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Rural transport is vital to city centres

Too often we consider urban and rural transport in isolation, but we can't fix urban transport without improving rural transport

▶ Urban and rural transport are not separate. We often behave as though they are. There are the profitable(ish) urban services and the subsidised rural services and never the twain shall sit comfortably in the same network. Except for the fact that the lack of bus services in the less than profitable rural and peri-urban areas is probably a key contributor to the difficulties that services face in notionally profitable (in non-covid times) dense urban areas.

Let me explain.

We have a tendency to think in terms of urban and rural. Manchester is urban. The Peak District rural. But on closer inspection our urban areas are not conveniently homogenous zones. The reality is that the Greater Manchester area is a complicated patchwork where much of it is very definitely urban, but there's a strong element which exhibits the distinct characteristics of rural areas.

The World Bank has some fairly simple metrics for degrees of urbanisation. Cities have 50,000+ inhabitants in contiguous grid cells at a population density of at least 1,500 inhabitants per sq km. Towns and 'semi-dense areas' consist of 5,000+ inhabitants in contiguous grid cells with a population density of at least 300 people per sq km. And rural areas are those smaller size places with less than 5,000 inhabitants or areas with less than 300 people per sq km. Using Lower Super Output Areas - which represent approximately

1,500 residents or 650 households - as our 'cells' we can look at Manchester and assess just how urban it is.

Fact fans will know that Greater Manchester covers an area of 1,276 sq km, has a population of around 2.7 million, and an average population density of 2,155 people per sq km. However, it's composed of 10 boroughs, and only the central borough - Manchester - is truly dense and populous in a really urban sense, its 500,000+ people live at an average density of 4,350 people per sq km.

Beyond that, Rochdale has a density of 1,380 people per sq km, not even meeting the World Bank threshold, Oldham and Wigan scrape over the 1,500 people per sq km with 1,580

and 1,690 respectively and the other six outer boroughs vary between 1,860 and 2,410 people per sq km. And at a smaller scale, within these outer boroughs population density varies between 60 and 15,550 people per sq km.

Another important metric, is what area of these boroughs is densely populated, and how much sparsely covered. In central Manchester, only 2% of the population and 14% of the area is inhabited at densities of less than 1,500 people per sq km. In the outer boroughs, up to 22% of people live in less densely inhabited areas, covering up to 71% of the area of the borough.

Why is this important? Transport is the means by which people move through space, in time. We tend to measure the success of journeys in terms of the time taken to make them, their cost and convenience. 'Lumpiness' in population distribution (which is pretty much contiguous with the origin of everyday journeys) has a huge impact on the distance people will need to travel and the time that this will take.

Evidence and common sense collide in demonstrating that how people make their journeys correlates strongly with the modes available. It's a simple exercise to map the density and availability of the public transport network against other metrics such as car ownership and car miles travelled. The message is pretty clear that there's a strong correlation between available transport and people using it. The rub is that this is also a strong correlation with population density. Transport is provided where the majority of people live. Where transport is provided,

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people tend to use it. So what's the problem? Surely this is a sensible and cost efficient mapping of resource to population?

The problem is that when we look at car use, the origin of journeys is inversely proportionate to population density and the provision of bus and rail. People in lower density areas - where there are fewer public transport options - own more cars and use them more. However, these car drivers don't stick to their patches. Their destinations are often the areas where the inhabitants have low car ownership and use - city centres where jobs and services provide their destinations.

For instance, in Greater Manchester, the densely populated central core - Manchester borough - has the highest proportion of its area covered with the best indices of connectivity of all the boroughs. (the GMAL score). Within Greater Manchester, Manchester City is also the borough with the lowest percentage of residents driving to work (46%) and the lowest proportion of its workplace population arriving by car (49%). However, the last published census (2011) showed that over 157,000 people arrived in central Manchester by car. Of the total, 25% came from within the borough, 48% from other Greater Manchester boroughs and 27% from outside of the Greater Manchester area.

As we know, traffic causes congestion. And congestion is one of the greatest inhibitors to efficient public transport (particularly buses), increasing journey times and reducing reliability.

So the irony is that the traffic which inhibits the progress of buses within central Manchester is largely generated by those areas with fewer buses. The poor provision of public transport in lower density rural areas is a tangible impediment to the smooth and efficient functioning of public transport in the centre.

In these financially difficult times, it's hard to argue that the buses serving the fewest people should be a priority. However, that's exactly what we need to do to make the network work.

The outer edges of the network may look like the margins but they are not marginal in their impact.

So how do we address this?

If you look at Bolton, a borough with over a quarter of a million people, and population density that ranges between 200 and 15,380 people over nearly 14,000 hectares (which means a distance of about 12 miles across)

there's a typical pattern of public transport access correlating with high density areas and car use correlated with lower density areas. Typical endpoints - places of work - are central Bolton (up to 10 miles from the edge of the borough) and central Manchester, with a lower percentage scattered across Manchester and the North West. Despite the size of the borough, over 60% of people who live and work in the borough drive to work. Of those who do not drive to work, the second largest group is of those who walk to work - 12.5% of those living and working within the borough.

Talking to people about why they make the transport choices they do is revealing. In the lower density areas the public transport options require double to triple the journey time of car use. An 8.8- 10 mile journey between Horwich, on the edge of the borough, to the Royal Bolton Hospital (both an important local employer and the destination for people using their services) is 16-30 minutes' drive or 59 minutes up to an hour and four minutes using public transport, requiring a change of buses with the additional friction and uncertainty that this implies. The bus route takes the main corridor and stops 40 times on this journey whilst the car has a choice of options, including both minor roads and the motorway which parallels the route.

Travelling from the edge of Horwich to the mainline station - three miles - is not possible by public transport in time for the first train. That aside, the route would have required a mile walk plus completing the trip by bus or rail. A 30-45 minute trip compared to a maximum of 20 minutes in the car. Whilst the margin is slimmer here, it only forms one leg of the journey to the centre of Manchester (another hour by train). Whilst some people would take the train at this point, others would drive into the centre - 55% of those who live in Bolton and work in central Manchester drive (even though there are several main line stations within the borough).

Whilst the interviewees were interested in walking and cycling, they were scathing about the infrastructure and the dangers they faced when they tried to replace car trips with active travel. They were both pushed and pulled into car use.

Tackling the outer areas would mean innovation and investment. Investment in good quality active travel routes so that people

are not faced with near death experiences if they choose not to drive. This is crucial for reducing the numbers of cars on the road in general. Making it attractive and safe for people to leave their homes on foot and by bike will change the default reliance on the car. It will give families better options for the school run, commuters better options for travelling to work and to public transport nodes and older people the chance to get out and about independently.

The second element is more buses. Given the less dense nature of the areas it may not mean fixed route buses but smaller, smarter, dynamic, on-demand buses which ensure that people can get to stations or onto rapid fixed line bus routes without suffering a huge time penalty compared with driving themselves. These are neither the traditional 'dial-a-ride' buses with passengers limited by access requirements nor limited to booking by app only. Whilst they need smart organisation in the background to ensure routes are optimised and usage maximised, they need to be accessible to all. Recent iterations of DRT (Demand Responsive Transport) are bookable by app and also by phone, and integrate cash payments, smart cards, mobile app payments and concessionary fares. They are part of the network, designed to support it and increase patronage across the board.

Configuring the outer network so that it provides a genuine alternative to the cars which sit in almost every drive and line the roads is not cost-free. Lower density transport is rarely profitable. However, it is necessary if we are to improve everyone's environment.

It requires the recognition that every person who does not set out from their house in a car is improving not only their neighbourhood but all the neighbourhoods that they would travel through and - most particularly - their end destination. City centres and urban areas will not reach the levels of clean air and quality of life they aspire to if the inequality of access to transport is not addressed. ◼

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