Patterning the Dutch Compact City

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Abstract

A major challenge to town planners in Britain is to help fulfil current and future housing need in a sustainable manner and avoid excessive development land take.

This thesis therefore establishes what future development models are currently under debate and undertakes extensive research into Governments preferred option the 'Compact City'. Research focuses on empirical data for sustainable development and arguments for/against a policy of urban intensification.

On conclusion that research alone fails to provide a sufficient basis for promoting a policy of 'Compact Cities', research emphasis was placed on the Dutch planning system, which has promoted such a policy for over a quarter of a century. Dutch experience was used to answer many unresolved arguments surrounding the 'Compact City' and an investigation was undertaken into how the Dutch have made this policy successful.

In light of the fact that Dutch experience has shown that high quality urban housing is fundamental to attracting residents back to cities, an investigation of current UK generic housing models was undertaken and these were tested against sustainable density research and UK/Dutch design advice. On comparison it was established that many failed both tests and it was established that additional housing types could be required under a policy of 'Compact Cities'. An alternative development brief for additional housing models was therefore developed and this brief was investigated through the design of three alternative housing types.

In final conclusion it was proposed that the Dutch treatment of density could provide a model for future planning in England and their design principles could aid the creation of alternative urban housing types.
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On a personal note I would like to thank Marlen, my family and friends.
Introduction

Research Hypothesis:

The treatment of density in the Dutch system provides a potential model for future physical planning policy in England and could inform a future 'pattern language' for intensified development.

Research Aims:

To identify key urban design features of intensified housing development in the Netherlands and to examine the potential of transferring Dutch principles to the UK.

To test generic housing models proposed in the UK against Dutch experience and evaluate their potential to create sustainable residential quality.

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Acronyms

CEC  Commission of the European Communities
DETR the Department of the Environment, Transport and the Regions
DPH  Dwellings Per Hectare
GRD  Gross Residential Density (Population divided by geographical area)
HRH  Habitable Rooms Per Hectare
LDC  Land Development Company
NRD  Net Residential Density (Excludes open spaces and non-residential land)
PPG  Planning Policy Guidance
PPH  People Per Hectare
VINEX The Fourth Report Extra (Vierde Nota over de Ruimtelijke Ordening Extra)
VINO The Fourth National Physical Planning Report (Vierde Nota over de Ruimtelijke Ordening)
TCPA the Town and Country Planning Association
UPH  Units Per Hectare
Chapter 1: The Need for Urban Change

Prologue: An urban scenario

The later half of the twentieth century saw man’s first real acknowledgement that the Earth was not the endless supply of materials and opportunities expected but instead a fragile environment susceptible to damage. Today, Global acknowledgement of this fact has led to our current environmental debate, a debate which crosses traditional boundaries of profession, science and industry and directly impacts future physical planning in the UK.

The latest UK response to this debate is Towards an Urban Renaissance (1999) and the new Urban White Paper - Our Towns and Cities: The Future (2000). Both documents focus on social, economic and physical conditions and both propose strategies for a sustainable urban renaissance within Britain.

The main focus of Towards an Urban Renaissance is the built environment, where “some 90% of us (in England) live” (Urban Task Force, 1999, p.8) and which creates “75% of all pollution….., roughly 45% from buildings and 30% from transport” (Urban Task Force, 1999, p.28).

In response to such statistics the Urban Task Force has scheduled a series of proposals to create a sustainable urban renaissance for Britain, which includes establishing “the importance of developing a higher quality urban product by creating compact urban developments, based upon a commitment to excellence in urban design and the creation of integrated urban transport systems that prioritise the needs of pedestrians, cyclists and public transport passengers” (Urban Task Force, 1999, p.11). Whilst broad in content this statement emphasises the concept of the compact urban development and its relationship with mobility. Towards an Urban Renaissance, however, has no statutory power but instead forms a Manifesto for future change, whilst the Urban White Paper (which was informed by Towards an Urban Renaissance) directly effects planning policy guidance.

The Urban White Paper proposes that “we need an approach to the design and development of urban areas which: makes efficient use of the available land and buildings and reduces the demand for greenfield development…… and makes good public transport viable and makes walking and cycling attractive
options” (DETR, 2000 C, p.43) Like *Towards an Urban Renaissance*, the DETR promotes concepts of compact self-serving developments with efficient and viable public transport as part of an overall strategy for improved national sustainability; *Compact Cities*.

The conceptual model of the ‘compact city’ as ‘sustainable city’ is not new and the urban task force and the DETR acknowledge that they have considered the recent experiences of several countries including the Netherlands. Unlike Britain, Dutch physical planners have focused on compact, self – serving cities since the early 1970’s and since 1993 have had a national level compact urban policy; the Fourth Policy Document on Physical Planning (VINO) and its sequel the Fourth National Policy Document on Spatial Planning (VINEX). The reasons for this do not solely revolve around sustainability and are best summed up by Ab Oskam, former managing director / chief planner of the Physical Planning Department of Amsterdam (1981 – 97). “I’m not sure if the term "compact city" is familiar to you but in my country it stands for a planning policy where the emphasis is on a painstaking economy in the use of resources; most of all space” (Oskam, 2000). Further reasons for the Dutch Compact City included economic stagnation of established cities due to the success of ‘Growth Poles’, social exclusion in urban centres and of late the increased importance of Dutch centres attracting investment on a European wide stage. However, for many in the Netherlands current policy on compact development is still not enough, Jacob van Rijs (MVRDV) suggests that “VINEX is short-term politics. Everyone wants to make the most of the booming economy, so there is a building rush. Identical low – density developments are sprouting up all over the Netherlands. In our opinion we need higher densities, particularly in the main cities” (Melet, 1999, p.155). Van Rijs's comments, however, relate to more suburban style development and VINEX sites. Here Government subsidy was dependent on a minimum development density of 30DPH being achieved, a figure to low for either sustainable or compact development.

The experience of the Netherlands presents many opportunities for UK planners to study the reality of compact cities and assess their potential for Britain, it could also prevent Dutch mistakes being repeated. It is, however, only one of many models and has critics as well as supporters. The alternative view of the compact city is ‘urban cramming’ and critics suggest that “the overriding problem with the compact city is that it requires us to ignore the cause and
effects of decentralisation, and benefits it may bring” (Thomas and Cousins, 1996, p.56). Other proposed models include the ‘compromise’ position and ‘urban dispersal’ and each has protagonists who argue that their model is the most appropriate for future development within Britain.

**The aim of this thesis is therefore to test the hypothesis that the treatment of density in the Dutch system provides a potential model for future physical planning policy in England and could inform a future ‘pattern language’¹ for intensified development.**

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**Introduction: The need for an alternative urban strategy**

Prior to entering a debate of future urban models it is first necessary to outline the current need for change and the limitations of models proposed. At present the overarching theme of European policy is sustainability, under the 1992 Rio Earth Summit. However, for Britain, the need for sustainability is coupled with the proposed “3.8 million additional households projected to form between 1996 and 2021” (Urban Task Force, 1999, p.35), of which “the biggest increase - some 70% or 2.7 million - is in the number of single person households (DETR, 2000 C, p.22). Household projections and the need for sustainability form the basis for current investigation of urban models, but is underscored by issues as diverse as protecting rural England from unnecessary development to revitalising Britain’s decaying post-industrial cities and attracting people and investment back to them.

For sustainability, it has been acknowledged throughout Europe that “nowhere is the implementation of sustainable products and processes more important than within cities” (Urban Task Force, 1999, P.28), since they are the largest consumer of products and polluter. It is further established that the major problem facing sustainability is the private car with proposed urban models bearing heavily on the issue of sustainable transport and its relationship with urban pattern, which in the main is embodied in the debate of density.

Whilst each argument reviewed in the next sections will address each of these issues it is worth noting that very little consensus exists on the terminology used within each debate, which often leads to confusion. David Lock suggests on the

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¹ A series of hierarchically linked design rules, which can be used to tackle sustainable urban design/planning problems.
basic issue of density that, “there appears to be no professional or technical agreement on how to measure density” (1995, p.173) and the same is true for several other issues.

Lack of a common definition is compounded by the fact that none of the models to be discussed really address the issue of sustainability, whilst described under the banner they often in reality represent energy/waste reducing proposals. In the main this is due to urban model's being addressed as independent entities where debates “have an internal focus that neglects detailed consideration of external impacts” (Haughton, 1997, p.191), whereas in reality, “ecological & social impacts of over – consumption reach far beyond our home regions” (Rees & Wackernagel, 1996, p.57) and city limits.

Rees & Wackernagel suggest, “if everyone on Earth lived like the average Canadian or American, we would need at least 3 such planets to live sustainably” (1996, p.13). Haughton proposes, “the sustainable city, therefore, needs to be seen in its global context, involving a thorough examination of the external impacts that cities generate” (1997, p.189), rather than simply resolving our site/location specific problems in one place at the expense of another.

In light of these suggestions and as part of a review of future urban models, it is therefore proposed that the Brundtland definition of sustainable development is used to define sustainable models: “Meeting the needs of the present without compromising the ability of future generations to meet their own needs” (Blowers, 1993, p.192).
Chapter 2: Alternative urban models to the ‘Compact City’

The Urban Models

Frey (1999) defines in *Designing the City, Towards a More Sustainable Urban Form* three future urban models:

- The Compact City: **Centralisation.**
- The Multi – Nucleated City: **Decentralisation.**
- The Mixed Compact and Multi – Nucleated Environment: **Centralisation and Decentralisation working together. The compromise position.**

Each model is currently being researched or reviewed by a variety of academics and professional organisations and each will be seen to address the issues of sustainability and housing need at a variety of levels. Many explanations for one proposal are, however, often based on proposed failings of alternative models rather than research findings and many arguments are highly subjective.

At present it is clear that the favoured model in the UK is the ‘compact-city’ proposal, which is reflected in latest Planning Policy Guidance, *Towards an Urban Renaissance* and the new Urban White paper. As preferred model the compact city will be subject to an extended review after alternative models have been discussed.

This chapter will therefore attempt to review the alternative development models to the ‘compact city’ (decentralisation and the compromise position) and place the later extended discussion of urban compaction in context.

**Decentralisation; Pure and Multi – Nucleated**

Decentralisation in its extreme form is the opposite of centralisation and represents population dispersal. Historically its origin can be traced back to Frank Lloyd Wright's 1935 proposal; Broadacres City: A new community plan. For Broadacres, Wright “believed that individuality must be founded on individual ownership. Decentralization would make it possible for everyone to live his chosen lifestyle on his own land” (Fishman, 1977, p.9). As Peter Hall suggests, “He desired not to marry town and country, but merge them” (1996, p.287). Today, Wright’s concept of pure decentralisation are similar to
contemporary thought; However, current “decentrists can be split into two groups:

- The ‘free – marketeers’, who claim that it is interference by planners in land markets that causes problems, and that market solutions will optimise urban forms.

- The ‘good – lifers’, who argue for a lifestyle that is decentralised, both geographically and institutionally, and a return to rural values” (Breheny, 1996, p.20).

For planning, neither group reflects a development model but rather a rejection of today's controlled system that embodies the de-centralised aspirations of many UK residents.

**Decentralisation Theory – Free Market Dispersal**

In its purest form decentralisation (population dispersal) is not regarded as a potential model for urban reform. The 90’s concept of the electronic cottage which acts as home and office has been slow to emerge and the “popular view that new technology will unglue the cities is in dispute” (Breheny, 1996, p.29). The decentralist proposal that modern technology will reduce the need for dispersed workers to travel and “once the commuting imperative is taken away, the arguments against ‘sprawl’ diminish” (Murrain, 1993, p.84) is unsubstantiated and weakened by suggestions that “teleworkers don’t want to be isolated in their homes…. (their) biggest complaint is ‘cabin fever’; physical isolation, lack of community and continued dependence on the car” (Murrain, 1993, p.84).

As a model population dispersal has little theoretical basis and for many is more a reflection of consumer demand and the ‘push-effect’ of modern cities. Deyan Sudjic proposes that “the middle classes in Paris, London and New York found themselves driven out by the polarisation of the city between the very rich and the very poor. They fled from blight, runaway house prices and school systems in crisis” (Sudjic, 1992, p.7). These observations by Sudjic in the 1990’s are not dissimilar to Ebenezer Howard’s comments of nearly a century before; a
change is coming “so great and so momentous that the 20th century will be known as the period of the great exodus” (Ward, 1990, p.330), which in truth it was.

Today, arguments for a dispersed population umbrella a mixture of life-style and employment debates and often reflect events occurring. Breheny has suggested that “twice as many people in rural areas are ‘very satisfied’ with their location than are those in urban/city centres” (1997, p.213), continuing to state, “survey information suggests that people aspire to the very opposite of the compact city” (Breheny, 1997, p.216). Illustrating why “the evolution of the city in the last twenty years has been accelerating decentralisation” (Sudjic, 1992, p.25). Further research by Breheny in *The People, Where will they Work* suggests that “increasingly, the largest groups of skilled people are now best accessed from suburban or accessible non-urban locations” (1999, p.214). Leading to arguments that a dispersed population may not just have a better lifestyle but also increased employment opportunities. Such arguments have led the author Fox to suggest that perhaps “the goal of reducing energy consumption on travel is best served not by strengthening urban centres, but by allowing jobs and services to decentralise in the wake of the inevitable decentralisation of population” (Fox, 1993, p.242). Whilst Fox’s argument for reduced energy consumption appear to be unsubstantiated it does reflect the fact that “the great majority of Britons, like the great majority of Americans, no longer commute by public transport into city centres: they use their own cars to travel from suburban homes to suburban jobs” (Hall, 1990, p.331).

The level of such activity, today, suggests that not only is population dispersal the favoured option for the British public, it suggests that dispersal may have gone too far to be halted or reversed. Such a prospect leads to suggestions that there is “a widening gap between the prospects for true sustainability and the economic and political realities on the ground” (Ravetz, 1994, p.181) and suggests that “while stronger urban regeneration policies will make cities more attractive places in which to live, the implication of continuing decentralization is that the compaction movement will still contradict the market” (Breheny, 1997, p.211).
Decentralisation Theory – Planned Dispersal

It is acknowledged that market driven decentralisation has in the main been a hap-hazard affair, with little control. As Peter Hall suggests, free-market “decentralisation is producing a version of Howard’s Social City, the polycentric metropolis; but it is an imperfect version” (Hall, 1990, p.332), where intended social and environmental infrastructure never occurred.

Such realities have led to alternative arguments against market driven dispersal and in favour of planned dispersal, the notion of concentrated deconcentration. For many concentrated deconcentration is the true alternative model to urban compaction and could present a real opportunity for sustainable development. In many respects concentrated deconcentration can be seen to bear marked similarities to compact proposals and “are in fact entirely compatible with compact cities, providing for ‘surplus’ development when urban concentration limits are reached” (Fox, 1993, p.245). However, as Hall points out, “one advantage is that by the very fact of starting from scratch it is possible to plan and build a new settlement in a way which provides an appropriate balance between housing, employment, community facilities, shopping, recreation and open space” (Hall, 1989, p.114). The Department of Environment agrees with such proposals and suggests that “new settlements with a minimum population of 30,000 people and far enough away from an existing town or city to prevent it having a dormitory function” (Murrian, 1993, p.92) could present opportunities for future sustainable growth.

As a concept concentrated decentralisation can be defined as “a multi – nucleated city or even city region in which uses concentrated in the mono – core of the compact city are dispersed into a number of smaller centres forming the nuclei of urban districts or towns or villages” (Frey, 1999, p.26).

Arguments for concentrated decentralisation are often based on the projected shortcomings of the compact city. Decentrists suggest that “compact city proposals, in any extreme form, are unrealistic and undesirable” (Frey, 1999, p.27). It is argued that centralisation goes against the grain of the English suburban culture and exponents believe their model will avoid the problems of rising land costs and social exclusion occurring in the compact cities of the Netherlands. In terms of sustainable energy arguments protagonists of concentrated decentralisation suggest, “if homes and factories are heavily
concentrated, devices for using clean sources of energy will probably remain mere playthings; but if urban communities are reduced in size and widely spread over the land, there is no reason why these devices cannot be combined to provide us with all the amenities of an industrial civilisation. To use solar, wind and tidal power effectively, the giant city must be dispersed” (Ward, 1990, p.330).

The obvious argument against concentrated decentralisation is that it would represent a fourth round of New Towns, and the first three rounds were not sustainable and in reality had little effect on the majority of Britain. This argument is not however totally valid since previous new towns were not proposed to address environmental sustainability, if anything they were intended to focus on social sustainability. Today, one of the few proposals for the development of a new settlement is ‘Garden City 21’ in Hertfordshire. As the names suggests, “at the top of local people’s agenda was a desire to restrain the dominance of the car and to provide new forms of public transport” (Davies, 1999, p.35). The settlement is also proposed as “a high-density development of integrated mixed uses (that) would create an atmosphere of activity and vitality” (Davies, 1999, p.37). The example of ‘Garden City 21’ highlights the fact that new towns could be compact cities, if so planned, it also suggests that disagreement between compactionists and exponents of concentrated deconcentration revolves around where the compact city should occur rather than its validity; in existing settlements or in new settlements.

Here supporters of the development of new towns believe that an “advantage of a policy for new settlements is that it would constrain local and political opposition” (Hall, 1989, p.113) and would not be subject to the opposition likely to occur towards policies of urban intensification within existing cities.

The concept of concentrated decentralisation is current viewed as secondary to the proposal for compact cities. British Planning Policy and European directives both promote the compact city model and any proposals for decentralisation appear to be out of favour, even if they were compact cities (CEC, 1990 & DETR, 2000 B).
The Compromise position

It could be argued that the concept of concentrated decentralisation originated from Ebenezer Howard. In essence both Howard’s garden city and concentrated decentralisation share common ground. However, Howard’s ideas went further and dealt with the city left behind, unlike concentrated decentralisation. It is therefore proposed that Howard’s, To-morrow: A Peaceful Path to Real Reform (1898) is the origin of the Compromise model. This thought is shared by Breheny and Rockwood who believe that “Ebenezer Howard’s concept of the Social City in the form of a sustainable Social City,” now proposed by the TCPA forms the basis for the compromise position.

Compromise Theory

As a compromise position this model lacks a conceptual basis and has been cited as advocating “a combination of the merits of centralisation, i.e. urban containment and regeneration, with benefits of the inevitable decentralisation to towns and suburbs” Breheny, 1996, p.32). This option intends to amalgamate the extremes of centralisation and decentralisation and as Michael Brehany suggests, it “might seem like a little idea; perhaps properly packaged it could be big” (1996, p.32).

However, as a model the compromise position could be particularly relevant to the UK because “the Government has set the challenge of raising the proportion of new homes to be provided on previously developed land or in existing buildings to 60% over the next ten years” (Urban Task Force, 1999, p.173). Indicating that urban compaction is required and by default suggesting 40% of new housing will occur on green – field sites. This 40% represents 1.5 million houses (over 25 years), implying a strategy of new settlements. Here it appears that Central Government indirectly supports the compromise position as the potential strategy whilst other policy appears to advocate solely urban compaction.

The potential of revised Garden Cities as Sustainable Cities has been investigated by Hall and Ward in Sociable Cities; the legacy of Ebenezer Howard (1998). Here Hall discusses the benefits of future polycentric development, connected by high quality and fast public transport, whilst acknowledging that aspects of Howard’s original polycentric vision are today
irrelevant and a product of late nineteenth century problems. To update Howard’s vision, Hall has reproduced the original ‘Three Magnets’ in line contemporary issues including sustainability but again today like in 1898 cites the ‘Town-In-Country’ as an appropriate solution (fig. 2.1).

Hall, like Howard does, however, goes further than simply suggesting new towns as the answer to sustainable lifestyles and develops a 12 point strategic policy for building sustainable social cities including, develop urban nodes, selective urban densification, strategic provision for greenfield development, top-quality linkages, clustered development, town expansions and new towns and density pyramids (Hall, & Ward, 1998).

Hall & Ward suggest that proposed new towns “consist of small-self-contained, physically separate, mixed-use units of 20,000 - 30,000 people, akin to Ebenezer Howard’s original formulation of Garden Cities, but clustered - as again he proposed - into larger units of up to 200 000 or 250 000 people along the transport corridors” (Hall, & Ward, 1998, p153). They also envisaged that these new towns would link directly and effectively in to established British settlements.

**Summary**

It is clear that free-market dispersal of the British population across the country is not seen as a valid model for future growth. If planning policies were relaxed to allow such development to occur it is unlikely that any of the current
desires for sustainability would be achieved, there would be a dramatic effect on rural Britain and the problems of existing settlements would not be addressed. It is also expected that such action would only increase the need of people to travel by car, which again would go against the grain of sustainable development.

The proposal for new planned developments in the form of concentrated deconcentration does on the other hand provide a potential sustainable alternative to intensified development. In the main this is because new settlements can be planned as sustainable developments with highly integrated public transport, and rationalised density gradients, a development process which may be simpler than attempting to re-plan existing cities. It is however proposed that such action would be extremely costly and would again omit to address the problems of major cities and the construction duration would not meet our immediate demands. It is further suggested that such action could be at the expense of existing towns and cities, since their population bases would be further reduced by migration and today's problems of social exclusion would worsen.

On their own neither proposal realistically represents a model for future sustainable development within the UK. However, the extension of concentrated deconcentration to the compromise position is a proposal that could provide a future sustainable development model.

Today's proposal for a model of compromise like Howard's 1898 proposal addresses both new and existing settlements and envisages a polycentric network of cities linked and planned on sustainable themes. A proposal that is particularly relevant, today, since the Government proposes that 60% of future housing development will occur on brownfield sites with the remainder been developed either on settlement edges or as new towns. An acknowledgement which suggests that selective greenfield development coupled with brownfield regeneration will be needed to achieve housing targets.

However, the majority of development is still intended to be brownfield regeneration and any increase above the 60% threshold will reduce the need for new settlements and protect Britain's stock of greenfield sites. It is therefore proposed that urban intensification models (i.e. Compact City) are the critical models in achieving Government objectives, which could reduce the need for a model of compromise. The following chapter will therefore undertake an
extended review of the compact city model and investigate its potential in achieving an urban renaissance and limiting future edge or out-of-town development.
Chapter 3: The Compact City Model

Introduction

The Urban Task Force states that “there is a proven link between urban densities and energy consumption” (1999, p.36) and Towards an Urban Renaissance promotes the concept of the compact city, which is currently in – line with both UK Government and European thinking. “The CEC Green Paper clearly calls for a return to the compact city…..(which is) certainly influenced by the fact that many historic European towns and cities have densely developed cores which are seen as ideal places to live and work” (Frey, 1999, p.24) and may provide more sustainable settlement patterns. For the UK such intentions are reflected in current UK planning policy guidance (PPG’s): PPG 1 states that “Government has made clear its intention to work towards ensuring that development and growth are sustainable” (DETR, para. 3). The latest edition of PPG 3, released March 2000, promotes increased density levels for housing developments. Paragraph 57 states that “more than half of all new housing is built at less than 20 dwellings per hectare. That represents a level of land take which is historically very high and which can no longer be sustained” (DETR, 2000 B). It further states that Local Authorities should “avoid developments which make inefficient use of land (those of less than 30 dwellings per hectare net) and encourage housing development which makes more efficient use of land (between 30 and 50 dwellings per hectare net)” (DETR, 2000 B, para. 58). PPG13 (draft) supplements these proposals by citing its objective to “promote more sustainable transport choices, and reduce the need to travel, especially by car” (DETR, 1999, p.8). Here transport guidance proposes “local authorities should increase the density of development at and around places with good public transport accessibility” (DETR, 1999, p.10) to over 50 dwellings per hectare and that “major public transport interchanges, should be the preferred locations for travel-intensive development” (DETR, 1999, p.22).

Updated guidance indicates a decisive shift towards more intensified development co-ordinated with transport and reflects Central Governments drive for sustainable future development. The recently released Urban White Paper continues this theme by stating that “the challenge of protecting our
environment locally and globally becomes ever more urgent” (DETR, 2000 C, p.13) and establishes the need for new approaches to urban development. Whitehall indicates that “we need an approach to the design and development of urban areas which:

- makes efficient use of the available land and buildings and reduces the demand for greenfield development;

- provides homes which are attractive and environmentally friendly;

- encourages well laid out urban areas with good quality buildings, well designed streets, and good quality public open space;

- allows people to get to work easily and to the services they need like local shops, post offices, schools and health and leisure facilities; and

- makes good public transport viable and makes walking and cycling attractive options” (DETR, 2000 C, p.43).

Towards an Urban Renaissance, the Urban White Paper, PPG 3, and PPG 13 all reflect UK Government’s commitment to sustainable development and illustrate their intention to undertake urban compaction and develop more compact cities. Each acknowledges that an increased development density is required to reduce the volume of land take by development and all view the relationship of transport to density as critical. However, is the ideal of the compact city developing faster than our knowledge of such development and does current theory provide a solid enough base for policy direction on the compact city?

This section will attempt to investigate the theory behind the compact city and ascertain if the debate surrounding the proposal is based on conjecture or research. It will also attempt to show that at a theoretical level the proposals for the compact city and concentrated decentralisation are more similar than suggested by their exponents.
Compact City Theory

Theoretical arguments for and against the compact city umbrella environmental, economic and land – use debates. The overarching theme is, however, the environment with the proposition that compact settlements “can achieve substantial reductions in energy consumption and emissions, principally through more limited use of private motor transport” (Gordon, 1997, p.239). The rational being reduced private transport use will reduce vehicle emissions, especially carbon dioxide, and help curb global warming. Further arguments supporting the compact city include:

- “Improved quality of urban life that would result from higher densities in cities” (Breheny in Jenks, Burton & Williams, 1996, p.21).

- “Intensified urban areas are claimed to lead to more social cohesion and community spirit” (Jenks, Burton & Williams, 1996, p.90).

- “Bringing more people into the city can make it more vibrant, and encourage the development of cultural activities and facilities” (Jenks, Burton & Williams, 1996, p.88).

- “A better environment – due to overall reduced emissions and greenhouse gases and lower consumption of fossil fuel – and consequently better health” (Frey, 1999, p.25).

- “Developing in existing urban areas reduces pressure for development in the countryside and makes the most effective use of urban land, especially if it is derelict, contaminated or vacant” (Jenks, Burton & Williams, 1996, p.86).

- “Compact cities reduce the length of journeys; promote energy efficient modes of travel such as walking and cycling; offer opportunities to reduce private car use; and support public transport” (Jenks, Burton & Williams, 1996, p.91).
• “A city with a spectacular group of tall buildings at its centre is likely to make a far more interesting townscape than one in which building heights have been standardised” (Sherlock, 1990, p.52).

For centrists the compact city provides an opportunity for improved social cohesion and community, improved facilities: recreational, commercial and transportational, improved environmental quality and even a better townscape. Further, more pragmatic arguments, suggest that anyway “we simply cannot, especially in the south of England, accommodate everyone at New Town or suburban densities and still have sufficient land left for environmentally-friendly agriculture and recreation” (Sherlock, 1990, p.98). A view which is particularly relevant if viewed in context of the “3.8 million additional households projected to form between 1996 and 2021” (Urban Task Force, 1999, p.35) and in the knowledge that by 2021 it is proposed that “all new or redeveloped urban neighbourhoods will be designed, constructed and managed according to principles of sustainable development” (Urban Task Force, 1999, p.311).

In essence the stated arguments for the compact city all appear to promote the city and intend to improve settlement quality, however, most lack background research and solid base of evidence, which leads to counter arguments at each level of debate. Sherlock’s earlier proposal that there is simply insufficient land available within Britain for everyone to be accommodated at low densities is countered by Hall who argues that even with “higher urban densities, a substantial proportion of future housing development will have to take place outside existing urban boundaries” (Hall, 1991, p350). Further counter arguments against the compact city include:

• “The compact city solution is naively based on the idea that urban decentralisation, which has been the dominant urban trend in all Western countries since 1945, can suddenly be stopped and then reversed” (Breheny & Rookwood in Blowers, 1994, p.155).

• “Given the long-standing policy of urban containment in Britain, it is felt that urban intensification has produced congestion, loss of amenity, and a general lowering of urban quality of life, particularly in suburbs” (Breheny, 1992, p.140).
• “The exodus from the city – the process of ‘extensification’ rather than of ‘intensification’ – has been in evidence for 50 years, and the basic reason for this is that it met people’s personal aspirations” (Welbank in Jenks, Burton & Williams, 1996, p.78).

• “Many people in the UK have become used to the luxury of owning and using a car and will not give it up lightly. Even if public transport was cheap and efficient, for many people it would still not be perceived as efficient enough to be a substitute for the private car” (Jenks, Burton & Williams, 1996).

• “Higher densities also lead to bad neighbour effects in residential areas, where close proximity can lead to conflicts between those with different lifestyles” (Jenks, Burton & Williams, 1996, p.90).

• “In practice, given the general dominance of decentralisation trends, it is centrist policies that are most likely to be against the grain of the market” (Breheny in Jenks, Burton & Williams, 1996, p.27).

Such counter arguments dispute nearly every claim made for the centrist’s case. They suggest instead of the compact city creating social cohesion and community it is more likely to create the “bad neighbour effect” (Jenks, Burton & Williams, 1996) and instead of increasing urban amenity and quality of life, it will reduce it (Breheny, 1992). Some opponents of the compact city simply believe such a proposal is over simplistic and that “any attempt to prescribe some simple, single over-riding policy (such as the high density compact city) in order to reduce the impact of urban areas on natural ecosystems is unrealistic and incapable of successful implementation” (Blowers, 1994, p.156). The most striking argument against the compact city is, however, presented separately by Welbank, Breheny & Rookwood who argue that the compact city simply goes against what people desire. The twentieth century has been acknowledged as a period of residential and commercial exodus from cities, which should not be stopped because it achieves people’s personal aspirations (Welbank, 1996). Here the argument against the compact city is market driven but is
environmentally justified by the fact that “decentralisation of jobs and houses has reduced journey lengths and that congestion in urban areas offsets any gains resulting from shorter journeys” (Breheny & Rookwood in Blowers, 1994, p.155). To date such action has created “edge cities” or “rim cities”, as labelled by US commentators. Environmental arguments for city edge or rim development are again disputed. Newman and Kenworthy have established that for settlements there is “a consistent pattern with higher densities being associated with lower fuel consumption” (Breheny in Jenks, Burton & Williams, 1996, p.23) and thus suggest mixed use dispersal is unlikely to be sustainable. Like the arguments for the compact city the arguments against are again in dispute and again this is due to a lack of solid base of evidence.

**Summary of Arguments**

Whilst the arguments for the compact city are diverse they can be summarised as: first, the relationship between urban densities and energy consumption suggests that the more compact a settlement the less energy per person will be consumed; second, compaction of urban settlements will prevent the need to develop rural land; third, by increasing population numbers in the city, quality of urban life will be improved and greater social cohesion will be created.

A counter summary is provided by Breheny who suggests “the case against the centrists rests on four main points: first, the likelihood that it will not deliver the environmental benefits claimed; second, the probable impossibility of halting decentralisation, whether it is regarded as desirable or not; third, that some greenfield development is inevitable even with compaction policies; and fourth, that higher densities are unlikely to bring about the high quality of life that the centrists promise” (Breheny in Jenks, Burton & Williams, 1996, p.30).

**Scale & Location**

Whilst it is clear that on one-hand debate surrounding the “compact city” is based on a series of conflicting arguments for and against the concept, it is also clear that on the other, scale of compaction and location are major issues within theories. Hildebrand Frey argues that “a main difference of views seems to be whether the sustainable city should be monocentric or polycentric” (1999,
Frey’s proposal indicates that arguments for and against the compact city may reside in the “scale and intensity” of future urban settlements and not in the principal itself.

In essence concentrated deconcentration is proposed as a series of concentrated settlements connected by an efficient public transport system: effectively a reincarnation of Howard’s “social city” (1898, reprinted 1997). Settlements in this polycentric city would be semi-autonomous in terms of function and the network of small (potentially compact) cities would create the full spectrum of activities, rather than everything being contained in one monocentric form.

Pure centrists, however, perceive the compact city revolves primarily around the urban compaction of existing UK cities, which are a) existing; and b) substantially larger than proposed New Towns. At this level of debate, the proposal for settlements being compact is not in dispute, but their scale and location is.

Hughes addresses this issue in “Hong Kong: making the most of a compact city”. Here Hughes argues that “the comparatively small built-up area of Hong Kong adds a very rare human scale to the overall city form, making contact with non-urban areas far easier” (1996, p.95). For Hughes the fact that Hong Kong is approximately 8Km in diameter is fundamental to the city’s compact urban form working. Whilst no evidence is available of how this proposal has been derived it does suggest that acceptability of urban compaction may be related to scale or apparent space. Bontje & Jolles reinforce Hughes proposal by suggesting that in the Netherlands; “areas with high densities are more successful if there are compensatory factors such as wide open views” (2000, p.168).

At this level Hughes further argues that “a city which had both Hong Kong densities and was 50Km (e.g. London) in diameter would most likely not be appealing as a place to live (1996, p.96). Whilst little other research addresses scale of compact cities, the work of Hughes can be seen to support the theory of concentrated decentralisation, where “high-density metropolitan living can be accommodated within a series of towns, each surrounded by natural areas” (Haughton, & Hunter, 1994, p.294); Again in principal, proposals for concentrated decentralisation are advocating compact cities albeit smaller than centrists desire and perhaps new build.
Whilst scale highlights similarities between advocates of concentrated decentralisation and centrists’, the issue of location highlights their differences. Howard’s “Social City” (1997), The TCPA’s (1994) “Social City Region” and Lynch’s (1981) “Galaxy of Communities” all propose compact cities as new settlements that are connected into the UK’s existing urban fabric, whilst pure centrists’ regard existing settlements as future locations of intensification. The case for new build settlements was made by David Hall in 1989, where he argued that “it would be disastrous if the additional housing was to be squashed into existing towns and villages” (p.111). In his view further intensification of British cities would result in town cramming and a considerable loss of amenity. For Hall a “policy for new settlements would cause less disruption to existing communities. It would also cause less damage to the countryside” (1989, p.112). Both arguments are countered by supporters of the urban renaissance who perceive protection of the countryside as resulting from intensification of existing settlements, where town cramming is avoided by high quality urban design, which promotes “a better quality of life – alongside a more intensive use of space and buildings” (Urban Task Force, 1999, p.60). Such proposals do however relate to the compact cities of concentrated decentralisation and would be just as necessary in their solution. Debate of scale and location of future settlements has illustrated that centrists and advocates of concentrated decentralisation share much common ground at a theoretical level. This view is shared by Hildebrand Frey who suggests that; “the differences seem to lie in the degree of compacting of the urban fabric and the degree of centralisation or decentralisation rather than the principle” (1999, p.31). It is therefore suggested that compact city theory forms the basis for urban concentration and concentrated decentralisation but scale, location, and intensity, i.e. the development of the theory into actual proposals is where differences occur.

Transport, settlement form and sustainability

Newman and Kenworthy have undertaken, to date, the most important empirical research on relationships between urban form and energy consumption. To date, their research acts as the basis for much conjecture on
the benefits of the compact city and is continuously cited by various authors on the subject. Key findings of their research in the 1980’s include:

- Densities of below 30 people per hectare (PPH) appear to generate greater automobile dependence due to the combination of little public transport and greater travel distances (Newman & Kenworthy, 1989).

- Overall densities of 30 to 40 people per hectare (PPH) appear to generate less automobile dependant societies (Newman & Kenworthy, 1989).

Newman & Kenworthy’s research into density and transport thus suggests that a threshold of around 30 persons per hectare (pph) makes the difference between an urban area being car dependent or not. However, environmental groups such as “Friends of the Earth” suggest that “urban net residential densities of between 225 and 300 persons per hectare” (Frey, 1999, p.31) are required for sustainable development, a ten fold increase on Newman and Kenworthy’s transport based proposal.

The findings of Newman and Kenworthy are further questioned by Banister & Berechman, (2000), and Hall, (1991) on issues of quality. Hall suggests in *Altogether misguided and dangerous*; “ that both the analysis and policy recommendations in this book (Cities and Automobile Dependence, 1989) are seriously flawed (Hall, 1991, p.350). Continuing to propose that “so undiscriminating is their consideration of density that one is continually left with the impression that they were committed before even starting their research to prove that all low density development is bad and all high density is good” (Hall, 1991, p.350).

Whilst it should be borne in mind that Hall is a supporter of polycentric development rather than urban intensification, his 1991 comments on the validity of Newman and Kenworthy research should today be considered in light of recent research by Anne Power.

Anne Power (figure 4.1) highlights the changing density of development during the twentieth century and its relationship with household structure. Power’s work indicates that density of construction has fallen by 10:1 over the period and due to decreasing household numbers, the density of people per hectare has reduced by 20:1. Such research suggests that in the year 2000, we need to
construct double the number of dwellings to accommodate the same number of people accommodated in 1900.

<table>
<thead>
<tr>
<th>Development Period</th>
<th>Number of Dwellings Per Hectare</th>
<th>Number of People Per Hectare</th>
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<tbody>
<tr>
<td>1900 (1900 Bylaw)</td>
<td>250</td>
<td>1000</td>
</tr>
<tr>
<td>1950 (New Town Development)</td>
<td>35</td>
<td>120</td>
</tr>
<tr>
<td>1970 (Inner City Development)</td>
<td>100</td>
<td>330</td>
</tr>
<tr>
<td>1990 (Inner City Renovated Georgian Property)</td>
<td>70-100</td>
<td>185-250</td>
</tr>
<tr>
<td>1999 (National Average)</td>
<td>25</td>
<td>53</td>
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Table 3.1: Changing household densities between 1900-1999 (Source: Powell, 2001).

Power’s research and the empirical data it provides further compromises suggestions by Newman & Kenworthy. Like Banister & Berechman, (2000), and Hall, (1991), Power suggests that their proposals for reducing car dependency are flawed. According to Powell, 1999’s average construction density of 25 dwellings per hectare achieved an average figure of 53 people per hectare (Powell, 2001). According to Newman & Kenworthy such a figure should generate a less automobile dependant society, being above their threshold of 30-40 people per hectare (Newman & Kenworthy, 1989). For Britain this is not the case and such development standards have, in part, created our need for a new development direction.

The Urban Task Force (with Anne Power as a member) have further suggested that Newman & Kenworthy density standards are too low and cite a higher density of 40 or 60 dwellings per hectare as being required to place people “close enough to communal facilities to walk, and an efficient bus service can be made viable” (Urban Task Force, 1999, p.60).

However, like Newman & Kenworthy, the Urban Task Force focus on standards of 'dwellings per hectare', a figure which omits unit structure and fails to provide
a clear level of *People Per Hectare* achieved; the determining figure for sustainable development.

The argument for reducing energy consumption by increasing settlement density is, however, twisted by Gordon who suggests that whilst a “doubling of densities would be required to reduce energy use by 15 per cent…… doubling petrol prices could lower energy use by 40 per cent with fixed densities” (Gordon, 1997, p.240). An argument, which suggests that increased fuel costs, could in itself create more sustainable cities. Gordon’s proposal is in part supported by van der Waals who further suggests "increasing the costs of car mobility, especially the variable costs, for instance with higher fuel prices, would contribute to the effectiveness of spatial policies" (van der Waals, 2000, p.115). The concept of increased density alone related to increased use of public transport is further weakened by research undertaken by Llewelyn-Davies who suggest that “the other land use requirements that come with housing have the effect of giving diminishing return as densities are raised” (Lock, 1995, p.175).

Such debate surrounding the compact-city has led the academic Breheny to suggest that “so enthusiastic have been the political and academic supporters of urban compaction that they have failed to ask if the solution can actually be delivered” (Breheny, 1997, p.209), which for sustainability is a real issue. Especially if viewed in the context of recent Dutch research, which concludes "that the potential of the compact city policy to contribute significantly to the solution of environmental problems in the short term is limited" (van der Waals, 2000, p.118).

It has also exposed compact-city policy as far more of a political act than physical act, which could involve large life style changes for the British public if it going to occur. For example would the labour party get re-elected if fuel prices were doubled?

Whilst it is clear that the link between straight density and energy consumption is contested, it is clear that “road transport lies at the heart of the global warming problem” (Fox, 1993, p.242) and for sustainability is an issue which will need to be addressed at all levels of debate. It should not however be considered in isolation and should be reviewed in relation to wider issues. As Girardet informs us; “the amount of rubbish generated by each inhabitant of the modern city is quite simply, astonishing: around 2 tons per year – 1 ton of
domestic refuse and 1 ton of factory wastes" (1990, p.337), the car alone is not the only problem for the sustainable city.

Whilst this review of density results in no solid evidence for or against the compact city, it does reveal that the most accepted empirical research on the relationship between urban form and energy consumption is in dispute. It further highlights that the proposal that “the compact city provides the greatest potential for a decisive modal shift to public and economically viable manner” (Fox, 1993, p.245) is not widely accepted by all parties in the urban forms debate.

Schematic Compact Cities

Diagrammatically, similarities can again be seen between the proposals for concentration and concentrated decentralisation. Ebenezer Howard’s proposal for the “Social City” (1898) represents one of the few concept plans proposed by exponents of concentrated decentralisation and bears many features of the 1999 concept plan proposed by Andrew Wright Associates for compact cities (Urban Task Force, 1999, p.53). Both indicate a “Central City” or “District Centre”, connected to a series of surrounding...
satellite communities or nodes by public transport. Both envisage a clear urban edge being established and both base community size / area within the limits of average walking distances; Howard intended his communities to have an approximate radius of 1130m [(1,240 yards (Howard, 1898)] whilst Wright suggests a smaller community radius of about 500m (Urban Task Force, 1999). Both proposals also indicate that a reduction of density would occur between central communities and satellite neighbourhoods.

**Summary**

The proceeding review indicates the problems associated with the compact city model. At present the proposal is relatively undefined and confused, which leads to disagreements on its potential as a model and an inconclusive debate. In the main confusion is a product of disputed research, missing research and lack of a clear definition of what a compact city actually is. However, at a conceptual level it is clear that the alternative proposal to the compact city, concentrated decentralisation bears many similarities to the compact city model and in many respects both proposals are the product of the same basic idea. Each proposal does, however, differ in their development and here disagreement occurs. Generally speaking exponents of concentrated decentralisation feel the compact city in itself is too extreme a proposal and omits to take account of peoples’ desire for space. Centrists feel concentrated decentralisation omits to take proper account of existing settlements and the benefits associated with true urban living. Realistically, development of each proposal from concept to strategy brings debate and disagreement between groups back to a recurring planning question; what density best achieves a good balance between economic and social objectives?

Whilst debate on the compact city remains fluid it is clear that current British planning policy supports this particular model and to date the compact city is seen as the most likely model to achieve the sustainable reductions required by future urban settlements.

This review of debate and theory behind the compact city has failed to provide a clear view of the implications of creating compact cities due to the unsolved nature of the existing debate. It has however, ascertained that proposals for both centralisation and concentrated decentralisation are grounded in the same
theoretical base and it has further illustrated that debate and disagreement occurs where theory is developed into strategy. To further the debate, it is therefore proposed that a review of Amsterdam, a city that has been subject to the compact city strategy is required to establish the real effects of such policy and to establish which arguments for or against the compact city are correct.
Chapter 4: The Dutch Compact City Experience

Introduction

The Dutch compact city (‘compacte-stadsbeleid’) is dead; long live the Dutch compact city.

Introduced to Amsterdam in 1978 the concept gained national adoption in 1985 as part of the Structural Sketch for the Urban Areas [Stuctuurscets voor de stedelijke gebieden (Faludi, 1991 A)], which led to over a decade of city revitalisation based on urban intensification. For many Dutch academics and planners these experiences served to highlight the weaknesses of this policy and in part explain the current policy move away from the compact city to the concept of regional settlements of a multicentred pattern (Kahn and van der Plas, 1999). The move away from the compact city is, however, further explained by the fact that the policy was implemented under the motto: the landscape is finished” (Klusman, 1997, p.21), suggesting that the Dutch compact city policy would always have its limits, which Klusman believes have now been reached (1997).

The policy of the ‘compact city’ was originally proposed in Amsterdam in 1978 as a “radical reaction to the previous policy of building satellite towns, or ‘growth centres’ as they were known, and was designed to reverse the negative effects of this overspill policy” (Pistor, 1994, p.78). A policy which had seen a marked decline in the population of Amsterdam and other Dutch cities; "Amsterdam had in 1965 866,000 inhabitants, but in 1987 683,000 inhabitants" (Bom et al, 1987, p.8). The period 1978-82 also saw the worst economic stagnation of major Dutch cities as a result of ‘growth poles’ and the ‘compact city’ was intended to strengthen the economic vitality of cities (Priemus, 1 February 2000) as well as repopulate urban centres. The period further acknowledged that travel distances created by overspill policy increased commuting to the point that it was negatively effecting the Dutch environment.

The policy change was instigated in Amsterdam by the New Labour Party, who were elected to power in Amsterdam in 1978 and “almost immediately chang(ed) planning policies to strengthen the position of the city, a policy change that “was coined the compact-city policy” (Heiden and Wallagh, 1991, p.39).
Application of a compact city model did not, however, come into effect at a national level until the 1980s and until this point concentrated deconcentration “continued to act as a guide to planning policy” (Faludi, 1991 A, p.9).

Post concentrated deconcentration, the 1980s saw compact city policy gain varied political support and Ibeling’s suggests that it was a policy “with which everyone, from high-rise lobbyists to environmental activists, could agree” (1999, p.137). The new policy led to new city plans which were “based on the compact city concept, that is to say:

- To fully utilize the spatial possibilities within the urban area;
- Support of the existing services;
- The maintenance of the existing structure
- Emphasis on accessibility by public transport” (Bom et al, 1987, summary).

The policy aim was to reinvent existing Dutch cities as places for living by improving the quality of life and facilities these cities could provide for their residents and by default protect rural Holland. The reality of this proposal was that cities were “going to accommodate as many city functions as possible in a compact urban form” (Pistor, 1994, p.78) and use their improved environment and increased facilities to attract old residents back to the cities and entice new residents to settle there.

A key factor in achieving the goals of this policy revolved around revising the treatment of building density, an issue that for centuries has been critical to Dutch planning. As Bom states, “in the case of the Netherlands the great population density is not so much a matter of overpopulation in the economic sense, seeing that adequate means of livelihood are available, but rather one of spatial consequences” (1987, p.2). Compact City policy was intended to reduce future spatial consequences thorough urban compaction and required new density standards, a requirement which led to “many urban density studies (being undertaken in the 1970s, which) showed that the cities had a greater capacity than previously thought” (van der Heiden, Kok, Postuma, & Wallagh, 1992). Such research conclusions were further compounded by a general feeling that during this period “functional and economic considerations (were) such that a higher density in the central city was deemed desirable if not inevitable” (Maas, van Rijs, and Koek, 1998, p.125).
New density standards were most rigorously applied to housing developments since it was seen that by “increasing densities, rezoning sites for residential use, and expanding the city, the housing stock was to be considerably increased” (Pistor, 1994, pp.78-79) and reduce the need to develop outside city limits. The projected densities of the Dutch compact city were however complicated by the changing make-up of the Dutch household.

Dutch research concluded “more than half the households currently number just one person…. (and) no less than 30 per cent of children in Amsterdam lives in a single-parent home” (Pistor, 1994, p.92), suggesting the assumption of 3.2 inhabitants / dwelling, a Dutch standard used in the 1960s is inappropriate for new development (Klusman, 13 April 2000). The research further concluded that the percentage of these housing types would increase in the future, furthering the significance of any housing density standards proposed.

Traditional methods of projecting development densities based on people per hectare (PPH) were replaced by projections on units per hectare (UPH), a figure that doesn’t project the social structure of accommodation. The densities currently being achieved in new housing developments in Amsterdam range from fifty units per hectare in developments such as Zuidbuurt (Stuffers, 2000) to one hundred units per hectare in the harbour area redevelopment of Oostelijk Havengebied (Schaap, 1998).

The density standards achieved in the Netherlands during the 1980s and 1990s were further complemented by their choice of development sites. The Dutch term Bundering means to concentrate

Fig 4.1 Intensification diagram for Amsterdam, 1960-2030. (Source: Dienst Ruimtelijke Ordening, 1999)
development rather than to disperse but does not necessarily relate to high-density development (Needham, 14 April 2000). It does, however, seek to combine structural elements of planning (i.e. rail, road, and development) and graduate density in accordance with proximity to transport nodes. The strategy of Bundering, which in effect prioritised the redevelopment of urban brownfield and infill sites over Greenfield locations, saw two decades of urban regeneration and intensification of Dutch cities. Conceptually based on the notion of proximity rather than accessibility, Bundering played a key role in Dutch compact-city policy during the 1980s.

The major problem often associated with this strategy was land decontamination and its costs. However Central Government support for compact-city policy during the 1980s and 1990s extended to financial aid for land decontamination, this was usually provided to cities through the policy of VINEX. Today, the success of the bundering strategy is beginning to “wear thin, thanks largely to its successful implementation, leaving few sites to be developed” (Faludi, 1991 B, p.75) and the few remaining are often the most difficult to renew (Needham, 14 April 2000).

Gert de Roo suggests that “during 1980s and 1990s there was a rise, and then a fall, of the compact city as a spatial concept” (2000, p.229). For de Roo this remark reflected on the sustainability content of compact-city policy but his thoughts also reflect the policies restricted life-span. In response to the policies life span the late 1990s and 2000s are seeing Dutch ‘compact-city policy’ expand to the ‘compact city-region policy’, where emphasis is no longer focused on individual cities but now the Randstad (rim-city) as a whole. The reasons behind this shift included the exhaustion of individual opportunities within each city, coupled with the Randstad already acting as a daily urban system and the need for Dutch cities to compete in an increasing International market.

The Issue of Density

Statistically the Netherlands is the most densely populated part of Western Europe, having an overall population density of 395.8 people to the square kilometre, a much higher density than Britain’s 233.8 (Maas, van Rijs, and Koek, 1998). Such a statistic is, however, misleading and could suggest that an average density exists across the nation, which is obviously not the
Density levels vary dramatically throughout the country and are significantly higher in major cities. The western Dutch centres of Amsterdam, Rotterdam, The Hague and Utrecht, forming Randstad Holland, are the most densely populated parts of the Netherlands; “in 1981 the density was over 917 to the square kilometre” (Hall, 1984, p.96) with densities today as high as “2500 persons per square kilometer” (Kahn and van der Plas, 1999, p.371). The levels of density exhibited today in the Randstad are, in part, due to the successful implementation of ‘compact-city’ policy, which was in effect a complete policy reorientation in 1978. The policy aim was “to bring to the fore the vital importance of the big cities for the country as a whole” (Heiden and Wallagh, 1991, p.40), protect the ‘Green-heart’ of the Randstad from future development and “try to save the great cities from continued decline and eventual decay” (Hall, 1984, p.88).

**The Third and Fourth National Physical Planning Reports**

The first national policy document to address the negative effects of Dutch over-spill policy on major cities was *The Third National Physical Planning Report* (‘*Derde nota over de ruimtelijke ordening’*). The report acknowledged the fact that “there had been an evident failure to apply the policies of concentrated deconcentration at the local level, and the green heart of the Randstad had been massively invaded” (Hall, 1984, p.111), with population levels of cities falling dramatically. The emphasis of the third report was therefore to strengthen the position of Dutch cities, which Faludi describes as learning to “fear overspill” and the “impoverished cities with an underclass concentrated in dilapidated neighbourhoods” (1991 B, p.73) that it creates. A primary issue of the third report was density and government investigated several potential density models for the regeneration of Dutch cities. The final recommendation was however that development “densities would be up to 80 – 100 dwellings to the net residential hectare (32 – 40 to the acre) in the largest cities, 40 – 60 (16 – 24) elsewhere” (Hall, 1984, p.112).

Whilst the third report began to address the problems of major Dutch cities, it concurrently pursued a policy of growth centre, ensuring the 1970s remained an era of concentrated deconcentration. Manner of publication also meant that the third report was to transcend the cross - over period between concentrated
deconcentration and compact city policy; its publication in parts spanned over a decade from 1973 to the mid eighties. Whilst the third report made no formal acknowledgement of ‘compacte-stadsbeleid’, the ‘compact city’ it is clear that intensification of Dutch centres was a primary policy issue.

It is however also clear that during the period when the third report was being prepared and published certain municipalities were already evolving towards a local compact city policy and away from growth centres. The city of Groningen has been cited by Faludi and van der Valk (1994) as being the first Dutch town to advocate compact city policies in 1972, which van der Heiden et al (1992) confirm, citing the cities publication of the “Report on the City Centre (Doeleindennota Binnenstad) of the city of Groningen (in which the planning of a compact and walking – distance city centre was urged)” (van der Heiden, Kok, Postuma, & Wallagh, 1992, p.127) as the beginning of the Dutch compact-city. The actions of Groningen were followed in 1973 by Rotterdam, preparing a series of reports on the concept and Amsterdam in 1978, with the election of the New Labour Party. The year Amsterdam proposed its compact city strategy, 1978, was however the turning point for national policy. From 1978 Government pursed the new compact city policy, initially with the help of the very same instrument of subsides” (Faludi and van der Valk, 1994, p.145) that were used to implement its overspill policy. 1978 also saw the Urbanization Report being adopted which stipulated that, “wherever possible, priority would go to the cities” (Faludi and van der Valk, 1994, p.195). The work of Faludi and van der Valk further suggests that; “In switching from a policy of promoting growth centres to one supporting the compact city, all that national planners needed to do was to reinterpret the Urbanization Report” (1994, p.195).

It is clear that transition from overspill policy to compact city was not a matter of national guidance being undertaken at a local level, municipalities often took the lead role in initiating the concept, to be adopted later at national level. The first national report to formally adopt compact-city policy was The Fourth National Physical Planning Report (‘Vierde Nota over de Ruimtelijke Ordening’, 1988); VINO, and its supplement, The Fourth Report Extra (‘Vierde Nota over de Ruimtelijke Ordening Extra’, 1990); VINEX (Faludi and Altes, 1996).

According to Needham and Faludi the planning supplement (VINEX) concerned itself with the “location, intensity and timing of development” (1999, p.481) at a
national level and as such formed the basis for future national growth management. It was not, however, a global policy document but rather a selective series of policies which were "directed only at important social changes which will have far-reaching consequences for the design and use of space" (Maaike & Modderman, 1997, p.9).

At the time of writing this supplement, in its revised form, is the underlying document for Dutch growth management between 2005 and 2010. The Fourth National Physical Planning Report was based on the over-arching theme that "development should take place as much as possible in or close to the cities" (Ibelings, 1999, p.137). An extended definition was provided by Needham and Faludi; "as much as possible of the new housing is to be built within the existing built-up area; where that is not possible, development is to be adjacent to the existing built-up area; if there is still need for development sites, these should be as near as possible to towns and cities. These guidelines fall within policy of the 'compact city' ('compacte-stadsbeleid')" (Needham and Faludi, 1999, p.482). A prerequisite of the compact city was also the cessation of the policy of overspill. No new growth centres were to be allocated under the fourth report and the policy was to be wound down and terminated during the 1990s, an undertaking as massive as developing the new towns could not be turned off over night. Dutch housing expert, Priemus, did however warn at the time that "pursuing the compact – city policy, while the growth – centre policy was still in full swing, could lead to overproduction and thus spell the end of housing development in the 1990s" (Faludi and Altes, 1996, p.189).

The fourth report further highlighted the importance of major Dutch cities by introducing the concept of ‘urban nodes’. These urban nodes were to be “key locations for investment” (Faludi and van der Valk, 1994, p.211) from national government with the intention of stimulating their economy rather than furthering national investment in new housing. The new philosophy of investing in economic growth was to act as a major turning point in compact – city policy, no longer was the policy solely concerned with intensifying existing settlements, now its was to be used to attract foreign investment to Dutch cities and strengthen their position in Europe.

As Faludi points out in 1991; “The compact-city policy with its present emphasis on attracting businesses, hotels, shopping and high-class residential development followed suit. Although compatible with the compact-city idea, this
emphasis is light years away from the urban renewal of only a decade ago” (1991A, p.75).

The *Fourth Report Extra* was initiated by Hans Alders in 1989. His appointment in that year as The Minister of Housing, Physical Planning and Environment was quickly followed by obtaining cabinet approval for “recasting the Fourth Report” (Faludi and van der Valk, 1994, p.145), later published as the Fourth Report Extra. For many critics Alders actions were overzealous and led to the Fourth Report coming “close to a doctrinal revolution (which) in the end…. did not come to pass” (Schön, 1996, p.72): A major reason was man power was switched from one report to the other. The new report did not however replace existing policy but added another layer of policy, which attempt to address certain key issues.

A major concern for national government was that finance used for the compact city policy remained centralised and levels of risk share between municipalities and national government was far from equal. The *Fourth Report Extra* was therefore developed in consultation with the major cities, the reason being “that national government wished the other layers of administration to share in the responsibility for financing the expected losses of servicing housing locations” (Altes, 1995, p.154). To this end a concept of covenants was proposed, where municipalities took on financial responsibility for development.

Whilst new policy intended financial responsibility to be laid firmly on the municipalities, which for many was unwelcomed, the *Fourth Report Extra* did “play a useful role in the search for new locations for the additional housing needed” (Altes, 1995, p.155) and may have even been an attempt to re-centralise compact city policy.
The duration of negotiations did, however, complicate the development process since "private developers and speculators have acquired the most strategic sites at VINEX locations. As a result, the power of local governments in the implementation of plans has been reduced considerably" (Priemus, Kreukels, & Spaans, 1997, p.5). Here VINEX can be seen to have produced a market for land speculation that did not previously exist and by default has created new development problems that are well illustrated by the VINEX development at De Waalsprong, Nijmegen.

Here a VINEX development of 11,000 new houses has been designated under the Fourth Report Extra and originally the local municipality established a land development company (LDC) including itself, 5 private developers, and 2 housing associations to undertake construction. However, due to the time-scale of original negotiations with National Government and later delays in forming the LDC, other developers have procured key 'ransom strips' that they intend to develop in accordance with the plan. Contractual responsibilities to both Government and the LDC create an environment where Nijmegen could be financially penalised if the development doesn't occur on time or if the LDC doesn't undertake the development. Here VINEX has created a market for land speculation that is further complicated by the Dutch system of compulsory purchase. Onteigeningwet (1981), effectively prevents compulsory purchase (by a municipality) if the current owner "can claim convincingly that he is capable (financially and technically) of ensuring that his plot will be developed precisely in conformity with the land-use plan" (Needham, Koenders, & Kruijt, 1993, p.59 and Needham, 22 March, 2001). This is the case for De Waalsprong where
Nijmegen has lost its traditional role as landowner in development of large schemes and all the powers this position has previously embodied in Dutch Physical Planning. In part this can be seen as a direct result of VINEX and the consultation methods used to define future development sites. It can be seen that the Dutch policy change from concentrated deconcentration to compact-city was far from a simple top-down directive, if anything it was bottom-up. As Hajer comments, “Each planning document presents authoritative guidelines for action…., but somehow the trick no longer works, and reports are quickly overtaken by events” (Hajer, 1996, p.84). This view of event driven policy is further compounded by the Dutch view on policy actioning. Dutch policy “as soon as it is announced, and unless it is challenged, ….always carries some legal weight” (Altes, 1995, p.150), meaning no sooner has preparation of a new report or plan begun, than its starts to effect physical planning actions, as Hupe suggests, “Policy is shaped while being implemented” (1990, p.189).

The result of event driven planning and the legal status of national reports prior to adoption means current adopted reports can almost become out of date and irrelevant before another strategy is formally adopted. This is the case for the compact city policy, begun in 1978, under the Third Report, which promoted concentrated deconcentration, the policy was shaped by events and often the actions of municipalities, in a bottom-up policy change which was not formally adopted at a national level until 1985, in the Fourth Report, seven years into the physical undertaking of the compact-city.

The Fifth National Physical Planning Reports

The *Fifth National Physical Planning Report* was released on February 1\textsuperscript{st} 2001 and marks a departure from the policy of compact self-serving cities. The report, however, does not mark a radical change to previous policy, rather a change in scale of views. The Fifth Report introduces the concept of *Delta Metropole* (Priemus, 1 February 2000), a ‘network city’. Amsterdam, Rotterdam, The Hague and Utrecht now form *Delta Metropole*, which is “aimed at allowing the Randstad to develop into an urban conglomeration of European significance” (Bontje & Jolles, 2000, p.137). The essence of network cities is that the various centres complement each other” (Bergen & Loenen, 2001,
p.19) and that city "strengths are to be combined in order to meet international competition" (Bergen & Loenen, 2001, p.15).

The objective of this 'large scale view' is that Dutch Government is "looking for these cities to co-operate and almost act as one" (Priemus, 1 February 2000), especially in the future development of public transport systems and cross-boundary compact city developments.

The new scale proposed by the Fifth report is also reflected by new policy promoting developments which are further away from one specific urban node but are connected by efficient public transport, whilst the Fourth report previously focused on short travel distances, which allowed accessibility by bike.

The Fifth report does not, however, reject the rationale of the 'compact city' and Priemus suggests that spatial planners will continue to promote such policy where opportunities arise. However, nearly thirty years of urban compaction has dramatically reduced the number of brownfield development sites available in most Dutch settlements and cities such as Amsterdam have now reached their development limits (Maarschall, 2000) without costly re-ordering of the built environment.

In part this explains the Dutch policy change to Delta Metropole and the network city and embodies the fact that urban compaction has limits. These limits are however being continuously moved by Dutch Physical Planning in an attempt to satisfy housing demand within Amsterdam and their latest proposal is to build intensified developments above the A10 motorway in Amsterdam, a proposal which has recently been proved as feasible (Maarschall, 2000) but highly expensive. Such action highlights the continued Dutch commitment to the compact city within the network city but illustrates the fact the remaining opportunities require large capital inputs to achieve the proposed urban reordering.

**The power to implement: National to local**

For Dutch National Governments power to implement policy is embedded in their centralised system of taxation, the subsidies they provide municipalities, from taxation, and the municipalities’ role in supplying land for development.
Andreas Faludi commented that, “subsoil conditions form a key to understanding Dutch town planning” (1989, p.5), which is probably true. Poor quality subsoil and the need to reclaim land for development means few organisations other than governmental are in a position to undertake the remedial works necessary for construction. For the Netherlands, this means “public authorities supply as much as 80 per cent of land coming into development” (Faludi, 1989, p.5) and by default has meant that little of the land speculation which occurs throughout Europe has occurred in Holland. Furthermore it allows municipalities to control building prices, which can be “managed so the disposals to those of high income can subsidise the less well off” (Lichfield, 1996, p.78).

For Dutch local authorities it means that the “largely negative powers conferred by the formal planning system can be complemented and supplemented by the powers of being a land owner” (Needham, 1989, p.14). The role of municipality as landowner and physical planner promotes Dutch local authorities to key members of the development team, who can supply “the land, can stipulate what must be built upon it, when, by whom, for whom, at what price” (Needham, 1989, p.14).

Whilst it initially appears that municipalities have many formal powers within the development process, as landowner and planner, this is not always true in Dutch cities and these powers are often restricted to either brownfield regeneration or even green field development. As Lichfield points out, “since most of the land in the centres of cities is privately owned, it has not been subject to this particular policy and therefore is unaffected” (Lichfield, 1996, p.78).

The role of landowner and planner has however been further strengthened by the formal planning autonomy that had been devolving from national government to local municipalities since 1981. This has meant municipalities’ can “make and adopt local land-use plans and grant building permits accordingly” (Needham and Faludi, 1999, p.485).

Such formal autonomy has however meant municipalities have over the last decade needed to be coaxed by central government to remain in-line with national policy. The strategy undertaken to ensure the Government objectives are achieved comes mainly in the form of financial aid. Dutch municipalities are potentially awarded development grants for schemes, as long as they were in-
line with Central Government policy. However, inter-city competition means “every change as regards one of the four major city regions has direct consequences for the grants earmarked for all the others” (Altes, 1995, p.156), a consequence of a compacting each city in isolation and one expected to be overcome by *Delta Metropole*.

The levels of financial aid were however such that “in 1983 as many as 95 per cent of all new dwellings received a direct subsidy from central government” (Needham, 1989, p.14). These building subsides often depended on achieving certain prescribed density standards within a development, which were in the main substantially lower than densities present in major cities, but higher than the preferred density of many private developers. During the 1990s “the grants from national government were conditional on a minimum density being achieved: an average of around 30 houses to the hectare on greenfield sites” (Needham and Faludi, 1999, p.487). For many, however, the density standards of VINEX are failing to create the desired developments because 30-35 houses to the hectare was used as a blanket figure for all VINEX developments. VINEX developments exhibit no graduation of density and fail to relate development density to proximity of transport or facility nodes, a main theme within Dutch Physical Planning. Hugh Priemus has further suggested that financial penalties being applied if the minimum density level is not achieved without financial incentives for developing at higher densities is responsible for blanket densities, a view which is reinforced by the suggestion that this density level is desired by the general public. Current failings within VINEX developments are further compounded by initial research that indicates prescribed net housing density of 30 - 35 dwellings per hectare are not being achieved and in fact “actual densities are substantially lower than originally planned, namely on average 27 dwellings per hectare” (van der Waals, 2000, p.112). A figure which is neither sustainable or in-line with compact city policy.

![Fig. 4.4 New housing development in Nijmegen, Holland, supported by VINEX. (Source: David Chapman, 2000).](image-url)
1980’s, compact-city policy also benefited from the high proportion of social housing constructed. In 1985 as little as 20% of new housing was built for the private sector, leaving the vast majority as social housing and open to greater influence from national government.

The reason for this dramatic split between private and public housing is found in the Dutch Constitution which “reads: It is the responsibility of government to see that sufficient housing is available” (Needham, Koenders and Kruijt, 1993, p.42), not only for housing “the poor, but for providing an adequate supply for all” (Faludi, 1989, p.5).

The responsibility of providing such a high proportion of social housing did however have major financial consequences for national government and for some these consequences were partly behind the 1978 acceptance of the “compact city” proposal. It has been suggested by Faludi that the New Labour Party elected in 1978 “accepted the compact-city policy without much ado. It promised to be cheaper than concentrated deconcentration” (Faludi, 1991 B, p.74). A view which is, in part, justified by Hall in World Cities; “Motorways cost nearly three times as much to construct in the west as in the east (of the Netherlands); housing two or three times as much” (Hall, 1984, p.88): A consequence mainly of the Dutch Terrain and poor land.

This view of a finance based move towards the compact city is however weakened by the fact that the 1973-74 adoption of the compact city in Rotterdam was preceded by the “Labour Party gain(ing) an absolute majority in the municipal elections in 1974” (van der Heiden, Kok, Postuma, & Wallagh, 1992, p.129), followed four year later by an identical event in Amsterdam, where again adoption of the compact city immediately followed the majority election of the Labour Party in the Dutch capital, suggesting that the change of strategy was as much political as financial.

The Artificial Landscape and the Design of the Compact City

Like most European countries the Dutch landscape is decidedly 'artificial', with natural environments replaced by buildings, the space between and use. Unlike most European countries, however, their demand for additional space has necessitated the sea to be assimilated into the landscape with all the associated costs of land reclamation.
Such extreme action, its costs and its technical complexity illustrates Oskam’s earlier statement on the economy of land and reflects the need to use the land available carefully; A key concept of the Dutch compact city which reflects the importance of good design.

Acknowledgement of good design as part of the Dutch compact city leads to a general "awareness of the artificiality of every spatial intervention…… (that) echoes the self-confidence that is fundamental to the national myth of the heroic struggle against the water" (Ibelings, 2000, p.10). For many such belief and extreme action (of land reclamation) has allowed Dutch designers to "imagine the unimaginable and to think the unthinkable" (Ibelings, 2000, p.10) and progress architecture, urbanism and landscape architecture beyond the limits of excepted thought.

At an extreme level such belief is illustrated in recent works by MVRDV (Dutch Pavilion Expo 2000) and West 8, Landscape Architects and Urban Planners (Schouwburgplein) and at a local level such belief is reflected in work undertaken by Dutch municipalities. Physical Planners in Amsterdam profess an integrated approach to design, "whereby three aspects would be addressed simultaneously and in relationship with each other: the buildings, the public spaces and the economic revitalisation of the neighbourhood" (Bontje & Jolles, 2000, p.104). To date Amsterdam's approach has been translated in to many urban design polices including:

Fig. 4.5 Dutch Pavilion, Expo 2000, Hanover, Germany. (Source: Ibelings, 2000).
• **Flexible Construction**: by increasing flexibility of buildings and public spaces their lifespan can be increased and their added value raised (Bontje & Jolles 2000).

• **Less fuss**: *Less is more* is the motto: there will be one uniform type of paving stone and a single type of kerb edging in order to introduce cohesion into the public spaces” (Bontje & Jolles 2000, p.21).

• **More Public Space**: ”By reducing the number of parking spaces available on the streets. This has also made it possible to redesign public areas with pedestrians and cyclists in mind” (Bontje & Jolles 2000, p.38).

• **Re-profiling**: “Today, in any re-profiling of the roads, cyclists and pedestrians are placed before motorists” (Bontje & Jolles, 2000, p.100).

• **Reduced Car Use**: “Road users and travellers are being invited to change their behaviour. That of motorists can be influenced through policy on parking and the location of facilities” (Bontje & Jolles 2000, p.38).

• **Reduced Road Noise**: “The concentration of traffic also gives rise to considerable environmental noise nuisance to the immediate area. Accordingly, noise reductive asphalt is now increasingly used throughout the Main Traffic Network” (Bontje & Jolles, 2000, p.102).

• **Autodate**: “Another way of reducing the number of cars in the city centre is carpooling, also known as the ‘autodate’ scheme. Autodate involves several people sharing use of the same car” (Bontje & Jolles 2000, p.42).

• **Public Transport**: Public transport needs to provide maximum accessibility. “One of the most important tasks facing Amsterdam is therefore to maintain and improve its overall accessibility” (Bontje & Jolles, 2000, p.138).

• **Woonatlas**: Woonatlas housing "includes single-person homes for young people, studio apartments, flexible family homes and group homes for young peoples, adults and seniors" (Bontje & Jolles, 2000, p.70).
Amsterdam’s compact city policies reflect the need to address the balance of space and usage. In the main it intends to prioritise people over cars and specifically it intends to reduce ease of private vehicle use, increase available space for people, re-profile it for people and create housing of mixed usage, as part of a city strategy to increase occupant diversity. Most actions increase space available and make provision for improved urban design of existing areas and allow re-ordering of space for improved functionality and sustainability; A critical action in converting settlements into compact cities. Amsterdam’s experience of re-ordering space and intensifying city functions has, however, further concluded that for such policies to be effective and for people to enjoy living at increased densities certain key features must be present in the urban design of new developments:

- **Good Local Facilities**; that negate the need for residents to travel to shops and leisure activities (Veenendaal, 19 March, 2001).

- **Good Urban Landscaping**; including greenery and open spaces (Veenendaal, 19 March, 2001) which "can serve to compensate for the greater densities of recent urban renewal projects" (Bergen & van Loenen, 2001, p.18).

- **Good Public transport to centres and work**; Amsterdam’s policy of one parking permit per household (either for work or home but not both) helps promote the use of public transport (Veenendaal, 19 March, 2001).

- **Houses which can be adapted to need**; the concept of a 'house for life' where internal spaces can be rearranged to provide flexibility of use as occupants lifestyles change (Veenendaal, 19 March, 2001).

Veenendaal’s prerequisites for intensified development correspond to Bontje & Jolles earlier proposals for new development within Amsterdam and are reinforced by Hein de Haan (Consultant Architect at 'Eastern Dock', Amsterdam) who suggests that quality of design, quality of materials and quality
of landscaping are critical in high density development in Amsterdam (19 March, 2001).

For Rotterdam, however, Joep Boute, [Rotterdam Physical Planning Department [dienst Stedebouw en Volkshuisvesting (dS+V)]] presents an alternative view of what makes a high density development acceptable to residents, which promotes personal space planning over an areas urban design. Boute suggests there are two key factors in creating acceptable high-density living:

- **Large Flat;** suggesting that intensified development is more acceptable if more personal in-door space is provided (Boute, 20 March, 2001).

- **Increased external space;** bigger balconies than normally constructed and roof gardens provide extra amenity space to residents and make intensified development more acceptable to the end-user (Boute, 20 March, 2001).

For Rotterdam Boute suggests that quality of design, materials and landscaping are not as important as individual space for residents and further suggests that the fundamentals behind acceptability of high-density living varies from city to city.

Rotterdam and Amsterdam do, however, agree on two aspects critical to the urban design of intensified projects; Diversity of Design and Car parking.

At Oostelijke Havengebied (Eastern Harbour District, Amsterdam) façade lengths of twenty-seven meters (with set

![Fig. 4.6 High density housing in the new "Oostelijke Havengebied" district, Amsterdam. (Source: David Chapman, 2001)](image-url)
building lines) have been allocated to individual firms of architects to achieve
design diversity and reduce repetition (Hein de Haan, 19 March, 2001). At Kop
van Zuid (Rotterdam) different architects are employed to realise individual
blocks with the intention of avoiding the potential of one monolithic design.
Car parking standards within both cities are based on one car parking space per
dwelling and both cities promote internal parking within dwellings (Boute, 20
March, 2001, Hein de Haan, 19 March, 2001, and Veenendaal, 19 March,
2001). The intention is to avoid the visual intrusion of on street parking without
preventing residents being able to own a vehicle. The perceived importance of
this is such that at Oostelijke Havengebied the twenty-seven meters frontages
and the smaller 5.4 meter plot widths (figure 4.4) are based directly on internal
parking standards; a 5.4 meter frontage provides internal parking for 2 cars
whilst 27 meters provides 10 vehicle spaces).
It can be seen that current Dutch planning / urban design policies are
underpinned by municipalities attempting to provide high-density living which
people want. There is little attempt to physically prevent car ownership within
these schemes, but rather the philosophy is to provide a better alternative in
terms of high-quality public transport and car-share schemes. The impact of
cars is further reduced by promoting internal parking facilities which frees
external space for pedestrian use and allows external areas to be planned with
the pedestrian as the priority.
There is also an acknowledgement that high densities need to be compensated
with high quality amenity space, which alleviates the perception of urban
cramming and provides a sense of space.
These spaces are in the main designed as 'hard landscapes' which are both
robust and simple. Here the aim is to reduce the visual fuss (less is more),
reduce maintenance costs and provide a landscape that will remain visually
pleasing in the long term; effectively value adding to the urban infrastructure in
terms of durability. Urban landscape durability is coupled with the 'home for life'
concept which again is aimed at providing flexible accommodation that can
evolve as the occupiers needs change. Again the design on individual buildings
reflects a desire to increase the developments life expectancy and though this,
add value to the entire development.
Summary

The proceeding review highlights the fact that Dutch compact-city policy has transcended the Third, Fourth and currently the Fifth National Physical Planning Reports; A period of over twenty-five years. Further to this it illustrates that policy has evolved over time with the original basis of compact-city policy being very different to what is proposed today. Originally the policy was intended to attract residents back to urban centres, increase city revenue, and protect rural Holland from development whilst today it intends to continue achieving these goals whilst attracting foreign investment into Dutch cities and enhancing the Netherlands' position on the European stage.

Policy development at one level can be seen to be natural progression since increased city revenue allowed municipalities to invest in urban renewal and create urban centres that are attractive to both foreign investment and business. However, such policy development was only feasible after the number of city residents was increased and finance for urban regeneration was in place. In part the necessary mechanisms for developing new housing in Dutch cities was provided by both the Third and Fourth National Physical Planning Reports in the form of the Urbanization Report and VINEX respectively but at the time density research and design development was necessary to create residential places attractive to people.

Development of the Third report included the commissioning of several density studies that recommended residential development densities of 80-100 DPH in larger cities and 40-60 DPH elsewhere. Today, such density proposals for large cities are reflected in current schemes in Amsterdam, Rotterdam, and The Hague but density proposals for other locations are currently reduced to 30 DPH under the later VINEX. Originally density levels were development in light of economic constraints and issues surrounding the Dutch need to reclaim land but as environmental issues have gained greater planning importance over the past decades it has transpired that such ranges address aspects of sustainable development.

Design development of intensified schemes can today be seen as in part a product of experience with Dutch Architects, Planners and Urban Designers proposing key design patterns which make intensified living acceptable to
residents. These include integration of good local facilities, good urban landscaping, integrated public transport, housing adaptability without a reduction of housing space, and increased private external space.

In summary it can be proposed that Dutch planning and development has over the last three decades undertaken many of the actions now proposed in Britain for an urban renaissance. In part their original objective of revitalising decaying cities and protecting the rural landscape reflects our current planning aim and their experience provides many indicators for how to attract residents back into the city. Further to this it has established that higher density living can be attractive to residents but may require an alternative approach to design that is compensatory to this increase. Whilst it is not suggested that the Dutch approach could simply be replicated in England, it is suggested that bringing residents back to cities is fundamental to the success of this policy and will in part rely on the provision of appropriate and suitable housing.
The following chapter will therefore review current UK planning and design mechanisms available for creating an urban renaissance and reflect on the potential of incorporating Dutch thinking and design patterns into established UK housing types.
Chapter 5: Research Methodology

Introduction

The methodology applied to this research is split into two distinct areas. In this Chapter the research methods applied in the preceding sections will be discussed and placed in context with the concluding scenario based sections of this thesis.

The Generation of Concepts

Initial research of urban models (Centralisation, Decentralisation, and Compromise) was undertaken using a literature based research system and aimed to establish a global view of each model and their underlying systems. Originally research emphasis was placed equally on each urban model with the intention of preventing pre-existing notions defining research results. Secondary research established the 'Compact City' (Centralisation) as the favoured model for future expansion in Britain and preferred option by UK planning and Central Government. As such 'Centralisation' was subject to an extended literature review that questioned the models relationship to sustainability and its existing research base. The aim of this chapter was to 1) ascertain the level of research available on urban intensification, 2) the research basis for promoting increased density as a means of aiding reduced car usage, and 3) if this research was sufficiently resolved to promote urban intensification (under the banner of sustainability) within planning policy guidance. The objective of Chapter 3 was to further propose an alternative strategy for establishing the validity of the compact city if research alone does not provide a solid base of evidence.

Generating Understanding from Outside the UK

Inconclusive research and lack of hard evidence generated the need to study the reality of urban intensification as a means of assessing its real potential as a future UK urban model.
Chapter 4 'The Dutch Compact City Experience' focuses on the experience of four Dutch cities which have all been subject to urban intensification under the policy of VINEX. The cities selected were Amsterdam, Rotterdam, Utrecht and Nijmegen.

Both primary and secondary research was undertaken in the Netherlands and several visits were made to the Netherlands during 2000 and 2001. Interviews were held in the Netherlands with key actors and stakeholders in the field of urban intensification both from the public and private sector and academic institutions. Table 5.1 provides an overview of respective interviewees and their professional backgrounds.

<table>
<thead>
<tr>
<th>interviewee</th>
<th>Organisation</th>
<th>Position</th>
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<tr>
<td>Joep Boute</td>
<td>Physical Planning Department, Rotterdam.</td>
<td>Physical Planner</td>
</tr>
<tr>
<td>Dr Daan Drenth</td>
<td>School for Planning and Environment, University of Nijmegen.</td>
<td>Planning Academic</td>
</tr>
<tr>
<td>Hein de Haan</td>
<td>School of Architecture, University of Delft, Delft.</td>
<td>Architect</td>
</tr>
<tr>
<td>Dr D. Ipenburg</td>
<td>Department of Infrastructure, Transport and Spatial Organisation, University of Delft, Delft.</td>
<td>Academic Researcher (Spatial Planning)</td>
</tr>
<tr>
<td>Erik Klusman</td>
<td>Physical Planning Department, Amsterdam.</td>
<td>Physical Planner</td>
</tr>
<tr>
<td>Barrie Needham</td>
<td>School for Planning and Environment, University of Nijmegen.</td>
<td>Professor of Spatial Planning</td>
</tr>
<tr>
<td>Hugo Priemus</td>
<td>OTB Research Institute, University of Delft (TU Delft), Delft.</td>
<td>Professor of Housing, Urban and Mobility Studies</td>
</tr>
<tr>
<td>Harry van Veenendaal</td>
<td>Physical Planning Department, Amsterdam</td>
<td>Physical Planner</td>
</tr>
</tbody>
</table>

Table 5.1: List of Dutch interviewees and their professional backgrounds.
Interviews were semi-structured and discussion focused on:

- The procurement methods used to assemble land for redevelopment;
- Development density;
- The underlying urban design principles necessary to make high density living acceptable to residents; and
- The master plan constraints imposed to ensure design diversity.

A semi-structured approach was taken due to the variety of sites visited and stakeholders interviewed. Interviews were in the main personal and recorded by taking written notes. Some interviews were undertaken on VINEX sites as part of the research process.

Secondary research information was also collected in Amsterdam, Rotterdam, Utrecht and Nijmegen since whilst much Dutch literature is available in English it often not available in England. Secondary data collection was aided by the high degree of public participation in the Dutch planning system and their use of planning and architecture centres within cities visited. Both made planning information highly accessible.

**The Selection of Dutch Cities**

Amsterdam, Rotterdam, and Nijmegen were chosen as case study cities for this research due to their diversity of scale and socio-economic make-up. Here the research intention was to examine a variety of city-types subject to the policy of VINEX and focus on the differing means of achieving urban intensification and the respective implications.

Amsterdam forms the primary research area since it is the Dutch capital/largest city and was one of the first cities to reject concentrated deconcentration and promote the compact city. Further to this Chapter 4 has shown that Amsterdam originally proposed compact city policy as a means of regenerating urban life, which is a major reason behind England currently seeking an urban renaissance. Due to these facts Amsterdam presented the best opportunity to gain a global view of compact city policy. Rotterdam was chosen as the second city, since it represents a major conurbation within the Randstad whilst Nijmegen on the other hand was chosen because it represents a much smaller
city and illustrates the implications of intensification on a provincial town. All are subject to expansion through intensification and research into three alternate cities is intended to widen the scope of research and analysis of policy. Arnhem, Oosterbeck, and Utrecht were also visited as part of this study and planning academics and urban designers from Delft were interviewed.

**Summary of Qualitative and Secondary Research**

Chapters one to four represent an investigative approach to assessing the potential of the Dutch treatment of density providing a potential model for intensified development within the UK. The aim of this research was initially to ascertain if current understanding of urban compaction within the UK was developed to a level where policy can be generated from it. The objective, when evidence suggested policy was developing faster than solid data, was to seek alternative routes for developing a clearer understanding of the compact city. When found, in the Netherlands, research focused on mechanisms and design solutions used by Dutch physical planning to create intensified developments which not only conformed to National guidelines but also created developments that people wanted to live in. The goal of this research was to identify Dutch design and development principles (or patterns) that could potentially be transferred to the British planning system for use in future developments.

The preceding chapters form the research background to undertaking a critical analysis of current generic housing types in the UK. The remaining chapters of this thesis therefore form a comparative study of housing type against the principles of the compact city and the Dutch experience of urban intensification.

**Generating a Compact City Scenario**

The scale of research and time constraints prevent spatial scenarios for future urbanisation being developed for an entire city or city region. The concluding chapters of this thesis therefore focus on a range of generic development models and analyse their sustainable lifestyle potential in terms of density, followed by a reflective review of their ability to embody key design
principles developed in the Netherlands for intensified living. In the final analysis generic housing types are ranked against sustainability coupled with Dutch lifestyle acceptability.

The primary focus is residential development and the generic housing models developed by Llewelyn - Davies in *Sustainable Residential Quality, Exploring the Housing Potential of Large Sites* are used as generic types. These represent a variety of modular housing types and include:

- Low-density detached houses, 'enclave' layout;
- Semi-detached houses, street-based layout;
- Semi-detached houses, cul-de-sac layout;
- Terraced houses, street based layout, medium frontage;
- Terraced houses, Integral parking, wide frontage;
- Grouped flats, perimeter block layout, low-rise, walk-up;
- Free standing flats, low-rise clustered blocks;
- Grouped flats, perimeter block layout mansion flats, mid rise; and
- Super block, mixed houses and flats (Llewelyn - Davies, 2000 A)

Chapter Six undertakes empirical analysis of the generic models proposed by Llewelyn - Davies with conclusions drawn on the sustainable potential of each type in terms of development density (DPH).

Models are initially tabulated in terms of density with additional data on the number of habitable rooms created and number of on-plot parking spaces included. Here the intention is to ascertain the density spread of models proposed and discover if any significant density gaps occur.

Sustainable research data by DETR, Friends of the Earth, Local Government Management Board Sustainable Settlements Guide, Newman & Kenworthy, Urban Task Force, and URBED (the Urban and Economic Development Group) is then used to create a schedule of sustainable densities. The integrity of research is guaranteed using a comparative method with each research finding being tested against the others. This schedule is then graphically illustrated against increasing densities to ascertain if an optimum zone for sustainability is suggested by research and if so in which density range it occurs. This figure includes additional data provided by the DETR to illustrate diminishing land take and marginal land saving as development densities increase.
Generic models are then re-tabulated against their ability to achieve the densities required by the various levels of sustainable development (i.e. viable public transport and local facilities), which is followed by a discussion of their sustainable potential.

**Chapter Seven** undertakes design analysis of generic model proposed by Llewelyn - Davies and draws conclusions on their potential to create a high-quality, high-density urban environment.

Models were firstly tested against the following Dutch urban design principles/standards:

- Good urban landscaping.
- Less fuss in the public realm.
- Re-profiling of roads towards pedestrians and cyclists.
- Reduced road noise.
- Mixed housing types.
- Facilities for car sharing.
- Flexible construction of accommodation.
- Internal parking with one space per unit.
- Larger accommodation.
- Increased private external space.

A literature review of current supplementary design guidance (to the PPG's) was then undertaken to establish what principles of sustainable urban design are currently proposed in the UK and if any common policies exist between England and the Netherlands. The primary documents reviewed were *By Design, Urban Design in the Planning System: Towards Better Practice* (DETR, 2000 A) and the *Urban Design Compendium* (Llewelyn-Davies, 2000 B). These documents were chosen because Government currently cites them as primary advice on good design (DETR, 2000 C).

Models were then analysed against UK design guidance. This review was restricted to advice that impacts at the level of the block (since this is the scale of proposed models) and types are reviewed against the following:

- The optimum grid size for pedestrian/vehicle permeability and biodiversity;
- Scale and location of car parking;
- The opportunity for re-profiling roads towards pedestrians and cyclists; and
- The potential for flexible construction.

**Chapter Eight**, as the final chapter, draws conclusions on the Dutch compact city and the potential of such a planning policy to aid an urban renaissance in England. Conclusions are based on the primary and secondary research highlighted in chapter 4 and the following issues are addressed:

- Which research arguments against the compact city can be disproved by Dutch experience;
- What happens when Compact City policy reaches its limit;
- What were the unexpected outcomes of VINEX;
- What were the policy failures of VINEX; and
- How the Dutch made urban intensification attractive to residents.

Conclusions are then drawn on the potential of generic models (proposed by Llewelyn - Davies) to achieve the optimum housing density zone for sustainability and create development that conforms to current UK and Dutch design guidance. After these conclusions, the remaining part of this chapter develops a new conceptual brief for additional housing models for compact city development and investigates their potential in 3-dimensions. Generic models D1, D2, and D3 were generated in VectorWorks (CAD package) with the intention of ascertaining which key design patterns could be integrated in within one housing block and how such development would look.

**Appendix A** is based on Llewelyn - Davies research in *Sustainable Residential Quality, Exploring the Housing Potential of Large Sites* and provides graphic illustrations of each of the nine generic housing models. To be read in conjunction with Chapters seven to nine.
Strengthens/Limitations of Chosen Methodology

The strength of this methodology is that is has allowed a reflective review of a future UK planning policy in the Netherlands prior to it being implemented here. Duration of Dutch policy has also meant that research has been able to cover the entire policy life cycle and has been able to highlight where Dutch policy has both succeeded and failed. Research into built compact cities has also allowed many unresolved research questions to be answered and has highlighted how many arguments against this policy can be overcome. Further to this, the chosen methodology has allowed key Dutch urban design principles to be established, which can be used to inform a future UK pattern language for intensified development.

A major limitation to this research, however, is the fact that whilst the Netherlands is close to the UK and shares many common problems, it is another country and has its own development and planning history, which it different to ours. Research has highlighted this in the fact that Dutch planning authorities have traditionally provided and serviced much land for development and subsidised housing schemes. Whilst this approach has been seen to be a reflection of Dutch land conditions and legislation, research has been unable to establish the implications of not undertaking such action under a policy of compact cities and this limits the useful outcomes for the UK. Further limitations include the fact that much research data on sustainable residential densities is either in dispute or inconclusive and this may effect the future validity of conclusions.

In regards to generic models, it is also acknowledged that review was restricted to types proposed by Llewelyn - Davies, which doesn't cover all UK housing types available and therefore can again be seen as a limitation.
Chapter 6: Generic Development Types and Their Sustainability

Introduction

For the purpose of this chapter a generic housing type is defined as a set of characteristic elements that can be combined to assess the development potential (in terms of density) of a prescribed area without producing bespoke design proposals. Development density is "expressed in terms… of number of units or habitable rooms per hectare for residential development" (DETR, 2000 A, p.89) and the generic housing types tested were developed by Llewelyn - Davies (2000 A).

Models developed by Llewelyn - Davies were chosen for this analysis because they represent generic housing types that:

- Are "well proven and relevant in both historic and contemporary development practice";
- Are "successful and familiar in terms of the creation of enduring places of quality; and"
- "Relate closely to present and future housing typologies from a market standpoint" (Llewelyn - Davies, 2000 A, p.18)

These factors and general acceptance of generic types proposed by Llewelyn - Davies make them suitable for initial density analysis followed by later examination of them against current Dutch thinking on intensified development: Chapter 7.

This chapter will therefore attempt to assess the sustainable potential of Llewelyn - Davies generic housing types by testing them against empirical research discussed in Chapter 3 and produced by the DETR, the Urban Task Force, Newman and Kenworthy, Anne Power and Friends of the Earth.

Generic Housing Models

Prior to undertaking a review of generic types against minimum/sustainable development standards it is first necessary to establish
the variety of densities achieved by models proposed by Llewelyn - Davies. Table 6.1 illustrates densities achieved by types A1 to D1.

<table>
<thead>
<tr>
<th>Model Type</th>
<th>Units per hectare</th>
<th>Habitable Rooms per Hectare</th>
<th>Parking; On - Plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A1) Low - density detached houses 'enclave' layout</td>
<td>10</td>
<td>80</td>
<td>2-4</td>
</tr>
<tr>
<td>(A2) Semi - detached houses, street - based layout</td>
<td>16</td>
<td>96</td>
<td>1-2</td>
</tr>
<tr>
<td>(A3) Semi - detached houses, Cul - de - sac Layout</td>
<td>30.8</td>
<td>154</td>
<td>1</td>
</tr>
<tr>
<td>(B1) Terraced houses, street based layout, medium frontage</td>
<td>52.8</td>
<td>264</td>
<td>1</td>
</tr>
<tr>
<td>(B2) Terraced houses, Integral parking, wide frontage</td>
<td>43.6</td>
<td>218</td>
<td>1</td>
</tr>
<tr>
<td>(C1) Grouped flats, perimeter block layout, low-rise, walk-up</td>
<td>155</td>
<td>467</td>
<td>0.4</td>
</tr>
<tr>
<td>(C2) Free standing flats, low-rise clustered blocks</td>
<td>66.7</td>
<td>200</td>
<td>1</td>
</tr>
<tr>
<td>(C3) Grouped flats, perimeter block layout mansion flats, mid rise</td>
<td>423</td>
<td>1056</td>
<td>0.8</td>
</tr>
<tr>
<td>(D1) Super block, mixed houses and flats</td>
<td>139.7</td>
<td>419</td>
<td>0-1</td>
</tr>
</tbody>
</table>

Table 6.1: Schedule of generic housing types proposed by Llewelyn - Davies. Source: Llewelyn - Davies. (2000 A) Sustainable Residential Quality, Exploring the Housing Potential of Large Sites.

Labelling of generic types corresponds to the system used by Llewelyn - Davies in Sustainable Residential Quality, Exploring the Housing Potential of Large Sites (2000 A) and research data useful (to this study) has been extracted from each description.
Generic Housing Models and Planning Policy

It is clear that any generic housing model that fails to achieve the current minimum density standard of Planning Policy Guidance is a) likely to be deemed unacceptable for planning permission and b) is unlikely to help achieve an urban renaissance or more compact cities.

Out of the nine generic housing models proposed by Llewelyn-Davies, two fail to achieve the current standard of 30 dwellings per hectare, as proposed by PPG 3 (2000 B) to avoid excessive land take.

Type A1 (Low-density detached houses 'enclave' layout) achieves an average density of 10 units per hectare and Type A2 (Semi-detached houses, street-based layout) achieves a density standard of 16 units per hectare. Neither achieves the density threshold of PPG 3 and due to this failure they can be omitted from this study.

The remaining seven models all achieve a density above 30 dwellings per hectare and generic densities range from 30.8 and 423 dwellings per hectare, depending on type. In light of PPG 3 all remaining generic models would achieve today's required density standard and due to the current presumption against refusing planning permission on the grounds of over-development each could (in the right context) result in development.

The following sections will therefore undertake a theoretical analysis of the remaining models against sustainable density standards. This analysis is split into two specific density areas; 1) those that facilitate viable public transport; and 2) those that provide a sufficient volume of people to create viable local facilities and services.

Comparing Generic Models against Sustainable Densities

Whilst PPG 3 cites 30 dwellings per hectare as the density threshold for new housing development, to avoid excessive land take, many urban commentators suggest such a density is too low and will not facilitate sustainable living patterns served by efficient public transport with facilities within walking distance.

It is, however, noted that the DETR emphasises 'excessive land take' as the primary reason for current density standards, not sustainability, whilst it is
acknowledged that sustainability is an over-arching theme of planning and Government "promote(s) more sustainable patterns of development" (DETR, 2000 B, para. 1) as a primary planning objective.

In light of these comments the following table summarises the sustainable research findings of a variety of academic authors, environmental groups and urban/transport researchers in an attempt to gauge current feeling on density levels required for sustainable residential development for later comparison against generic models.

<table>
<thead>
<tr>
<th>Density Threshold</th>
<th>PPH</th>
<th>DPH</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Transport</td>
<td>90-120</td>
<td>23-30</td>
<td>Friends of the Earth (1994)</td>
</tr>
<tr>
<td>Facilities with Walking Distance</td>
<td>300</td>
<td>75</td>
<td>Newman &amp; Kenworthy (1989)</td>
</tr>
<tr>
<td>Sustainable Urban Residential</td>
<td>225-300</td>
<td>56-75</td>
<td>Friends of the Earth (1994)</td>
</tr>
<tr>
<td>Sustainable Urban Neighbourhood (maximum)</td>
<td>494</td>
<td>124</td>
<td>URBED (2000)</td>
</tr>
<tr>
<td>Central / Accessible Urban</td>
<td>Up to 370</td>
<td>Up to 93</td>
<td>Friends of the Earth (1994)</td>
</tr>
</tbody>
</table>

Note:  
PPH: People Per Hectare 
DPH: Dwellings Per Hectare 

Table 6.2: Density thresholds required by the various levels of sustainable development.  
Original research findings by each author/group are highlighted in bold text and conversion between People Per Hectare and Dwellings Per Hectare (and vice-versa) is calculated using Rudlin and Falk's (2000) method of assuming "an average dwelling size of 4 bedspaces" (Rudlin and Falk, 2000, p.142).

**Review of Empirical Data**

Direct comparison of research indicates some correlation between proposed density standards needed to create urban environments capable of supporting viable public transport and facilitates/services within walking distance. However, since no one piece of research directly reflects the findings of another, proposals are now reviewed against their ability to support and be supported by alternative research.

The Urban Task Force propose that 40-60 dwellings per hectare will be required to create viable public transport with communal facilities. Their research is support by the *Local Government Management Board Sustainable Settlements Guide* and Newman and Kenworthy who both suggest this density range is within that required for public transport (tram and bus). Further to this, their claim that such a density range is sufficient to create communal facilities is supported by Friends of the Earth who propose a density threshold for sustainable urban residential areas of 56 dwellings per hectare. As a blanket density proposal, however, this range fails to achieve sustainable development thresholds for walking, central/accessible urban areas or sustainable urban neighbourhoods (Friends of the Earth, Newman and Kenworthy, and URBED).

Newman and Kenworthy's research proposal of 75 dwellings per hectare for walking as a transport option is supported by Friends of the Earth but their suggestion for public transport is partly disputed. The *Local Government Management Board Sustainable Settlements Guide* agree their range is adequate to provide a bus service but not trams.

Research by Friends of the Earth is in part complimentary to Newman and Kenworthy's work and their proposal for sustainable urban residential densities is in-line with higher densities proposed by the Urban Task Force. The remaining two density proposals by URBED and Friends of the Earth cannot be directly compared to other research findings.
An Optimum Density for Sustainability?

Visually research by Friends of the Earth et al is illustrated by figure 6.1. Here their empirical data is set against increasing housing densities to illustrate where sustainable thresholds occur with supplementary data on 'land take' and 'marginal land savings' being included. Data provided on 'land take' and 'marginal land savings' is the product of DETR (1998) research and is based on the area required to accommodate 400 dwellings at different net densities.

This Figure clearly illustrates that with increased density comes significant reductions in the net residential area and marginal land saving. Further it can be concluded from figure 6.1 that an optimum zone for sustainable development may exist that provides sufficient populations densities for viable local services/public transport without exceeding the upper acceptable limit (Friends of the Earth). This zone appears to fall approximately within the density range of 60-93 DPH (60-95 DPH) and creates a balance between the needs of sustainability without proposing development level that could be cited as 'town cramming' whilst potentially maximising marginal land saving.
Llewelyn - Davies Generic Models

Whilst it is clear that many of the generic models proposed by Llewelyn - Davies fall within the scope of densities proposed by the Urban Task Force, Newman and Kenworthy, and Friends of the Earth, it is not clear if each model will provide a sufficient volume of people to make viable public transport and local facilities or if their models address the proposed optimum sustainable density zone (60-95 DPH).

The following table compares generic models with key density thresholds in an attempt to establish which models conform to contemporary research on sustainability.

<table>
<thead>
<tr>
<th>Model Type</th>
<th>DPH</th>
<th>Research Basis for Sustainability</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A1) Low - density detached houses 'enclave' layout</td>
<td>10</td>
<td>None</td>
</tr>
<tr>
<td>(A2) Semi - detached houses, street - based layout</td>
<td>16</td>
<td>None</td>
</tr>
<tr>
<td>(A3) Semi - detached houses, Cul - de - sac Layout</td>
<td>30.8</td>
<td>Viable local bus service</td>
</tr>
<tr>
<td>(B1) Terraced houses, street based layout, medium frontage.</td>
<td>52.8</td>
<td>Viable local bus service</td>
</tr>
<tr>
<td>(B2) Terraced houses, Integral parking, wide frontage.</td>
<td>43.6</td>
<td>Viable local bus service</td>
</tr>
<tr>
<td>(C1) Grouped flats, perimeter block layout, low-rise, walk-up.</td>
<td>155</td>
<td>Sustainable urban neighbourhood (including central areas)</td>
</tr>
<tr>
<td>(C2) Free standing flats, low-rise clustered blocks.</td>
<td>66.7</td>
<td>Viable bus/tram service and potentially local facilities</td>
</tr>
<tr>
<td>(C3) Grouped flats, perimeter block layout mansion flats, mid rise.</td>
<td>423</td>
<td>Sustainable urban neighbourhood (including central areas)</td>
</tr>
<tr>
<td>(D1) Super block, mixed houses and flats</td>
<td>139.7</td>
<td>Sustainable urban neighbourhood (including central areas)</td>
</tr>
</tbody>
</table>

Table 6.3: Comparison of generic types against sustainable densities. Source: Based on Tables 6.1 and 6.2.
Generic Models Discussion

If quality of research is not disputed (Chapter 3, Newman and Kenworthy) and the view is taken that whilst no development can create sustainability it can provide a framework within which residents have the opportunity to improve their sustainability, the following can be suggested. Generic types A1 and A2 do not create a high enough population density to provide either viable public transport or local services/facilities. By default these development models would force residents to rely on private transport, which would not constitute sustainable development.

Types A3 to B2 (inclusive) create a high enough residential density to provide a local bus service but fail to achieve the density threshold required by either a tram system or local services/facilities. Whilst these generic models can not be classified as sustainable development they do begin to tackle the most pressing environmental issue; the impact of the car and as such may be relevant to future development. Here residents may not be forced to rely on private transport and could have the opportunity to travel on public transport if they so desire.

C2 provides the next significant jump in density. Here public transport in terms of both bus and tram could be viable with local facilities and services within easy reach. Empirical research (table 6.3) also suggests that model C2 falls within the optimum density zone for sustainability and therefore achieves all sustainable thresholds without exceeding the maximum acceptable density proposed by research.

Types C1, C3, and D1 represent the greatest density jump within the models proposed by Llewelyn - Davies. Each provides well over double the residential density of the others and each produces a density level above the maximum sustainable urban neighbourhood proposed by URBED. Research highlighted in table 6.3 suggests that each could provide sustainable urban development that is serviced by viable public transport (bus and tram) and local facilities/services within an urban framework focused on the pedestrian and walking.
Summary

The generic models proposed by Llewelyn - Davies were expected to reflect a more graduated increase of development density than has actually occurred (Fig. 6.2). In the main, models fall either short of the required density for sustainable development or produce intensified schemes, which surpass sustainable density thresholds by a significant amount.

Most Models also fail to address the 'proposed optimum development' density of 60-95 Dwellings Per Hectare (fig. 7.2) with type C2 being the only model that falls within the zone at 66.7 DPH.

Models that surpass the threshold for sustainability also contain mainly flats with D1 being the only generic development type that includes houses, whilst models that fall below contain solely houses.

If the work of Llewelyn - Davies and the organisations that commissioned their research (London Planning Advisory Committee, Department of the Environment, Transport and the Regions, the Government Office for London, London Transport, and the Housing Corporation) is taken as a valid reflection of
future development types, it can be suggested that the UK lacks development models that best address the balance between sustainability and town cramming.

It is not, however, suggested that one development model should or could provide the best solution for future housing within the context of sustainability or an urban renaissance but rather that decisions on future housing development may benefit from additional generic models that address a sustainable density range of 60-95 Dwellings Per Hectare. Further to this it is proposed that each of Llewelyn - Davies models could be appropriate in various locations depending on context and that density gradients such be applied within developments depending on the location of nodes, facilities and public transport, which in part is addressed Llewelyn - Davies.

In light of these conclusions the following chapter will examine Dutch thinking on intensified housing developments, where an average density of 75-100 Dwellings Per Hectare is a basic parameter for development whilst providing a mix of housing stock. The aim of the remainder of this thesis will be to examine the viability of the Dutch model becoming a model typology in the UK.
Chapter 7: Generic Types and the Principles of Good Urban Design

Introduction

Earlier research and analysis has shown that a density range of 60-95 DPH may provide an optimum zone for sustainable housing development. It has also illustrated this range is similar to that used in Dutch inner-city VINEX developments (at 75-100 DPH) whilst being a zone jumped by all but one generic model proposed by Llewelyn - Davies (Model C2, at 66.7 DPH). Primary research in the Netherlands has further highlighted good design as fundamental to successful high-density housing developments, which has been shown to encompass urban design, and bear heavily on the architecture, landscape design and the manner in which parking is integrated into development.

In light of these suggestions, the following chapter will analyse generic models proposed by Llewelyn - Davies against Dutch urban design principles. Here the intention is to ascertain if Dutch design features are already present in generic models, which they lack and if any of the can be simply overlaid without effecting design.

UK urban design guidance in By Design, urban design in the planning system: towards better practice (DETR, 2000 A) and the Urban Design Compendium (Llewelyn-Davies, 2000 B) is then reviewed and compared with Dutch experience prior to examining generic models against English design advice. This includes a review of the architecture of models and the need for developing additional types.

At this stage a review of generic models is restricted to those that achieve at least some level of sustainability and in light of findings in Chapter 6, types A1 and A2 are omitted.

Dutch Urban Design Principles and Generic Models

Dutch guidance on 'good urban design' spans a variety of scales, which range from strategic planning policy to advice on the design of individual buildings.
Due to this scope and the scale of models proposed by Llewelyn - Davies, it is suggested that not all principles previously discussed are applicable to this review and comparison of Dutch design guidance will need to be limited to principles that impact at the 'Block' level.

This review should be read in conjunction with Appendix A, which illustrates each generic type and provides visual reference on their design.

At this scale it has been established that the Dutch see the following issues as critical in creating high-density living environments that are acceptable to residents:

- More public space;
- Good urban landscaping;
- Less fuss in the public realm;
- Re-profiling of roads towards pedestrians and cyclists;
- Reduced road noise;
- Mixed housing types;
- Facilities for car sharing;
- Flexible construction of accommodation;
- Internal parking with one space per unit;
- Larger accommodation; and
- Increased private external space.

All are seen as fundamental to the creation of successful compact environments and over half directly relate to the car. This includes 'more public space' and 'good urban landscaping' since Dutch planners use space recaptured from car parking as a means of generating larger public spaces and by removing parked cars from...
the urban design equation it is easier to produce coherent and pleasant urban landscapes. The remaining points address the architecture of individual buildings and highlight the Dutch intention to mix housing stock and provide accommodation, which is large enough to be adopted in the future. On review it is clear that Llewelyn - Davies has taken a very different approach with few Dutch principles being reflected in generic models. Parking standards are usually based on a mixture of on-plot and on-street parking with most external. An allocation of one parking space per unit is usually restricted to the more suburban models with higher density, single stock type models providing as few as 0.4 parking spaces per unit on-plot (Type C1). Visually the effects of this action is illustrated in their photographic examples, which often highlight parked cars as much as buildings (figure 7.1). Generic model C2 (free standing flats, low-rise clustered blocks), however, does provide one parking space per unit, on-site and as previously highlighted was the single type to achieve sustainable densities without creating over-development. At this level it could be suggested that C2 conforms to Dutch standards but on design review it can be seen to fail their policy objectives. All parking is surface with most of the landscape being overtaken by the car and reduced to tarmac, which not only reduces the volume of public space available, it creates a poor quality urban environment with increased potential for pedestrian/car conflict.

On the issue of car parking alone it is clear that high-density models proposed by Llewelyn - Davies fail to achieve Dutch planning standards for intensified development. Most provide less than one space per unit and their use of external on-site and off-site surface parking limits the opportunity to create a good urban environment and reduces the volume of public space available. The manner in which car parking is addressed also impacts on the opportunity for re-profiling roads towards the pedestrian and cyclist. The approach used in generic models often requires large areas of road to be allocated to parking and when combined with the space requirement of footpaths, cycle lanes and traffic results in excessive land-take or 'tarmac-take' as its known. Further to this, experience has also shown that this combination leads to parking on cycle ways, which often renders them semi-useless.

Another key principle of Dutch policy is the mixing of housing types within compact city developments and individual buildings. The intention is to aid the
creation of a mixed residential community, which reflects diversity of economic power and housing need. To achieve this goal the Dutch have developed a housing type known as 'Woonatlas', which include housing for young single people, studio flats, family homes, shared homes and accommodation for seniors.

On review it is clear that Dutch principles of mixing accommodation are not reflected in models proposed under sustainable residential quality. Most include only one form of housing stock with type D1 (Super block) being the only model to include both houses and flats. D1, however, stills falls very short of the mix achieved in developments such as De Landtong, Rotterdam, which contains as many as "625 different types of home for sale and rent" (Mestre & Bercedo, 2000, p.44). Whilst it is acknowledged that this figure takes account of different tenure types and doesn't suggest that 625 different housing designs exist within the scheme, De Landtong does contain mixed accommodation for young people, studio apartments, flexible homes, group housing and housing designed for the elderly.

Here it can be seen that UK models in comparison to their Dutch counterpart provide a very limited range of accommodation, which by default limits the potential social mix.

The remaining Dutch principles of reduced road noise, flexible construction and larger accommodation can in the main be seen as architectural/construction questions. Noise reducing asphalt can be used in any scheme and its use has no design or planning implications. Flexible construction could be created in most generic models and like size of accommodation is an issue that would be dealt with at the architectural design stage.
Generic Models and Supplementary Design Guidance

Whilst it is clear that none of the generic models proposed by Llewelyn-Davies would achieve the planning objectives of Dutch compact cities, it is clear that each country has its own history of development, and English models should not automatically be dismissed because of their potential failure in the Dutch landscape. Further to this, it is acknowledged that Urban Design as an independent title is a relatively new addition to established roles in the UK construction industry and embodies aspects of architecture, planning, landscape architecture, and engineering and demands a much higher level of professional co-ordination than has previously occurred.

For planning, Government sees good urban design as a basic requirement for an urban renaissance and recently has produced guidance to supplement planning policy guidance in this area. By Design, urban design in the planning system: towards better practice (DETR, 2000 A) and the Urban Design Compendium (Llewelyn-Davies, 2000 B) are currently Government's good practice guidance on design (as cited in the new Urban White Paper) with each illustrating a variety of urban design principles and good practice methods. Each draws from classic urban design work by Kevin Lynch, Gorden Cullen, Francis Tibbalds and Spiro Kostof et al with well-established concepts of place making, diversity, connectivity, landmarks etc being addressed. Further to this, however, both attempt to tackle current issues of sustainability within urban design, which were often omitted by the proceeding authors due to the period and age of their work.

This section will therefore focus on sustainable urban design guidance proposed by each text and will omit well-established features of place making. The intention is to distil critical issues of design relating to sustainability for later comparison against generic models proposed by Llewelyn-Davies.

Design Guidance

The Urban Design Compendium represents Government's supplementary design guidance to the PPG's and creates a limited pattern language for sustainability in urban design. Whilst the patterns suggested are

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fairly limited in comparison with Alexander's, *A Pattern Language, Towns, Buildings, Construction*, (1977) they do discuss the following:

- **Optimum grid sizes**: "Grid spacing of 80-100m provides an optimum network for pedestrian and vehicular needs in most circumstances…….. In central areas with intensive pedestrian activity, grid spacing of 50-70m provides an optimum circulation network" (Llewelyn-Davies. 2000 B, p.38).

- **Optimum grid size for biodiversity**: "Block size can effect biodiversity ….. Blocks of about 90m x 90m which include private and communal gardens provide a good trade-off between biodiversity and other considerations such as variety of uses that can be accommodated and ease of movement" (Llewelyn-Davies. 2000 B, p.58).

- **Overall optimum grid size**: "A useful rule of thumb is that block widths of 80-90m enables this trade off to be achieved in a variety of different urban locations and circumstance, reducing to 60-80m in town/city centres" (Llewelyn-Davies. 2000 B, p.65).

- **For walkable neighbourhoods**: "A widely used benchmark is for mixed development neighbourhoods to cover a 400m radius, equating to about five minutes walk. This translates into 50 hectares" (Llewelyn-Davies. 2000 B, p.40).

- **For viable bus services**: "Research suggests net densities of 100 persons per hectare (pph) are necessary to sustain a good bus service (LGMB, 1995)………..this equates to 45 units/ha if the average UK household size of 2.2 persons is applied" (Llewelyn-Davies. 2000 B, p.47).

- **Location of bus stops**: "A bus route will be viable if there are enough people within a 400m radius (5 minutes walk) of each stop. If bus stops are at 200-300m intervals, a density of around 80 persons per hectare will provide a catchment of 2,000 people per stop: 100 people per hectare provides up to 2,500 people per stop" (Llewelyn-Davies. 2000 B, p.74).
• **Car parking:** "To avoid parked cars dominating the surroundings there should generally be no more than 10-15 spaces in a courtyard" (Llewelyn-Davies. 2000 B, p.79).

Comparatively, *By Design, Urban Design in the Planning System: Towards better Practice* (2000 A) focuses more on the planning process behind creating a good urban product and provides less direct design advice.

The DETR suggest this guidance is "written to stimulate thinking about urban design, not to tell the reader how to design" (DETR, 2000 A, p.8) and in their own words develops a kind of planning toolkit with related prompts and checklists.

By Design does, however, reiterate Government belief that "urban design is a key to creating sustainable developments and the conditions for a flourishing economic life, for the prudent use of natural resources and for social progress" (DETR, 2000 A, p.8) and makes a few suggestions on sustainable design.

These are mainly restricted to flexibility of construction and building adaptability with the DETR suggesting that:

• "Floor-to-ceiling heights and building depths should be considered in the light of the need for flexibility to allow later conversion of a building to other uses;

• Adaptable ground floors on corners of busy streets allow different uses to be accommodated over time;

• Well-designed housing is adaptable to the changing needs of its occupants" (DETR, 2000 A, p.30).

Further to this the DETR suggest that "fine-grain development is easier to adapt than large-scale megastructures" (DETR, 2000 A, p.30) but omit to provide any detailed advice on the size of either.

On review it is clear that each document is targeted at a specific area of urban design and that the texts compliment each other. The *Urban Design Compendium* focuses directly on design related issues whilst *By Design, Urban*
Design in the Planning System addresses the planning process behind achieving design objectives.

Whilst it is unclear if By Design has drawn from the experiences of other countries, it is clear that the Urban Design Compendium like Towards an Urban Renaissance has. The Urban Design Compendium contains many European examples of good urban design including several from the Netherlands. It also addresses issues that the Dutch feel are fundamental to the design of successful compact cities and, in part, even promotes a similar use of language. Further to this By Design bears heavily on the idea of flexible construction and adaptability of buildings over the long term. Here UK proposals share similar ground to the Dutch concept of a 'house for life' and whilst it is unimportant where this idea originated it illustrates that the Dutch planning thinking shares common ground with its UK pier.

Difference in thinking does, however, occur when it comes to car parking. As illustrated in chapter 4, the Dutch see the allocation of one car parking space per dwelling as a necessary feature in the compact city, with development plot widths often being defined by parking standards since most are internal. UK, planning, however, suggests buildings should not be defined by the rigid geometry of the car (Llewelyn-Davies. 2000 B) with design suggestions mainly focusing on the maximum density of external parking. Llewelyn-Davies propose that "to avoid parked cars dominating the surroundings there should generally be no more than 10-15 spaces in a courtyard" (2000 B, p.79). The idea of internal parking is not, however, totally dismissed by Llewelyn-Davies and they do suggest that "the benefit of underground parking is that it allows the street frontage of buildings to be maintained" (2000 B, p.81).

On the issue of parking it is clear that Dutch and English planning thought differs. For England this may be due to previous experience of large internal residential parking, which often failed due to lack of security and created inhuman and dead spaces within buildings. It may also be a reflection of the additional building costs incurred by developers when car parking is internalised and accommodated within the building itself. Further to this, allocation of internal space to parking is often considered as wasteful and better use of this space can be gained by allocating it to residential use.

It is, however, interesting to note that the Dutch solution removes car parking from the urban design equation by placing it firmly within the areas architecture,
whilst the English approach requires the urban landscape to include it. Here it can be seen that by internalising parking the Dutch avoid urban design problems associated with surface parking and free external areas to be planned for people whilst the English approach requires external space to be dedicated to parking, which adds additional complexity to creating high-quality urban design.

**Generic Models and UK Design Principles**

The development block reflects the scale of generic types under review and can be seen to define the urban grain of an area, its permeability and according to Llewelyn-Davies even its potential for biodiversity in the form of high wildlife support. As such the *Urban Design Compendium* addresses this issue and discusses several optimum grid sizes for balancing the needs of biodiversity and permeability. In conclusion it suggests that "a useful rule of thumb is that block widths of 80-90m enable this trade-off to be achieved in a variety of urban locations and circumstances, reducing to 60-80m in town/city centres" (Llewelyn-Davies, 2000 B, p.65).

On review of generic models, and as illustrated in table 7.1 is clear that each generic block exceeds the limits proposed by current guidance and each could be accused of creating low permeability development for pedestrians and vehicles.

<table>
<thead>
<tr>
<th>Model Type</th>
<th>Grid Spacing (m) (Maximum)</th>
<th>Overall Land take (m.sq)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A3) Semi - detached houses, Cul - de - sac Layout</td>
<td>120</td>
<td>7800</td>
</tr>
<tr>
<td>(B1) Terraced houses, street based layout, medium frontage.</td>
<td>110</td>
<td>7150</td>
</tr>
<tr>
<td>(B2) Terraced houses, Integral parking, wide frontage.</td>
<td>110</td>
<td>5500</td>
</tr>
<tr>
<td>(C1) Grouped flats, perimeter block layout, low-rise, walk-up.</td>
<td>110</td>
<td><strong>7150</strong></td>
</tr>
<tr>
<td>(C2) Free standing flats, low-rise clustered blocks.</td>
<td>120</td>
<td><strong>9600</strong></td>
</tr>
<tr>
<td>Model Type</td>
<td>Grid Spacing (m)</td>
<td>Overall Land take (m.sq)</td>
</tr>
<tr>
<td>----------------------------</td>
<td>------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>(C3) Grouped flats, perimeter block layout mansion flats, mid rise.</td>
<td>125</td>
<td>10625</td>
</tr>
<tr>
<td>(D1) Super block, mixed houses and flats</td>
<td>115</td>
<td>6325</td>
</tr>
</tbody>
</table>

Fig 7.1 Generic models compared against grid-spacing and overall land take. (Source: Based on Llewelyn-Davies, 2000 A)

Further more table 7.1 illustrates that all but one of the generic models that would be expected in city centres (as highlighted in bold) exceed the overall optimum grid area proposed (3600-6400 sq.m), which again suggests a low-level of development permeability and possibly over-development.

Here it can be seen that generic models fail Llewelyn - Davies own tests for creating an optimum urban structure, which reinforces the concept that existing development types do not provide acceptable models for future compact development.

As regards density the *Urban Design Compendium* fails to advise on the optimum level for sustainable development. It does, however, cite research by the *Local Government Management Board Sustainable Settlements Guide* (1995), which has previously been discussed in Chapter 6, where it was concluded that all but the two lowest density models (A1 and A2) provided the opportunity for some form of viable public transport.

On the issue of parking, guidance suggests that courtyards containing more than 10-15 spaces should be avoided (Llewelyn - Davies, 2000 B). Here it can be seen that all models except C2 achieve this objective, with C2 being the single model to propose large areas of dedicate surface parking. Further guidance suggests that off-street parking should be kept "down to no more than a 100% ratio -that is one space per dwelling, with visitor parking accommodated on-street" (Llewelyn - Davies, 2000 B, p.71). Here models intended for urban use can be seen to achieve this ratio, whilst suburban types exceed it.

Whilst the *Urban Design Compendium* contains graphic illustrations of how streets can be re-profiled towards pedestrians and cyclists and further states that "the needs of people on foot require careful analysis, and should be
paramount in development layouts” (2000 B, p.71), their generic models omit to feature such strategies. It is clear, however, that each model could be overlaid with a mixed-use road strategy, which would not impact on design but would materially effect the net development density achieved. The *Urban Design Compendium* and *By Design* both bear heavily on the concept of adaptable construction as part of sustainable development. As previously discussed this is, in the main, a technical issue and current construction technology could allow most models to be built in such a way that allows residents to partially re-order internal layouts as their space requirements change. Dutch experience has, however, shown that such a system requires an alternative approach to hard-wiring a building with flexible and alternative connections for TV, power, and lighting. This is often best accounted for at the design stage and requires a clear understanding of the related design and construction implications.

**The Architecture of Generic Models**

Architecturally it can be suggested that each of the generic models embody an existing and established design type. Most can be seen in or around UK cities and even in their sketch form they create images that most people can identify with. These images range from the lowest density models with pictures of English suburbia to ultra-high density schemes with visions of housing districts in central London. At one level this may be viewed as a positive since models are established and generally accepted by the housing market. At another, however, it could be suggested that their design illustrates a period of architectural history, which was before our own and before sustainability. The proceeding chapters have highlighted that sustainable planning and urban design principles can not be simply attached to development forms and achieve environmental objectives and the same is probably true of the architecture. The architecture after all helps create the development density, the relationship between public and private space and the impact of car parking on an area's urban design. Further to this it determines a myriad of features including flexibility of construction and scale of accommodation.
Here it is proposed that since generic models fail to achieve many sustainable planning objectives they also, by default fail the test of sustainable architectural design for Compact City policy. Further to this it can also be suggested that by establishing what typical development forms exist within the UK, Llewelyn-Davies have not actually addressed the issue of sustainable residential quality but rather highlighted a range of existing architectural types.

**Summary**

The proceeding review has highlighted the fact that generic models proposed under *Sustainable Residential Quality* reflect established UK design types that are familiar to people. It has shown that most fail to achieve either English or Dutch design objectives for intensified development and all omit critical urban design features established by Dutch experience or English guidance.

When compared against empirical UK guidance on block size it has been seen that all exceed the proposed maximum and those targeted at high-density locations can be seen as creating 'super-blocks', which restrict pedestrian movement and reduce permeability. As regards car parking the models proposed for urban/city locations do conform to English design guidance by achieving less than one parking space per dwelling but don't achieve the Dutch standard, which promotes a constant 100% ratio.

Models have also been seen to omit any form of road re-profiling towards pedestrians and cyclists and whilst this can be over-laid on any model it will effect development density.

Architecturally it has been established that forms proposed represent established English housing types but it is proposed that environmental principles cannot be merely attached to them and new models need to be generated to address the needs of today.

Specifically, model C2, which was previously highlighted (Chapter 6) as creating a good density balance can now be seen as creating a poor environment in design terms. Its parking layout uses up most external space and prevents the development of a high-quality landscape and its block size produces low permeability, on both levels it fails current guidance. Architecturally, it also
reflects a similar approach to that used in 1970’s block development, which for many has previously failed.

Failure of current generic models to achieve English design guidance may, in part, be a reflection of the fact that UK urban design policy is currently in a transitional stage. Design has only recently re-emerged as a material consideration within planning and good design has suddenly been promoted to a primary planning objective. In itself this has necessitated the production of supplementary design guidance to the PPG’s and the speed at which this has occurred could be cited as a reason behind advice being uncoordinated and sometimes conflicting.

In conclusion it can be suggested that the generic types proposed by Llewelyn-Davies fail to reflect much of current guidance and can be seen to be out of step with planning objectives. In the main this is due to the fact that the models reflect established building types within the UK and do not represent housing schemes that have been developed for a policy of compact cities. Further to this it can be proposed that design features of sustainable development can not be simply attached to existing types and additional models are needed within England which create an optimum sustainable residential density whilst providing a high-quality urban environment. In light of this suggestion, the concluding chapter of this thesis will reflect on the Dutch experience of urban intensification and current UK policy and propose alternative design guidance for sustainable high-density residential development coupled with additional generic models.
Chapter 8: The Conclusion, Unravelling the Paradox of the Compact City

Introduction

This thesis has highlighted that UK planning and Government currently promotes the development of compact and self-serving cities. Further more it has established that policy is being driven by the need for improved sustainability, which in part, is being promoted with inconclusive research and has, in turn, lead to great debate about the acceptability of the Compact City. This chapter therefore intends to establish what arguments against a policy of urban intensification can be resolved by Dutch experience and illustrate that the polycentric city region (the Compromise Position) can form a policy extension of the compact city. In addition, areas of Dutch policy failure are highlighted and the unexpected outcomes of VINEX are discussed. Emphasis is then placed on how Dutch urban designers and planners have created urban accommodation that people want and in light of the earlier conclusion that UK housing typologies proposed under Sustainable Residential Quality fail many of the Dutch and UK policy/design tests, additional models are suggested. These generic models are based on Dutch experience and intend to relate Dutch and English planning policy to physical design, whilst still addressing the optimum zone of sustainability.

Dutch Answers to Arguments against the Compact City

It has been established that arguments against the compact city revolve around it being a naïve solution to sustainability, which will be unable to reverse the trend of decentralisation, goes against the grain of the market, produces congestion, reduces amenity and creates poor urban quality. Further more opponents suggest that people will not easily give up their car and good public transport will not replace it. In response Dutch experience has shown that decentralisation can, in part, be reversed. Under the policy of concentrated decentralisation all Dutch cities experienced a sharp decline in residents with planners beginning to fear the effects of over-spill. In response the policy of compact cities was developed and
over the last twenty-five years has repopulated Dutch cities. The success of this policy turn-around has been so great that, today, a major planning issue is how to provide for the demand for urban housing. Current demand in the Netherlands also highlights the fact that urban housing don't necessarily go against the grain of the market especially if it provides amenity levels similar to those in suburban development. Many high-density residential schemes feature family housing with gardens and parking but accommodation is often layered differently to achieve sustainable densities.

The claim that intensified developments create a poor quality urban environment can also be countered by Dutch experience. High-density developments at 'Oostelijke Havengebied', Amsterdam and 'Kop van Zuid', Rotterdam create high-quality urban products with densities of up to 100DPH. Such developments prove that high-density living doesn't prevent people from having a car and most compact housing developments provide one parking space per dwelling. Here the intention is to provide residents with the amenity of private transport whilst encouraging them to leave the car at home by providing high-quality public transport. The success of this policy approach has further shown that intensified housing does not necessarily increase traffic congestion.

In conclusion it can be proposed that the Dutch experience has countered most arguments against intensified development and has further illustrated that high-density housing can entice residents back to the city.

**Development from Mono-centric Cities to Polycentric City Regions**

Chapter 2 and 3 highlighted the fact that the compact city, concentrated decentralisation and the compromise position (the polycentric city) share common ground at a conceptual level but disagreement between respective protagonists occurred when theories addressed the location, scale and intensity of development.

In part this was due to the fact that new towns under a policy of concentrated decentralisation can be designed as compact cities and a policy of compromise could create a polycentric environment containing 'new compact towns' coupled with the intensification of existing settlements. Originally and on review of research this was seen as a difference in the 'scale of views' by protagonists, with those in favour of concentrated decentralisation/
compromise seeking smaller new intense cities and protagonists of the compact cities intending to work solely with existing settlements. Dutch experience has reinforced this view but has turned it completely on its head and established the polycentric network as a policy extension of the compact city. DeltaMetropole, as established under the Fifth National Planning Report promotes the Randstad as a network city. For the Dutch this approach embodies the new 'large-scale' view for planning, where sustainable policies are focused at a regional level coupled with the continuation of urban intensification where possible. In part, this change of scale is a reflection of the finite nature of Compact City policy, which will always have its limits and which for the Dutch have now been met. In conclusion it can be proposed that Dutch experience has shown that the polycentric city region can form an extension of the compact city and neither policy goes against the grain of the other. For England this may be particularly relevant in light of proposed housing projections but suggests that the housing development potential of existing settlements should be absorbed prior to seeking alternative strategies.

The Density Failure of VINEX

Review of VINEX developments in Amsterdam, Rotterdam, and Nijmegen has highlighted two levels of Dutch Compact City policy. One level is intensification schemes within cities and the other is settlement extension. Larger cities such as Amsterdam and Rotterdam have been subject to both whilst smaller more provisional settlements like Nijmegen have been subject to only expansion. Each level of VINEX development has generated a specific type of development and intensification schemes within cities have been seen as more successful in terms of sustainability than extension projects. Relative success is a reflection of development densities achieved in these projects, with inner city projects achieving between 50-100 DPH, whilst extension projects are being realised at 30 DPH. Further more, the 30 DPH standard for extension projects has been applied as a blanket density across schemes with no attempt to create density gradients. The cause of this blanket density has been cited as Dutch Compact City policy, which based development subsidies purely on the fact that 30 DPH was
achieved without providing further incentives for higher densities where appropriate.

Here it can be concluded that Dutch planning has created extension projects that go against the grain of the Compact City by proposing a single development density for extension projects without promoting higher density development around public transport or facility nodes. For England this is particularly relevant since Planning Policy Guidance promotes the same 30 DPH standard, which has been shown in the Netherlands to create the type of suburban development the Urban Task Force and Government want to avoid because it is not sustainable and it creates excessive development land take. It is acknowledged that further UK planning guidance promotes higher densities around transport nodes but it can be proposed that robust policies on this matter are needed to ensure Britain doesn't suffer from a similar development fate.

The Unexpected Outcomes of the Compact City

Historically the Netherlands has never really had a 'land speculation' market. In the main this has been due to ground conditions, which necessitated costly remedial works prior to development that were usually out of the financial reach of commercial builders.

VINEX and the policy of compact cities has, however, changed this and over the last years has created, by mistake, a climate suitable for land speculation. The reasons behind this are embodied in the Dutch planning process, which defined the locations of VINEX developments, opened the process to public debate and established development areas prior to acquiring land.

On establishing locations and the volume of housing to be provided, Government and Municipalities, provided developers and individuals with the opportunity to financially assess locations and many 'development options' (at VINEX locations) were privately purchased.

Here it can be seen that compact city policy has created a 'land market', which currently affects many Dutch planning authorities and may inhibit the proposed 2005 completion of VINEX developments since municipalities have been unable to procure some development sites. In addition, land speculation has increased
the value of sites within VINEX locations and Dutch municipalities are now forced to buy land at or above the market value. This new phenomenon has also highlighted floors within the Dutch compulsory purchase system, since it is nearly impossible for Dutch municipalities to forcefully purchase land if the owner intends to develop in accordance with the plan. At one level it can be proposed that this situation does not negatively impact on Dutch municipalities because private developers who are intending to develop VINEX locations in accordance with the plan will privately meet Central Government objectives. On the other hand, however, it can be seen that Dutch municipalities are under contract to Central Government to ensure development is completed by 2005, which can't be guaranteed if work is undertaken by others. Further to this, many municipalities have established 'Land Development Companies' to undertake VINEX work and are under contract to developers within the LDC. In both cases Dutch municipalities will be financially penalised if they do not complete their contractual obligations and at present there is the potential for them to be fined by Government if the 2005 completion date is not achieved or to be sued by other partners within the LDC if they do not procure the development land. Here it can be seen that the new climate of land speculation coupled with an inadequate compulsory purchase system is inhibiting municipalities and preventing them from fulfilling their role in development. This new situation has left them open to direct market competition and at the very least will dramatically increase their costs at VINEX locations. In conclusion it can be suggested that Compact City policy (which after all is a containment policy) might if left to the market increase the value of development land in Britain. Dutch experience has shown that an effective compact city policy requires an effective compulsory purchase system, which prevents land banking and avoids spirally land values. For England this conclusion is particularly relevant since "procedures relating to compulsory purchase, compensation and the disposal of compulsorily purchased land" (DETR, 2000 C, p.148) are currently being taken to review and development of a revised system could benefit from acknowledging recent Dutch Compact City experiences.
How the Dutch Made Urban Intensification Successful

Dutch architects, planners and academics have highlighted good design as fundamental to successful intensified urban housing developments. Their intention has always been to create a high-quality urban product that is robust and flexible in terms of design/construction and fulfils both the present and future needs of occupants.

It has been illustrated that the Dutch have established a 'checklist' of features/patterns for compact city developments which includes; More public space, Good urban landscaping, Less fuss in the public realm, Re-profiling of roads towards pedestrians and cyclists, Reduced road noise, Mixed housing types, Facilities for car sharing, Flexible construction of accommodation, Internal parking with one space per unit, Larger accommodation and Increased private external space. Dutch experience has also shown that these features cannot be merely attached to development and such patterns need to be embodied in the original design brief. Further to this, developments at 'Oostelijke Havengebied', Amsterdam and 'Kop van Zuid', Rotterdam have illustrated that a more diverse and interesting urban landscape can be created by employing the talents of a variety of architects and urban designers within one scheme rather than subjecting an entire project to a single design philosophy.

In conclusion it can be suggested that Dutch design and development provides valuable insights for the British planning system. It suggests that if the various English development actors (Architects, Engineers, House Builders, and Planners etc) are to achieve the goal of an urban renaissance and the associated high-quality urban product which is attractive to people, they may need to rethink the design brief for urban housing. It also indicates that the English system should not rely on the design skills of single designers within large projects, and would be better served by packaging larger schemes and using a variety of designers.

Summary: The Compact City and The Dutch Experience

Research has illustrated that the Dutch have overcome many of the arguments against the Compact City by designing them out. Their experience
has shown that the 'Compact City' as a planning policy has a limited life span and is finite in nature.

In regards to the three urban models originally discussed the Dutch have shown that one model is not at odds with another, but rather the Network City can be an extension of Compact City policy when the limits of urban intensification are reached.

It has also highlighted that the so-called 'urban exodus' that has occurred across Europe can be stemmed and that people can be attracted back to the city. Here success has been based on creating attractive urban environments that people enjoy coupled with high-quality urban housing, which provides the housing amenity of suburban living coupled with the benefits of being located within an urban centre.

The Dutch have also shown that Compact City policy isn't static and can evolve from a policy intended to attractive residents back to cities and protect rural Holland, to a policy focused on attracting foreign investment and increasing the profile of Dutch cities in Europe.

In contrast, however, VINEX has also been seen to fail at extension projects by providing a single density threshold for new housing developments and has been the cause of a Dutch 'Land Market' with increased development land values.

In conclusion, however, it is proposed that despite some Dutch policy failure they have proved that the Urban Renaissance proposed by the Urban Task Force and supported by Government in the UK is feasible. Further to this the Dutch have shown that the initial step to achieving this goal is based on attracting residents back to cities and that this requires the provision of high-quality urban housing that people want. The Dutch have also shown that this may require new housing models and that it is not sufficient to rely on traditional typologies.

**Generic UK Housing Types and their Potential in the Compact City**

Early analysis has established that a housing density range of 60-95 DPH will provide a sufficient population density for viable public transport and facilities within walking distance. It has also shown this range to be similar to
that used in inner city VINEX developments, which are both attractive developments and places for people.

It has been established that only one generic model proposed by Llewelyn - Davies under Sustainable Residential Quality falls within this zone, with the remaining either failing to achieve it or massively exceeding it. It has also been concluded that the one model, which does achieve a good density level, fails heavily in terms of design and neither meets Dutch planning objectives or current UK design guidance.

In conclusion it can therefore be suggested that the generic types proposed by Llewelyn - Davies would fail to create the type of housing acceptable in compact city developments.

Further to this it can be proposed that the Dutch treatment of density does provide a model for future planning policy in England since it addresses the optimum zone for sustainability. The success of Dutch intensified housing development also leads to the conclusion that their system produces developments that are liked by people and therefore it is proposed that their housing patterns could aid the development of additional UK generic housing models.

These conclusions form the basis for generating new urban models, which embody key Dutch design principles', that take account of UK design guidance and which address the proposed optimum density zone for sustainability.

The Patterns of Additional Urban Housing Models

Earlier research into sustainable densities, secondary urban design guidance (to the PPG's) and Dutch compact cities has concluded that future housing development under a policy of urban intensification should:

- Achieve an optimum grid size of between 80-100m;
- Achieve a net residential density of between 60-95 DPH;
- Create developments that contain mixed housing stock;
- Provide a high-quality urban landscape;
- Avoid parking areas which contain over 10-15 spaces;
- Create roads that are profiled with pedestrians and cyclists in mind;
• Provide floor-ceiling heights and building depths that allow flexibility and later conversion from housing;
• Provide flexible internal layouts which can be adjusted as occupant life-style changers;
• Provide between 0.5 and 1 car parking spaces per dwelling; and
• Provide private external space for each dwelling.

These principles/patterns are all seen as fundamental to creating intensified housing schemes that are acceptable to residents and all but 'mixed housing stock' have direct implications at the scale of the urban block. Mixed housing can be addressed at this level but can also be addressed at the neighbourhood scale. However, whilst this 'checklist' of design principles provides valuable insight into the ingredients necessary within future compact housing development, it fails to provide any 3-dimensional indication of how schemes will look and fails to establish if all the principles can be achieved within one development.

In light of this suggestion the following section attempts to create three potential urban housing models which embody as many of the above principles as possible whilst still achieving a density of between 60-95 DPH.
Design is based on a recent development at Borneo, Amsterdam. The block size is 86x45m, which falls within Llewelyn-Davies standards for an 'Overall Optimum Grid Size' and the development density is 71 DHP, which achieves the 'Proposed Optimum for Sustainable Housing'. Each individual unit is 3 storeys high and contains its own internal car parking space and roof garden. Unit width is based on the Dutch 5.4m standard and housing depth has been maximised. Further to this internal layouts could be designed to provide flexibility. Roads are profiled towards cyclists and pedestrians. This model does not, however, provide any public space and contains only one housing type.
Design of model D2 reflects a hybrid approach to English and Dutch planning advice. The block size is 91x65m, which again conforms to Llewelyn-Davies advice. The density is also within the optimum zone at 66 DPH, but here more external space is created by placing one unit on top of another and by reducing the car-parking standard to one per ground floor dwelling.

Each dwelling is still provided with its own garden, has direct access to the street and distance between over-looking units has been maximised to 20m.

Again, this model can be constructed to allow flexibility in internal layout, but here model D2 provides 2 alternate housing types.
Model D3 continues the themes developed in D2 but takes an alternative approach to parking. D3 creates the same block size, density, road layout and distance between dwellings as D2 but here one car parking space per dwelling is achieved by placing communal parking areas within the lower ground floor of each row. This change prevents parked cars dominating the front façade of units and creates additional living space within the lower units. This also provides the architectural opportunity to design more interesting elevations. Further more, it creates a changing street level around the units, which from an urban design point of view could be beneficial.
Model Conclusions

Design investigation has proved that Dutch development patterns can be introduced into English housing design without preventing UK standards being achieved. It has also shown that sustainable residential densities can be achieved without the creation of high-rise or super-block development and that block size can be maintained at an acceptable level for pedestrian and vehicle permeability. Further more it has shown that roads can be profiled towards pedestrians and cyclists in these development without adversely effecting net density. It has also been illustrated that car-parking standards can, if necessary, be maintained without the creation of large areas of external surface parking.

However, design illustrations also suggest that the front facades of models D1 and D2 could become dominated by parked cars, which could be visually negative and may restrict the design opportunity to create an active frontage. A problem that is, however, avoided by type D3, which places parked cars within a lower ground floor with one communal garage entrance on the side elevation. Furthermore, at the neighbourhood scale models D1, D2, and D3 suggest that a diverse and interesting urban environment would not be created by limiting the number of potential housing models available and therefore it is concluded that future models based on the Dutch system should not replace traditional models developed by Llewelyn - Davies but should rather create a new tier within the established spectrum of generic housing types.

In final conclusion it can be proposed from primary/secondary research and design investigation that the Dutch treatment of density does provide a model for future physical planning in England. In the main this is a reflection of the fact that Dutch development conforms to the optimum zone of sustainability as established by research rather than attempting to create ultra high-density schemes, which are often viewed as over-development. Moreover it can be concluded that their design ideas can be used to inform a future 'pattern language' for intensified development in England because most do not conflict with UK guidance and their patterns have been seen to create housing areas in the Netherlands that people like.
## List of Interviews

<table>
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<tr>
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<th>Interviewee</th>
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<tr>
<td>13 April, 2000</td>
<td>(P)</td>
<td>Erik Klusman, Physical Planning Department <em>(dienst Ruimtelijke Ordening)</em>, Amsterdam.</td>
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<tr>
<td>14 April, 2000</td>
<td>(P)</td>
<td>Barrie Needham, Professor of Spatial Planning, School for Planning and Environment, University of Nijmegen.</td>
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<tr>
<td>01 February, 2001</td>
<td>(T)</td>
<td>Prof. Dr.ir. H. Priemus, OTB Research Institute for Housing, Urban and Mobility Studies, University of Delft (TU Delft), Delft.</td>
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<tr>
<td>17 March, 2001</td>
<td>(P)</td>
<td>Dr D. Ipenburg, Department of Infrastructure, Transport and Spatial Organisation <em>(Sectie Infrastructuur, Vervoer en Ruimte)</em>, University of Delft (TU Delft), Delft.</td>
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<tr>
<td>19 March, 2001</td>
<td>(P)</td>
<td>Harry van Veenendaal, Physical Planning Department <em>(dienst Ruimtelijke Ordening)</em>, Amsterdam.</td>
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<tr>
<td>19 March, 2001</td>
<td>(IS)</td>
<td>Hein de Haan, School of Architecture, University of Delft (TU Delft), Delft.</td>
</tr>
<tr>
<td>20 March, 2001</td>
<td>(P)</td>
<td>Joep Boute, Physical Planning Department <em>(dienst Stedebouw en Volkshuisvesting)</em>, Rotterdam.</td>
</tr>
<tr>
<td>20 March, 2001</td>
<td>(IS)</td>
<td>Joep Boute, Physical Planning Department <em>(dienst Stedebouw en Volkshuisvesting)</em>, Rotterdam.</td>
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</tbody>
</table>
22 March, 2001  (IS)  Dr Daan Drenth, School for Planning and Environment, University of Nijmegen.

(IS) Interview on development Site
(P) Personal Interview
(T) Telephone Interview

List of Lectures

22 March, 2001  Professor Barrie Needham, School for Planning and Environment, University of Nijmegen.

31 January, 2001  Anne Powell, Cities for a Small Country, Bartlett School of Planning, Gordon Street, London.
Bibliography


Appendix A: Graphic Illustrations of Generic Housing Types*

<table>
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<th>Illustrative View</th>
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Note:
*All illustrations reproduced from Sustainable Residential Quality, Exploring the Housing Potential of Large Sites (Source: Llewelyn - Davies, 2000). Some plans and illustrations have been reoriented to create a coherent format.