CHAPTER FIVE

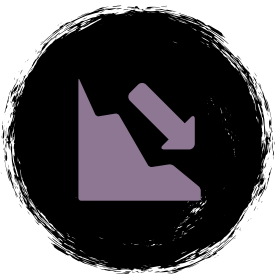# Urban design: ditching cars, embracing homes

Chapter Five

Urban design: ditching cars, embracing homes

Why

The future is carless (or at least electric cars). Journey sharing is the key and intelligent design can allow for this.

The failing

There has been no real focus on creating carless environments, or discouraging their use (short of increasing tax on fuel).

Policy recommendations

I. Carpool hokey-cokey - tax breaks for businesses that play the game and provide comprehensive mobility solutions such as minibuses and others, for staff to get in and out of town centres in Oxford, Cambridge and Milton Keynes as an initial test

II. Transport hubs: Presumption in favour of high-density development for new homes and commercial space adjacent to centrally-located, urban and urban fringe rail stations, supporting quick development within close proximity to urban transit

III. Embed PassivHaus design principles into planning and shift the burden of proof onto developers to prove why they cannot meet specific standards

IV. Mandate a locally determined and enforceable greenhouse gas per floor area target for commercial buildings that is tied to a development's insurance

V. Create a dedicated sustainability section in public consultation to clearly communicate to the local community the environmental credentials against benchmarks

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Chapter Five

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Fighting single occupancy car commutes is key for suburban knowledge economies

Mobility is critical to the success of innovation districts. The talented workers that any knowledge cluster relies on want to live in interesting places and work in interesting environments but crucially, they don't want to spend half their lives getting from one to the other.

This isn't much of a problem for city-based knowledge economies. They can rely on mass transit systems. However, it's often a big issue in suburban knowledge economies such as the Oxford-Cambridge Arc, which are typically made up of scattered science and business parks.

These locations are less likely to have transit connections, being more reliant on the road network and presenting a significant share of single occupancy (essentially one worker in a car) commutes. High rates of car use lead to high traffic, and longer commute times – and therefore lower quality of life talent retention.

Traditionally, this has been fought through planning regulations balancing further development with required infrastructure investment. But is this infrastructure solving the problem or just increasing it over time? Furthermore, will this infrastructure be useful in the face of new mobility disruptions?

Journey sharing is the key. Internationally recognising science and tech locations are supporting employee shuttle systems for the benefit of their workers. Equally, our knowledge clusters must organise mobility schemes to offer alternative choices to their current and prospective employees. These options can take many different forms – from the likes of targeted shuttles, through to internal or external carpooling apps and incentive schemes.

Ultimately, it's in the interest of any knowledge cluster to take the lead on promoting different commute options for employees. It helps them attract and retain their own tenants, by making it easier for their tenants to attract and retain workers. Knowledge clusters are best placed to advise on (and put in place) alternatives, thanks to the familiarity with their communities and the wealth of data they can often draw upon on daily commuting patterns.

So in practice, what are the sorts of things that a science or business park would need to do to successfully reduce its number of single occupancy commutes? The example of Milton Park is instructive – not only in getting a better idea of the problem, but also what kind of difference needs to be made by the alternatives to effect behaviour change.

Firstly, a detailed travel survey is key. Milton Park's study received over 1,700 entries, representing more than 20% of the Park's population and revealing commuting origins, modes and behavioural patterns.

Secondly, in order to provide alternative mobility options, such as a shuttle scheme, spatial data exploration and analysis is needed. In plain English, if you offer a shuttle bus, how close does the bus stop need to be to your employees and how much quicker does it need to be than their current commute to get them to take it? While nobody enjoys a commute in traffic, plenty of people still prefer the privacy of driving alone versus sharing a bus, unless the latter is convenient and quicker.

Change in traffic on major roads by region and county in Great Britain, from 2008

Location	Change: 2008 to 2018 %
North East	9.0
North West	4.6
Yorkshire and the Humber	8.7
East Midlands	10.4
West Midlands	8.3
East of England	15.2
London	1.7
South East	7.0
South West	8.8
England	8.3
Scotland	9.5
Wales	9.3
Great Britain	8.4

Initial visualisation of data showed hotspots of journey origin and estimated driving flows pointed to areas that would be best served by a bespoke shuttle and the most effective potential itineraries. Further analysis was able to calculate that about 30% of their single occupancy drivers would be likely to change to the new shuttle scheme as their origin location was within five to 10 walking minutes to suggested stops and their commute would potentially be faster than current public transport options by nearly 50%.

The third step is overcoming the uncertainties of any pilot scheme. For example, how many employees have clear 'barrier to change' circumstances that mean they must be deducted from any potential user numbers? What is the best way of phasing in any new scheme's routes to ensure it can both be funded properly and have the most effect on traffic flow? And what support is either required or available from the local authority to help implement commuter travel initiatives?

Ultimately, more flexibility from government in planning regulations is the unaccounted-for piece of the puzzle. Enacting surveying, analysis and alternative choices on offer should be essential in allowing further development in knowledge clusters before forcing them to fund costly road improvements past fixed floor space limits. In the meantime, the onus is on knowledge clusters to prove that they can make the most of existing road space with smarter transport provision – and enable them to make the most of the existing talent pool in the workforce, objecting to spending its best years stuck in traffic.

Chapter Five

Contributor

Ken Dytor, Executive Chairman, Urban Catalyst

Living locally, embracing health and embracing homes

If we want sustainable and healthy towns to really help people, environments need to be designed to make healthy living and working choices easier. While policies such as the sugar tax and the ultra low emission zone may be effective, policy can only do so much.

We should be using intelligent urban design to help communities be fitter and healthier, and provide greater life chances for all.

The design of Purfleet-on-Thames – done in conjunction with our JV partner Swan Housing Association – is focused on facilitating exercise, sustainability and well-being.

What that means is we have designed a town centre to support an existing and new community, which currently has very limited local amenity and where walking is often the least attractive and possible option, to be pedestrian and bicycle friendly.

We will be creating community retail hubs in walking distance of homes, stopping the need to use cars to reach the nearby shopping centres and other essential day-to-day community services, while bringing jobs and business opportunities to the community so that they can live and work more locally. Our master plan will ensure that the site is permeable so people can easily access each area, and will create sight lines to central London, the River Thames and local landmarks so pedestrians can always orient themselves.

The aim is a series of interlocking and well-served walkable neighbourhoods, which will promote a modal shift from vehicular transportation to pedestrianisation and cycling. This will not only make for a more healthy vibrant neighbourhood, but will also remove unnecessary trips from the strategic road network surrounding Purfleet, freeing up road space for necessary longer distance journeys. We will not exclude cars, but rather reduce the priority for car use and make streets safe for all users.

This type of design will support a better quality of life for older people, giving them access to town centre amenities and activities within easy walking distance, and help to create a sense of community – all of which will combat loneliness and the sense of being stranded in their own homes.

A walkable community is also better for young people, allowing them more independence and a variety of opportunities locally. Those in ill health and from poorer communities will also benefit from a stronger community with a variety of opportunities and stronger support systems. Families will be supported such that nursery care, schools, aftercare and jobs will be available in close proximity.

A strong street network, which will in itself be a pleasure to explore on foot and by bicycle, will be interwoven with a series of green and open spaces designed to be safe and attractive. This will encourage active leisure activities such as informal play, a fitness regimes, dog walking or organised sports.

Urban design must step up to this task, by creating places that create a strong street network. Strong street plantings and well designed green spaces help to ensure clean air and put activity, community and well-being at their heart. We must help to reconnect urban areas with neighbouring communities and the countryside. As developers, it should be our mission to design out obesity, air pollution and physical inactivity, and design for a healthy and sustainable future.

Example – Purfleet

The £1bn town centre regeneration at Purfleet-on-Thames will provide 2,850 homes alongside shops, restaurants, a medical centre and community facilities
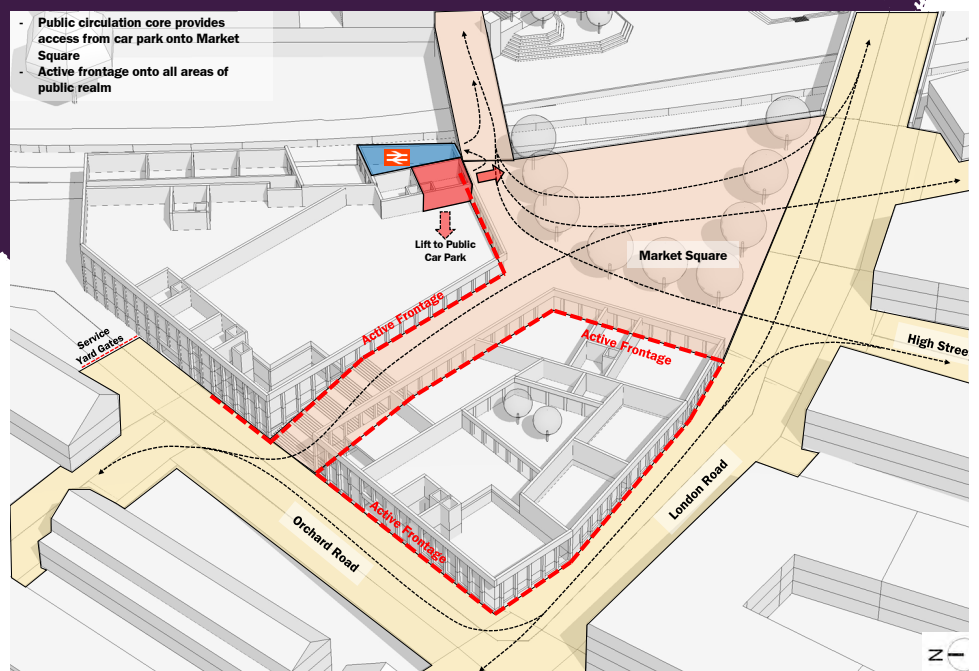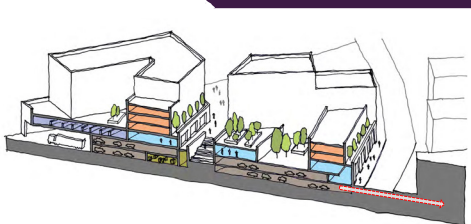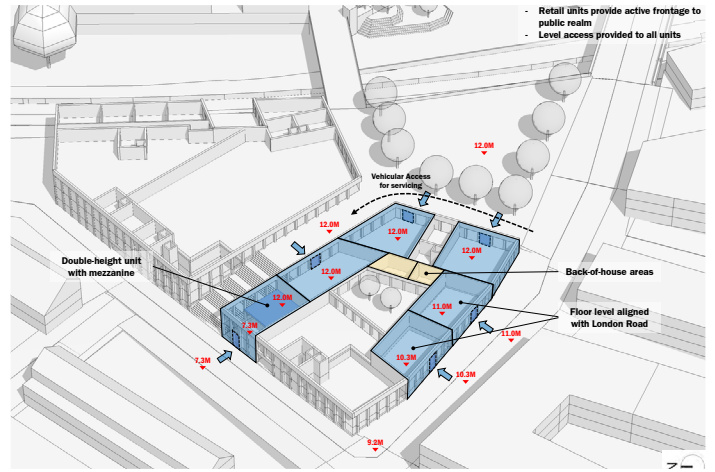
It will include a new town centre, 1M sq ft media village with art, film and TV studios, along with upgraded rail and riverside areas.

The local community has been extensively involved in framing the master plan – an important component of which was creating a 'healthy town'.

The core strategy for the master plan is to provide a new town centre retail area and also new local retail 'hubs', to ensure that both the new and existing communities are able to access community and retail facilities within walking distance.

Features in the design include:

- Design of street and movement hierarchy to be permeable, offer a variety of routes and accommodate a variety of movement modes (vehicle, scooter, cycle, walking)
- Land use pattern and deployment of mixed uses to encourage actively enjoyable walks, pedestrian security and convenience
- Designing-in support services e.g. bike storage, electric charging points, space for car clubs etc
- Using design to reduce necessary daily trips by vehicle to achieve a reduction in congestion
- Speeds for cars reduced to 20mph with speed cameras and controlled junctions
- Weight limit enforcement for larger vehicles.
- Expansions to bus networks linking place of work and interest, centered around the new town centre
- Street parking accommodated and a control regime imposed from the outset
- Improved access to Purfleet station
- Use of longer views to aid orientation

- Retail units provide active frontage to public realm
- Level access provided to all units

Vehicular Access for servicing

Double-height unit with mezzanine

Back-of-house areas

Floor level aligned with London Road

12.0M
12.0M
12.0M
12.0M
12.0M
11.0M
7.3M
11.0M
7.3M
10.3M
10.3M
9.2M

- Public circulation core provides access from car park onto Market Square
- Active frontage onto all areas of public realm

Lift to Public Car Park

Market Square

Service Yard Gates

Active Frontage

Active Frontage

Active Frontage

High Street

Orchard Road

London Road

Source: Urban Catalyst

Chapter Five

Contributor

**Asif Din, Sustainability Director
Perkins and Will**

Embedding sustainability into the fabric of development

Climate change is here and it is now. The millions of people that have taken to the streets over the last few months, spurred on by a Swedish teenager and the Extinction Rebellion, is testimony to a changing social tide around climate policy and the public debate around it.

Concern has never been higher and the government's recent legislation that enshrines the net-zero target by 2050 into law means that every aspect of the economy, and every industry within it, now needs to curtail their carbon addictions. The race to net-zero is well and truly on.

For the built environment, the challenges that net-zero poses should not be underestimated. British residential housing has a monumental carbon footprint, responsible for around 40 percent of the nation's annual carbon emissions. However, these figures actually neglect the true extent of the built environment's emissions, as they don't include the emissions generated from the electricity used for appliances within the buildings or how much carbon is embedded within the building fabric.

We currently have the technology and capability to deliver net-zero buildings across all regeneration schemes and in a variety of tenure types. The main hurdles that need scaling are creating the right financial incentives to drive behavioural change and enshrining mandated targets into building specifications to successfully operationalise them.

Norwich, Exeter and York, for instance, have all enshrined PassivHaus design principles into their housing requirements, meaning that developers must integrate these sustainable principles into their proposals in order to build houses for these city councils. This is a simple but highly effective way of threading sustainability into a scheme and these priorities must be taken further, placed within local planning for all new housing development.

PassivHaus is a rigorous design standard that can be applied to new builds to dramatically reduce their operational energy use and environmental footprint. There are underlining design principles that are applied in order to achieve PassivHaus status, including continuous insulation throughout an airtight building envelope without any thermal bridging, high-performance windows that deal with solar gain, quantifying overheating and an energy recovery ventilation system.

Contrary to much of the mainstream thinking around PassivHaus, it can be applied to all types of buildings from residential homes, to hospitals and commercial buildings. Thanks to advances in architectural technology and designers willingness to experiment, PassivHaus schemes have outgrown their once box-like appearance and can be both attractive, functional and environmentally sound.

If we do not enact and formalise these types of changes now, we will be destined to continue creating buildings that emit excessive amounts of greenhouse gases, squandering our hopes of meeting our carbon commitments due to the long lead-up and lifespan of developments.

Understandably, not all developers will be able to abide by PassivHaus principles, but for those that can't, they have to outline specifically the reasons why. This shifts the burden of proof onto the developer and galvanises the behavioural change we need to see across the industry, where sustainability is seen as a responsibility and investment, not a cost.

To help tighten this screw, there needs to be a mandated energy target for buildings that is determined by, and made enforceable through local authorities. This agreed target could then be tied to the insurance on the building, where the developers become liable for not ensuring that the building performs to the agreed energy target. The result is a system where the long term operational performance of the building is integrated into the insurance premiums, incentivising the highest standards of sustainable design to create additional value in a long term asset that continues to perform and can be sold on.

While tying in a financial element is critical to operationalise sustainable design principles and create accountability, the built environment must also clearly communicate the benefits of sustainability to the communities that they serve through a dedicated section during public consultation. This in turn can become a powerful tool to further development, showcasing the benefits to both people and planet.

In areas like the Arc, where communities are particularly engaged and have strong links with industry and academia, highlighting how developments will benefit the environment over an extended period of time and that there are clear threads of accountability could help renew public trust in construction development and tackle nimbyism.

The long lead-up time of development, and the life cycles of the buildings themselves, mean that we need the leaders of industry to step-up now and blaze a trail to create the buildings that the UK and planet needs, and give our industry any hope for meeting net-zero by the middle of the century.

Contributor

Roland Bull, Head of Rural Investment, Bidwells

Empowering wildlife custodians to lead a biodiversity revolution

In the country where the Industrial Revolution started, where the theory of evolution was formulated, and where the conservation movement began, the UK should be leading the world in preserving our natural environment.

Sadly, the decline in the abundance and distribution of the UK's species, first witnessed in 1970, has continued into the most recent decade.

It is imperative that we recognise the scale of the opportunity, but also the risk of getting it wrong.

Roland Bull, Head of Rural Investment, Bidwells

Documented in the State of Nature Report 2019, the causes of this decline are many and varied, however, development has certainly played its role. Every year, thousands of hectares of farmland, woodland and wetland are built on to meet the needs of our increasingly urbanised population.

Failing and fragmented mitigation

The conventional hierarchy of 'avoid', 'mitigate', or 'compensate' has certainly not served its purpose of preventing net biodiversity losses. In many cases, where the benefits of a scheme have been used to justify the loss of habitat, mitigation measures have been costly yet ineffective. Other than in the most exceptional cases, biodiversity provision typically constitutes only a tiny proportion of 'planning gain' costs.

Despite this, significant sums of money have been spent on schemes involving the translocation of a few lizards, and the construction of artificial badger setts - all with associated delays to the development process. Adhoc ecological 'solutions' have, on the whole, resulted in the creation of many small, fragmented parcels of habitat without adequate provision for future management.

Of course, there are also many good examples which have delivered significant biodiversity net gains, from which we must learn. Such examples highlight the compatibility of exemplary green infrastructure provision and commercial value enhancement.

Anticipated requirements for development to deliver a 10% biodiversity net gain are a step in the right direction. However, the way this policy is implemented will be critical to its success. LPAs are not adequately resourced to mediate the conflict between development and nature, let alone play a significant role in the ongoing monitoring of long-term mitigation schemes.

It is imperative that we recognise the scale of the opportunity, but also the risk of getting it wrong.

Truly sustainable scale

The conservation of man-made habitats, which require ongoing active management, must be effectively resourced. Transactional costs and delays should be minimised through the use of regionally administered funds for those developments not capable of providing on-site net gains.

Effective regional planning is crucial. In the centre of the Arc, two local Wildlife Trusts work across 32 planning authorities. Nature recovery strategies should become a core part of the plan making process, through which privately owned sites can be promoted for the delivery of public goods which attract funds made available from development elsewhere in the region.

The availability of more granular land cover data, combined with the use of mapping technology, will allow conservation resources to be targeted more effectively. The strategic planning of conservation efforts and the pooling resources could achieve something really significant: better connected habitats, at a truly sustainable scale, and with adequate funding for sympathetic long-term management.

Planning policy must empower organisations like Wildlife Trusts to deliver biodiversity gains in the way that social landlords deliver affordable housing. Their commitment and ability to vary management regimes to accommodate inevitable changes in conservation objectives over the long-term allows less prescriptive management plans to be adopted. They not only have the resources and expertise to create and manage habitats cost effectively but, as charities whose core charitable objective is to enhance wildlife, they can be trusted to deliver management over the long-term.