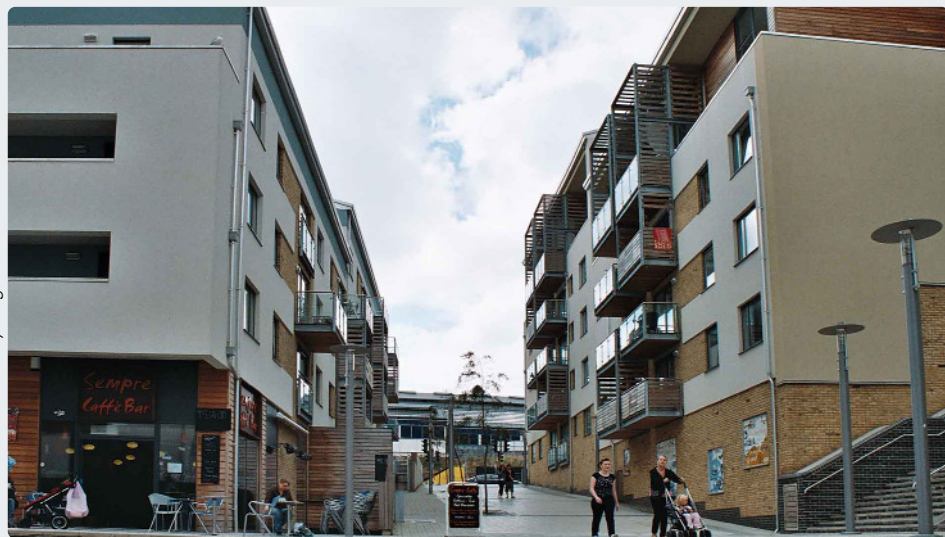


# urban intensification – problems real and imagined

**Steve Melia** looks at city population densities, travel behaviour and the 'the paradox of intensification'

Louise Burston and Gerry King



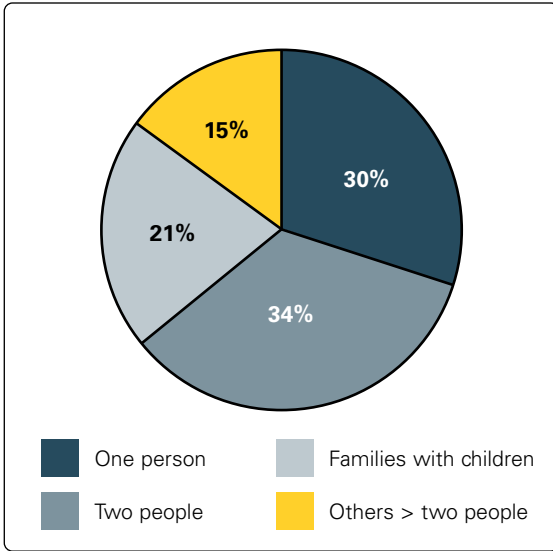
**Above**

Urban intensification at the One Brighton apartment development

Families with children now make up just one household in five.<sup>1</sup> This inconvenient fact is rarely mentioned when politicians, journalists<sup>2</sup> or planners discuss housing and urban intensification.

In scrapping national guidance on the minimum density of new development, Housing Minister Grant Shapps argued recently that the guidance had 'resulted in developers building one or two bedroom executive flats, when the greatest need is often for affordable family homes'.<sup>3</sup> A few days earlier,

Secretary of State Eric Pickles had listed 30 areas of the country where the abolition of Regional Spatial Strategies would allow local authorities to abandon unpopular greenfield developments. But at a time of rapid growth in households, and whatever the balance of power between central and local government, sooner or later housing shortages will force both to look again at urban intensification, greenfield development and the trade-off between the two.



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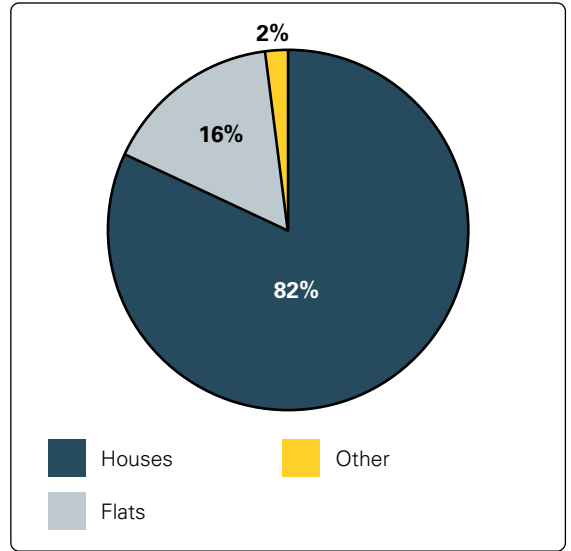
**Fig. 1 Household composition – England**

Source: Census 2001 data – Table CAS053, 'Household composition by tenure and occupancy rating', available at [www.nomisweb.co.uk](http://www.nomisweb.co.uk)

Fig. 1 shows the breakdown of households at the time of the last Census. The projections published by the Department for Communities and Local Government (DCLG)<sup>4</sup> do not distinguish between couples with and without children, but the proportion of single-person households is shown separately. They account for two-thirds of the projected growth in households over the next 21 years. At the same time, the housing stock is dominated by houses rather than flats, as shown in Fig. 2. Before the credit crunch planning policies and market forces had increased the proportion of flats built each year to just under half, but new-build has only a very slow effect on the overall stock. Had those build rates continued, the proportion of flats would have risen to just 21% by the year 2031,<sup>5</sup> by which time single people are projected to form 40% of households.

Single people may prefer houses with gardens, but preferences are influenced and constrained by relative prices. The historic imbalance in our housing stock has made flats expensive compared with houses of a similar size in similar locations. Increasing their supply would reduce their relative price, making them gradually more affordable for the growing proportion of single people, who tend to have lower household incomes.

Over the past few years, I have asked many planners, developers, councillors, and even a housing market analyst to guess the proportion of households made up by families with children: without exception, their guesses have always been much too high. So whereas there may be some



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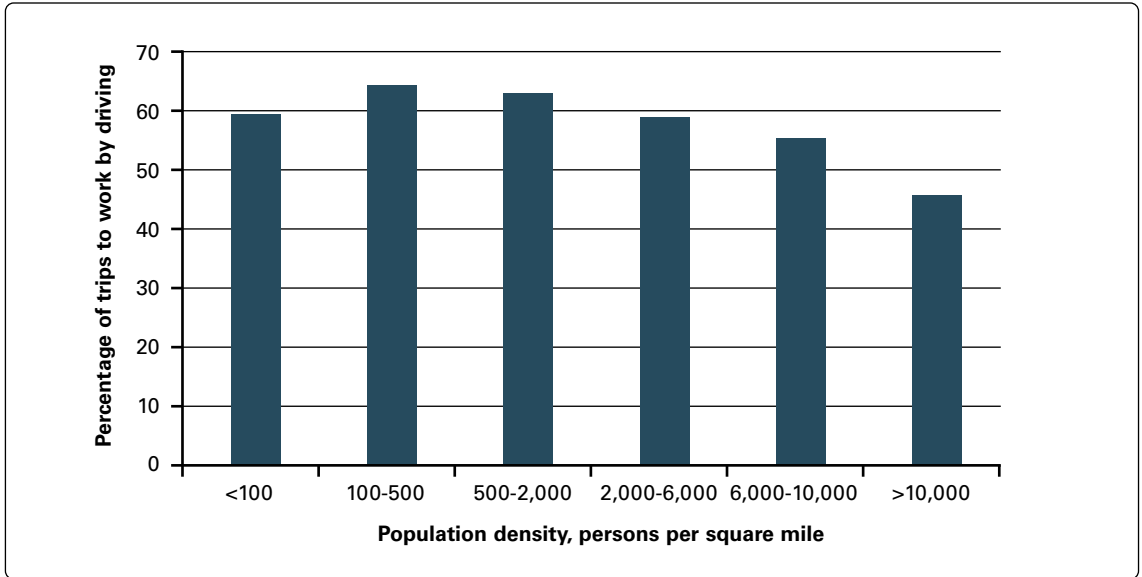
**Fig. 2 Housing stock – England**

Source: Housing and Planning Statistics 2009. DCLG, 2009. [www.communities.gov.uk/documents/statistics/pdf/1400509.pdf](http://www.communities.gov.uk/documents/statistics/pdf/1400509.pdf)

areas of cities where more family housing is needed (and child-friendly environments should be promoted for other reasons), numerical perceptions of the problem are grossly distorted. Whatever the merits of national guidance versus local autonomy, the Housing Minister's suggestion that flat-building has caused a national shortage of family housing was mistaken.

Furthermore, changes in housing density have a disproportionate effect on the greenfield land required to build any given number of dwellings. With a 'brownfield first' policy, greenfield sites 'mop up' the overspill from towns and cities, which accommodate most new building. The greenfield-brownfield split<sup>6</sup> is currently 20%-80%, so in simple terms halving the gross density of new urban (brownfield) housing would change this ratio to 40%-60%, tripling the number of houses allocated to greenfield sites. If greenfield densities were also halved, this would mean a sixfold increase in the greenfield land required for the same number of dwellings.

Local resistance to greenfield development is often caricatured as selfish NIMBYism, but there are often valid reasons why local communities resist development in their areas, particularly increasing traffic. In rural areas and urban fringes, this applies to nearly all new development. It also applies to urban and suburban areas where development increases the density of people and vehicles. This issue has been the subject of research at the University of the West of England, described in a forthcoming paper as 'the paradox of intensification'.<sup>7</sup>



**Above**

Fig. 3 Population density and driving to work – England and Wales  
 Source: Census 2001 data

People in denser areas tend to drive less than people in low-density areas. There are several explanations for this: shorter distances to destinations, better public transport, and constraints on driving and parking cars; but many other factors apart from density complicate the analysis, such as differences in income, household types, and personal attitudes. Are variations in rates of driving *caused* by neighbourhood characteristics, or do they just reflect the different types of people who choose to live there? If it is mainly the latter, then intensifying cities will make little difference to overall travel behaviour.

**‘In most circumstances, intensification will reduce driving, with benefits to the global environment, at the price of increasing concentrations of cars, traffic and the problems they create in the intensified neighbourhoods’**

This problem has exercised transport researchers and generated a vast international literature over the past two decades. In reviewing the evidence, we concluded that in most circumstances increasing

the population density of an urban area does tend to reduce the distances and, to a lesser extent, the frequency of trips by car. But the effect is a relatively weak one, as illustrated in Fig. 3.

Although the figures vary from study to study, the same pattern has been found across several European countries and American states. It means that doubling the population density of an area will normally reduce but will not halve the number of car journeys made by the average household there. So in most circumstances, intensification will reduce driving, with benefits to the global environment, at the price of increasing concentrations of cars, traffic and the problems they create in the intensified neighbourhoods. This effect, the ‘paradox of intensification’, is summarised in Table 1 overleaf. This is a tendency statement; these changes will not occur in all circumstances. Intensifying an area with student or retirement housing will obviously have a very different effect from intensifying with luxury apartments, for example.

The paradox applies in slightly different ways at the city-wide level and the micro-level of the individual development. As household sizes are falling,<sup>4</sup> the average density of dwellings in our towns and cities would need to increase by 7% between 2006 and 2031 just to maintain existing population densities. After many decades of decline, urban intensification, including more flat-building, was maintaining but not significantly increasing the populations of our principal provincial cities before the credit crunch. A reversal of that policy would almost certainly mean a return to urban depopulation.

**Table 1**  
**Transport effects of urban intensification predicted by the ‘paradox of intensification’**

	Per capita (by residents of the intensified area)	Within the intensified area	Globally
Vehicle-miles travelled	↓	↑	↓
Percentage of trips made by car	↓	↓	↓
Traffic volumes	N/A	↑	↓

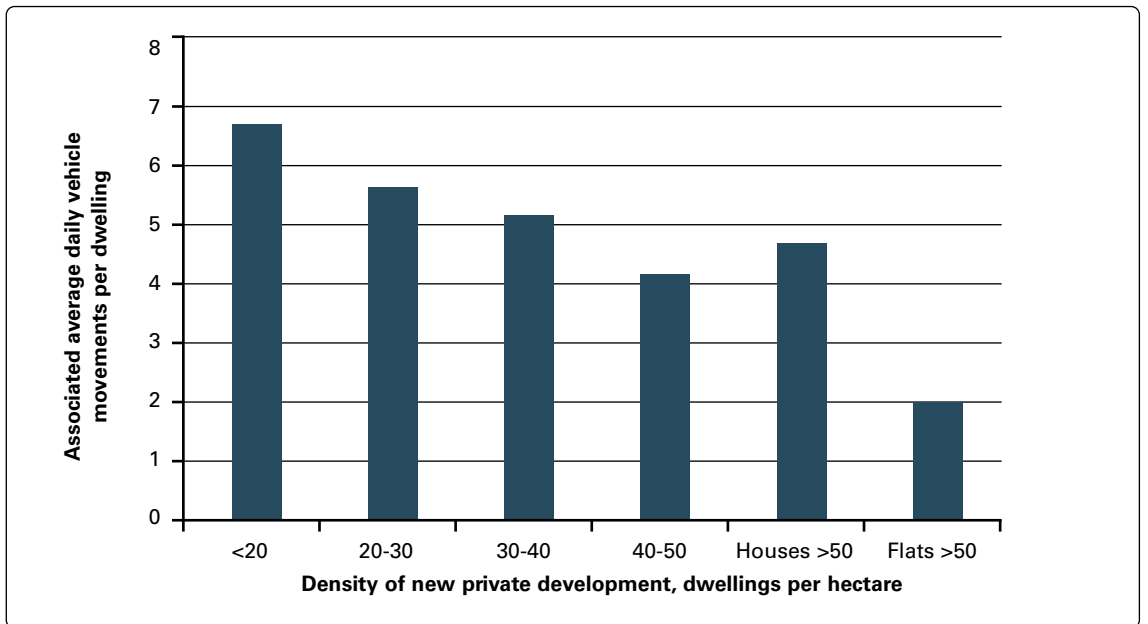
Maintaining the policy of intensification could stabilise or increase the population density of our cities – but not in an even way. Mature neighbourhoods with few development opportunities will continue to depopulate, whereas the density of redevelopment areas may sharply rise. This is where the paradox becomes a practical problem for planners, developers and transport planners. Fig. 4 shows the relationship between the density of dwellings and the vehicle movements they generate. It is based on 79 developments of privately-owned houses and 34 developments of privately-owned flats in the UK and Ireland, using data drawn from TRICS®, a system commonly used by transport planners to estimate the effects of proposed developments on surrounding roads.

Fig. 4 illustrates the same pattern as Fig. 3: trip rates fall as density rises, but the effect is nowhere

near proportional. The flats, for example, are 16 times denser on average than the least dense band of houses, but the latter generate only 3.4 times the vehicle movements per dwelling. This effect exacerbates the well-documented problem that people in dense urban areas, who drive the least, suffer the worst congestion, community severance, noise and air pollution.

For planners and politicians, there are four possible responses to the paradox:

- abandon intensification.
- pursue limited intensification coupled with more greenfield development;
- continue to intensify and accept the consequences; or
- intensify and take more radical measures to restrain the concentration of cars and traffic in intensified areas.



**Above**

Fig. 4 Average daily vehicle movement rates in new private developments  
 Source: TRICS®

Abandoning intensification altogether is not a realistic option for the UK – and particularly England – over the next few decades. If Ministers have not yet worked out the disproportionate relationship between density and loss of greenfield land, they soon will; and at a time when funds for public services are decreasing, depopulating cities in favour of expanding new suburbs makes no financial sense.

Superficially, the second option has a number of attractions. Given the rate of household growth, some larger greenfield developments will probably be unavoidable. Without significant investment in public transport – particularly rail – most of these locations would be unsuitable for very high-density development, but to remain resilient in the face of climate change and rising oil prices cities in the future they will need to comprise neighbourhoods of a walkable scale.

In rejecting the density recommendations of the second Urban Task Force report,<sup>8</sup> Sir Peter Hall argued that our inter-war suburbs were successfully developed at net densities of around 30 dwellings per hectare – the minimum national guidance recently scrapped. But average household size has fallen by over a third since 1931.<sup>9</sup> To maintain the same number of people in walking distance of a train station, for example, would need suburbs of 49 dwellings per hectare today. To avoid the political and financial consequences of depopulating cities, significant intensification will need to accompany any medium-density development elsewhere – which brings us to options 3 and 4.

In some circumstances, local increases in traffic may be considered an acceptable side-effect of a policy which reduces traffic overall – although the neighbours are unlikely to share that view. At the level of the individual development, positive measures, such as improvements in public transport and land use changes, will rarely be sufficient to prevent denser developments generating more traffic: direct constraints on car use may be needed.

Reductions in residential parking provision can be one of the most effective tools, providing controls exist to prevent overspill parking. A growing number of European cities have built entirely car-free neighbourhoods, and my research<sup>10</sup> suggests that there is a niche market for this type of development in Britain, particularly in the inner areas of larger cities, where the pressure of intensification is greatest. Road closures, traffic diversion and pedestrianisation can also help to reduce the impact of through-traffic: examples of good practice can be found across many European cities – there are even a few in the UK.

Ultimately, the question is political. If Ministers and local authorities wish to minimise the loss of greenfield land and prevent a housing crisis without worsening the quality of urban life, then

intensification, more housing for single people and traffic restraint in our cities are all indispensable elements of any workable solution.

● **Dr Steve Melia** is a Senior Lecturer in Planning and Transport at the University of the West of England. The views expressed here are personal.

#### Notes

- 1 Defined as two adults living with one or more dependent children – 2001 Census Table CAS053, 'Household composition by tenure and occupancy rating', available at [www.nomisweb.co.uk](http://www.nomisweb.co.uk)
- 2 See, for example, J. Kollwe: 'London housing shortage to push prices up'. *The Guardian*, 31 May 2010. [www.guardian.co.uk/business/2010/may/30/housing-shortage-london-south-east](http://www.guardian.co.uk/business/2010/may/30/housing-shortage-london-south-east)
- 3 'Clark – new powers to prevent unwanted garden grabbing'. News Release. DCLG, 9 Jun. 2010-07-08
- 4 *Household Projections to 2031, England*. Housing Statistical Release. DCLG, 11 Mar. 2009. [www.communities.gov.uk/documents/statistics/pdf/1172133.pdf](http://www.communities.gov.uk/documents/statistics/pdf/1172133.pdf)
- 5 Based on the housing stock for March 2007, taken from *Housing and Planning Statistics 2009*. DCLG, 2009. [www.communities.gov.uk/documents/statistics/pdf/1400509.pdf](http://www.communities.gov.uk/documents/statistics/pdf/1400509.pdf), and new housing completion rates for 2006/07, taken from *Housing Statistics 2007*. DCLG, 2008. [www.communities.gov.uk/documents/housing/pdf/housingstatistics2007.pdf](http://www.communities.gov.uk/documents/housing/pdf/housingstatistics2007.pdf)
- 6 *Land Use Change Statistics (England) 2009 – Provisional Estimates (May 2010)*. DCLG, May 2010. [www.communities.gov.uk/documents/statistics/pdf/1558850.pdf](http://www.communities.gov.uk/documents/statistics/pdf/1558850.pdf). These figures were calculated before the change in the definition of gardens, which would alter the calculations, but not the principle
- 7 S. Melia, H. Barton and G. Parkhurst: 'The paradox of intensification'. *Transport Policy*, 2010, Vol. 17 (in press)
- 8 *Towards a Strong Urban Renaissance*. Independent Report by Members of the Urban Task Force, 2005. [www.urbantaskforce.org/UTF\\_final\\_report.pdf](http://www.urbantaskforce.org/UTF_final_report.pdf)
- 9 M. Roys: 'Housing Space Standards, a National Perspective'. RIBA Research Symposium 2008: Space at Home. Royal Institute of British Architects, 2008. [www.architecture.com/Files/RIBAProfessionalServices/ResearchAndDevelopment/Symposium/2008/MikeRoys.pdf](http://www.architecture.com/Files/RIBAProfessionalServices/ResearchAndDevelopment/Symposium/2008/MikeRoys.pdf)
- 10 S. Melia: *Potential for Carfree Development in the UK*. PhD Thesis. University of the West of England, 2010. Available at [www.stevemelia.co.uk](http://www.stevemelia.co.uk)