accessibility and convenience, resulting in increased economic and social benefits. Investment in such a system should result in a higher uptake in active modes of travel (walking and cycling) and public transport, and reduce congestion and pollution.

2 Birmingham, Bristol, Cardiff, Edinburgh, Leeds, Liverpool, London and Manchester

Integration doesn't just mean locating transport services in proximity to each other; it also means ensuring that timetables are planned in a way that makes them fully co-ordinated, providing such infrastructure as cycle parking and Park and Ride schemes at transport hubs, integrated travel information and route planning, and ensuring that ticketing systems are integrated across different modes and routes. Delivering an integrated ticketing system could be one of the more effective measures in the short term to make public transport easier and clearer to use, making it a more attractive option.

Within Manchester, there are three Park and Ride schemes attached to Metrolink stops; these have a total of 672 car parking spaces. A further site just outside the city boundary at Sale Water Park has an additional 300 spaces. This means that car journeys can be connected with Metrolink trips, reducing the need to travel the full distance by car. Worsley Park and Ride provides access to Manchester by bus rapid transit and has 230 spaces. The Park and Ride schemes help to reduce journeys by car that would otherwise add to congestion within Salford and Manchester.

There are four cycle hubs managed by Transport for Greater Manchester (TfGM) within Manchester. Two of them are located within the city centre at Tower City and Oxford Road, with additional locations at East Didsbury and Hollinwood, which provide secure cycle parking for a total of 304 cycles. There are a further 100 spaces at Salford Central Station adjacent to the city centre.

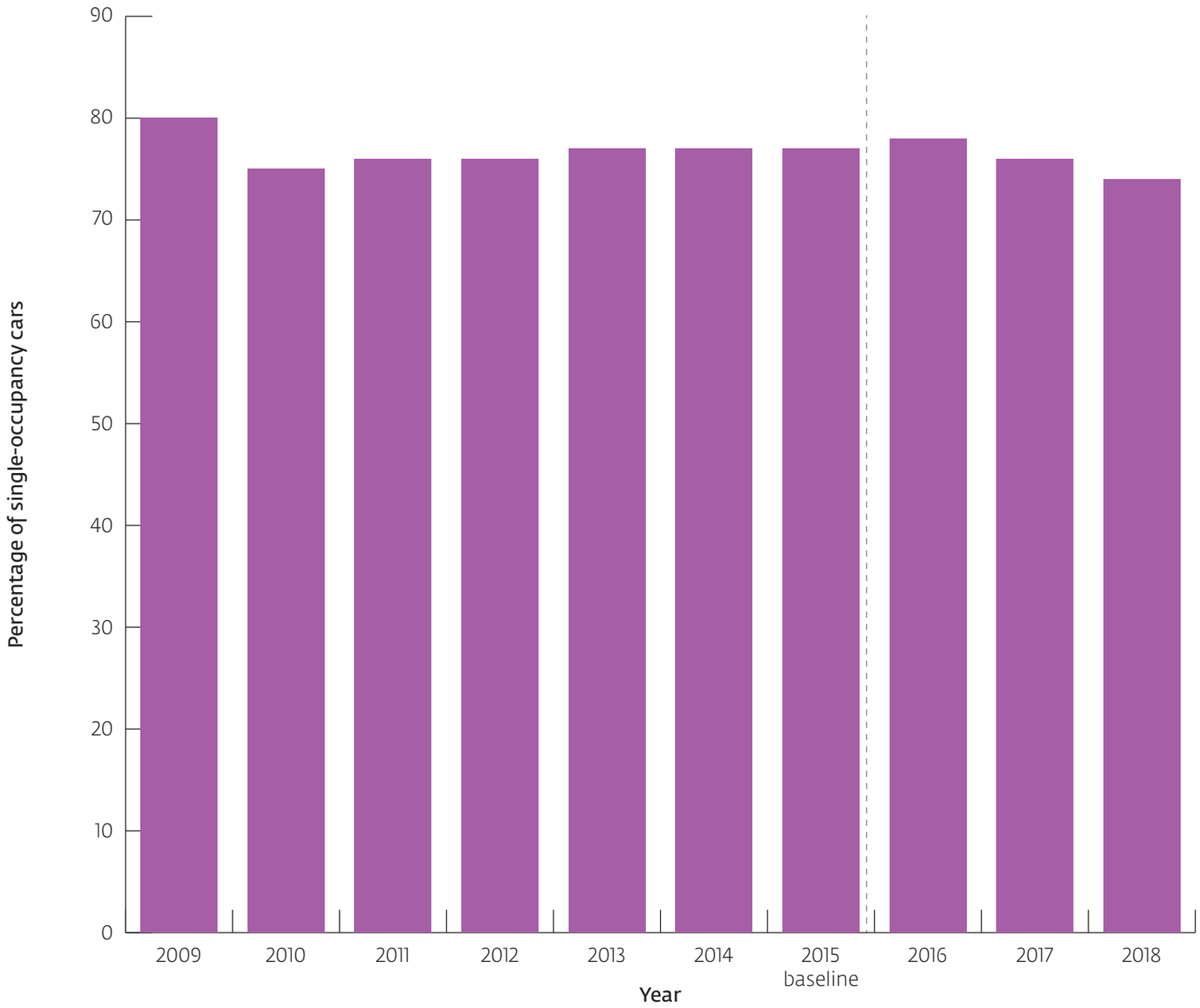
Although contactless payments are being introduced on buses and Metrolink, smart ticketing is not yet available across all modes in Manchester. However, the Get Me There travel cards are available for use on buses and Metrolink trams; these can be purchased online. Full integration across all modes in terms of ticketing and timetables is hindered by a lack of local control over all services, fragmented ownership, funding constraints, limited incentives to bus operators, and a lack of a culture for joined-up working. This is coupled with a lack of flexible tickets for those who work part-time and a lack of east-west cross-city public transport routes. The Bus Services Act 2017 offers mayoral combined authorities, such as Manchester, the opportunity to address these issues.

Car Clubs provide access to a car without needing to own a car, and may be a way of supporting a more sustainable transport network if part of the wider transport mix. In addition, access to technology while travelling may be able to tip the balance towards public transport, and cycling could be comparatively so much cheaper that more people may be prepared to leave their cars at home. It is proposed to grow the Car Club across the city in terms of both the number of vehicles in the fleet and the number of locations from which they are available.

Encouraging walking and cycling, and the use of public transport

Currently within Greater Manchester, 88% of trips are five miles or less, and more than half of these are made by car. Although the percentage of single-occupancy cars travelling into the city centre during the morning peak time is reducing, as shown in Figure 6.5, car ownership overall is increasing (there was a growth of 9% in licensed cars in the city between 2015 and 2018: from 141,800 to 154,400).[3]

Figure 6.5:
Percentage of single-occupancy car journeys into Manchester city centre (7.30–9.30am)

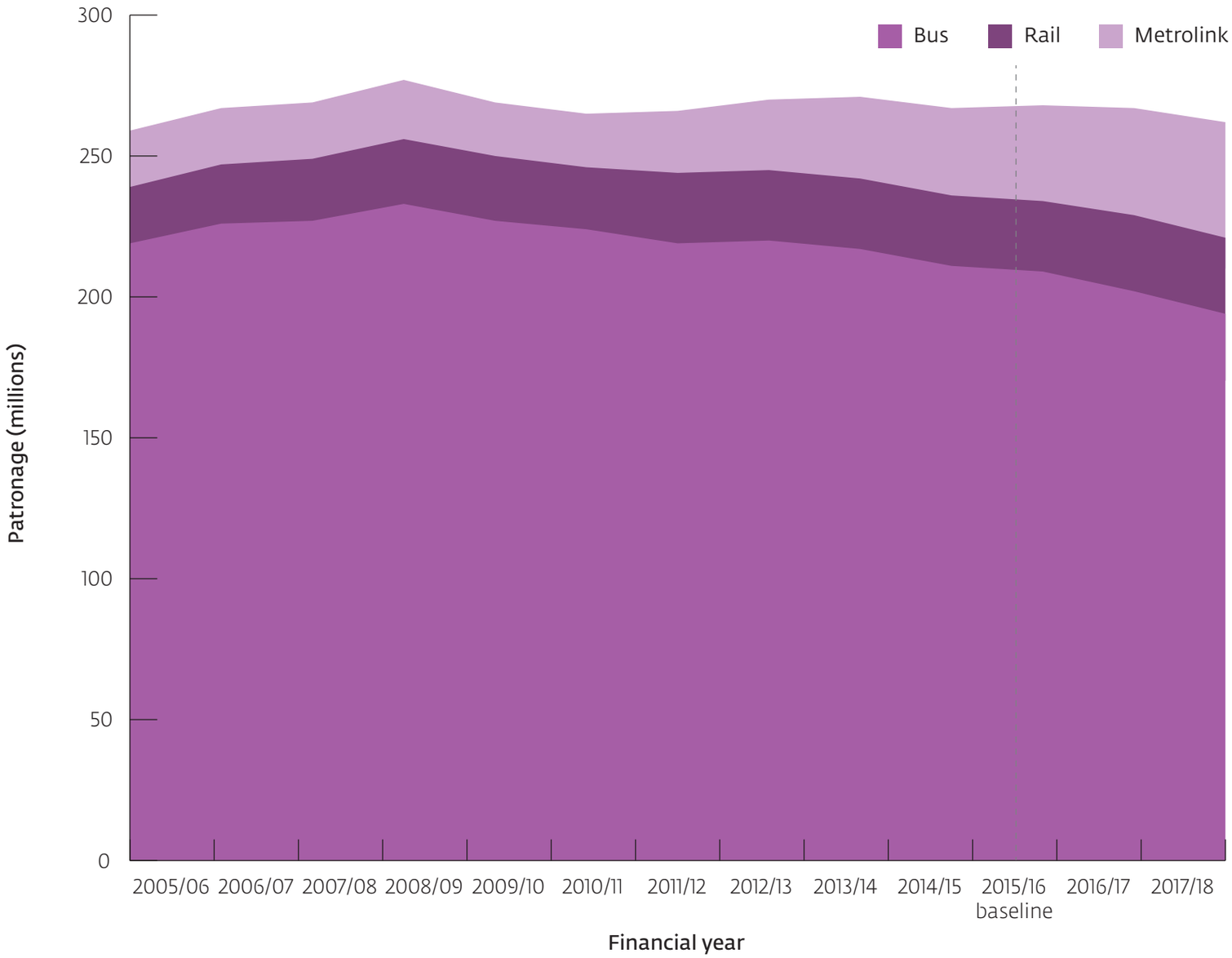


Source: TfGM © Crown Copyright 2018

3 Department for Transport vehicle licensing statistics

Figure 6.6 shows that public transport patronage across Greater Manchester was 2% lower in 2017/18 than it was in 2015/16. Over the past ten years, rail and Metrolink use has increased significantly, while bus use has been slowly declining. A number of measures to support the continued growth of rail travel and Metrolink, and reverse the decline in bus travel, are described below.

Figure 6.6:
Public transport patronage across Greater Manchester



Source: TfGM © Crown Copyright 2018

Bus travel

Bus travel is supported by the Council and TfGM in the following ways:

- **Investment in Bus Priority infrastructure** on key routes into the city centre, including the Leigh Guided Busway, Rochdale Road, and the Oxford Road Corridor. Recent work included the reconfiguration of the Portland Street/Chorlton Street/Charlotte Street traffic signals, which improved pedestrian-crossing facilities and reduced bus-journey times along Portland Street. This was achieved by removing a stage from the traffic signals.
- **The CityPlan Agreement** between the Council, TfGM and bus operators. Agreed in 2012, this is designed to ensure that bus services entering the city centre are managed to minimise impacts on congestion, safety and the environment. The plan is currently subject to a review.

The Bus Services Act 2017 provides Greater Manchester with powers to reform the local bus market. The Greater Manchester Combined Authority has agreed to prepare an assessment of a proposed franchising scheme in accordance with the Bus Services Act. The necessary preparatory work for the assessment is being undertaken by TfGM, with the overall intention being that the bus reform proposal delivers some of the agreed objectives of the 2040 Transport Strategy for Greater Manchester. Before any changes can be made, a full public consultation is required.

Metrolink

The Metrolink network has expanded to become the largest light rail network in the UK. Services now run on seven lines to 93 stops and cover nearly 60 miles. The network is currently undergoing significant improvements, with further improvements in development:

- The Trafford Park extension will run from the existing Pomona stop through the Trafford Park business area and on to the Trafford Centre. The line extension provides a further 5.5km of route and will include an additional six tram stops. Work started on the extension in 2016 and is due for completion in 2020.
- Legal powers exist to extend the Airport Metrolink extension through the completion of a western loop, which would connect the existing line to the new Terminal 2 and then in the future to the proposed HS2 station, to Wythenshawe Hospital and then connect back to the existing line. The current intention is to deliver the link to the new Airport terminal first, with the further extension following the construction of HS2.

Walking and cycling

There is great potential to increase the number of shorter journeys being made on foot or by bike. In order to improve health and access to jobs, and to alleviate pressure on our public transport system, levels of walking and cycling will need to continue to increase. There is a strong case to support walking and cycling in Manchester, and increasing the share of trips for these active modes has the potential to reduce car use, use our highway network more efficiently, and free up space on public transport. This will provide the capacity to support further sustainable growth. In addition, active modes improve the mental and physical health of our residents, reduce our carbon emissions, and improve air quality.

Walking and cycling have become significantly more popular in recent years and are beginning to be attractive alternatives to motorised transport for an increasing number of residents. This may partly explain why we are seeing fewer motorised vehicles on Manchester's streets, especially in the city centre; this is helping to make the city more accessible on foot and by bike, and more liveable, improving the feel of our public spaces.

Greater Manchester's Cycling and Walking Commissioner published the Made to Move document at the end of 2017. This document sets out 15 steps to be taken to create a genuine culture of cycling and walking within the city. The first step in this process is the production of a detailed Greater Manchester-wide walking and cycling infrastructure plan to be produced in collaboration with the district authorities and which is now known as the Bee Network. The draft of the Bee Network was published in the summer of 2018; following consultation, a revised version was published at the end of June 2019.

In order to implement and develop the Bee Network, initial funding of £160million was made available through the Mayor's Challenge Fund (MCF). This is available to all councils within Greater Manchester to apply for by submitting qualifying schemes. Seven bids have been agreed (up to July 2019) for the programme entry stage for funding within the Manchester district – six submitted by the Council and one submitted by TfGM – which includes the following schemes:

- **Chorlton Cycleway** – A 5km route partly funded by the MCF and the Cycle Cities Ambition Grant (CCAG)
- **Levenshulme Active Neighbourhood** – An active neighbourhood scheme that includes a series of signalised and minor junction upgrades, parallel crossings, modal filters and investment in streetscapes to encourage local trips on foot or by bike. Partly funded by MCF and Manchester City Council
- **Princess Road/Mancunian Way** roundabout improvements – Full junction upgrade, including removing the existing subways, and creating protected cycle tracks, pedestrian paths and a signalised crossing. Partly funded by MCF and local contributions
- **Piccadilly to Victoria 'PiccVic'** – Project to enhance the 'on foot and by bike' experience from Manchester Piccadilly to Manchester Victoria stations via the Northern Quarter. Funded partly by MCF and CCAG
- **Rochdale Canal** – The project includes improvements to the canal towpaths, improved access under a low bridge at Butler Street, and improved accessibility to four sets of steps. This project is funded by the MCF
- **Northern and Eastern Gateway Connectivity** – A parallel route to Great Ancoats Street providing a safe and convenient cycle link to the north of the MSIRR
- **Metrolink Cycle Parking** – Enhancements to the tram stops along the Bury line at Bowker Vale, Crumpsall, Abraham Moss and Queens Road to support integrated travel. This is a TfGM project.

During 2018/19, TfGM and Living Streets worked with 101 primary schools in Greater Manchester to encourage walking to school. Eleven of the schools are located in Manchester. Overall, active modes of travel increased by an average of 35% across Greater Manchester, and in Manchester schools there was an increase in walking all or part of the way to school from 57% to 67%. Meanwhile, the Bikeability scheme has provided funding for the Council to carry out cycle training in schools in the period 2016–20; up to March 2019, 13,572 cycle training places had been delivered.

Mobile connections

Being able to work or access entertainment services while travelling has the potential to transform journeys by public transport. The opportunity to access such facilities has the potential to make public transport a more attractive option over travel by car.

Developing business cases for investment will usually involve assessing savings in journey times. Access to technology has the potential to require a rethink of how journey times are factored into investment decisions if this time can become productive.

Wi-Fi is becoming more readily available across various modes of travel, and many bus operators now offer free Wi-Fi across most of their fleet. Some rail services also offer Wi-Fi, but it is not available across all franchise operators. Virgin and Transpennine Express are two rail operators that offer free Wi-Fi and entertainment services; however, for rail services the quality of the connection is determined by the coverage in the area through which the service is passing.

Charging facilities for devices is very limited across all modes. Overcrowding on most rail services in and out of Manchester limits the opportunities to work while travelling at peak times.

Data will be gathered for future State of the City Reports based on the availability of Wi-Fi and on the level of uptake of such facilities.

Mobile technology is also assisting motorists by providing navigational tools. The various apps available are making urban travel easier for the motorist, providing directions, intelligent route selection, live travel times based upon traffic conditions, and expected times of arrival. 'Connected vehicles' are therefore becoming more commonplace and will impact on how people use their vehicles and access parking spaces.

Sustainable connections supporting a thriving city

Our transport system is a major source of emissions; these damage our health by polluting the air we breathe and contribute to climate change. Reductions in these emissions are subject to both UK and EU legal limits, and the Government has mandated a number of cities, including Manchester, to produce Clean Air Plans. These are aimed at reducing concentrations of roadside nitrogen dioxide emissions to legal levels in the shortest possible time. Manchester is working with the other nine Greater Manchester authorities to develop a Clean Air Plan for Greater Manchester. This plan has yet to be finalised; however, the draft plan proposes the introduction of local measures to accelerate emission reductions to make Manchester a cleaner, healthier and safer place to live.

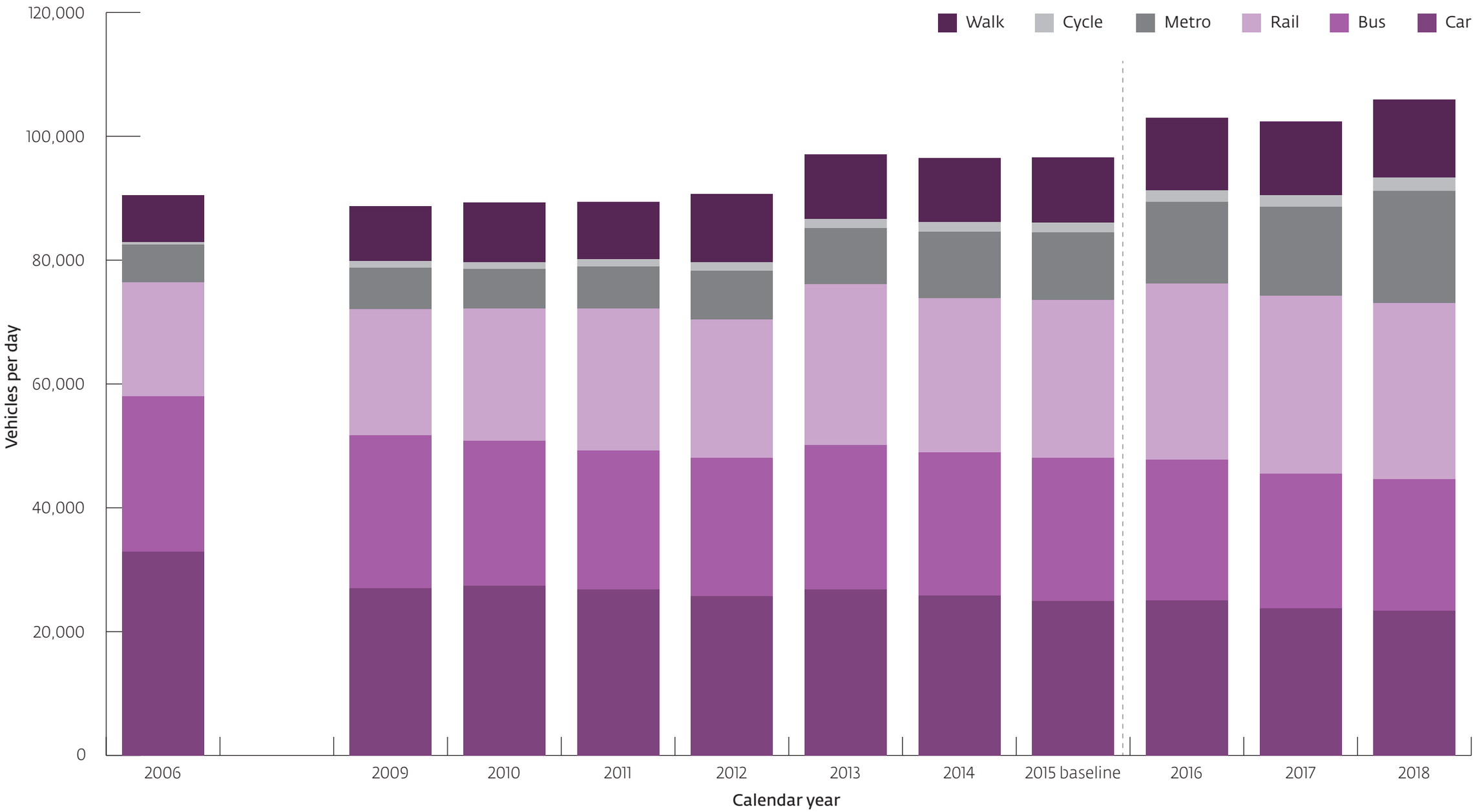
Ongoing increases in demand for travel, particularly into the city centre, illustrate the strong growth in the city's economy and population, as well as the challenge of accommodating further growth on our network. However, the fact that these increases are mainly being contained by sustainable, non-car modes of transport suggests that effective progress is being made to reduce the environmental impact of our transport network and make better use of sustainable transport infrastructure. Recent Metrolink expansion has enabled this trend to continue for more sustainable trips into the city centre. The challenge for the future is how this positive trend is maintained.

The award-winning Oxford Road and Wilmslow Road Cycleway, which carried over a million cycle trips in 2018, is put forward by many as an example of how our highway network could potentially increase capacity by accommodating more space-efficient modes of travel such as cycling. Another option being explored to increase the future capacity of our sustainable transport network is tunnelling to further extend our Metrolink network.

Modal shift to sustainable modes

Travel demand has grown significantly in recent years, to and from the city centre, reflecting increases in the number of jobs and the resident population; this is discussed in more detail in the 'A thriving and sustainable city' chapter. The number of morning peak-hour trips into Manchester city centre has increased by around 1% per year on average since 2006, but most of that growth has taken place since 2012, with an increase of 6% between 2015 and 2017. Trends in trips into the city centre vary across different modes of transport (Figure 6.7).

Figure 6.7:
Trips into Manchester city centre (7.30–9.30am) by various modes of transport



Source: Manchester city centre cordon count, TfGM © Crown Copyright 2018. Note: No data is available for 2007 and 2008.

Between 2015 and 2018, the following trends have been noted in travelling into the city centre:

- **Car travel** has declined by 6%. Car travel's share of city centre trips has fallen from 26% to 22%.
- **Bus travel** has seen the most significant decline, with the number of trips falling by 8%. Bus travel's share of city centre trips has fallen from 24% to 20%.
- **Rail travel** over this period has increased by 12%. Rail's share of city centre trips has increased from 26% to 27%.
- **Metrolink** accounted for most of the increase in trips over this period, growing by 65%. Metrolink's share of city centre trips has increased from 11% to 17%.
- **Walking and cycling** have increased by 19% and 29% respectively. Walking has increased its share of trips into the city centre from 11% to 12%, with cycling remaining at a 2% share. Although starting from a low base, cycling trips into the city centre have continued to grow, from 1,648 in 2015, to 2,129 in 2018. Further work on the walking trips is needed to determine how many are made by people parking outside the city centre and walking in, and how many are made by those who live nearby and walk into the city centre.

These changes are likely to have been driven by a range of factors, including:

- Improvements in public transport, particularly on the Metrolink network, which has expanded significantly in the past ten years. The decline in bus travel is of concern, but recent investments in Manchester's Bus Priority infrastructure should go some way to reverse this trend in future.
- Changing patterns of where people live and work. There have been increases in the city centre workforce and population, and more people now live in locations where public transport and active travel are attractive commuting options.
- Increasing journey times on the road network, which are likely to have made commuting by car and bus a less attractive option. While car traffic into the city centre has reduced, elevated journey times may be due to disruption from major roadworks in and around the city centre, alongside the rise of online deliveries, which have added to congestion. TfGM figures show that there have been increases in freight traffic in the past five years, which saw a 10% increase in van and HGV trips into the city centre.

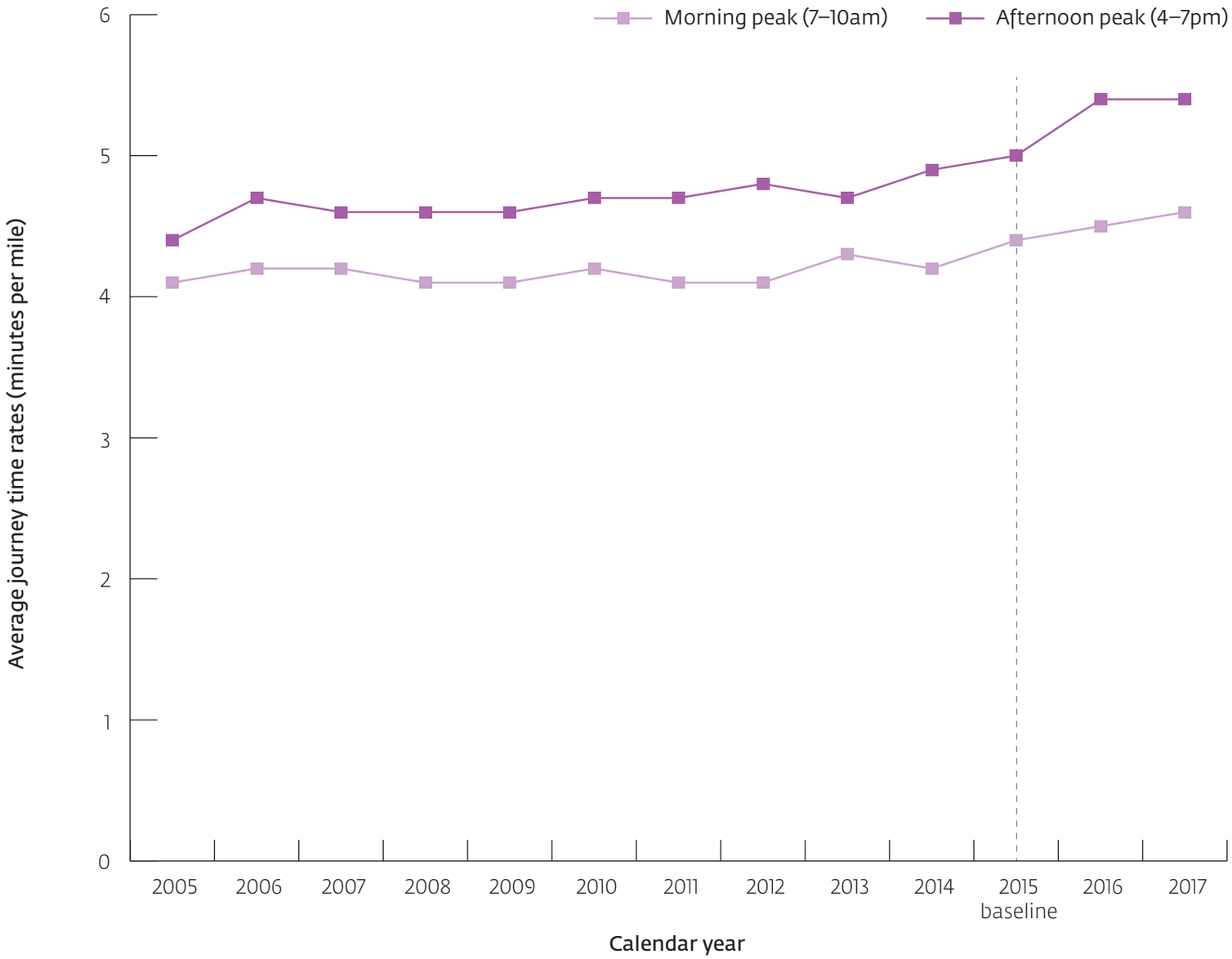
Cleaner air and reduced emissions

The Greater Manchester Clean Air Plan is being developed to tackle air pollution and reduce the high levels of pollutants, including harmful nitrogen dioxide (NO_2), which can be found on many of the region's roads. The draft plan is seeking investment from the Government to help Greater Manchester's HGV, bus, coach, taxi and private-hire vehicle operators to upgrade to cleaner vehicles. The introduction of a non-charging Clean Air Zone (CAZ) forms part of the plan. This is intended to encourage the switch to less polluting vehicles. The plan went out to a public consultation earlier in the year. Greater Manchester's proposal is that it should be implemented in two phases – in 2021 and 2023. Initially, this would cover HGVs, buses and coaches, and taxis and private-hire vehicles with a Class C CAZ; vans would be included in 2023. The CAZ does not include cars, because modelling showed that this would not bring forward the date at which NO_2 levels were within the legal limit. This is because privately owned vehicles are typically parked up and not in use for over 95% of the time. Including private vehicles would also have disproportionately affected those people who are least able to invest in a newer, cleaner vehicle.

Congestion

Figure 6.8 shows that average journey times on our network of A and B roads have been gradually increasing since 2005, with a greater increase in the afternoon peak. Journey times are an indication of the level of congestion on our roads.

Figure 6.8:
Journey time rates for A and B roads (average minutes per mile)



Source: TfGM © Crown Copyright 2017

It is assumed that most of the increase is due to more vehicles on the road and the amount of construction work under way across the city. The growth in delivery traffic is thought to be a major contributor to the additional traffic levels. Construction work is often an inevitable consequence of living in a successful and thriving city. Work is presently under way to improve the operation of the Manchester and Salford Inner Relief Road (MSIRR).

With increased congestion, the average speeds on A and B roads are reducing, albeit only marginally, from 14mph in the morning peak (7–10am) and 12mph in the afternoon peak (4–7pm), to 13mph and 11mph respectively.

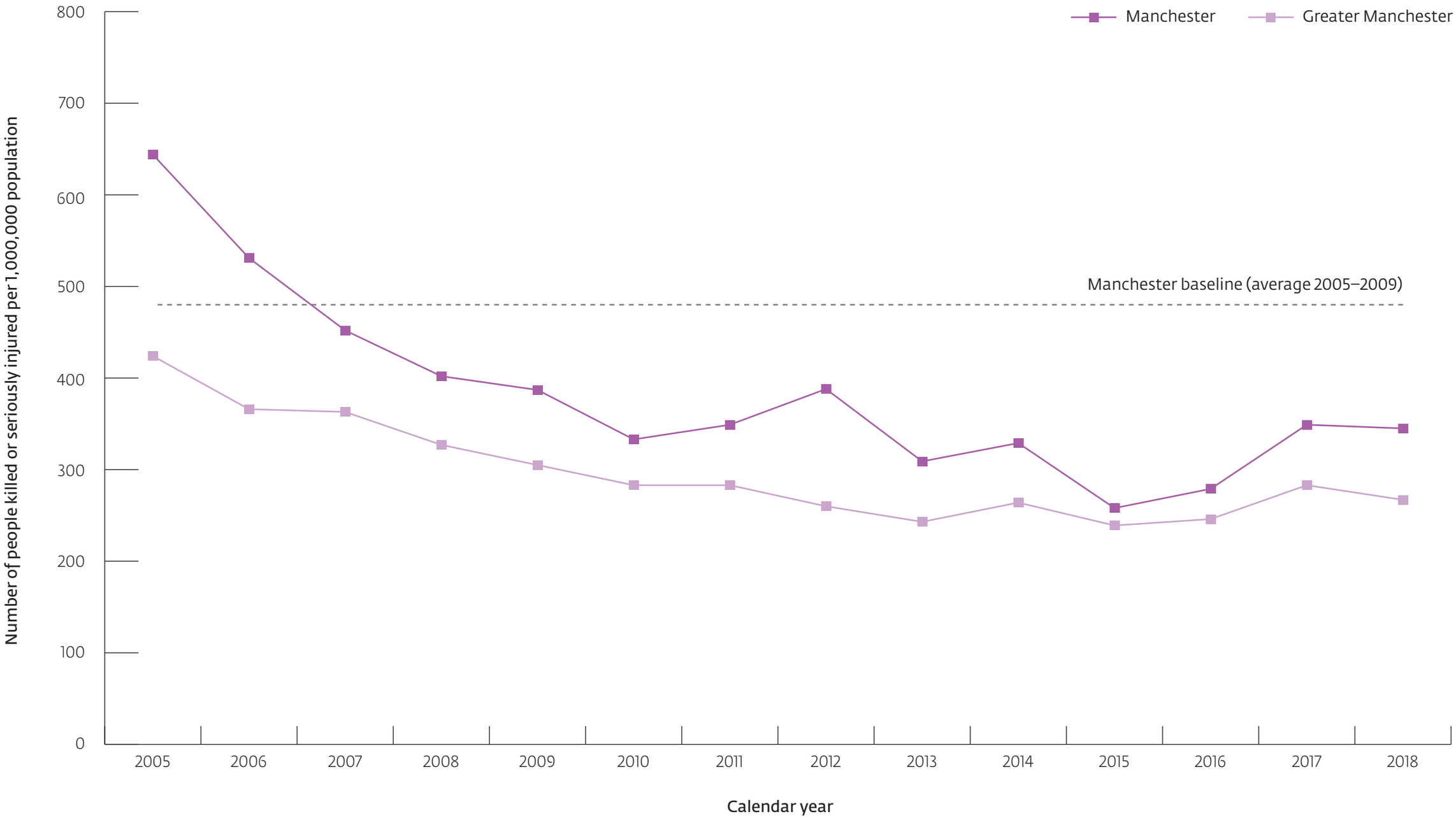
A place for people and innovation

Road safety

The Council works in close partnership with TfGM and Greater Manchester Police to improve the safety of our highway network, including investment in infrastructure to reduce accidents, and targeted enforcement operations to prevent dangerous driving. The data shown in Figure 6.9 suggests that road safety in Manchester was moving in the right direction, with a 60% decrease in the rate of people being killed or seriously injured on our roads between 2005 and 2015. However, between 2015 and 2018 there has been a marked increase of 34%, with a rate of 345 per one million population killed or seriously injured in 2018; this equates to 188 people killed or seriously injured on Manchester's roads, although still below the Manchester baseline figure of 222 (based upon an average of the five years 2005 to 2009).

We are investigating why there has been an increase in the number of people being killed or seriously injured on our roads. This is a trend that has been mirrored across Greater Manchester and nationally, and may partly be due to changes in the way injuries are recorded.

Figure 6.9:
Killed or seriously injured casualty rate on roads (per 1,000,000 population)



Source: TfGM © Crown Copyright 2018

20mph zones

In 2012, the Council embarked on a programme of making non-major residential streets 20mph zones to help reduce speeds and improve road safety. This was piloted across central, south and east Manchester, and an evaluation carried out by the Council in 2016/17 suggested that the impacts on road safety of the first phase of the scheme have been smaller than anticipated. Further investment in 20mph zones has been paused while a Council review of road-safety policy is carried out to understand how our budget can provide the best value for money in delivering the most significant safety improvements.

Further work is needed to understand the potential benefits in changing driver behaviour and the perception of residential streets, so that more people are comfortable and confident to walk and cycle.

Electric vehicles

The Government aims to ban the sale of new petrol and diesel cars by 2040. Increasing the use of electric vehicles is a key way in which we can reduce our carbon and air-pollution emissions. The number of ultra-low electric vehicles licensed within Manchester nearly tripled between 2015 and 2018, increasing from 168 to 495, but it still remains at a very low level. This is currently supported by provision of the Greater Manchester Electric Vehicles (GMEV) public recharging network. The GMEV network went live in July 2013, with GMEV membership growing from a very low base to 2,526 members by March 2019. From installation up to October 2018, there had been 181,437 individual charging sessions, with an average of 42,430KW/h drawn from the GMEV network each month in 2018: an increase from 39,000KW/h in 2017. Members are accessing the network on average 4.4 times per month (August 2018), with an average power drawn per charging session of 8.5 KW/h.

The current GMEV network includes 318 charging points across the region, and there is a commitment to install 48 new rapid charges by the end of 2019. The Council is working with TfGM to develop plans to expand the network further to support a range of vehicles, including taxis.

The Council's Facilities Management Team have recently replaced their fleet of diesel vans with electric vans and reduced the fleet by two vehicles. This change will bring an 80% reduction in the fleet's carbon emissions every year – approximately 12 tonnes. The Council's Fleet Services Team have provided support for this change along with funding from the Triangulum Project – an EU initiative supporting innovation to develop frameworks bringing cutting-edge technology to Europe's cities.

Automated vehicles

In 2017, a consortium – including the Council and TfGM – secured funding for £3.7million to trial a driverless electric shuttle service at Manchester Airport, and trial the use of autonomous vehicles between Stockport Railway Station and Manchester Airport in platooning formations of up to three vehicles. If platooning and EV technology become widely adopted, it would reduce congestion, improve air quality, and reduce the impact of transportation on climate change. In the short term it would deliver a novel and improved passenger experience at Manchester Airport, helping to boost Manchester's reputation as a leader in technology and transport innovation. It is hoped that the widespread introduction of autonomous vehicles will make our roads safer.

Digital investment

Greater Manchester Combined Authority successfully made a bid to the Government's Local Full Fibre Network Challenge Funding – a £190million fund to stimulate commercial investment in full-fibre networks. This will have a transformational impact by encouraging further fibre investment to the significant benefit of Greater Manchester residents, businesses and organisations. It will also enable public services across the region to benefit from future-proofed fibre connectivity and support innovation in public services.

Manchester technology firm UKFast has announced plans to expand onto vacant land opposite its Birley Field Campus, which will contribute to the ongoing regeneration of Hulme.

Technology demonstrators

CityVerve

During 2018/19 Manchester successfully completed CityVerve, the UK's Internet of Things Demonstrator project. This was headquartered at the Bright Building on Manchester Science Park, and involved a consortium of 21 technology partners. These included global companies such as Cisco and Siemens, alongside SMEs, public bodies and universities. CityVerve's work produced innovations in health, energy, environment and transport, and sought to overhaul and devise new ways for cities to deliver services to their citizens through smart technology. These have been adopted and piloted in Manchester, and will hopefully have a global impact in the near future. To assist this process, two large-scale dissemination events were held. The 'Everything is Connected' conference saw more than 150 delegates from across Europe and the UK attend a series of workshops, presentations and a solutions marketplace, and the final event was used to showcase the Demonstrator project to an audience of key stakeholders.

Following the project, further funding was obtained to complete the smart homes and chronic obstructive pulmonary disease health pilots, and undertake a project evaluation. The pilot has seen technology extended into 50 residents' houses. It has an impact on hospital referrals and has formed the basis of a larger scaling up of this work in 2019/20. It is also intended that the findings of the completed project evaluation will be used to inform the future development of the city's digital strategy as a strand of the local industrial strategy of the city.

Triangulum

Manchester is working with the cities of Eindhoven and Stavangar in the European-funded Triangulum project to develop smart, low-carbon and energy-saving solutions that will reduce costs, reduce energy consumption, improve air quality, and continue to achieve energy savings and efficiencies. This work was recognised by the project winning the Public Building Energy Project of the Year at the 2018 Energy Awards. The project also enables Manchester to share and disseminate its experiences and findings from its partner cities, while also learning from them. In addition, the Synchronicity project has attracted funding from the European Union's research and innovation programme for three pilots within the city. These will look at developing active travel insights around walking and cycling, extending a smart bike light trial begun by CityVerve, and using data to provide better insight into recycling and waste issues in the city.

Conclusion

Political priorities, environmental concerns, changes to social expectations, as well as technological advances, are transforming the way people connect. The likely scale of transformation that will be seen over the coming years is starting to become more apparent within Manchester.

Although more needs to be done and significant further investment is needed, progress is being made, such as the continuing trend of more people travelling into the city centre by sustainable transport. Changes are needed to tackle congestion, reduce journey times, reverse the recent increase in collisions on our highways, improve air quality, and reduce emissions.

Although improving, the rates of availability and take-up of superfast and ultrafast broadband by residential and SME premises are lower than many other major UK cities, and this is adversely affecting Manchester's reputation as an aspiring global digital city.

Manchester is continuing to establish itself as a place where the transformative potential of the digital and technology sector can be harnessed and explored. It continues to attract established firms and to be a magnet for entrepreneurs who are confident in the supportive environment the city has created. This means the city is at the forefront of work to research, pilot and implement the use of digital technology to transform connectivity and improve how the city functions. This environment has seen the development of the Connected and Autonomous Vehicles (CAV) trial at the Airport, and the European-funded smart city demonstrator project along the Oxford Road Corridor.

Although Manchester offers good transport connectivity and continues to increase capacity, it is very important that the network serves people's changing needs, and that public transport in particular is affordable and accessible so that all residents can benefit fully from living in a truly connected city.