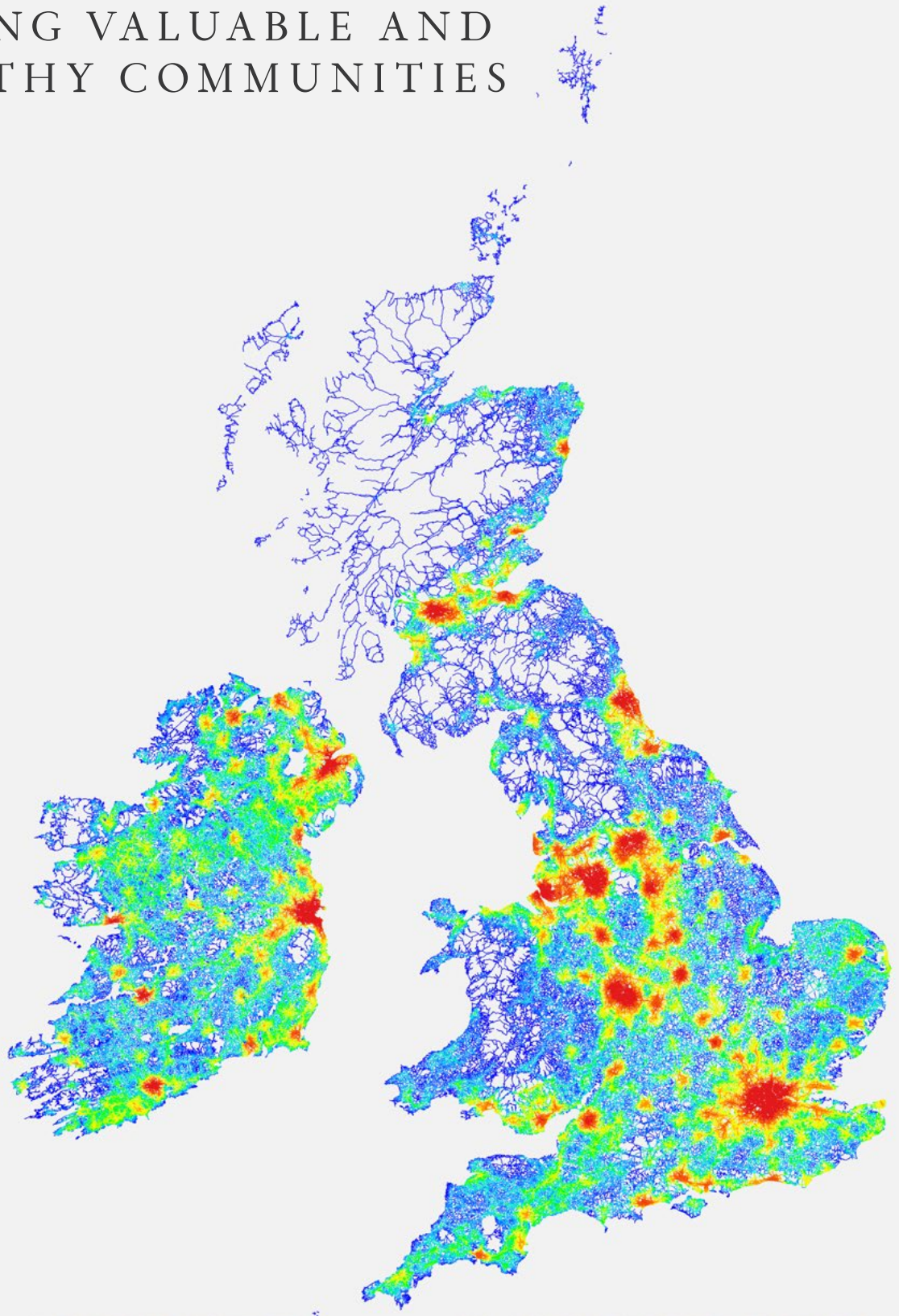


WALKABILITY AND MIXED-USE

MAKING VALUABLE AND
HEALTHY COMMUNITIES





CLARENCE HOUSE

Over thirty years ago, in “A Vision of Britain”, I tried to set out a number of principles that I felt were of vital importance in both regenerating existing places and creating new ones. At the time, these views were seen as somewhat “controversial”, to say the least, but over time the idea of building mixed-use, mixed-income, walkable places seems to have now become the right thing to do. However, while there might be some new housing developments in Britain with better housing design layouts and landscapes, very few have delivered a range of integrated, affordable spaces for employment which is, of course, essential in encouraging people out of their cars and onto their feet by providing local goods and services. It sounds obvious to say, but unless local amenities are within a five to ten-minute walk then people still prefer to drive – and at that point it is less about how far things are and more about how easy it is to park...

As there is a determination to double the amount of homes being built each year, I am still deeply concerned that it is essential that a wide range of non-residential uses, such as schools, shops, work places and social spaces are built into the plans, supported by an economic development model that attributes a true value to those uses. This report on Walkability and Mixed-Use seems both timely and vital in pointing out the difference between truly sustainable, healthy and liveable places and those that are totally car-dependent. I very much hope, therefore, that the idea of creating a “walkability score” is something that is taken up by built environment professionals and local authority planners, to ensure that what we build today will allow local economies and communities to thrive, thus making it possible that the non-residential space is both affordable and flexible so it can adapt to a range of uses over time.

THE WALKABLE CITY

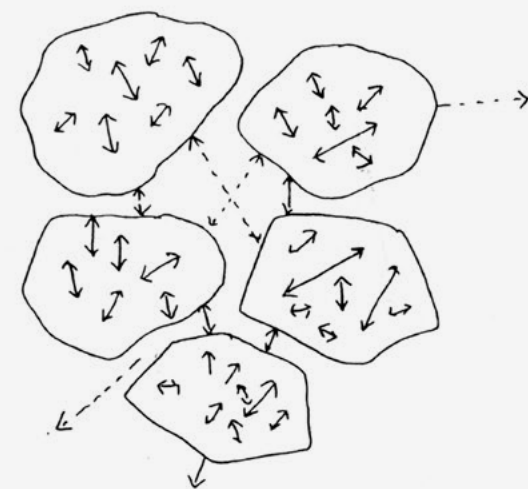
— Léon Krier

Cities and landscapes are demonstrations of our spiritual and material worth for good or ill. They not only express our values but shape our lives every day. They determine the way we use or squander time, energy and land.

The supreme purpose of architecture and urbanism is to create a welcoming homeland, a lasting and cherished home for individuals, families and societies. Yet the making of beautiful places is no longer the normal outcome of common planning and building activities.

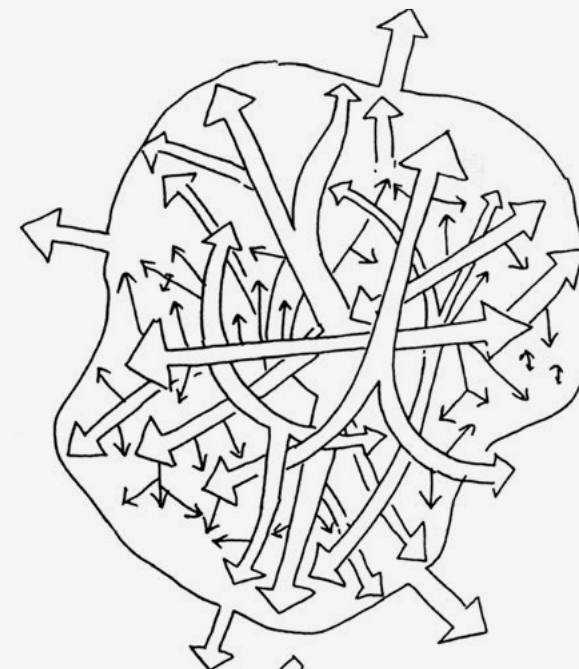
A root cause for the degradation of cities, landscapes and the built environment since WWII are the territorial mono-functional zoning ordinances, a planetary tragedy without precedent. They are the engines that drive the daily mobilization of the whole of mankind in accomplishing even the most basic tasks (men and women, old and young, ill and healthy, rich and poor, lazy and industrious, handicapped and sturdy, employed, unemployed and employers). They have reordered the social fabric of national economies and physical reality of

The CITY of the PEDESTRIAN



MINIMUM DISTANCES
FOR MAXIMUM ACHIEVEMENT & PLEASURE

The (Anti-)CITY of the MOTORCAR



MAXIMUM DISTANCES
AND BOREDOM for MINIMUM ACHIEVEMENT

settlements and thus have ensured the maximum consumption of units of time, energy and land per individual and per performance. The explosive and unceasing circulation of people, of goods and software is the Sisyphean burden of our ever more atomized societies.

The unreality of “suburbs”, the vulgarity of “strips”, the hostility of “town-centres/downtowns”, of “business parks”, “industrial estates”, “amusement parks”, “high-tech compounds” are not good enough ways for humans to settle planet earth.

Their congenital compulsive daily commuting is no part of a “good life.” The price for the waste of time and income is hardest felt by the underprivileged but the unsustainable ecological damage affects the whole of humankind.

A mere critique of current environmental planning and building without a global counter-project is not only unproductive but amounts to an abdication of responsibility, a submission to fate. The New Traditional Building, Architecture, Urbanism and Agriculture, based on craft-economy and on medium and small-scale local enterprise as promoted by The Prince of Wales and New Urbanism are the only coherent theory and practice of environmental action today. They

Architects, planners, developers, administrators, politicians, journalists are faced now more than ever with an existential choice of either serving an ever-expanding totalitarian dystopia or to preserve the Res Publica by building the physical fabric of the Common Good.

are the only viable and time-tested countermodel to Suburbia, Skyscrapercity and Motopia. They are the heart of the reconstruction project for a human scale democracy, economy and built environment. The many architects and craftsmen who are engaged in the calling around the world despite academic, political, administrative, bureaucratic and media sabotage, are sustained by wide public support and massive market demand. Architects, planners, developers, administrators, politicians, journalists are faced now more than ever with an existential choice of either serving an ever-expanding totalitarian dystopia or to preserve the Res Publica by building the physical fabric of the Common Good.

PROBLEMS OF URBAN GROWTH: OVEREXPANSION

Most of the problems of modern settlements have a single root cause, namely that, instead of growing organically by the multiplication of complete and walkable urban quarters, post WWII cities suffer from monofunctional over-expansions, causing critical imbalance between centre and periphery, generating unsolvable problems in terms of structure, use, energy, commonwealth, appearance.

- A. Vertical over-expansion in the form of high-rise sprawl, results in excessive densities of buildings, users and activities, which in turn grossly inflate land values and provoke irreversible social segregation.
- B. Horizontal over-expansion in the form of suburban sprawl, generated by the accessible cost of land, results in low densities of buildings, uses and activities.

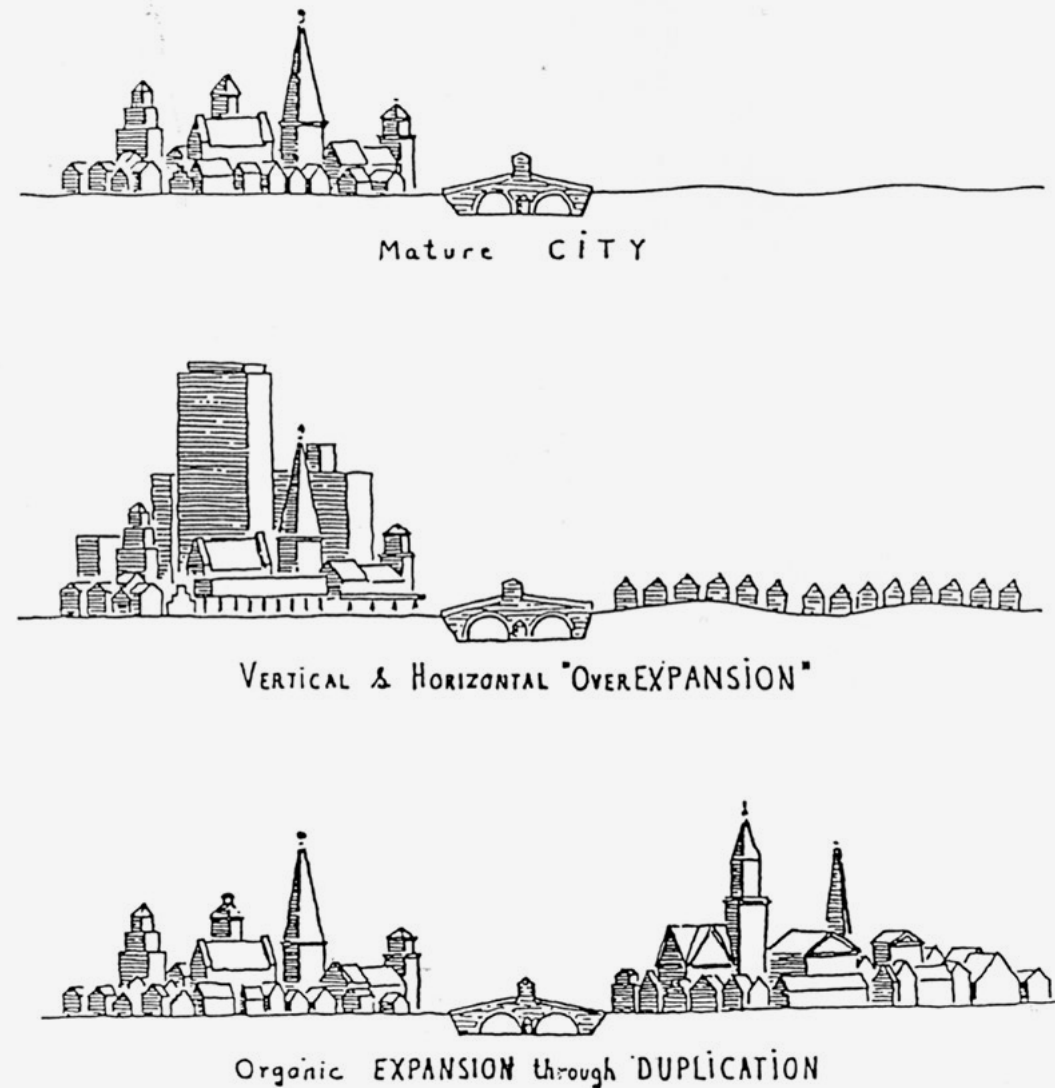
These forms of settlement-hypertrophy as hyper-concentration and hyper-dilution, condition each other. The resulting problems are interdependent and cannot be solved in isolation nor by reforming the excess.

There exists a radical qualitative difference between the concepts of “urbs” and “sub-urbs.” Their contradictory nature is expressed in the contrasting names; the equivalent of “suburb” being similarly qualified in most languages by a devaluing adjective: ban-lieu, from “ban” (forbidden), faux-bourg, from “faux” (false), Vor-ort, from “vor” (outside), sub-urb, from “sub” (lesser).

SUBURBANISM or URBANISM

Urbanism or Suburbanism are a choice of contrasting circulation networks, of public spaces, of plot sizes, plot ratios, plot uses and number of floors. There are networks, forms, types, dimen-

sions, ratios, uses and numbers which allow cities to grow to a mature form, that foster urban life and others that inevitably materialize as monothematic horizontal and vertical sprawl and its ensuing geographic congestion. The latter mega-structures engage high risk mega-developments producing mega-profits, mega-failures and social segregation. The former allow individual capacities and enterprise to unfold in civilized competition. Traditional urbanism performs the miracle of allowing contrasting talents and ambitions to thrive as neighbours, building pleasing communities. That is the definition of urbanity and the goal of urban civilization.



THE NEED TO REFORM DEVELOPMENT PROGRAMS

Dictated by single use zoning, modern “development programs” such as housing estates, shopping malls, business parks, educational complexes, industrial zones, gated compound are shaped not by a social or urban vision but by development, financing, manufacturing and management models. They invariably consist of excessive horizontal or vertical pilings of same uses in vast, distinct and distant urban zones. Beyond their unwalkable geographical extensions or height, the formal and symbolic poverty of the cloned buildings and spaces are the inevitable

product of their programmed functional sameness.

The density, function, location and, to a large extent, the form of these developments are decided before they land on the designer’s drawing board. Many architects and developers are painfully aware that it is the very nature of the development programs which thwarts all efforts to create true places be they towns or villages. Individually, they are powerless to do the right thing, without loss of commission.

Functional uniformity reduces even the best architects to design choices that are limited to expressions of blunt uniformity or fake variety. Formal poverty and kitsch, abstraction and caricature, architectural anorexia and bulimia are the fated results worldwide. The symbolic richness of true urban architecture is achieved by the proximity and contrasting dialogue of private and public uses in the articulation and adornment of public spaces, urban fabric, landmark buildings and their distinctive skyline.

LIFESTYLE AND STYLISTIC PLURALISM IN DEMOCRACY

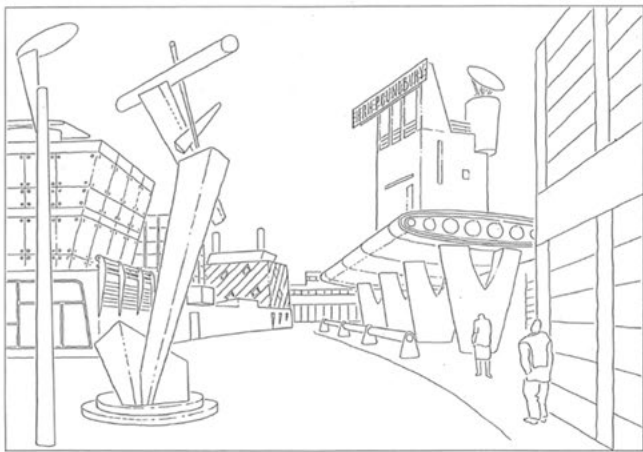
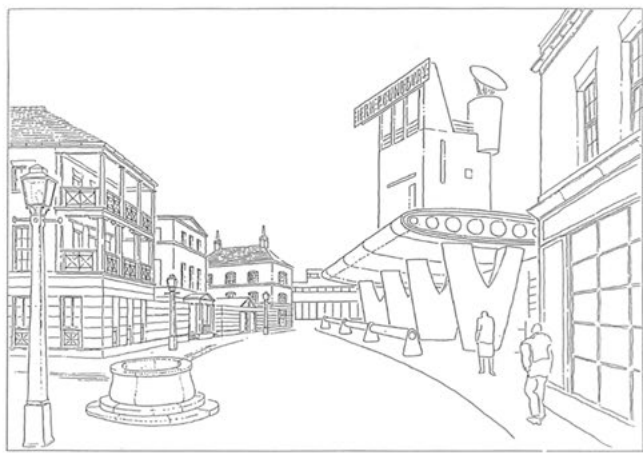
Freedom of expression and movement and law-abiding are the precondition of a political democracy. Plurality of lifestyles, of beliefs and therefore of styles of architecture and cities should be its natural expression.

- There cannot be a “single democratic style,” any more than a “single democratic party.”
- There is neither Democratic nor Authoritarian architecture
- There are only authoritarian and democratic ways of producing and using Architecture.
- Architecture is not political; it can only be used politically.
- Where architecture exists, it transcends political ends and abuses.
- Buildings can appear inhuman not through Architecture, but through their lack of.
- Buildings become inhuman when abstracted of architecture or dressed in fake architecture as kitsch or abstraction.

CHOICES OF MODERNITY



The walkable city must be beautiful and pleasing for the citizenry or it won't be. The aesthetic bedlam which was spread without calling or even caring for citizens' approval since WWII is not the inevitable product of democratic culture. In no way does it express the peaceful, organized, balanced functioning of civil society, nor does it further the good life. It is an error to make democratic pluralism responsible for the inchoate appearance of modern settlements. Modernism is only one expression of modern pluralism in architecture. New traditional townscapes and buildings are a legitimate expression of modernity as well. Mixing traditional and modernist styles produces discordant results. Democratic pluralism is therefore best realized in stylistically distinct and geographically distant town- and land-scapes.



CHECKLIST

FOR CITY FOUNDERS,
MAYORS, ADMINISTRATORS,
DESIGNERS, SETTLERS AND
LANDOWNERS

— Léon Krier

- ☐ Refuse to conceive, to design, to build, to develop, to permit conurbations of mono-thematic single-use zones generating daily mass mobilization.
- ☐ Refuse to conceive, to design, to build, to develop, to permit gated communities of whatever covenant.
- ☐ Conceive, design, build, develop, permit the POLYCENTRIC CITY as a family of independent urban quarters.
- ☐ Conceive, design, build, develop, permit each urban quarter as a WALKABLE, MIXED USE, mixed income, mature and open city within the city.
- ☐ Expand existing cities by the multiplication of mature urban quarters.
- ☐ Prohibit the vertical or horizontal over-expansion of mature urban quarters.
- ☐ Conceive, design, build, develop, permit HORIZONTALLY WALKABLE urban quarters not exceeding 33 Hectares /80 Acres in surface and 10 minutes walk across in any direction and VERTICALLY WALKABLE buildings not exceeding 3-5 floors or ca. 100 steps in height.
- ☐ Conceive, design, build, develop, permit a network of peri-urban and rural foot- and bridle-paths connected to the urban quarter network of streets, mews, passages allowing a variety of circular promenades into the surrounding countryside and parks not coinciding with extra muros roads.
- ☐ Limit building heights not metrically but by number of floors ensuring varied building volumes, street frontages and skylines.
- ☐ Conceive, design, build, develop, permit building-lots and -blocks of dimensional, functional and formal variety suited for mixed uses.
- ☐ Prohibit XXL private and public building programs to be packed into single, excessively large buildings. Break them up into their typologically irreducible components and disperse them throughout the urban quarter.
- ☐ Ban utilitarian Skyscrapers and Groundscrapers.
- ☐ Permit within each urban quarter a number of self-employed or employed jobs to approximate the quarter's number of residential units allowing the professionally active to find work-premises or EMPLOYMENT within the urban quarter and again those working within the quarter to reside within walking distance.

CHECKLIST

FOR CITY FOUNDERS,
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— Léon Krier

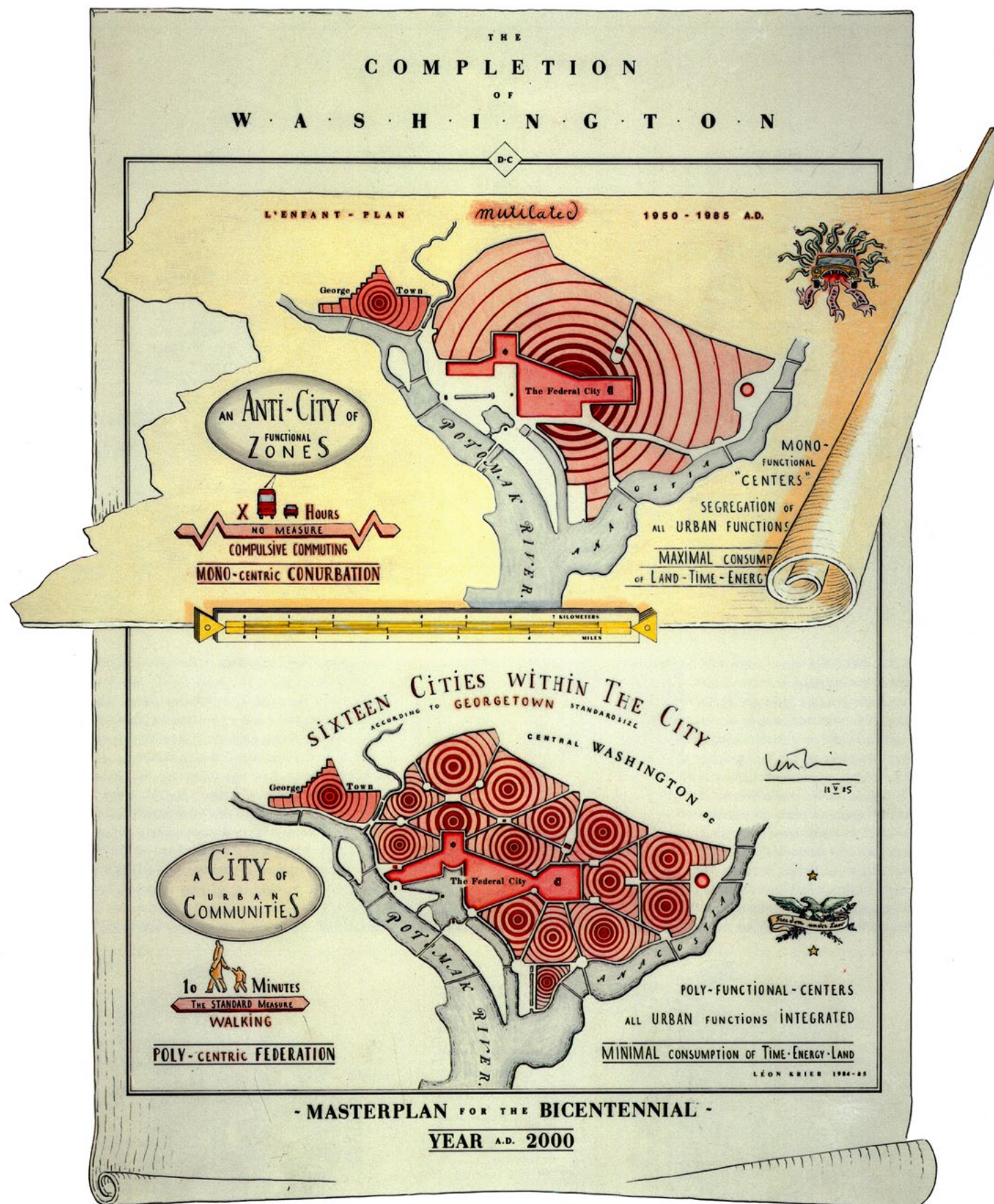
- ☐ Design building-lots and -blocks of dimensional, functional and formal variety in such a way as to generate networks of attractive and varied public spaces in the form of streets, squares, mews, passages, commons, boulevards, avenues, parkways.
- ☐ Frame central squares and high streets with narrow lot- and block-fronts.
- ☐ Reserve ground-floors and mezzanines of central square- and high-street-buildings for non-residential uses.
- ☐ Locate public buildings, monuments, fountains on public squares, on prominent spots and in the focus of major vistas.
- ☐ Limit urban quarters not by mere administrative boundaries but by walkable, rideable, drivable, cyclable boulevards, park ways, bridle paths, foot paths, tracks overlooking other urban quarters, parks, fields, orchards, vineyards, market-gardens, cemeteries, forests, lakes, rivers, beaches, ocean.
- ☐ Locate large single use-lots and -blocks on the edge of the urban quarter.
- ☐ Locate XXL sports and leisure facilities in the parks network separating urban quarters.
- ☐ The basic urban fabric of private and commercial buildings are objects of vernacular construction and to be built of local natural materials.
- ☐ Monuments, Belfries, Fountains, Public and Sacred buildings, are to be conceived as Landmarks, as the jewels of cities and villages. They are the privileged objects of classical architecture.
- ☐ Within each urban quarter pave squares wall to wall as “Shared Spaces”, without side-walks.
- ☐ Within the urban quarter regulate vehicular speeds by street geometry with space and building measurements, not by signage, chicanes and paint.
- ☐ Within the urban quarter avoid cross junctions, one-way streets, and cul de sacs.
- ☐ Design public lighting and lighting-devices to comfort and please the eyes, to enhance the landmarks and townscape, not to fulfil passing H & S standards and recommendations. Avoid cold and orange coloured light sources.
- ☐ Do not concentrate social rented accommodation in one zone or building but pepper-pot residential tenures throughout the urban quarter.

Beautifully shaped and comfortable public spaces are necessary but not sufficient for promoting urban walkability. It is the beauty and variety of its buildings and uses that turn urban walking and strolling into an aesthetic individual and social experience. The pedagogy presented in this book is best grasped by personally walking and judging urban and suburban settlements. Mathematical models are apt at evaluating quantitative data but numbers and algorithms should not be dictating scores or protocols for what must be left to emotional appreciation and rational judgement. The tested and proven principles here listed are the guiding standards.



PLANNING FOR WALKABILITY AND MIXED-USE

— Ben Bolgar



When we set about this research project we wanted to show as clearly as possible the difference between the popular places that are largely aspired to as places to live and visit - be they cities, towns or villages - and the new places we are building today. With new development there is much rhetoric around 'being sustainable' and promising a range of amenities at planning stage, but the evidence seems to suggest that most homes we are building now are part of car-dependent monocultural housing estates, with very few non-residential uses. By way of a reality check we therefore decided to study the difference between places that had been laid out and built before cars, where walking was a necessity, those built as cars were becoming more widely used and those built more recently, to see the difference in the mix of uses they contain and proximity of those uses to people's homes.

By mapping those uses and estimating the optimal distances from each home, before people opt to drive, we can then map and graphically represent how accessible or 'walkable' those places really are.

This measure of walkability is a technique the Prince's Foundation have used for many years as part of their Enquiry by Design community planning process and informs where the schools, shops, bus stops and offices are given space in any new masterplan to ensure when it is built and occupied people have an option to walk and cycle rather than being dependent on the car. Of course, one thing is putting the mixed-use areas in a planning application but it is quite another seeing that commitment delivered in practice. Housebuilders are called 'house builders' for a reason, as their model optimises the short-term profit of building houses, but does not value or

deliver the making of fine-grained mixed uses places that we have come to take for granted from the historic cores of our most popular and valuable settlements.

In an age of rapid urbanisation, climate change, natural resource depletion and a rise in pandemics there is no longer any excuse for building car-dependent housing estates and so we want to use this report as a way of raising awareness of how unsustainable our current house-building model really is and how inflexible monocultural housing estates are for future adaptation. We know a picture is worth a thousand words and so we have tried to let the images do the talking and make the analysis something that anyone can understand. Many communities distrust consultants coming up with clever planning models to justify new development, but in our experience if you can explain the theory behind how you are planning new places in simple terms, that make sense and have an undeniable logic, then they are almost always accepted.

Walkability is perhaps the strongest case to make when planning. After all, if you can design out the need for a car then you are immediately empowering people too young or old to drive or those who simply cannot afford one. We know most petrol or diesel cars emit pollution, making people in town and city centres ill, and they also contribute significantly



to climate change. Walking, on the other hand, is both good for your health and a sociable activity as you see and meet people as part of your journey. It is also free and if amenities are within the distances we have set out then it is a highly efficient and enjoyable use of time. Communities inherently know this and yet the irony when planning new development is that they object to more cars on the roads but the majority of people still drive everywhere, saying they could not possibly live without a car!

To this end we hope that this short report will stimulate debate, directly challenge the notion of building monocultural housing projects and lead to a planning tool that can examine what new settlements need to deliver in their mix to make them truly walkable and inherently sustainable.

In an age of rapid urbanisation, climate change, natural resource depletion and a rise in pandemics there is no longer any excuse for building car-dependent housing estates.

Image by Images by Duchy of Cornwall

WALKABILITY: THE IMPORTANCE OF MOVING EFFICIENTLY IN A LOW CARBON WORLD

— Andrew Cameron

Transport is the single largest contributor to the UK's carbon emissions.

At the end of 2030 the UK will ban the sale of all new fossil fuel vehicles, and with the latest National Travel Survey from the Department for Transport showing a continuation in the decline of trips taken and miles travelled, one might think that we are heading in the right direction.

However, research suggests that this ban does not go far enough and that post 2030 there will still be far too many polluting vehicles in our towns and cities for many years to come. This must be tackled; we need cleaner vehicles on our streets sooner, but we also need fewer vehicles, and we need people to move around less, and by modes other than the car that are non-polluting.

Walking, cycling, public transport and home working are all good solutions to this crisis and it is important to remember



Image by Duchy of Cornwall

that 20% of journeys are under 1 mile (a distance easily cycled in around 5 minutes) and 38% are under 2 miles (a 10 minute cycle ride) – so we need to make these alternatives a reality. We need to shift our culture to make walking, cycling and scooting the first choice for short distances. As a by-product we will be a healthier and happier nation.

We also need to tackle the need to move at source. If we plan and build zoned development with homes away from workplaces, shops and leisure then there is an inherent need to move. Housing built over the last few decades is generally

just that, mono-cultural, with a minimum of mixed-uses which if the scheme is large enough will only include a school, local shop or doctor's surgery. There is little choice but to drive, particularly if the public transport offer and network connectivity is poor.

We need to plan differently, to build proper mixed-use, connected, inclusive, beautiful places where you want to live, work and play. This can be done by using the movement principles (see below) applied at Poundbury and other Duchy of Cornwall/Prince's Foundation projects.

MOVEMENT PRINCIPLES

WALKABILITY

Design places for walking in human scale, human-centric streets, with connected, direct and safe routes.

HAVE SOMEWHERE TO WALK TO

Design for mixed-use, one job per home helps deliver real places, it makes the streets vibrant, supports local businesses, cafes, squares and shops. At Poundbury the mixed-use elements (along with great streets) internalise over a third of work journeys which now take place by foot or cycle.

DON'T LET THE CAR BE THE FIRST CHOICE FROM YOUR HOME AND DON'T LET HIGHWAYS DESIGN AND PARKING DOMINATE

Sometimes the perceived high-ways 'rules' must be challenged to achieve good places. This is how to design for people first (rather than vehicles) and this makes communities.

DESIGN PUBLIC SPACES WELL AS THEY WILL OFTEN OUTLIVE THE BUILDINGS

The best movement patterns relate to the action of walking (not driving) and should be designed as such.

LEARN FROM THE PLACES THAT WE CHERISH AND BUILD NEW ONES THAT WILL BE BEAUTIFUL AND LOVED

MODELLING MIXED-USE PLACES TO DRIVE DEVELOPMENT DECISION MAKING

— Gail Mayhew

In 1992 the Prince's Foundation set out a manifesto for the reform of housebuilding: "Urban Villages, a concept for creating mixed-use urban developments on a sustainable scale" arguing for the delivery of fully-fledged neighbourhoods in place of single use housing estates, to create more sustainable, healthy and popular residential environments.

At the heart of the proposition was observational research on the land-use of historic British towns and cities, which – at least in their inner ring of Georgian and Victorian sub-urbs – absorbed village centres as the footprint of the city grew. These local high streets have become the core of relatively self-contained neighbourhoods supplying daily needs and often a degree of local employment.

These inner ring sub-urbs also represent some of the most valuable residential real estate and their enduring popularity holds many lessons for the builders of new communities.

Some years later, The Prince's Foundation went on to publish Valuing Sustainable Urbanism, which identified that a clear value premium could be identified to both historic and contemporary mixed-use residentially-led development, as compared with single-use housing estates. The report produced detailed comparative mapping of standard house builder schemes and historic urbanism, and included measurement of the relative land budgets. Critically, the extent of mixed-use required to provide for daily needs locally under the urban

village proposition, was shown not to diverge significantly from the quantum required under standard planning/housebuilding practice. However, instead of mixed-use being supplied in a single building or 'centre', the mapping revealed that the most popular and successful urban village neighbourhoods contain a much greater distribution of mixed-uses, often configured along key arterial routes and across principle streets within the internal street hierarchy.

Recently, Smart Growth Associates with Forty Asset Management have been analysing the critical characteristics of successful local high streets, and their research Real Streets (to be published 2021) shows that the most successful local high streets contain a large number of relatively small format commercial units with characterful, non-homogenized frontages. The research further shows that in almost every case, successful local high streets are not pedestrianised and serve a reasonably extended catchment in addition to their walkable catchment, relying on a degree of car access and some on-street parking.

Other key characteristics are an interaction with relatively dense housing; proximity with footfall generating uses such as a primary school or cultural/employment space and proximity to a public transport stop.

Working with The Prince's Foundation, Knight Frank and Smart Growth Associates, Space Syntax has brought its dynamic "Integrated Urban Modelling" capacity to the analysis of successful walkable urbanism across a much wider range of locations than has been possible previously. This will help us to draw upon well-evidenced land use and spatial metrics to assist planning and development decision-making and negotiations in the future. The team envisages a number of

applications for the emerging modelling capacity, which will support both the regeneration of established areas towards a more walkable urban footprint, and to help inform new-build schemes.

As our understanding of the metrics that lie behind successful traditional urban neighbourhoods grows, the potential to evidentially inform new build development and investment increases.

We have already shown that mixed-use urbanism raises values, supports local economic capture and trip reduction, while increasing household wealth and well-being through reducing the need for multiple vehicles and expensive commutes while giving time back previously spent on the move. This will help us to develop the investment case for 'complete streets' in complement to the stewardship land model, to deliver the vital mixed-use component to make new-build communities more sustainable, healthy and economically vital, while enabling locations to fulfil their 'place potential'.

A further application may be to help inform new movement models to support infrastructure decision making, reflecting the shift that has taken place during the COVID Lockdown towards digital meetings and remote working. It will take some time to see how permanent this trip-reduction effect is, however what is certain is that businesses and individuals now have much greater opportunity to work in new more distributed ways. This could mean that capacity will be permanently added back in to the regional road and rail networks raising an interesting question of whether government might shift investment from facilitating hyper-movement – on the old commute based economic model – towards place making and place quality enabling a new, more sustainable work/life pattern and perhaps a first important step towards securing 'good growth'.

THE VALUE OF MIXED USE THROUGH STEWARDSHIP

— Charlie Dugdale

It is people's livelihoods that sustain communities, and an ambition to engender job creation must be at the centre of all development planning. If job creation requires infrastructure, then that must come first in a proactive investment, and not as a reactive response to building homes in a place where people cannot find work. As Léon Krier demands, we should be providing sufficient housing for professionally active people to reside within a walking distance of their work. One should approximate to the other.

In our research for the Building Better, Building Beautiful Commission, Knight Frank highlighted the significant economic impact that the Duchy of Cornwall's approach to development had at

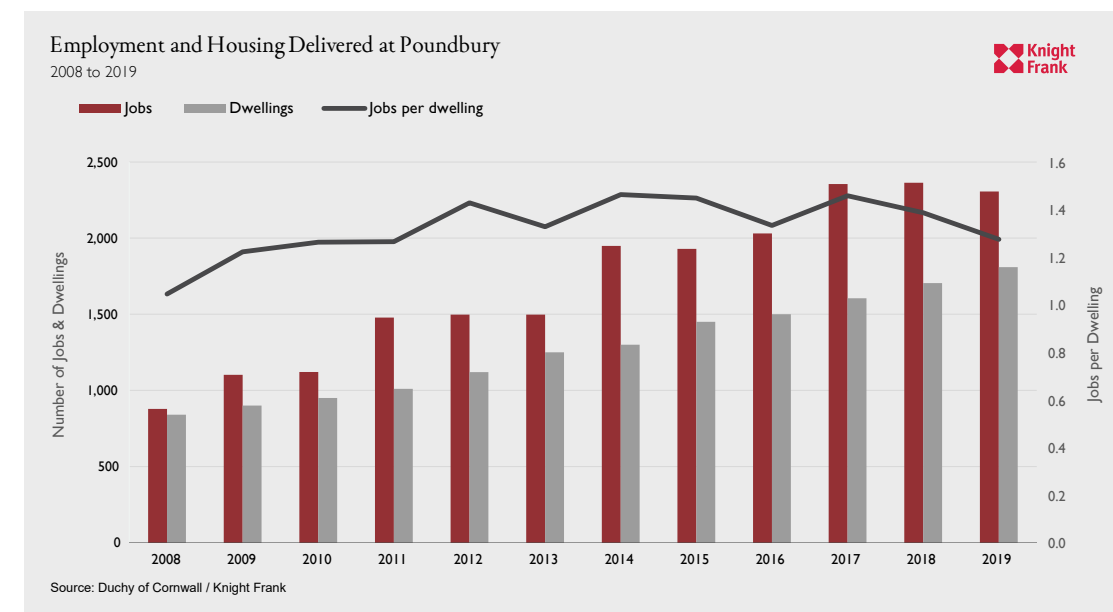
Poundbury. By following a policy of leaving space in the masterplan and by initially setting rents at levels that encouraged and nurtured, commerce was given a platform to thrive. Over a quarter of a century later there are now over 200 businesses – over half of which began life in Poundbury – employing over 2,300 people. This equates to 1.3 jobs per dwelling, or over 1:1 on a full-time equivalent basis. This realises the ambition of Léon Krier's masterplan drawn up in 1988 with its vision for a 'walkable, sustainable urban village' – a revolutionary concept at the time, despite being rooted in tradition, but perhaps the buzzwords of urban design today.

By virtue of the commercial uses being knitted through the master plan,

Poundbury has strikingly low car dependency, which is a critical piece of the jigsaw if future urban growth is to be sustainable. In a 2013 study of Poundbury, 22% of people walked to work, and 10% worked from home. Given 30% of employed respondents worked in Poundbury, we can reasonably assume that a very high percentage of people that live and work in Poundbury walk to work. Walking to work has long been shown to improve health and mental wellbeing, not

to mention the health of our planet. People will pop into coffee shops, buy groceries, recognise passers-by and in doing so the act of walking to work sustains traditional retail uses whilst building a community and supporting social cohesion. This all flows from promoting walkable mixed-use neighbourhoods.

The knock-on impact of mixed-use neighbourhoods to the local economy is measured in Gross Value Added (GVA)



and this can be hugely significant. An economic impact assessment in June 2018 found that Poundbury contributes £105 million per annum GVA to the local economy.

The value of mixed-use is circular. The internalisation of travel also internalises the multiplier effect of money. A pound earned working in the nearby workshop is spent in the local sandwich shop, rather than in a Pret a Manger at the end of a long commute. As money multiplies so does average affluence and it should be no surprise that house values also outperform as a result. Knight Frank's 'Cost and Value' report found that Poundbury's housing generated an average premium of 7% over its Dorchester comparator, but did so in homes that were on average 44% larger than its comparators.

The value of mixed-use is not realised overnight and therefore does not tend to fall within a typical housebuilding timeframe of simply building and selling homes. Jobs take time to form, and so there is little incentive for an industry focussed on housebuilding to support mixed-uses. Without an incentive, controls could be imposed, benchmark hurdles set and perhaps some of the research in this study could inform those benchmarks. However, we must remember that no one ever likes being told what to do – human instinct is to rebel against orders – and so the expectation that we can control housebuilders will only create tensions across the industry and particularly in the planning system.

Perhaps an alternative business model will emerge that has a sufficient timeframe to reward supporting mixed-

uses. Motivation is a significantly more powerful force than control. Think how readily children will perform a chore in return for sweets, by comparison to the begrudging response you might receive

Stewardship refocuses the profit motives of participants into the longer-term and realises a fundamentally sustainable business model.

if you order them to perform the chore to avoid punishment. In a development context, the rewards are the long-term dependable income and value that can be



Images by
Duchy of Cornwall

derived from the mixed-uses and their surrounding homes. The business model that can realise this long-term value is one we refer to as 'Stewardship'.

Stewardship requires participation, responsibility and preservation of our resources over the long-term. Just as the Stewardship Code asks investors

to engage, participate and take longer-term responsibility as a shareholder, in a development context, landowning 'stewards' are invited to do the same. Participation means maintaining a beneficial interest through the development, ensuring it delivers on its promises to the future community, but in doing so making sure value is maximised. This is where the motivation lies and where stewards of development find alignment between their rational self-interest and the community's best interests.

Stewardship encourages landowners not to sell, but instead to offer housebuilder partners an aligned structure to share in longer-term value. The reduced upfront cost of land provides small and large housebuilders with a platform to enhance returns through building longer-term value, and therefore the motivation to see non-residential uses as a means to enhance value as opposed to being an awkward by-product of development. If the right conditions are offered by stewards, business models will adapt to the opportunity. Housebuilders will start to contemplate bolt-on investment funds to hold commercial investments that find an alignment with the communities they build.

Stewardship refocuses the profit motives of participants into the longer-term. The time horizon is important because placemaking occurs over the long-term. If we think long-term, we choose materials that will stand the test of time, we choose to invest in all aspects that sustain and maintain such as community, commerce and reputation, and we realise a fundamentally sustainable business model.

CREATING A “WALKABILITY SCORE”

HOW TECHNOLOGY CAN HELP US
STUDY AND DESIGN MIXED USE,
WALKABLE PLACES

— Tim Stonor

The location of everyday land uses – shops, offices, schools and healthcare facilities – has important effects on our movement choices: whether we reach them by walking or cycling, catching a bus or going by car. Sometimes there is no choice: low density, monofunctional housing estates create car-dependence. This is not only harmful for the environment but damaging to our physical and mental health. Car-dependency influences obesity and loneliness. In contrast, walkable places are healthy and sociable places.

Computer modelling can map every day, non-residential uses and then measure how far they are from people’s homes. This is particularly influenced by the connectivity of the street network and the size of urban blocks. Is a route simple and direct or is it labyrinthine? Are there lanes and cut-throughs that make it easier to walk from A to B. Research shows that block sizes get smaller towards thriving urban centres and larger towards the edges. This means there is typically greater ‘permeability’ around the shops and markets at the hearts of settlements where more people are, and less around the residential edges: a ‘natural’

relationship that ensures that all routes are continuously animated by human life, with a ‘buzz’ towards the commercial centre and gentler levels of animation towards the edges.

The ‘Walkability’ heat maps describe the degree to which newer settlements have succeeded, or not, to emulate the lessons of historical places such as Clifton in Bristol and Faversham in Kent. By analysing each building in turn, it is possible to identify how many different everyday land uses are within a 5-minute walk. Poundbury scores highly, South Dorchester and Bradley Stoke less so. The database covers every building in Great Britain and allows existing places to be ‘footprinted’ so that new proposals can be tested in terms of whether they deliver walkability or car-dependence.

In the following case studies Space Syntax, in collaboration with Knight Frank, has looked at the classification of place to contrast and compare different periods of planned settlements at different scales, in order to understand the mix of uses that exist in each.

Comparison	Study	Comparator
Business model: Stewardship vs. Housebuilder	Poundbury	Elvetham Heath
Urban extensions: Duchy of Cornwall over the years	Poundbury	South Dorchester
City extensions over the years	Clifton Village	Bradley Stoke
City suburbs over the years	Corstorphine	Chessington
Towns, old and new	Faversham	Skelmersdale

COMPARISON OF TWO BUSINESS MODELS

STEWARDSHIP VERSUS HOUSEBUILDER

STEWARDSHIP

POUNDBURY, DORCHESTER

Poundbury formed one half of the comparison made within Knight Frank's Cost and Value report for the Building Better, Building Beautiful Commission. It is a masterplan that is now over 75% complete and demonstrates the result of a stewardship business model focussed on building place, not just homes.

The richness of uses knitted through the masterplan now supports well over 2,000 jobs and contributes over £105 million GVA to the local economy.

The arrangement of the non-residential uses generates an inherently walkable neighbourhood achieving a score of 88/100.

As an urban extension it achieves a civilised density of 40 dwellings per net developable hectare.

Walkability score	88 / 100
Dwellings	1,690
Non-residential premises	208
Rateable value	£5.1 million
Non-resi floor area	55,792 sq. m



HOUSEBUILDER

ELVETHAM HEATH, HAMPSHIRE

Chosen simply because of its comparable size to Poundbury, Elvetham Heath formed the housebuilder comparator within Knight Frank's Cost and Value report.

Delivered by Beazer Homes, later Persimmon Homes, Elvetham Heath delivered non-residential uses at its centre, including a supermarket, school, nursery and a public house.

The non-residential uses to the north captured in this study are in fact part of the Fleet Motorway Services, which are not walkable services.

By most measures, this is considered a good development, but when compared to Poundbury it is striking how the centrally located car-reliant services reduce walkability and inhibit the creation of a strong community.

Walkability score	4 / 100
Dwellings	1,064
Non-residential premises	66
Rateable value	£0.5 million
Non-resi floor area	1,904 sq. m



COMPARISON OF TWO URBAN EXTENSIONS

THE DUCHY OF CORNWALL OVER THE YEARS

POUNDBURY, DORCHESTER

Poundbury was born in response to HRH Prince of Wales's A Vision of Britain 30 years ago where he took a firm stance against suburban, unsustainable development and outlined a set of ten principles which he felt would make for better places and communities.

The Duchy of Cornwall had their land allocated to the west of Dorchester and took on board those principles, employing the visionary master planner, Leon Krier to work on the project in order to turn the principles into practice.

During its development the team involved have had to challenge many development norms and financial assumptions concerning traffic movement and services locations, and have integrated uses, including light industrial, to prove that this type of development works financially as well as socially.

Walkability score	88 / 100
Dwellings	1,690
Non-residential premises	208
Rateable value	£5.1 million
Non-resi floor area	55,792 sq. m



SOUTH DORCHESTER

The suburban area south of Dorchester was developed on Duchy of Cornwall Land, by others, in the 1970's following a typical low-density suburban model from that period.

This type of model shows how large footprint buildings, such as the Halfords Auto Part store and Tesco Superstore, are located off the main road away from residential development with large car parking areas. This pattern of development is often referred to as single-use zoning.

20 years later, through the intervention of the Prince of Wales, Poundbury was designed, breaking the mould of conventional planning and housing and pioneering the way for mixed-use, walkable communities.

Walkability score	8 / 100
Dwellings	970
Non-residential premises	43
Rateable value	£1.8 million
Non-resi floor area	10,287 sq. m



COMPARISON OF TWO CITY EXTENSIONS OVER THE YEARS

BRISTOL

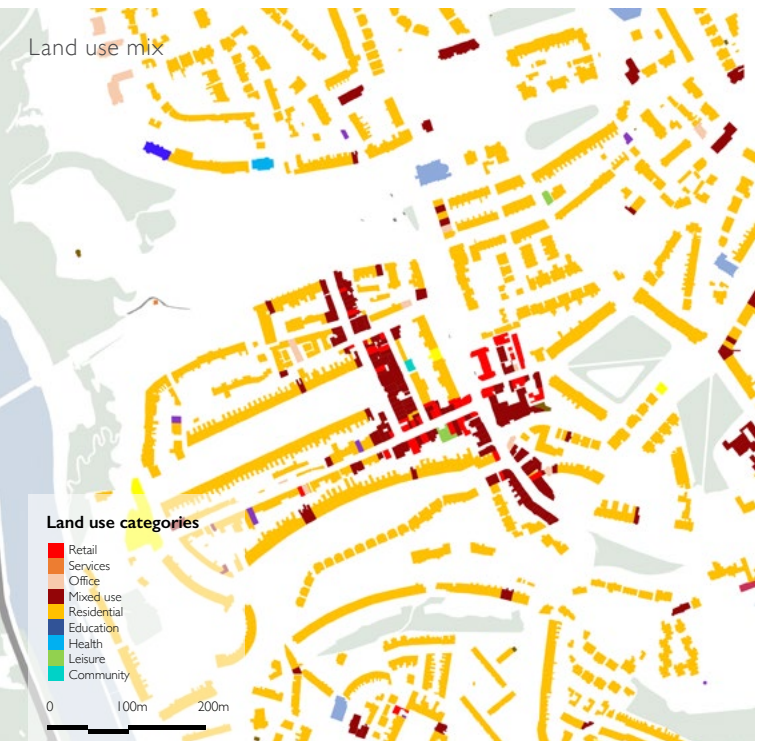
CLIFTON VILLAGE

Clifton Village is an inner suburb of Bristol, built in the late 18th and early 19th centuries. It is principally made up of Georgian terraces with ground floor mixed-use in the central area of The Mall facing a perpendicular garden square.

This type of terraced development with large public spaces and long runs of medium-density terraces, in response to the rapidly growing urban population, was fashionable at the time, as was the creation of new settlements built around spas to promote health and well-being, here and in nearby Bath.

The Clifton area is one of the most desirable places in Bristol to live and as a result also one of the most valuable. Central to this is not just the beauty of the buildings but a density that supports the mix of uses that make it a liveable place.

Walkability score	64 / 100
Dwellings	4,010
Non-residential premises	471
Rateable value	£7.3 million
Non-resi floor area	46,672 sq. m



BRADLEY STOKE

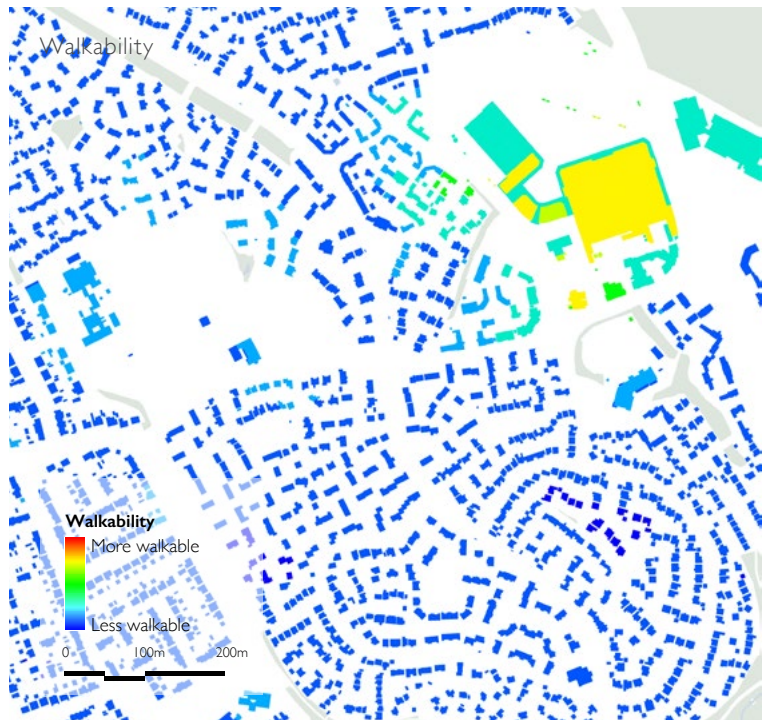
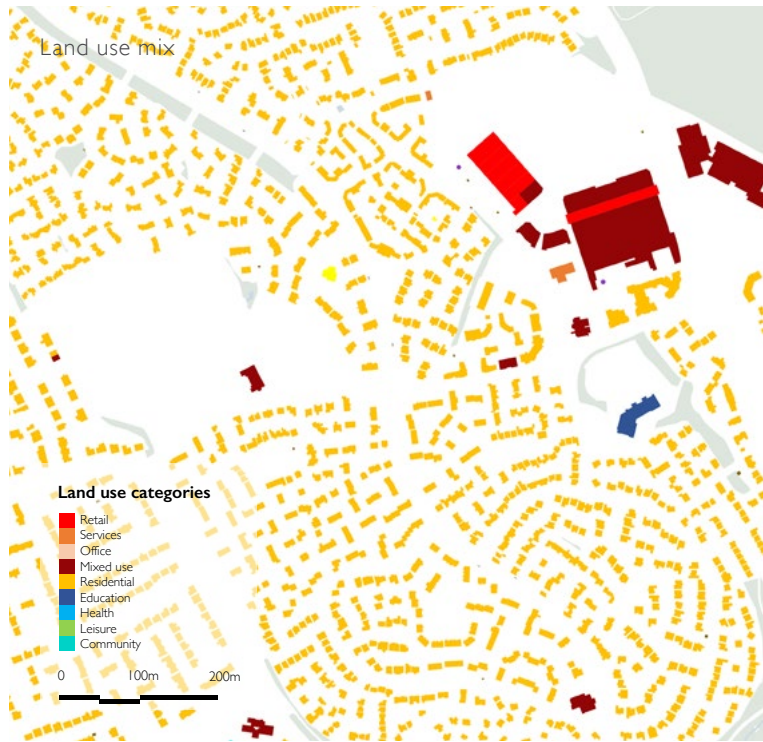
Bradley Stoke is another suburb of Bristol, planned in the 1970's with building starting in the late 1980's. The settlement is principally residential but was designed to be self-sufficient with retail, leisure and commercial areas built into the plan.

The contrast with Clifton is stark in showing how much of a difference the distribution and scale of mixed use has on both the walkability and also the future value of place.

By designing large footprint plots in zoned districts, the priority was very much given to the motorcar with the overall pedestrian experience poorly considered.

It is worth noting that that the year construction started in Bradley Stoke was the same year as the publication of A Vision of Britain.

Walkability score	4 / 100
Dwellings	2,524
Non-residential premises	91
Rateable value	£6.4 million
Non-resi floor area	34,587 sq. m



COMPARISON OF TWO CITY SUBURBS OVER THE YEARS

HISTORIC VS RECENT

CORSTORPHINE, EDINBURGH

Corstorphine was once a village to the west of Edinburgh on the busy Glasgow Road. During the 19th century the road and adjacent land developed into a high street and successive phases of residential development in the 20th century made Corstorphine into a pleasant suburb with walkable amenities, and with easy access by public transport into the city centre.

While principally a residential area, the local high street has a good range of uses and predominantly independent retailers. The well-defined early 20th century street form produces connected streets that converge on the high street and join with neighbouring areas.

The vitality of the high street was hard hit by successive out of town retail developments which reduced the critical mass of occupiers serving daily needs. In turn this loss of diverse occupation has turned a potentially walkable urban village into a car-dependent suburb.

Walkability score	40 / 100
Dwellings	2,474
Non-residential premises	198
Rateable value	£3.7 million
Non-resi floor area	NA



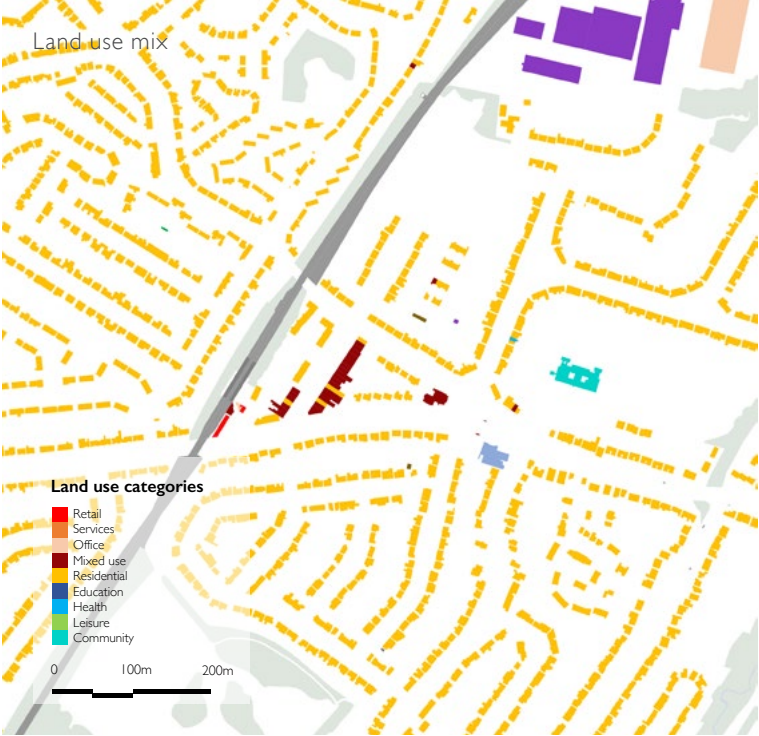
CHESSINGTON NORTH

Chessington North is an early 20th century suburb of London in Kingston upon Thames built on Garden City principles. This town planning movement, initiated by Ebenezer Howard to respond to how growing cities could also benefit from larger plots, gardens and access to the countryside, quickly gave rise to the sprawling suburbs.

Although train travel and local mixed-use centres were promoted in the principles these tended to zone themselves around large arterial roads with long residential streets of suburban housing forming large urban blocks.

These inevitably gave rise to car-dependent low-density development as can be seen around the Chessington North train station and small parade of shops which gives a low walkability score.

Walkability score	20 / 100
Dwellings	2,203
Non-residential premises	121
Rateable value	£1.2 million
Non-resi floor area	10,869 sq. m



COMPARISON OF TWO TOWNS

OLD AND NEW

FAVERSHAM, KENT

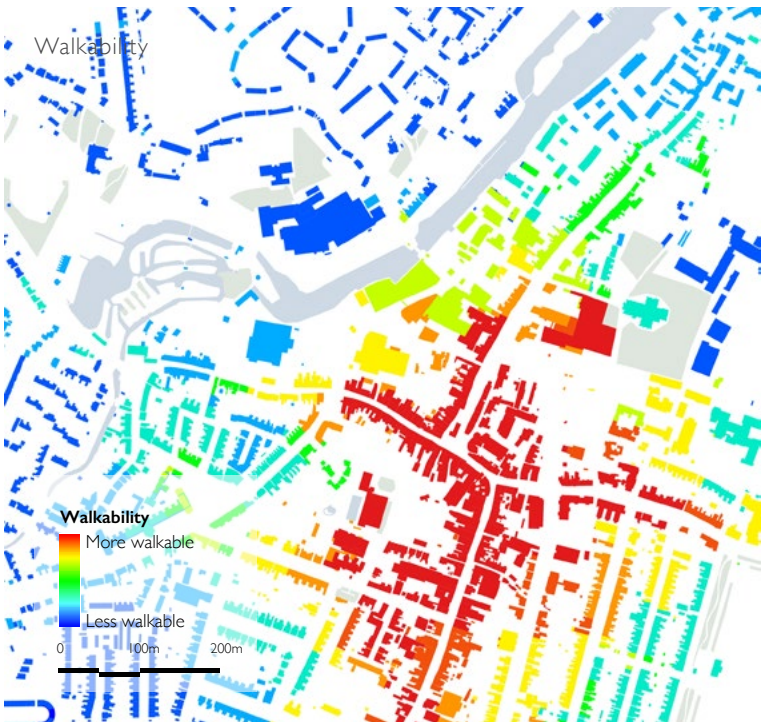
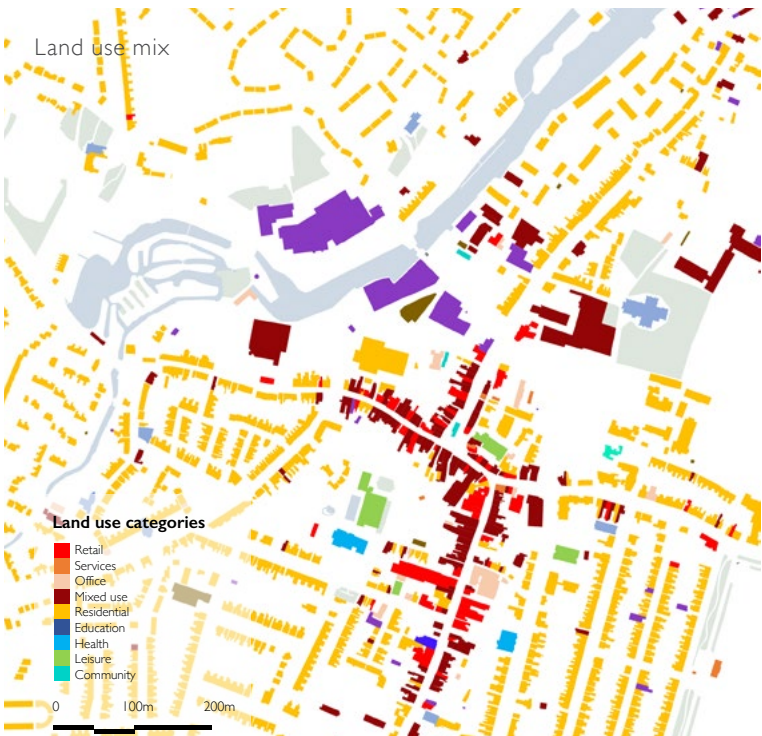
Faversham is a historic market town in Kent, 50 miles from London. The market has been established for 900 years and the town is known as an important sea port and a centre for brewing.

The rich history and organic development of the town means that there is a variety of ground floor employment and retail spaces which are largely occupied by independent operators as they are not optimal in size for chain operators.

The main centre of activity is Market Square, which sits at the intersection of West Street, running east west, and Preston Street, which connects the town southwards to the ancient cross-country route of Watling Street, now the A2.

The fine-grained plots and networks of streets and alleys allows a high degree of connectivity developed over time to suit pedestrian and slow-speed vehicle movement.

Walkability score	68 / 100
Dwellings	2,666
Non-residential premises	429
Rateable value	£8.2 million
Non-resi floor area	89,689 sq. m



SKELMERSDALE, LANCASHIRE

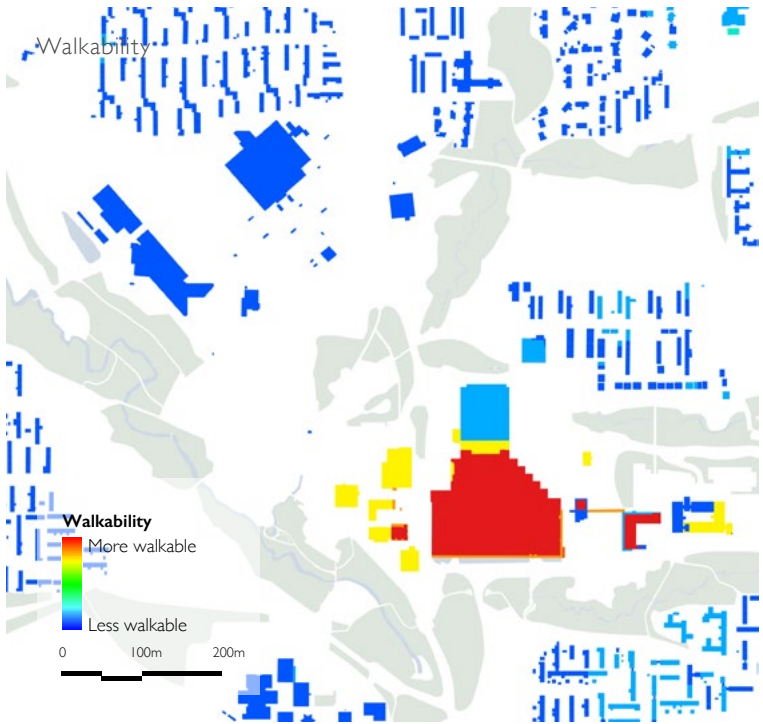
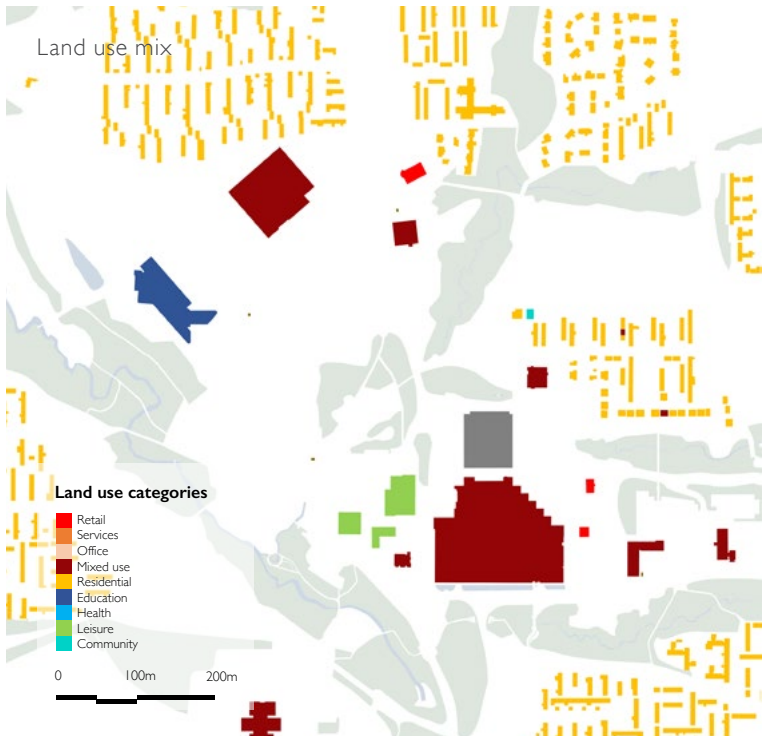
Skelmersdale is a 1960's New Town in Lancashire built to the east of a 19th century coal mining village to house overspill from the north Merseyside conurbation.

'Skem' was designed to work on a roundabout system with large arterial roads and has a subway network to move people around without crossing the hazardous roads. The subway is not generally seen to be either safe or sustainable.

The town centre is made up of a large shopping centre, called the Concourse, which houses many of the national chain stores. Other areas are served by smaller shopping parades.

The large areas of green infrastructure, dominant road system, fragmented streets and zoning of uses makes the town poor for walkability and, as a result, car-dependent.

Walkability score	4 / 100
Dwellings	1,014
Non-residential premises	203
Rateable value	£8.0 million
Non-resi floor area	61,446 sq. m



CONCLUSIONS

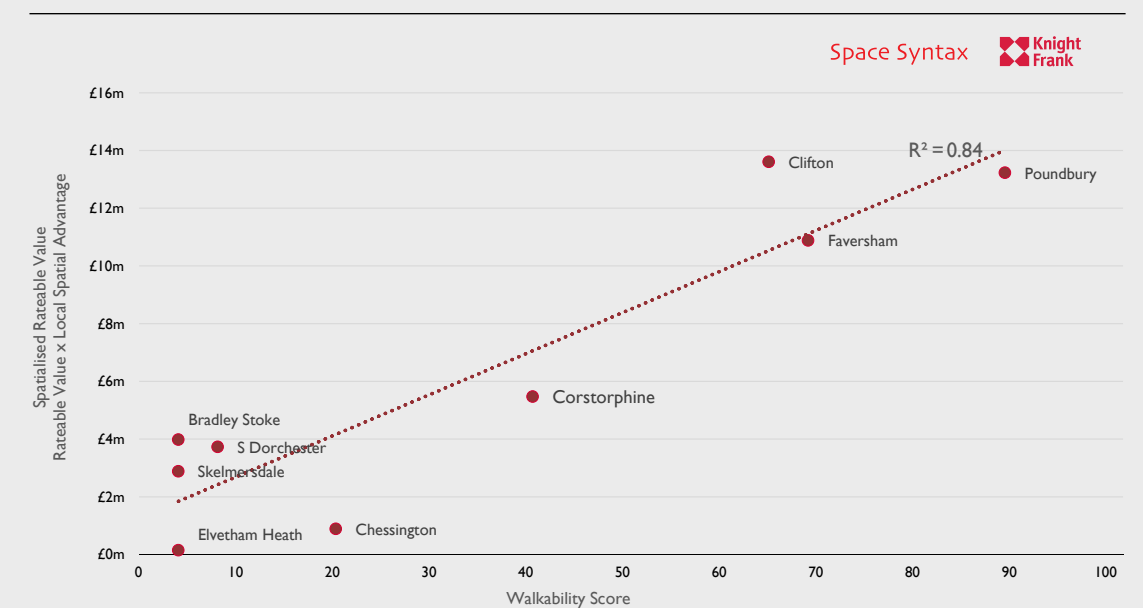
It is clear from these case studies that the size and distribution of non-residential uses, combined with the design of a connected or fragmented street network, has a huge impact on how walkable a place is, or is not.

The benefits to health and wellbeing of walking versus the dis-benefits on health, pollution and carbon emissions from driving are well researched and documented. What is less well researched is the impact of urban planning and design, combined with the distribution of non-residential uses, on how walkable or car-dependent places are.

For the first time, this pioneering study uses geospatial technology to assess a settlement's walkability. It provides us with a clear visual illustration of what works, and what does not. A richness of non-residential uses provides a walkable

neighbourhood with all of its associated social and wellbeing benefits. And, to judge success in value terms, in each example we have also included the rateable value from the Valuation Office Agency's (or in Corstorphine's case the Scottish Assessors Association) 2017 assessment of the rental value of the commercial uses.

There appears to be a strong correlation between the walkability of a settlement and its value. This correlation is impacted by a settlement's vehicular accessibility and its permeability. All other things being equal, a more accessible catchment should generate more value because it can draw from a larger catchment, and a more permeable local network means that a greater number of local people can more easily access an urban centre. Adjusting for these measures produces the following correlation.



Source: Knight Frank / Space Syntax



These results underpin the importance of local spatial connectivity in creating property value. What they show is that, even if you are relatively remote – like Poundbury and Faversham – you can deliver strong values if you have a strong local spatial network. By contrast, you can be globally embedded in the national movement network – like Skelmersdale and Chessington – but fail to deliver decent value if you do not balance your vehicular accessibility with local permeability, in other words if you fail to create place.

We need to acknowledge that this is not an exact science. In our comparisons we adopted a 1km grid for consistency, but this is a crude cut off which may conveniently fit in the pages of a report, but settlement boundaries in the UK tend not to fit into such a rectilinear pattern. Furthermore, whilst rateable value is a useful assessment of non-residential values, it is far from a complete measure of a settlement's success. However, we believe the findings are sufficiently striking to suggest we should relate urban planning and its associated functions to the walkability of uses.

Walkability scores might be a useful criteria to test whether new development proposals are sufficiently ambitious in the context of non-residential uses. Perhaps

then we will realise Léon Krier's vision for a population that can walk to work. This too was the selfless vision of TH Barton who, despite a business based on vehicular transport and during the distractions of WWII, had the foresight to suggest we should all live near our work.

Much of built environment research is highly specific and inaccessible to non-professionals and yet everybody is influenced by and has experienced the impact of how places are designed and function. The design and development of these places is a choice which has an enormous impact on the natural, social and financial aspects of our lives. In an age of natural resource depletion, climate change, rapid urbanisation and now pandemics, the way we plan and build our settlements is more critical than ever in providing a sustainable choice for future generations.

What this study shows is that places built around muscle power and people are far more walkable, adaptable, resilient and valuable than those places designed around cheap fuel and the car. The reason this is so important is that while aspirations and policies are clearly focussed on making beautiful and sustainable places, the evidence is starting to show that what is still being

built is highly car-dependent, zoned, inflexible and ultimately unsustainable.

The overwhelming criticism of modern housing estates are that they are ugly and cheaply built, which may be true but perhaps what is more concerning is that there is simply a lack of non-residential uses being delivered.

This implies that the current house-building industry and business model it operates under is not capable of delivering mixed use, walkable communities, and so an urgent focus and initiative needs to be taken to find alternative delivery models for making places, not just housing estates. The Building Better Building Beautiful Commission's final report, *Living with Beauty*, championed the importance of 'stewardship' as one of its three main themes. This is an area of activity that is likely to have the most impact on the current housing model and the quality of life and future prosperity of communities across Britain.

So when we 'Build Back Better' let's do that for the young, the old and for the creation of communities that sustain and thrive.



TOP
Queen Mother Square, Poundbury, Dorchester, Dorset
BOTTOM
Bonjour Cafe, Poundbury, Dorchester, Dorset
Images by Duchy of Cornwall

“ To all good men and true – help in the present national emergency. LOVE YOUR WORK AND LIVE NEAR IT. Do it now by exchange of residence. This living near work is a secret of success in life, it would save the great and costly transport of workers, which for the greater portion is not remunerative to the carriers. It would release thousands of valuable men and women for more important duties; save hundreds of thousands of gallons of motor fuel; keep money in the country; and not the least advantage, save the worker time, expense and fatigue, and reduce loss of life on roads. Let circumstances be your servant and not your master.

It is not what we know or what we can do, but what we actually accomplish, that influences our surroundings for better or worse according to the deed.”

THOMAS H BARTON OBE,
MANAGING DIRECTOR AND
FOUNDER OF BARTON TRANSPORT
LTD., THE PIONEER OF BRITISH
BUS SERVICES, INVENTOR AND
ENGINEER, WRITING IN 1941





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