

Parking Standards for New Developments: Update to research overview (Dec 2022)

Introduction

Following the Cabinet meeting held on 18th October 2022 at which the revised Parking Standards for New Developments document was adopted, it was resolved that, “Councillors Enright, Gant and Sudbury [are] to conduct a review with the relevant officers on issues raised by the scrutiny committee and bring back an update to a future Cabinet meeting before the end of this year.”

This report revisits the key findings of the research overview that was previously provided in support of the parking standards and explores some additional research in order to ascertain whether the standards in their current guise represent an appropriate approach to parking policy in the context of the Local Transport and Connectivity Plan (LTCP).

Update to the research overview

An overview of research on the relationship between parking availability and private car use was presented as a [second addendum](#) to the 18th October Cabinet. This report identified a number of studies that showed a link between residential and destination (workplace) car parking provision, car ownership, and car use.

From this research overview it was concluded that the revised parking standards – which substantially reduce the parking requirements at residential, employment, and other locations compared with the previous standards – appropriately support the aims of the LTCP to reduce car trips across the County’s highway network.

At the Place Overview & Scrutiny Committee meeting on 7th October 2022 the fourth agreed recommendation stated:

Officers use what data is available to produce a best estimate of current private car trip rates in Oxfordshire and use that estimate to produce numerical values for the LTCP headline targets regarding private car journeys – this should accompany the Parking Standards for New Developments report to Cabinet; and use those estimates to review, and if necessary revise, the maximum levels of parking proposed in the Parking Standards for New Developments, applying the Decide & Provide approach.

Having established that there is a relationship between limiting car parking and reduced ownership and usage, the challenge therefore is to determine whether the parking standards in their current guise make a sufficient contribution towards the aims of the LTCP. However, this is difficult for two main reasons.

Firstly, there are numerous other factors that influence travel behaviour and thus will contribute towards these targets being realised. If people are to use cars less often then it follows that they will either need to travel less or make those same trips by active and sustainable modes. As such we need to ensure that such modes are feasible alternatives for these journeys. Opportunities to ensure this is the case will vary significantly depending on the location of development.

This is why both the LTCP and the Implementing Decide and Provide: Requirements for Transport Assessments document highlight the importance of locating new development in locations where these opportunities will be most likely and where the need to travel is

reduced. Limiting car parking provision in new developments is just one of the many means of reducing private car use identified in the LTCP.

Secondly, in order to be able to say whether the standards make a sufficient contribution towards the LTCP targets of reducing car trips, we would need to be able to determine the potential degree of their effect. However, the overview of research did not find any evidence from which to derive a specific policy recommendation that could reliably be said to result in a specific outcome. Or in other words, 'reducing car parking provision by [x] will result in a reduction of car trips by [y]'.

As part of this subsequent review, academics at the Transport Studies Unit (TSU) at the University of Oxford were contacted to seek their advice on whether they were aware of any such research. The response received indicated that they were not aware of any such evidence. However, they did recommend two further papers on the subject of parking supply, which are reviewed later in this report.

Without such a means of measuring the potential effectiveness of the parking standards in their current guise and without knowing yet what the LTCP car trip reduction targets equate to in absolute terms, it is not possible to determine whether the standards will make a sufficient contribution towards said targets. Nevertheless, a review of the additional research is provided in order to determine whether the overall approach of the revised standards is likely to support the aims of the LTCP in more general terms.

Review of additional research: Christiansen, *et al* (2017)

In respect of the original research overview, a criticism made by one Oxford City Council member during the Cabinet held in October was that, "I noted that while you cited Christian [sic] *et al*'s 2017 study in the bibliography, you fail to mention their key conclusion that reserved parking at home triples the likelihood of car ownership." However, the paper referenced in the research overview was a different paper also written by Christiansen *et al* in the same year, so this was not an error in the research overview. Nevertheless, given the potential significance of the conclusion of this paper referenced by the member, it is useful to explore its findings further.

As the member points out, the paper by Christiansen *et al* (2017, p.4190) states that, "access to reserved parking increases the odds for owning a car by a factor of more than 3" in their research based on data from the Norwegian National Travel Survey. Importantly, the authors also note that (*ibid.*, p.4190), "However, this is not a causal model. The direction of causation cannot be interpreted from this." Discussing the limitations of their research further, the authors acknowledge (*ibid.*, p.4193):

Also, note that our findings rely on data from major cities where distances are relatively short and public transport offers a relatively good alternative to the car. Our findings should not be transferred to rural contexts.

With this in mind, we need to exercise appropriate caution in applying these findings to establishing appropriate parking standards across the whole of Oxfordshire.

The research also shows that those without reserved car parking also own cars but that this will be less likely than those with reserved parking. This suggests that unreserved on-street parking may be less likely to encourage car ownership than reserved parking, such as an allocated space within a parking court or provision within the curtilage of an

individual property. This finding provides support for the approach of the County's adopted parking standards document, which does not stipulate how or where parking is provided, other than stating that it must be within the development site.

Another finding of the research is that proximity of parking to residence location affects mode choice (ibid., p.4191):

The number of car trips is significantly lower among those who have more than 50 m distance to their parked car, and they travel significantly more on foot and by public transport. Although trip frequencies are similar between the two groups, their mode choice is significantly different.

The average number of trips per day as a car driver is 2.08 when the distance from residence to parking is 0-50m, this reduces to 1.54 car driver trips per day when the distance from residence to parking space is 50m or more. Meanwhile, the average number of trips made on foot increases from 0.83 to 1.25 and public transport trips increase from 0.33 to 0.45. These findings lend further weight to the aforementioned flexibility of parking location allowable in the County's parking standards.

However, it will be important to ensure that in developments where parking is not immediately proximate to residences that the potential for indiscriminate parking on footways, cycleways, and green spaces can be effectively prevented, through parking controls, such as Controlled Parking Zones (CPZs), and design solutions, such as bollards, fencing etc.

Finally, amongst the various conclusions drawn from the research, the authors note that (ibid., p.4194):

Our multivariate analysis of parking and car-use confirms that longer distance to the parked car is associated with less car-use, and that access to a higher number of reserved parking spaces increases the likelihood of car-use.

One may expect parking availability to be low and that home parking is troublesome in major cities. In Norway, that seems not to be the case. A majority of our urban sample has access to private and reserved home parking within very short distances from home.

Again, this lends support to the approach of the adopted parking standards, which allows for (and indeed encourages and sometimes requires) car-free developments where appropriate provision for walking, cycling, and public transport exists.

Review of additional research: Guo and Ren (2013)

This is one of two studies recommended by the academic at the TSU. The study (Guo and Ren, 2013, p. 1183) examined:

...residential parking supply in London before and after the minimum off-street parking standard was replaced by a maximum one in 2004.

The research does not look at the relationship between car parking supply and car ownership and usage, only the varying effects of minimum and maximum parking standards on parking supply in new developments. Nevertheless, some useful and interesting findings can be drawn from the study.

The research found that there was a 40 per cent reduction in the levels of parking provision in new residential developments after the reform of the standards when compared with level of provision in new developments that preceded the reform.

By way of comparison, the County’s revised standards for residential developments do not impose a minimum car parking requirement, although a minimum requirement for cycle parking is stipulated. Whilst not explicitly articulated as such, the standards imply a maximum level of car parking provision that would be deemed acceptable by the use of the phrasing “Up to [x] space(s) per dwelling to be provided within the development site.”

Based on the analysis provided in [Annex 4](#) of the Cabinet item from the 20th September 2022, the potential reduction in car parking provision for new residential developments taken as an average from across edge of city, town, and rural locations could range from 25 up to 72 per cent when compared against the previous parking standards, see table below.

Potential reductions in residential parking		
Development type	Lowest reduction (%)	Highest reduction (%)
Edge of city: 2 bed	43	100
Edge of city: 3 bed	17	100
Town: 2 bed	43	100
Town: 3+ bed	17	100
Rural: 2 bed	13	13
Rural: 3+ bed	17	17
Average	25	72

The research observes that (ibid., p.1183):

...parking supply is actually higher in areas with the highest density and the best transit service than in the areas immediately outside the adopted maximum standard follows a similar pattern.

The County’s revised standards will ensure that this apparently illogical scenario does not arise by being explicitly tailored to ensure that parking provision is responsive to accessibility to public transport, i.e. where public transport is better the standards stipulate lower levels of parking provision.

Review of additional research: Li and Guo (2014)

As with the study by Guo and Ren (2013) the research by Li and Guo (2014) – which is the second paper recommended by the academic at the TSU – also focuses on the effect of parking policy on parking supply, rather than looking beyond this and exploring in detail the resultant impacts on car ownership and use. The authors note that (ibid., p.353):

Regarded as a necessary amenity for decades, the off-street parking supply created by minimum parking requirements has become controversial in recent years. Opponents argue that these requirements are often arbitrary and excessive, and that they distort both real estate and car markets, leading to higher car ownership and housing costs (Shoup, 2005).

Given these criticisms, and that the County’s revised standards do not impose a minimum requirement, this suggests further support for the approach adopted. Lending further weight to the support of this approach, their specific research of parking policy reform in

London found that (ibid., p.353), "...the removal of minimum parking requirements might have played a stronger role than the establishment of parking maximums."

The authors conclude their research paper by noting that (ibid., p.364):

The London parking reform provides a good lesson for both city centres with extensive public transport networks and suburban communities with greater parking demand, in both developed and developing countries. It shows how the parking market can adjust for itself under parking standards that are less restrictive and more responsive to local needs. Nevertheless, the deregulation of off-street parking should be supported by better management of on-street parking, particularly in dense urban areas.

This also appears to lend support for the approach adopted in the County's revised parking standards in that the document is designed in such a way as to be adaptive to different locations, settlement scales, walkability, cyclability, and public transport access. Furthermore, the reference to better management of on-street parking lends support to the requirement in some circumstances for the implementation of CPZs.

Conclusion

The original research overview identified that there is indeed much research that demonstrates a link between parking reduction (at both origin and destination) and a reduction in car ownership and usage. However, it also identified that the literature acknowledges that causality can be difficult to establish, given the myriad influencing factors on travel behaviour and the challenge of endogeneity in research methodologies.

As such, it was concluded that the general approach of reducing car parking provision in new developments (both residential and employment) is supported by the evidence. In lieu of research that is able to directly equate a level of car parking provision to a resultant level of car use, as corroborated by the advice from the academic at the TSU, it has not been possible to determine whether the specific levels of car parking provision set out in the revised parking standards will make a sufficient contribution towards the LTCP targets.

The additional research papers reviewed in this report also lend further support to the general approach taken in the revised parking standards, which includes: allowing for the flexibility of car parking proximity to residences; the implementation of CPZs in some circumstances; no imposition of minimum parking requirements; and requiring the consideration of car-free development in appropriate locations.

Bibliography

Christiansen, P., *et al* (2017) 'Household parking facilities: relationship to travel behaviour and car ownership', *Transportation Research Procedia*, 25, pp.4185-4195.

Guo, Z. and Ren, S. (2013) 'From Minimum to Maximum: Impact of the London Parking Reform on Residential Parking Supply from 2004 to 2010?', *Urban Studies*, 50(6), pp.1183-1200.

Li, F. and Guo, Z. (2014) 'Do parking standards matter? Evaluating the London parking reform with a matched-pair approach', *Transportation Research Part A*, 67, pp. 352-365.