Traffic Growth in Nottingham

Both Nottingham City Council and JAQU have made extensive use of transport and air quality models when developing our responses to the challenge posed by poor air quality. In accordance with guidance laid down by DEFRA and the Department for Transport (DfT) (through WEBTAG), assumptions have been made in all modelling with regard to the level of traffic growth expected on the transport network in the run up to Clean Air Zone implementation. The modelling carried out in preparation for the Clean Air Zone Analysis is required to show the level of NO_2 emissions emanating from the transport network in a base year (in this case 2016) and in a future forecast year (2020: the year the CAZ is implemented fully). The 2016 base year model is developed using existing data however, the 2020 model is created by forecasting the level of traffic growth between 2016 and 2020. A detailed discussion on the methodology of traffic modelling and Air Quality modelling is included in the Economic Case.

The forecasts for traffic growth are generated using the Department for Transports TEMPRO v7.2 programme. The TEMPRO forecasts provide an assumption of the level of traffic growth based on land use and planning data that comes from local plans. It uses this data to make forecasts of the change in the volume of trips using a number of different modes.

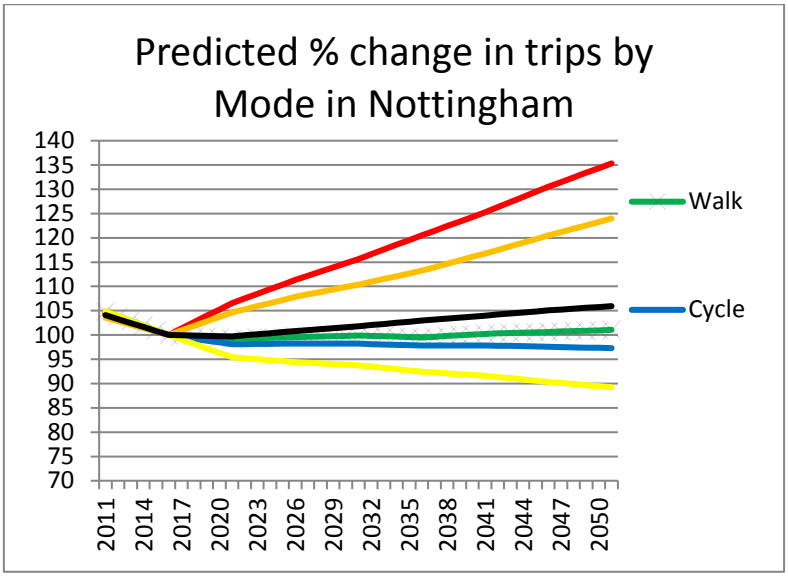


Figure 9: Growth Forecasts by mode predicted by TEMPRO

Figure 9 Above shows a forecast in the number of trips by each mode from a 2016 base line to 2050. The chart is indexed and shows percentage change over time, with the starting point in 2016 set at 100%.

The forecast data shows that there will be a sharp increase in the number of car drivers and car passengers in Nottingham from 2016 onwards. It also shows a reduction in the number of cyclists and trips made by buses with a particularly sharp reduction in bus passengers between 2016 and 2025. This forecast is built in to the assumption made by the PCM model and our own 2020 Clean Air Zone option tests.

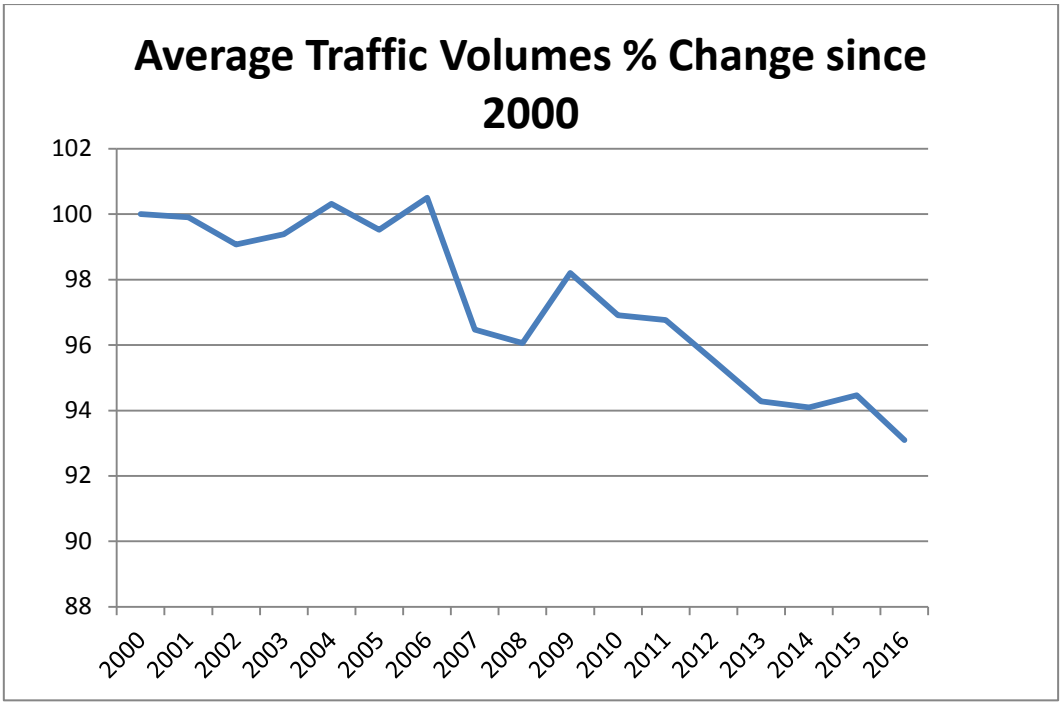


Figure 10: Observed AADT Traffic volumes in Nottingham from 2000

Figure 10 above shows average percentage change in traffic volumes in Nottingham over time from the year 2000 to 2016. The data contained within this chart is taken from a number of automatic traffic count locations around the city and was converted in to Annual Average Daily Total (AADT) for each year. The chart shows a nearly 8%reduction in the AADT across the city form the year 2000 to 2016.

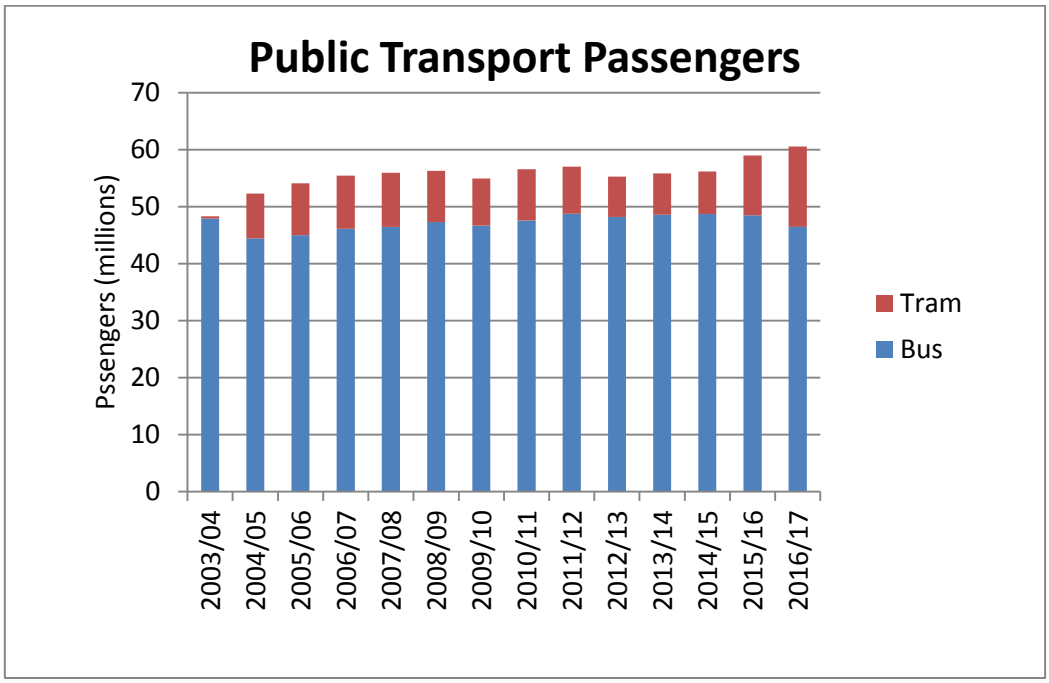


Figure 11: Public Transport Passenger numbers (bus and Tram)

Figure 11 above uses patronage data taken from our public transport network and shows that overall there has been an increase in the number of passengers on our bus and tram network during the

period from 2003 to 2017, from around 48 million passengers per year in 2003 to just over 60 million in 2016/17.

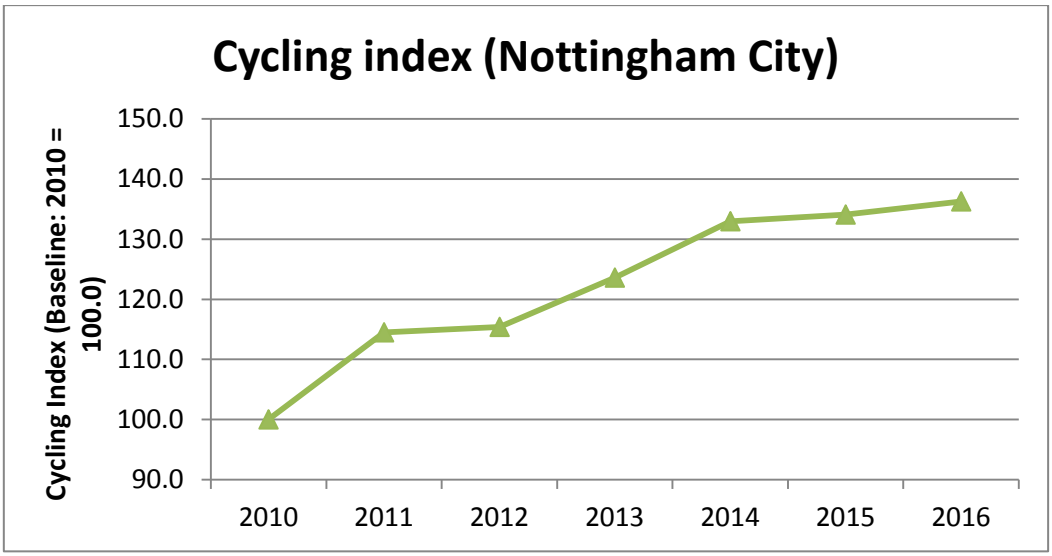


Figure 12: Numbers of people cycling in Nottingham

In addition, **Figure 12** above shows an increase in the numbers of people cycling in Nottingham since 2010. This increase excludes the impact of the western cycle corridor that was completed in October 2016.

There is also evidence that the decrease in traffic volumes together with the increase in public transport use and cycling is set against the backdrop of increased economic growth in Nottingham since 2011.

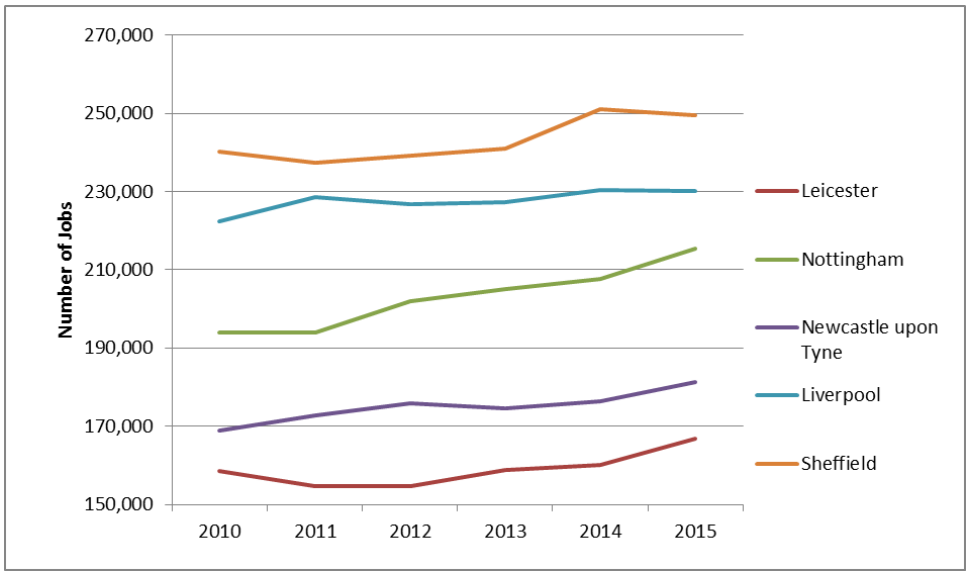


Figure 13: Jobs in Nottingham and comparator cities

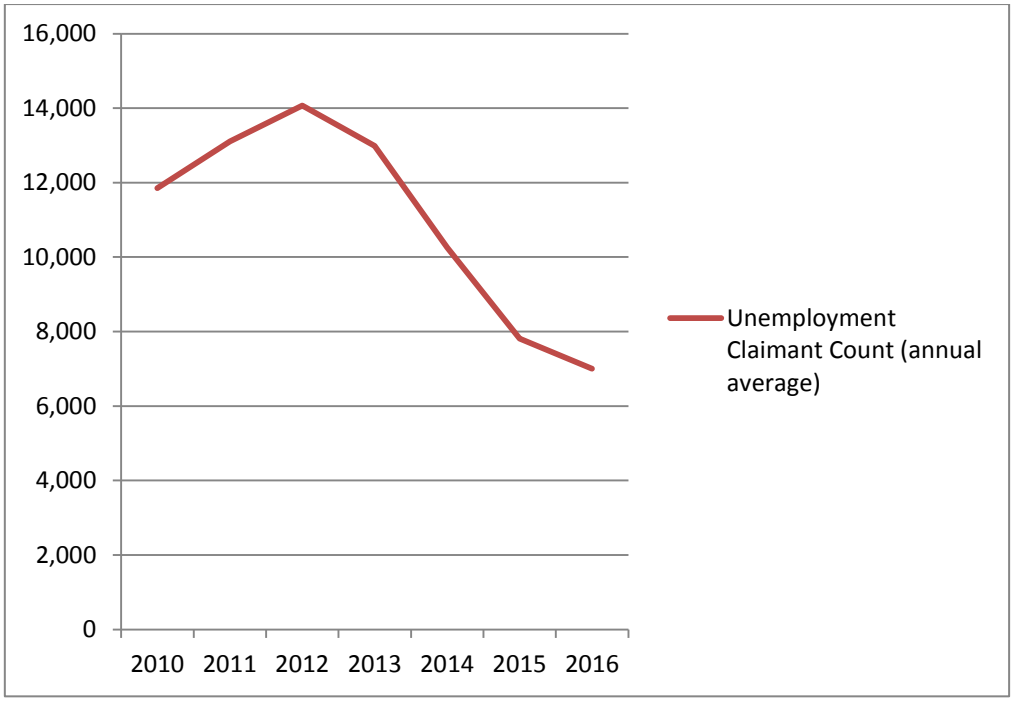


Figure 14: Unemployment Benefits claimants

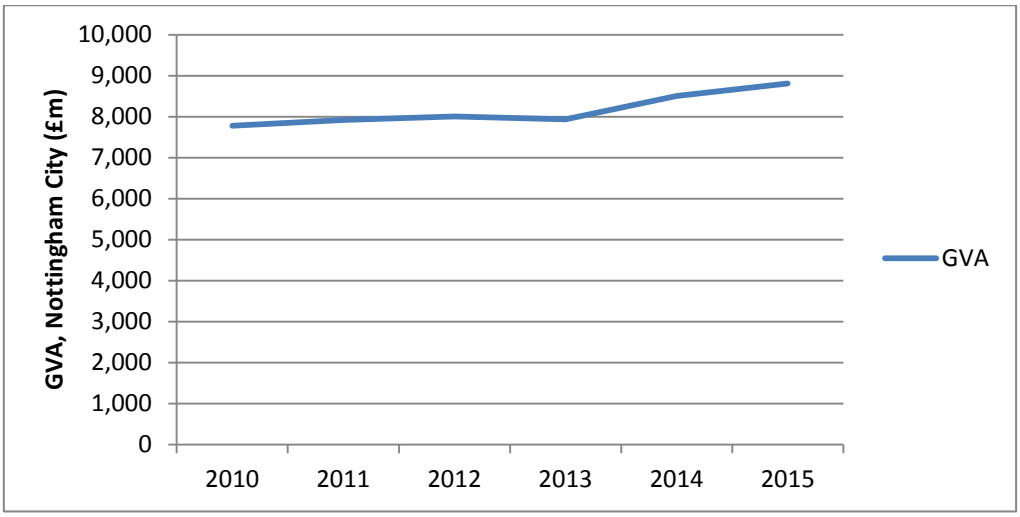
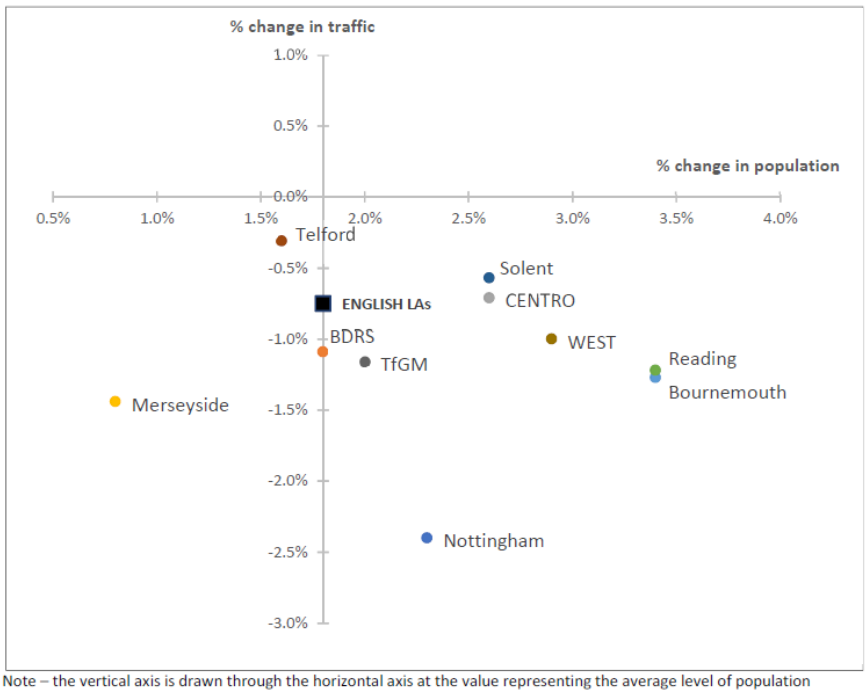


Figure 15: Economic Growth in Nottingham Measured by GVA

Figure 13 above shows an increase in the number of jobs registered in Nottingham from 2010 to 2015 compared to other similar cities. In addition, **Figure 14** shows a reduction in unemployment benefit claimants from close to 12000 in 2010 to 7000 in 2016. **Figure 15** shows an increase in the Gross Value Added between 2010 and 2015.

In most cities, an increase in economic growth also results in an increase in traffic volumes. With these charts, we can conclude that although the economy in Nottingham is growing this does not correlate to an increase in the volumes of traffic on the transport network. Furthermore, we can conclude that the forecast traffic levels calculated using TEMPRO are unlikely to occur in 2020. In fact, if observed data is to be taken in to account then a reduction in traffic flows is more likely to occur between 2016 and 2020.

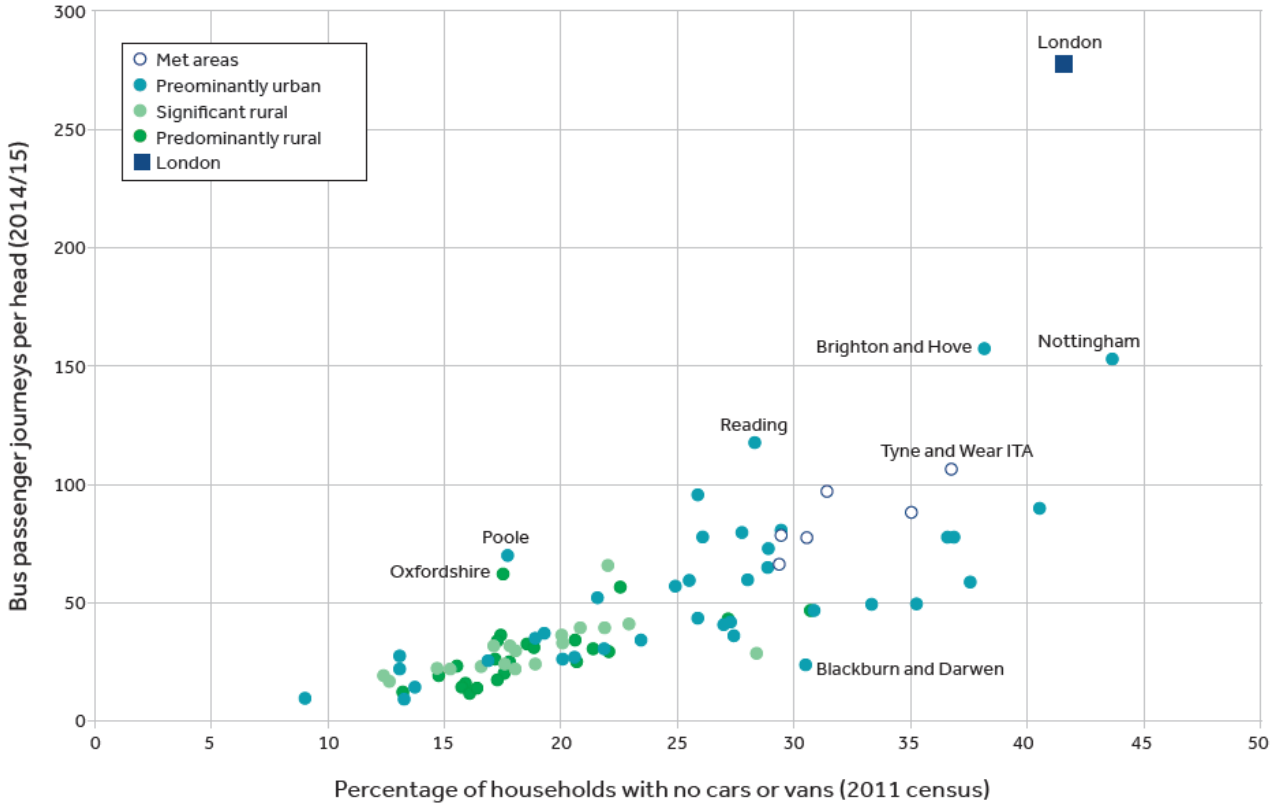


Note – the vertical axis is drawn through the horizontal axis at the value representing the average level of population growth for English local authorities (excluding London and Large Projects).

Figure 16: Population growth against traffic growth in Nottingham

As part of the Local Sustainable Transport Fund (LSTF) evaluation, an exercise was conducted to assess changes between population and traffic growth for the twelve areas that received major bid LSTF funding between 2011 and 2015.

When comparing the change in population between 2010 and 2014, along with the change in traffic, the majority of selected areas have shown some growth in population with a reduction in traffic (with the exception of Merseyside and Telford). However, Nottingham has shown the largest traffic reduction whilst at the same time seeing population growth. This indicates an “unlinking” effect occurring more than in other Cities between Growth in population and traffic generation.



Bus trips in England compared to Car Ownership

In addition the Bussess in Urban Development Document published by The CHIT shows Nottingham as a clear outlier in terms of the level of car ownership and the numbe rof bus journey's per head of population.

Using the data presented in the section above we can conclude that Nottingham's approach to encourage the use of public transport, walking and cycling as well as the introduction of Workplace Parking Levy has yielded significant results over the last 10 years. There has been increase in the number of public transport passengers and the number of people cycling. There has also been a decrease in the volume of traffic on Nottingham roads.

The Additional Measures section discusses in detail the measures that have been taken to achieve this shift away from the use of the private car and with further additional measures planned, we expect this trend to continue. Given the assumptions used in the modelling do not accurately represent these trends described in this section; we can conclude that the outputs of those models would be representative of a worst-case scenario.

It is therefore likely that with the continuing shift towards the use of public transport and cycling, and away from private car use that compliance with the Directive for Levels of Nitrogen Dioxide could be achieved more quickly than forecast by the PCM model.