The Sir George Pepler International Award: 2006

‘Urban Design for Sustainability: Learning from Helsinki’

Carol Schulz
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1. Introduction

Urban Design is a key driving force in the manipulation and moulding of a sustainable world. Arguably, the importance of sustainable design exceeds that of the aesthetic of design because the principal role should be to design spaces that will ultimately be assets to the environment. Planning and the process of regenerating places are undergoing significant change as they seek to respond to global challenges and opportunities, particularly as the world faces an uncertain future. This Study shall provide a response to a perceived urban design skills and knowledge deficit. It shall provide practitioners in the urban landscape with valuable recommendations for sustainable urban design models to enable the Government to better deliver its vision of an ‘urban renaissance’. We have the ability, and the responsibility, to challenge and transform the status quo from a sustainable standpoint. Sustainable design as a movement should be demonstrated to the masses by those in our profession and it is our duty to uphold our roles as ambassadors for the sustainable vision of the future by bringing new ideas to a world in need of “green guidance.”

Historically, the emphasis in the development of models of sustainable urban form has been on environmental sustainability, while the development of urban design strategies/models that address the other aspects of sustainable development is only now being addressed.

2. Aim and Objectives

2.1 Aim

The main aim of this study is to deliver a set of invaluable, practical and feasible recommendations to inform the reformed planning system on implementing successful, sustainable urban design strategies to coincide with the production of the Local Development Framework (LDF).

2.2 Objectives

- To identify and compare models and strategies of good practice of urban design in Finland (Compact City/Short Cycles Strategy)
- To assess their potential (through site-visits, Place Check and interviews) to be transferred to the UK and support sustainability in the UK,
- To present a review of best practice and recommendations for action, particularly aimed at integration into the forthcoming Local Development Framework.

3. Context

As planning laws have changed, most local planning authorities (LPAs) are in the process of replacing their old local plan/unitary development plans (UDP) to coincide with this reform. The local development framework (LDF) is the term given to the planning documents that will gradually replace the local plan/UDP. The new LDF will incorporate a suite of simpler, more flexible, transparent documents that can be updated more readily. The LDF allows LPAs to tackle those areas in most need of improvement, and provides detailed guidance on specific topics. Coupled with this change is the acceptance that urban design must provide a more crucial and active role in the production of LDFs in order to create sustainable communities. The introduction of sustainability appraisals, sustainability statements, design and access statements and other recent changes to the planning system have brought sustainability to the forefront.
A number of documents have emerged at the national level, which have helped raise the profile of sustainability. The UK Sustainable Development Strategy ‘Securing Our future’ was published in March 2005 and sets out five guiding principles to achieving sustainable development for the UK. These are:

- Living within environmental limits
- Ensuring a strong, healthy and just society
- Achieving a sustainable economy
- Promoting good governance
- Using sound science responsibly

The Planning and Compulsory Purchase Act 2004 also requires regional and local plans to be prepared with a view to achieving sustainable development.

Planning Policy Statement 1 (PPS1) ‘Delivering Sustainable Development’ was produced in 2005 and provides guidance on the contribution that planning can make. PPS1 is based upon six key principles:

1. Development plans should ensure the pursuit of integrated sustainable development;
2. Development plans should contribute to global sustainability;
3. A spatial approach should be at the heart of planning for sustainable development;
4. Plans should promote high quality, inclusive design;
5. Plans should include clear, inclusive access policies; and
6. The community should be involved in setting the vision for plans.

A draft PPS on Planning and Climate Change was published for consultation in December 2006, which supplements PPS1. Sustainability principles are also embodied in other national PPSs, PPGs and other guidance (see references).

Sustainable Communities has been defined by many academics and practitioners, however the definition quoted below is one taken from Richard Stren et al (1992) in his book ‘Sustainable Cities: Urbanisation and the Environment’:

“Sustainable urban development in the context of human settlements . . . means the continuing maintenance, adaptation, renewal, and development of a city's physical structure and systems and its economic base in such a way as to enable it to provide a satisfactory human environment with minimal demands on resources and minimal adverse effects on the natural environment.”

A more well-known definition emerged in 1987 at the Brundtland Commission. This definition stated that Sustainable Development is:

‘Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.’

Despite the recent and forthcoming publications which promote sustainable development in the public arena, it is considered that there is little advice surrounding models of sustainable urban form and what these actually mean in practice. To bridge this gap, this report shall focus on the capital city of Finland, Helsinki, and the state of the art concepts of sustainable urban design which can be found there, in order to persuade readers of the importance of sustainable urban design in future planning and more usefully, suggest how sustainable design can best be achieved.
4. Methodology

4a) Interviews

A crucial part of this research was interviewing the two leading planners/architects of two well-regarded development projects in Helsinki; the Viikki project and the Pikku- Huopalahti project. The individual project information/data discussed in this study (set out within the ‘case studies’ section) derived from the interviews and literature obtained from these key, and influential people; Markku Siiskonen, project leader, architect for Viikki project, and Matti Visanti, planner and architect for the Pikku Huopalahti project.

4b) ‘Place check’ definition and explanation/methodology

The term ‘Place check’ is being used increasingly in terms of urban design and investigating the existing qualities and potential improvements of various places. The full Place check method reflects the approach described in the ODPM/CABE design guidance By Design. Significantly, the Urban Design Alliance’s (UDAL) launch of the Place check initiative has put this methodology at the forefront on investigating place. In general terms, Place check is a method of investigating how a place can be changed for the better. It assesses a place's qualities and shows what improvements are needed. In order to do this the Place check asks a number of questions. The answers to these questions contribute to the success of the place check. The Place check initiative has the backing of many important groups such as the Commission for Architecture and the Built Environment, the Local Government Association, and One North East (the North East's Development Agency). The ultimate aim of initiating a Place check is to create a better understanding of a place and will lead to deciding the next step. Some Place checks will prepare the ground for the sort of documents that councils, regeneration partnerships, developers and local communities issue to guide future development in an area. For the purpose of this study, a simple place check was carried out for each site in order to clarify and understand the issues associated with each approach to development at both Viikki and Pikku- Huopalahti. The Place check was carried out with the resources available, which included 5 residents of Vikki and 3 residents at Pikku Huopalahti (see appendix C and D) and the results fed into both the conclusion and recommendations chapters of this study.

5. Mega Trends driving unsustainable development

Whilst this study has thus far explained the increasing importance placed on sustainable urban design in recent and emerging publications, together with the chosen methodology to effectively pursue the study, it shall now go on to set out the main issues to be faced on a Europe-wide scale in response to a common set of ‘mega trends’, namely globalisation, the growth of mobility, demographic trends such as an ageing population and the growth of smaller and single person households, which justify the need for this study on an international level.
International Problems in the Built Environment:

The Built environment internationally generates significant environmental impacts, making sustainability a critical objective for the construction and property industry. The following trends are true across the world; however the data available is specific to the UK. The environmental impacts of the UK construction sector include:

- Buildings account for approximately 44% of total carbon dioxide emissions (18% from the non-domestic sector, 26% from the domestic sector).
- Approximately 13 million tonnes of the construction and demolition waste produced every year is made up of materials delivered to sites but never used.
- Around ¼ of UK industry energy consumption is attributed to the production and transportation of construction products and materials.
- Built up areas (including gardens and transport infrastructure) cover 10% of the land surface of Great Britain. In rural areas, the cover of developed land increased by about 4% between 1990 and 2000.
- Approximately half the water abstracted in the UK is used in buildings.

(McAllister and Sweett, 2007)

These facts are worsened by trends, discussed below:

Globalisation

Globalisation includes the increasing spatial division of labour and economies of scale in the international economy, overriding any increase in transportation costs (which often, in any case, are highly subsidised). Large scale, single use developments outside the main urban areas are contributing to urban sprawl. Consequently, the transport of goods and mobility of people continues to grow steadily every year adding to the pollution of the global environment, the depletion of fossil fuels and pollution and congestion at the local level. The development of transport infrastructure, and particularly roads, responds to the economic pressures and in turn increases mobility and accessibility, opening up rural areas to new urban development, with the demand for easing the long distance and international flow of goods over-riding local sustainability needs. The growth of mobility, of the transport infrastructure and other infrastructures, especially in the area of information and communication technology (ICT) is also resulting in the emergence of new, more polycentric patterns of urban development, with a greater specialisation of functions between centres (as well as increased competition) and the growing importance of networks of cities. The challenge for urban design is to respond to these emerging patterns in a proactive way that overcomes negative effects such as excessive car-based mobility and urban sprawl (Lloyd-Jones, 2004).

Growth of Mobility

The increasing cross boundary movement of people associated with increasing international flows of goods, information and finance, along with regional economic imbalances, are adding to the pressures for mass migration. Many of the migrants to cities in the UK come from poorer countries beyond its borders (Lloyd-Jones, 2004). Although there are many examples of successful mixed ethnic neighbourhoods in European cities, tensions between newcomers and existing residents remain. This can be exacerbated by cultural and ethnic differences, especially in neighbourhoods characterised by poverty and social exclusion. Urban design can help provide the physical framework for overcoming differences and segregating processes, as well as accommodating the need for a variety of expressions of cultural and ethnic identity (Lloyd-Jones, 2004).
Demographic trends

Growing prosperity and wealth and increasing demands for an improved quality of life are reflected in the increasing consumption of land and space, demand for privacy and better living conditions and access to green space. Demographic trends, including an ageing population and the growth of smaller and single person households, are adding to the demands for new housing and to the pressures for suburbanisation in rural areas (as well as for improvements to the quality of the environment and everyday life in inner city areas). Valuable agricultural land, amenity space and natural reserves of biodiversity are being lost. At the same time, increasing land values and property prices in cities make housing in locations that are accessible to livelihood opportunities and services increasingly unaffordable for many sections of the population. The relationship between the housing market and public land and housing policies and urban design is critical (Lloyd-Jones, 2004).

This study shall explore whether urban design can provide the framework for achieving a good quality of life when the attempt to meet these challenges may require higher densities and better mixes of development, which are competing priorities, providing an element of risk and a potential barrier to the creation of a sustainable community. It shall seek to illustrate that a position needs to be adopted in order to address the environmental needs put under pressure in this ever-changing world and this must commence with an understanding of what ‘sustainable urban form’ really means.

6. Sustainable Urban Form

In order to investigate and assess two examples of models/strategies of urban form (objective 1 of this study), it is necessary to discuss what is meant by sustainable urban form.

Sustainable urban form encompasses a number of inter-related aspects of development; not restricting thinking to location (although this is very important), but additionally encapsulating ideas and theories on net and gross densities, networking (infrastructure), self-sufficiency, integration between the built and natural environment, ecological and renewable techniques, the lifestyle of its habitants (which can be influenced through sustainable form) and how the place really works.

Within planning research, it is commonly assumed that the design and location of residential areas have important consequences for households’ consumption of energy for housing and transport. A number of studies point towards three distinct consumption categories as the major problem areas: housing, transport and food (Hille, 1995; National Consumer Agency of Denmark, 1996; Holden, 2001; Lorek and Spangenberg, 2001; Aall and Norland, 2002). According to Holden and Norland (1995, pp. 16), these three categories “account for as much as 80 per cent of the direct and indirect environmental impacts caused by households”.

It is believed that physical planning and design make it possible to achieve a more sustainable consumption pattern (Breheny, 1996, p. 13). According to Breheny (1996), the use of the planning system seems to be a common solution for achieving major environmental improvements and particularly for achieving sustainable development (Holden and Norland, 2005).

The SusHomes Project raised the following questions. Do land use characteristics influence energy use for housing and everyday transport and, if so, how? Is it possible to identify a correlation between land use characteristics and the residents’ long leisure-time travel? How important is the influence of land use characteristics compared with the socioeconomic position and the environmental attitude of individuals? What do the answers to these questions imply for urban sustainable development policies and strategies? (Holden and Norland, 2005).

According to Breheny (1996), until the 1960s planning was an important instrument for realising visionary ideas. Based on a long history, planning provided credible answers about how we should form our built environment
and subsequently our society. Following the Brundtland Commission report of 1987, Our Common Future (WCED, 1987), a new optimism about planning emerged. Since then, a debate about the role of planning in promoting sustainable development has been on-going. The crucial question is, which urban forms will most effectively deliver the greatest environmental protection? Or rather, what is sustainable urban form in practice?

7. What is Sustainable Urban Form in Practice?

Even among the supporters of planning, there is a lively debate about which urban form and land use characteristics actually promote a more sustainable society. There are two dominant and contradictory theories about sustainable urban form: the compact city and the dispersed city. Only recently have theories of the Short Cycles Strategy (a dispersed-compact city) come to the forefront of thinking on sustainable form.

7.1. Compact City:

The main principle in the compact city theory is high-density development close to or within the city core with a mixture of housing, workplaces and shops. This implies densely and concentrated housing development, which favours multifamily housing. Under this theory, development of residential housing areas on (or beyond) the urban fringe, and single-family housing in particular, are banned.

The Compact City strategy focuses on the form of the city and the efficiency of the distribution of human activities within it, making optimal use of the infrastructure of the city, particularly transport infrastructure, through compact, mixed-use and dense settlement structures enabling effective use of public transport and non car-based movement systems and minimising vehicular movements.

The Compact City strategy implies a concentrated urban form within the boundaries of existing urban settlements (or through limited urban extensions) and possible increases in gross densities through development of infill and brownfield sites, or redevelopment at higher densities – ‘urban intensification’. Most commonly, the Compact City is visualised as an adaptation of the traditional 19th century (and pre-19th century) European city, also seen in the North American gridiron cities of the early twentieth century. This is the model, with its fine urban grain, traditional street spaces, mixture of uses, and high densities supporting urban vitality, a range of services and public transport systems that the American economist, Jane Jacobs argued for in her classic polemic against the modernist, planned functionally-segregated 20th century city, The Death and Life of Great American Cities.

The supporters of the compact city theory (for example, Jacobs, 1961; Newman and Kenworthy, 1989; CEC, 1990; Elkin et al., 1991; Sherlock, 1991; Enwicht, 1992; McLaren, 1992) believe that the compact city has environmental and energy advantages, as well as social benefits. The list of advantages is remarkably long, including a better environment, affordable public transport, the potential for improving the social mix and a higher quality of life (Frey, 1999). However, the main justification for the compact city is that it results in a low energy-intensive activity pattern, thereby contributing to the control of global warming (Holden and Norland, 2005).

7.2 The Short Cycles Strategy:

The supporters of the dispersed city or short cycles strategy suggest the green city—i.e. a more open type of urban structure, where buildings, fields and other green areas form a mosaic-like pattern (Næss, 1997).

The Short Cycles strategy is associated with the environmental thrust of Local Agenda 21 and an emphasis on achieving local environmental sustainability through more efficient local use of natural resources and recycling, greater local economic autonomy and a smaller ‘ecological footprint’. One model of its realisation is in a spread out, low gross density city (with space for horticultural production and recycling associated with large, single family housing plots) but, within the European context, it is more commonly envisaged as an urban system.
consisting of a series of small, compact town-size settlements with easy access to natural areas and space for natural processes in their immediate surroundings. This type of model is particularly appropriate for new settlements and greenfield site developments (Lloyd-Jones, 2004).

The Compact City vs. Short Cycles strategies suggest a basic polarity of centralised vs. decentralised urban forms, but the dimension of concentrated and deconcentrated urban form also need to be considered (Lloyd-Jones, 2004). Here, the concept of gross densities and net densities is useful. While the Short Cycles model implies lower overall or gross densities than the Compact City approach, this study argues that the population may still be concentrated in smaller, high density settlements (as discussed below).

The Compact City, by contrast, implies both centralised and concentrated urban development, with the population concentrated in existing large as well as medium-sized and smaller cities. This corresponds to the reality in most countries and hence its adoption as the favoured strategy in many European countries.

However, there are many elements of the short cycle or ecological approach that can also be applied in existing urban settlements, including large ones. Many cities have consciously adopted planning and urban design policies that increase the quantity, quality and accessibility of green spaces in cities, enlarging and integrating the green structure, for example through green networks and the landscaping of the public realm, giving additional possibilities for recreation and leisure as well as having an intentional ecological impact on the microclimate of the city and reducing the impacts of pollution. The case study of Viikki shows that the best solution lies in dispersed, yet compact-green city fusions (as discussed below).

This study will explore the argument of whether the Compact City approach remains a key element of urban design for sustainability and shall aim to demonstrate through case studies that urban design and landscape design must be closely linked (Lloyd-Jones, 2004). This study seeks to demonstrate that the contemporary city should be compact and green at the same time.

8. Case Studies

The main thrust of this study will be the exploration of two examples of environmentally sustainable urban form that have been developed in Helsinki and that are broadly variations and hybrids of the aforementioned two basic strategies. These sustainable urban design strategies shall be explored by means of examples of these models in practice. ‘Place checks’ have been carried out on site to question their successes/failures and potential to be transferred to the UK context and interviews with the lead planner and architect of both projects, have played a vital part in the completion of this section. The two urban design strategies are:

- the Short Cycles strategy (using the case study of Vikki, Helsinki) see figure 4 below.
- the Compact City strategy (using the case study of Pikku-Huopalahti, Helsinki)- see figure 4 below.

9. Why Helsinki, Finland?

The traditional Finnish town is a prime example of how cultural strengths can drive reform. The interviews conducted on the study visit were useful to build up new and confirm existing knowledge of the planning system in Finland. Sustainable urban planning principles are enshrined in the Land Use and Building Act of 1999, and the core role of the municipalities in the land use planning and urban design at the provincial, municipal and local levels. The
cities, towns and other communes have the monopoly of master and town planning. Bigger cities have their own planning departments, which have the skills to produce master plan and town plans in house. Helsinki is committed to training employees and ensuring staff have a wide set of skills. Even if plans in smaller towns and communities are drawn up by consultants, they are compiled by the local authorities. Architectural/Design competitions are extensively used for strategic development sites and these have proven highly effective (as discussed within the case study section).

10. Differences between the Finnish and UK Planning System

For the purpose of this research, it was possible to meet and interview two very influential planners in Helsinki City Planning Department. Markku Siiskonen was the lead architect and planner on the Viikki project, whilst Matti Visanti was the planner and designer for the Pikku Huopalahti compact city. Siiskonen provided useful information regarding the planning system in Helsinki, explaining that the system has three levels of land use plan with a clear division of labour between them: the ‘regional land use plan’, the ‘local master plan’ and the ‘local detailed plan’. In addition, it was explained that the government defines national land use goals which are supervised by a central government or regional environmental authority when implemented in land use planning. The goals may apply to regional structure, quality of the living environment, infrastructure, ecological sustainability and natural and cultural heritage of national importance.

Within a local authority, the local master plan is an instrument for guiding and coordinating land use at a general level. It can be either a very general strategic plan or a more detailed one for direct regulation of building, depending on the need. The local master plan is used to resolve questions concerning the functionality and economics of the community structure, the accessibility of services, the preservation of natural and cultural values, and the quality of the living environment and the reduction of environmental hazards. When the plan is being drawn up, consultations have to be held with the Regional Environmental Centre, which ensures that national goals are taken into account in local plans (Lloyd-Jones, 2004).

Detailed plans, such as town plans are used for regulating, building and the formation of the physical townscape. The emphasis is on taking local conditions into account and promoting the use of the existing building stock. Special attention has to be given to ensuring that there are enough parks and local recreation areas, and detailed plans must not reduce the quality of anyone’s living environment without very good reason. In addition, every local authority has its own building ordinance, the content of which is defined according to local needs.

Unlike many authorities in the UK, the City of Helsinki owns a large proportion of the land in its borders and can therefore exercise strong control over the objectives and standards of development, including the social and tenure mix of housing, which is 50% owner-occupied and 50% for rent. The City works in partnership with reliable commercial developers who construct and manage the development on a long-term lease contract basis (Lloyd-Jones, 2004). The detailed planning aspects are controlled through the submission of development plans (Master Plans) and detail plans according to the new Building and Planning Act, which also requires all stakeholders to be able to participate in the planning process. As aforementioned, the city has a large land holding and plans its development, including housing development. The plots are handed over for construction and management to reliable commercial developers who lease the plots with long-term contracts on completion.

To summarise, Finland and the UK have very different approaches to the production of work (master plans, area action plans etc). The Finnish Government place great value on training employees to produce the work in-house and consultants are used sparingly. If some use of consultants is essential (i.e. advice/additional resources for smaller authorities), agreed reliable consultants are approached and the master plans are still ‘compiled’ in house.

For Matti Visanti and Markku Siiskonen, whilst these technicalities are interesting (for comparative purposes with the UK), it is the models and strategies used for plans that they consider to be the most effective approach made by
planners in Helsinki. Markku Siiskonen stressed the importance of considering the urban form of a proposal as well as the sustainability aspects of both design and construction of the development.

This study shall now go on to focus on the first case study of Viikki, (approximately 8 kilometres from Helsinki City centre), a Short Cycle Strategy. Examples of good practice can be found in the Viikki development comprising the Helsinki Science Park and ecological housing. The southern part of Viikki, according to the master plan, is reserved for the teaching and research farm of the University of Helsinki and a large natural protection area.
Case Study 1: VIIKKI (please read this section in association with the interview: appendix A and place check: appendix C)

Viikki is a housing area under construction in Helsinki. The distance from Helsinki city centre is approximately 8 kilometres so whilst not too far from the centre, the area is not considered an extension or part of the centre. There are however, excellent connections from Viikki to all parts of the metropolitan area. The aims for Viikki were clearly set out from the start, and aimed higher than ever before.

Viikki is recognised as a hybrid of a short cycle strategy, decentralised and very ecological and autonomous.

Viikki’s landscape consists primarily of hundreds of years old fields and low-lying wetlands, which is a ‘Natura conservation area’, ‘an ornithological paradise in the middle of a capital city’. The University of Helsinki has a campus based in this area.

Ecological Housing Area

Viikki is the first ecological housing area to be built in Finland. The design of Viikki’s housing areas has aimed at the achievement of a healthy, sustainable and adaptable living environment. In construction and building use, the conservation of natural resources, as well as prevention of harmful emissions and waste, have been the primary objectives. The developed area is dense, whilst the natural area has been protected and integrates well with the development. The overall gross density is low.
Local Plan (masterplan): Viikki

The preparation of the local plan for Viikki had begun in 1989, when in Viikki there were only the Faculties of Agriculture and Forestry of the University of Helsinki.

The starting point of the local plan was to extend the university area, specialising in bio-sciences and bio-technology, and to construct an extensive new residential area connected to the Science Park, whilst preserving the natural and cultural values of the area.

The main parts of Viikki are the Viikki Science Park and Latokartano housing area (see figure 5). When the construction is completed by 2010, Viikki will provide 6 000 jobs, places for 6 000 students and homes for 17000 inhabitants. The original plan for the entire area is set out below (figure 6).
VIIKKI

Science Park

The Science Park is a growing complex of university buildings, research institutes, laboratories and commercial services that will become the new city district’s functional centre. The Helsinki Business and Science Park Ltd, owned by the Finnish government, University of Helsinki, Sitra and several business associations, promotes and develops the biosciences and their closely related business enterprises whose operations are based on scientific innovation. The Science Park’s focus area is biotechnology in its various forms.

The University of Helsinki has strongly profiled itself in its building projects as a promoter of ecological sustainability, and its bio-science campus in Viikki is a good example of this.
VIIKKI
Latokartano Housing Area

Most of Viikki’s housing construction is located in Latokartano Housing Area. The three first sub-areas were completed during 2005 after which the focus of construction shifted to the northern section of Latokartano.

By 2012 the population in Latokartano will be approximately 11 000. The area will feature a diverse housing stock that includes apartment buildings, low-rise apartments, row/terrace houses and two-family houses.

A local service centre is under construction between the third and fourth sub-areas and it will be well-equipped, containing both public and commercial services. This level of provision should discourage unnecessary travelling to other areas. In the centre of Latokartano housing area there is Viikinoja Park that is linked directly to Viikki’s extensive green areas.

Figure 10: Latokartano Housing Area Plan

Figure 10: Latokartano Housing

Figure 11: Cycle stands are a dominating feature in Viikki, promoting sustainable travel.

Figure 12: Aerial View of Latokartano

Photo: City of Helsinki/Real Estate Department/City Survey Division
Eco-Viikki is the southernmost section of Latokartano housing area. In this ecological experimental area the target has been to find housing solutions for improving the ecological quality of (net) high-density housing construction through design competitions and pilot projects.

The detailed plan for the area is a direct result of the competition, promoting interest, and providing ownership of the design and development. The winning entry’s urban structure and implementation of ecological principles were based on:

- a finger-like structure where the buildings are grouped around residential precincts, with “green fingers” penetrating between the built areas
- the major part of the buildings is directed optimally towards the south
- the compact structure, lower at the edges and rising towards the centre is a favourable one from the point of view of wind abatement
- a wind shelter zone, formed by vegetation between the open field and the built-up area

When completed in 2005, the Eco-Vikki area contained approximately 1 700 inhabitants.
VIIKKI

Ecological building criteria

Perhaps the most important tool for promoting the quality of the environment in Viikki, was the plot reservation conditions. Their central advantage was that the buildings had to fulfil the minimum requirements of ecological criteria which were produced for the area. Furthermore, each project had to include ecological experimental building and follow the good building practice recommendations established for the area. The developers were also obliged to participate in the monitoring, presentation and reporting of the results of eco-building.

The ecological building criteria for Eco-Viikki area consisted of 5 factors to be taken into account: pollution, availability of natural resources, health, biodiversity of nature and nutrition. These factors contained a total of 16 criteria to be assessed, and were given 0-2 points, depending on the degree of the ‘ecologicalness’. Each factor in each project had to reach the minimum level (=0 points). The minimum level itself represents a clearly better level than the conventional level of building. For instance, the minimum level of the heating-energy consumption to be purchased was 105kWh/m²/year, which is 34% less than in conventional building. In order to gain 2 points, the solution had to be as much as 59% more energy efficient.

The criteria thus defined the levels of ecology, but not the means of how to achieve them. Thus it was thought that there should be a larger range of different solutions, providing a degree of flexibility for developers. The criteria factors were given a weighting. The most important factors were those which could be most influenced in Viikki, such as pollution. These factors are set out below:

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<td>18</td>
<td>(-10%)</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Domestic waste</td>
<td>160</td>
<td>(-20%)</td>
<td>140</td>
<td>120</td>
</tr>
<tr>
<td></td>
<td>Ecol labels</td>
<td>none</td>
<td></td>
<td>2</td>
<td>many</td>
</tr>
<tr>
<td></td>
<td>Co2</td>
<td>3 200</td>
<td>(-20%)</td>
<td>2 700</td>
<td>2 200</td>
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<tr>
<td></td>
<td>Waste water</td>
<td>125</td>
<td>(-22%)</td>
<td>105</td>
<td>85</td>
</tr>
<tr>
<td></td>
<td>Construction site waste</td>
<td>18</td>
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<td>15</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Domestic waste</td>
<td>160</td>
<td>(-20%)</td>
<td>140</td>
<td>120</td>
</tr>
<tr>
<td></td>
<td>Ecol labels</td>
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</tr>
<tr>
<td>8</td>
<td>Natural resources</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Heating energy</td>
<td>105</td>
<td>(-34%)</td>
<td>85</td>
<td>65</td>
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<td>Primary energy</td>
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<td>Flexibility, common use</td>
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<td></td>
<td>15%</td>
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<td>Moisture risks</td>
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<td>innovative</td>
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<tr>
<td></td>
<td>Noise</td>
<td>norm</td>
<td></td>
<td>new norm</td>
<td>better</td>
</tr>
<tr>
<td></td>
<td>Wind protection, solar impact</td>
<td>plan</td>
<td></td>
<td></td>
<td>excellent</td>
</tr>
<tr>
<td></td>
<td>Alternative floor plans</td>
<td>normal</td>
<td></td>
<td>15%</td>
<td>30%</td>
</tr>
<tr>
<td>4</td>
<td>Biodiversity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plant selection</td>
<td>plan</td>
<td></td>
<td>better</td>
<td>excellent</td>
</tr>
<tr>
<td></td>
<td>Storm water use</td>
<td>plan</td>
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<td>better</td>
<td>innovative</td>
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<tr>
<td>2</td>
<td>Food production</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Planting useful plants</td>
<td>normal</td>
<td></td>
<td>1/3 useful</td>
<td>cultivation</td>
</tr>
<tr>
<td></td>
<td>Topsoil reuse</td>
<td>normal</td>
<td></td>
<td>on site</td>
<td></td>
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</tbody>
</table>

PIMWAG-points total 0 MAX 30
VIIKKI

Pilot projects

In the Eco-Viikki area the utilisation of solar energy was the most important of the pilot projects and it was implemented in many projects. Other ecological pilot projects include energy and water saving by various methods, healthy indoor air, housing unit convertibility, more advanced wood construction methods, as well as experiments involving natural ventilation.

Over half of the dwellings are also part of the solar heating system of individual residential blocks. Monitoring has shown that the Viikki solar-heating systems have generally given good results. The energy production of the solar heating systems was in 2002 an average 285 kWh/square meter of panel per year. The top figure was 395 which is a Finnish record in its class.

The aim is that the solar heating systems produce almost half of the energy requirements for heating the domestic hot water for dwellings. That means about 13% of the annual heating requirements. The solar collectors and their technology have functioned without fault in Viikki, but the systems’ heat discharge circuits and their adjustments still require fine-tuning after the first year of operation.

<table>
<thead>
<tr>
<th>SOLAR HEATING PROJECT ECO-VIIKKI</th>
<th>(Helen, AEE, Sonnenkraft, Solpros)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contractor (m²)</td>
<td>collector m²/storage m³</td>
</tr>
<tr>
<td>1 ATT 1 (2 600 m²)</td>
<td>120 m²/6,0 m³</td>
</tr>
<tr>
<td>2 ATT2 (5 000 m²)</td>
<td>250 m²/12,5 m³</td>
</tr>
<tr>
<td>3 VVO (4 600 m²)</td>
<td>150 m²/8,5 m³</td>
</tr>
<tr>
<td>4 Skanska 1 (4 500 m²)</td>
<td>230 m²/20,0 m³</td>
</tr>
<tr>
<td>5 Skanska 2 (2 400 m²)</td>
<td>96 m²/4,0 m³</td>
</tr>
<tr>
<td>6 Skanska 3 (3 800 m²)</td>
<td>220 m²/12,5 m³</td>
</tr>
<tr>
<td>7 Helas (2 050 m²)</td>
<td>80 m²/4,0 m³</td>
</tr>
<tr>
<td>8 ESY (2 000 m²)</td>
<td>80 m²/4,0 m³</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOLAR URBAN NEW HOUSING (SUNH)</th>
<th>(Fortum, VTT, TKK)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 ATT (4 000 m²)</td>
<td>157 m²</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOLAR ELECTRICITY PROJECT (PVNORD)</th>
<th>(Fortum, Helen, Lumon, Solpros)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 YIT (2 540 m²)</td>
<td>280 m² 24 kWp</td>
</tr>
</tbody>
</table>
VIIKKI

One of the Eco-Viikki-project’s basic starting points was the idea that the project had to include monitoring. The central task of the monitoring was to study the attainment of set goals, particularly the realisation of the eco-criteria. The monitoring research includes consumption data (heating, electricity, water) reports about plot ecology and surface water run-off, as well as an extensive residence survey. Results will inform types of sustainable construction in future projects.

With regards to heating energy, the goal in Eco-Viikki was that district heating bought from the outside would be needed for a maximum of 105 kWh/square meter of heated apartment, which is 33 % less than what a conventional residential building in Helsinki consumes.

The actual heat consumption in Eco-Viikki properties varies considerably. The average actual consumption was 120 kWh/square meter. The goal was not quite achieved during the first years of operation, however, now the heating energy savings amount to about 25 % compared to conventional building and normally it takes a few years before all the adjustments of the heating and ventilation systems in the houses have been fine tuned.

General factors that influence the heat consumption include solution for ventilation and heat recovery from the ventilation, the house type, utilising solar heating, the type of residency, inhabitant density and the consumption of household hot water.

If the inhabitant density would be the same as that of the average for Helsinki, the Viikki consumption figures would be reduced by an estimated 5 %.

With regards to electricity consumption for each residential block, the aim was that the maximum 45 kWh/square-meter per year of electricity would be bought by the residential block and individual flats.

The actual electricity consumption varies even more than the heat consumption, which is probably partly due to the fact that the type of household appliances and the individual user habits have a great influence of electricity consumption. The average, however, is in accordance with the goals.

The factors that have significantly influenced the electricity consumption in residential blocks and apartments are the form of ownership, ventilation technology, individual saunas in the flats, building type, the amount of shared spaces and lifts.

In Viikki the aim was for each Viikki resident to consume a maximum of 125 litres of water per day, which is about 22 % less than normal. In addition, the target consumption figures issued by the developers were often clearly smaller than this.

The actual water consumption varies a lot, but the average daily consumption is 126 litres per inhabitant, which is within the target limits. The house-type, form of ownership and the presence of a sauna have been studied as factors influencing consumption. The collection and use of rainwater for watering gardens have saved considerably on tap water.

Currently, the families in Viikki have comparatively many small children, which increases water consumption, but with time, however, the consumption will probably lead to a reduction in consumption. A water meter for the individual flats was installed in almost all residential blocks in Eco-Viikki, but during the year that the monitoring study was carried out, they were not yet operational.
It was acknowledged in Viikki that the ecological sustainability of a residential area ultimately depends on the lifestyle of its habitants; a factor often forgotten when thinking about sustainable design. Ecological behaviour is influenced by a knowledge-based preparedness regarding the function of the buildings and their technical systems, as well as the everyday life and personal choices based on these. A resident’s survey was conducted by the City of Helsinki to explore the nature and profile of the inhabitants at Eco-Viikki:

The age distribution of Viikki residents is similar to that in other new residential areas in Helsinki but there are more children and young parents (30-44) than average in Helsinki. Despite the variety of ownership forms, residents in Eco-Viikki seem to be more educated than average with 45% of the respondents having a university degree and the average size of the households being 2.4% persons, which is larger than the average in Helsinki.

Ecology however, usually was not the most important reason for moving into the area. For instance, its location close to nature was seen as a much more important asset. Initially it was expected that particularly ecologically-inclined people would gravitate to the area. A part of the inhabitants do indeed belong to this group, but a clear majority of the residents consider themselves as having only an adequate knowledge of ecological living. Moving to Viikki did also not change the ecological behaviour of the people to the expected degree, even though part of the residents say that the influence is seen in the sorting of rubbish, the decrease in water consumption, favouring organic food and gardening for household needs. Of those renting a flat in the area, a certain number selected on the basis of their social situation. For others, simply finding a flat in Helsinki over-rides any environmental goals. It is obvious that the lack of knowledge and motivation have been contributing reasons why the original environmental goals were not always achieved, particularly as the technology in the houses partly differs from conventional building. This illustrates the need to educate the population, as well as professionals about sustainability and the various forms it can take. All in all, Eco-Viikki differs surprisingly little from other new residential areas in terms of residents’ profile. This is, on the other hand, how it should be; ecology should indeed be a part of a “normal” lifestyle, not an alternative or exceptional one.

![Figure 18: There are safe, overlooked areas where children can play](image1)

![Figure 19: Residents enjoy large glass porches/sunrooms](image2)
The plot ecology
As one part of the monitoring stage a separate study was made of the plot ecology looking in detail at the success of the landscaping goals. In the criteria one aim was to offer the residents the opportunity for independent cultivation. An allotment garden can be found on every plot, or in the communal yards. The gardening plots have been well received by the residents and are diligently tended. Cultivation in the yards is rather small scale but the opportunities for cultivation give character to the area and apart from producing food it has also social importance.

Of all goals set for the diversity of vegetation in the area, the abundance of species is the one that has been best achieved. The abundance of edible plants separates Eco-Viikki from a typical Finnish residential area. There are fruit trees and berry bushes as well as other edible plants in all the communal yards. The influence of the ecological criteria in the selection of the yard vegetation is clearly visible.

Surface waters’ management
In the detailed plan the treatment of surface water run-off was used as a tool to promote ecological land use for the yard areas. It was required that through structural and other measures, the water coming from rain, melting snow and roofs should be slowed down to as large an extent as possible, and soaked into the ground. The aim was to keep the surface water run-off that flows towards the nature conservation area as clean as possible and to improve the habitat for the vegetation. The collection and use of rainwater for watering gardens has also saved considerably on tap water.
11. Viikki Interview with Markku Siiskonen and Place check analysis (please refer to appendix A and C for a full transcript of the interview with Markku Siiskonen and the completed Place Check)

11a) Interview

In the interview with Markku Siiskonen, it was emphasised that ‘the environment is assessed from the viewpoints of pollution, sufficiency or natural resources, health, natural diversity, and sufficiency of food. The intent is not to rank these factors in any order of importance; the view is that all are important to create a favourable ecosystem for people.

Siiskonen described the project as a success because from the start, the objectives were clear for both the planners, architects, and the developers. He believed that the inclusion of the project as a local plan (UK master plan) was a beneficial factor and the ‘adoption’ of ecological criteria that were considered by a unified front (all stakeholders) to be paramount to the project, allowed leverage to obtain sustainability. Siiskonen also placed particular emphasis on the design competition. He considered this to be the perfect solution to raise a development company’s profile and more importantly, achieve a quality sustainable urban design on a site. In relation to the compact city approach that is still favoured in most European countries, Siiskonen argued that the decentralised concentration at Viikki (high net densities and low gross densities- allowing for integration with nature and self-cultivation space, etc) is most definitely a sustainable urban form which deserves further consideration, and promotion at all levels. Siiskonen stated, “It is a hybrid of sustainable urban form…a chance to see the bigger picture….open your eyes and widen your vision to how sustainability can be best achieved”. He went on to argue that the compact city ironically is more likely to encourage increased dispersal when inhabitants dislike the lack of nature and decide to travel some long distances at the weekends and during holiday times to visit nature and open spaces in different locations.

In terms of the ecological criteria (PIMWAG points system), Siiskonen stated that in Helsinki, the PIMWAG points were used to evaluate the quality of experimental building projects.

In order for Viikki to be considered comprehensively ecological on all levels; (the whole area and the sub-areas), all designs had to meet the minimum ecological requirements. These requirements were designed to be attainable with a reasonable investment. By improving the building’s ecological properties above the minimum level, the site developer accumulates PIMWAG points. The system is open-ended to allow site developers to orientate themselves and collect points according to their own ecological preference and sets of values. The maximum number of points attainable is 30. A design that has collected 10 points can be viewed as representing an ecologically excellent project; exceeding the 20 point mark requires exceptional innovation and an extensive grasp of ecological principles from the project group- but this was always encouraged. Siiskonen explained that all potential developers had to submit a ‘sustainability statement’ which explained how the PIMWAG criteria was met and how the development would be sustainable.

According to tests, Siiskonen explained that minimum requirements can be attained with an approximately 5% increase in building costs. In Helsinki, this cost increase should be covered using conventional housing funding.

It was explained that the funding of ecologically outstanding or innovative projects can be arranged in Helsinki for instance by the following means:

City policy on fees and charges

Town Planning create economically favourable basis for the design of the area (parking requirements, connection charges, floor area specifications, etc).

11 b) Place check

5 residents in Viikki agreed to take part in this study and facilitated in the competition of a simplified place check analysis (see Appendix C). To summarise, the residents generally felt positively about the development and thought the development was a success in terms of sustainability, and “being a good place to live”. One resident (pseudonym Karl) stated that since moving to the area, his lifestyle has changed significantly and he now attends his allotment and grows his own produce. He stated that as a result of this, he has a presence in the community and social capital is excellent. One lady (pseudonym Elsie) stated that the home zone approach with car parking integrated on the outskirts of the site made it difficult for carrying shopping home, but the benefits outweighed the risks, especially for the safety of children playing. Elsie also was impressed with the level of local services (which include a community centre, nursery, post office, local shops, sports pitches and a school). In terms of improvements, Karl sought more opportunities for work in the area. Elsie sought more direct bus links and potentially tram links to the centre of Helsinki.

When thinking about the potential to transfer aspects of the sustainable form to the UK, it was considered that this approach is universally possible, and yet would be more appropriate in some locations than others, i.e. excellent when developing around existing natural areas. In the UK, it was considered that ecological criteria would need to be fully implemented by all authorities in order to give developers ‘no place to hide’ and ensure that regardless of location, the same criteria would be required on a consistent basis. It was also agreed amongst the place check group, that the need to integrate objectives and plans in the planning process from the outset would be essential. From a residents’ perspective, one resident (pseudonym Harold) additionally emphasised the need for inclusion and transparency in any project. Harold said that he was pleased with the work at Viikki because he influenced it and felt an ownership of the project, as a resident. He explained that the residents were involved at all stages and that they are still involved now with the monitoring process. Harold explained that regular meetings were held and that all residents were invited to attend. He concluded that if a similar plan was to work in the UK, the same level of inclusion and involvement would be paramount to the project’s success.

12. Viikki Conclusion

The examination of Viikki as a case study shows that development can be made more sustainable through tightened ecological regulations. Viikki is an excellent example of a short cycle strategy which demonstrates a decentralised, yet compact (low gross/high net density) strategy including ecological approaches and integration of green space. Siiskonen disclosed that a study of the reference building revealed that an additional investment of approximately 5% will achieve significant improvements while at the same time making it economically possible to achieve a workable solution over a longer time span.

To maintain a satisfactory domestic standard, not to mention export quality, the building culture has had to be radically transformed. This could not succeed without special measures initiating the change.

In light of the tests conducted for Viikki, the PIMWAG system has worked and it has helped to focus on the most essential factors. It favours solutions which positively affect ecology from many directions. Naturally, the system cannot be perfectly balanced but it steers towards the right direction. The operational development of the system, i.e. the activity steering towards better ecology of building, requires experimental use and an extensive three-year follow-up study to clarify the area’s functioning and its steering system. The Viikki project has demonstrated that often results are not apparent or detectable in the first year, however the longer-term benefits are clear.
Monitoring of this kind will be vital to informing further projects in Helsinki, and the rest of the world.

Case Study 2: PIKKU-HUOPALAHTI: The Compact City Strategy

Another Helsinki-based example of good practice is the Pikku-Huopalahti project—which translates to an ‘Urban Village by the Bay’. Pikku Huopalahti is situated between Mannerheimintie road, Vihdintie road, Lapinmäentie road, Huopalahdentie road, Paciuksenkatu street and Paciuksenkaari street. The development is defined as an ‘urban extension’ to the city of Helsinki where the primary use of the streets is given to pedestrians aiming, thereby, to restrict the use of cars.

The development strategy for Pikku Huopalahti is defined as a Compact City Strategy. The main aims of the development at Pikku Huopalahti were to provide a compact urban renaissance which integrates with the city. The idea was to demonstrate the strength of the traditional urbanism of European towns with ordinary streets and squares, and small shops and restaurants, on the ground floor of the buildings. Strategically the area is subdivided into four mini ‘villages’, each with their own special characteristics to provide a sense of identity and community spirit. One of the best features of the Pikku-Huopalahti project is the excellent integration of the area into a network of public transport routes. There are excellent public transport connections to the city centre with two tramlines and a number of bus services.

As stated earlier, the architect for the Pikku Huopalahti project was Matti Visanti, who is based at Helsinki City Planning Office. The lead organisation for the project was the Development Unit of the Helsinki City Office. Like Viikki, the stakeholders involved in the project were all part of the City of Helsinki, i.e. as the major landowner, the planning organisation and implementation was subordinated to the City Office. This enabled the various City departments to co-ordinate and oversee all aspects of the area’s development in stages, and to link planning and implementation together.

Pikku Huopalahti represents a compact city sustainable urban form, and is a particularly good example because: a) it achieved the benefits of a compact city strategy in terms of exceptional levels of public transport and sustainable modes of travel, and, 2) because the location allowed a relatively large element of openspace to be achieved adjacent to the site.

Like Viikki the area is made up of a mixture of house types from state subsidised rented apartments (48%) to state subsidised owner-occupied apartments (26%) to privately financed apartments (26%). This represents another fundamental difference between the UK and Finland (see interview with Matti Visanti in appendix
B). The Finnish Government has a strong commitment to developing a range of house types including high quality social housing which is indistinguishable to owner-occupied housing. Because of this, social housing does not have a stigma attached to it in the way that it does in the UK. Visanti believes that a mix of house types and therefore a mix of different types of residents facilitates creation of a sustainable development.

<table>
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<tr>
<th>Key dates</th>
<th>1979</th>
<th>Master planning process began</th>
</tr>
</thead>
<tbody>
<tr>
<td>1982</td>
<td>Pikku-Huopalahti Estate Project was founded</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Approved town plans: Kytösuontie 1987, Korppaanmäki 1988, Tilkankatu 1989 and Paciuksenkatu 1991 (by the City Council)</td>
<td></td>
</tr>
<tr>
<td>1989-2002</td>
<td>Implementation of residential blocks</td>
<td></td>
</tr>
<tr>
<td>1990</td>
<td>The Residents’ Association of Pikku-Huopalahti was founded</td>
<td></td>
</tr>
</tbody>
</table>

The lessons gained in shaping Pikku-Huopalahti represent a useful examination in how town planning works in practice.

The first set of plans for this north-west bay were principally defined by Eliel Saarinen back in 1915 as part of his ‘Greater-Helsinki’ visionary master plan. The scheme for the area was never implemented due entirely to the poor quality of the soil for building purposes and its geography. The ground surface is at sea-level and comprises of weak clay and filled-in land, which has settled in recent times by several metres and is still active, posing significant construction problems. Hence, pre-building necessitated the creation of vertical drainage, embankments, plus stabilisation through piled slabs and columns, calculated to add an overall 5% to total cost. Despite the obvious high construction costs, this was overcome by the need in recent years to build new housing whilst protecting Helsinki’s luscious green network. It was only through the development of superior engineering techniques that the opportunity arose for Pikku-Huopalahti to be reconsidered for housing purposes.

**Integrated Planning**

As stated above, the most influential factor in the planning of Pikku Huopalahti was probably that the land is mainly owned by the City of Helsinki. This enabled the various City departments to coordinate and oversee all aspects of the area’s development in stages, link planning and transportation together and ensure that competition amongst developers and construction companies remained competitive.

The coordination of the planning process was the responsibility in the first instance of the City Planning department, together with the chief executive’s and the real estate departments. Whilst city planning defined the nature and character of the new district, the dual co-sponsorship for negotiating the actual development was overseen by the strategic working party represented by each of the City’s involved departments,
including building and works, as well as traffic and transportation, health, social services and consultants. The working party reported at a vertical level through the departmental structure and respective committees, and horizontally to the City Board and City Council for approval.

Essentially, planning oversaw the majority of the work, with real estate handling the sub-division and letting of plots, monitoring of building costs and contracts for ground rentals. Chief executives ratified development agreements and prices. The planning department’s assigned architect (equivalent of a town planner in some European countries) ensured that the financial motives conferred with the agreed stated objectives in the local plan and concurred with the defined planning permissions, whether at outline or detailed stages. The city’s planner also had responsibility for ensuring that the cost limits and high construction costs did not ultimately undermine the clear architectural styles and objectives stipulated in the plan (UK Masterplan). In practice, it has often meant that the city planner was required in negotiations with developers to use the planning tools in an imaginative way given that costs were so high. Hence, the townscape quality could be maintained by reference to altering/re-shaping building profiles or building lines as well as colour schemes to minimise any impact on overall costs whilst conforming to the urban design guidelines.

The Master Plan (see figure 23 above)

It took seven years to produce the Master Plan for the Pikku-Huopalahti district (1979-1986). In the Master Plan the new residential floor space was defined to 255 000 sqm for 8000 inhabitants. The object was to build about 3000 apartments until the end of 1995. The total master plan area is 150 hectares. New employment floor space was 40 000 sqm, in addition to that, there were earlier plans for 140 000 sqm on state-owned properties.

The Town Plans

Strategically the district was subdivided into four “villages” in order to reduce the number of uncertainties to slow down the approval of the plans. All the town plans were approved before the implementation of the housing started.

Urban structure and architecture

Pikku-Huopalahti represents a significant architectural contribution in terms of urban design, based upon planning strategies to create an urban identity around clear social and architectural aims. A defining element of the urban planning was to give primary use of the streets to pedestrians and, thereby, aim at restricting the use of cars. Residential blocks are generally between three and five storeys, whilst the main offices and commercial fronting onto busy main roads and thoroughfares range between five and eight storeys.

The urban form was modelled on an organic urban fabric principle. Given that the area was an extension of the inner city, the structure of blocks is clear – the unbuilt land is either a yard or a park or a street. One of the most essential factors for the cityscape is the plot subdivision. The plots were divided among
several developers. Each building plot has an architect of its own. In Pikku-Huopalahti there has been 20 different developers and 45 different architects. Two invited design competitions were organised.

Examples of the varied architecture found in Pikku Huopalahti

Characteristics of the subareas

The plans for immediate surroundings have defined for example the layout of streets, specific building lines, and height of buildings. Architects were encouraged to use their imagination in architectural design. Most of the facades are made of stone, either painted concrete elements or brick walls.

Another key feature of Pikku-Huopalahti is that there is no repetitiveness in the quality of the architecture or urban design layout. There are no Corbusier-type modelled streets in geometric pattern nor blocks in monotonous forms one after the other. Each building plot has been planned by different developers and a variety of architects, taking account of the features and aims contained in the area’s local plan. The plan has defined the sub-structure, layout of streets, public-private space, specific building lines, contours for landscaping, height of buildings, fenestration criteria, access to street-level, materials and colours, car-parking, both on-street and the preferred off-street facilities, together with lighting standards, sunlight and shadow criteria and overall building profiles.

Additionally, there is a strong emphasis on an architectural strategy, given the high density permitted, and negotiations with developers in respect of form, colour, etc. The plots reflect inner-city densities of around 1 to 1.25 (approx 200-250 persons per acre).
Tram

Though the level of public transportation around the area was already high the need to establish a fast connection to the city was a priority. The decision to extend the tramway network to Pikku-Huopalahti was made even though trams were regarded as old-fashioned vehicles (see figure 25 right).

Figure 25: Tram stops throughout Pikku Huopalahti

Parking

As sustainable travel is encouraged, cycle parking was a key feature included throughout the area (see figure 26 and 28). Car Parking standards are low, one car place per 140 housing sqm. One half of these spaces are situated on separate communal lots and 40% of the spaces are in the parking garages. To enable the change of the district to a car free zone some parking places are situated on the yards. In that case the parking lots would be changed into block courtyards. There is also some kerbside parking in the area.

Figure 26: Cycle Parking

Services

The Pikku-Huopalahti district relies both on the surrounding communal facilities and on own facilities inside the area. The most sufficient are 10 city day nurseries and the Quarter House including a primary school, a library for children and a youth centre. There are some shops at ground floor level.

Figure 27: Local service centre

Figure 28: Cycle Parking outside local shops
Recreation

In terms of recreation, the aim was to develop large parks as lush recreational area with groves and waterfront; The bay was dredged for boating. Integrated parks were implemented at the same time as the housing projects. There are however no built sport facilities in the parks. The material from the sea bottom was used to fill parks and housing blocks. A few seating areas were integrated into the home zones and some areas were designated for childrens’ play. Some of these, however are not considered to be well over-looked (see figures 29 and 30 below).

Public collaboration

Public involvement was high on the agenda in developing the Pikku-Huopalahti Project.

The Residents’ Association of Pikku-Huopalahti was founded in 1990 after the first tenants had moved into the area. The co-operation with officials deepened in the form of “consultative collaboration with residents” including City officials of the area and representatives of the parking companies and inhabitants. Important duties included liasing with the Residents’ Association about projects (forthcoming and in progress) and organising the use of joint premises.

The public were also heavily involved in the architectural features of the area and pieces of public art, see examples below in figure 31 and 32:

Public Art in Pikku-Huopalahti, well used by residents

Public Art in Pikku-Huopalahti, innovative and memorable
13. Interview with Matti Visanti (please refer to appendix B for full transcript):

Whilst Pikku Huopalahti was a successful compact city, the planner, Matti Visanti acknowledges that the development did not go as far as it could have gone in terms of sustainability in construction and materials used. Cost implications, particularly due to the constraints which had to be overcome in terms of water and ground conditions, meant that additional costs had to be kept to a minimum. Visanti however is proud of the architectural design achieved and the urban design layout and compact city strategy accomplished. Visanti states that, “Architecturally Pikku Huopalahti was a continuation of the inner city and the orientation of the buildings for the sun was important as housing must heat up- especially in the cold winters. The idea generally was that 1 house has 1 builder and 1 architect. Normally, a larger area would have 1 builder and 1 architect but this project was different. As you walk through the area you notice that all the houses are changing”. This was the key philosophy behind Pikku Huopalahti. The key areas of success in Pikku Huopalahti were undoubtedly the public transport system and the clear and accessible links to the city centre of Helsinki. The local shops are deemed adequate for the development and residents are encouraged towards the centre of Helsinki for other shopping purposes (and encouraged to get their in a sustainable way, i.e. by direct, high speed tram links).

14. Place check

Three residents of Pikku-Huopalahti agreed to assist in the place check analysis. Again, the general feedback was positive, however slightly less so than the place check carried out at Viikki. One resident (pseudonym Susan) considered the area less safe for children as sometimes play areas were not adequately overlooked. Similarly Susan felt that the lack of green spaces within the development was a negative aspect of the development. All residents (pseudonyms Susan, Mark and Tracey) considered the area to be in an excellent location for access to Helsinki centre and all thought that to improve the area further, more local shops should be built. Tracey believed that it would be more convenient if the area had more facilities which would mean she would not have to travel to Helsinki centre at all. She stated that, “Whilst there are local shops and local facilities, there are no large shopping centres”. This of course, was the project’s intention to encourage sustainable linked trips to the centre, rather than competing with the centre. It is important to preserve the vitality and viability of Helsinki city centre and therefore, this study would not encourage this approach as suggested by the resident. It is reasonable however, for the area to incorporate a better-equipped local service centre.

15. Place check Contrasts

In terms of contrasts between the two sites, it is considered that both projects are a success and are examples of sustainable urban form; however both could be improved somewhat. A summary of potential key improvements can be found below:

- Viikki would benefit from increased links to the city centre of Helsinki and to other centres in the vicinity
- Viikki would benefit from more local employment provision
- Pikku-Huopalahti would benefit from increased amounts of INTEGRATED open spaces and green spaces
- Pikku-Huopalahti would benefit from more over-looked play spaces for children
• Pikku Huopalahti would benefit from integrated cultivation areas for food production

• Pikku-Huopalahti would benefit from sustainable construction methods and ecological building techniques, secured through ecological criteria.

• Pikku-Huopalahti would benefit from a better equipped local service centre (more provision and variety) for self-sufficiency, whilst simultaneously being careful to ensure that the local service centre does not compete with Helsinki city centre.

16. Conclusion: Pikku Huopalahti

The Pikku-Huopalahti district has a divided identity. On the master plan level Pikku-Huopalahti represents a compact city strategy. Officially it completes the surrounding districts and extends the inner city. The area as a whole is built to a high density (gross and net) and transport links to the city centre are undoubtedly outstanding. The need to make a concise connection to the city centre resulted in a major decision to allow an extension of the tramway to Pikku Huopalahti, as it imbues the resident with a sense of belonging to the urban core. Hence, public transportation connections are excelled, with direct access by tram or bus to downtown.

There is however no central shopping area. Visanti explained in the interview that it was decided to divide and distribute local convenience shopping to units in the ground floor of the apartment and office blocks. The aim, he explains, was to offer local shopping within the immediate vicinity for each of the ‘villages’, leaving major shopping within easy reach of the city centre. It is considered questionable however, whether Pikku-Huopalahti provides sufficient local service provision.

Pikku-Huopalahti has a bay on its doorstep, providing access to nature (albeit artificial), however within the development, there was a clear lack of open space, which resulted in a less comfortable feeling when walking through the area, when compared to Viikki.
Discussion

17. Compact City versus Short Cycles Strategy

Whilst both the Viikki project and the Pikku Huopalahti project are recognised as examples of best practice and strategies of sustainable urban form, this study has illustrated some key differences between the projects, summarised below:

<table>
<thead>
<tr>
<th>Viikki (Short Cycles Strategy)</th>
<th>Pikku Huopalahti (Compact City Strategy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of ecological building and management techniques</td>
<td>Concrete and brick were main materials used- no ecological materials/techniques used</td>
</tr>
<tr>
<td>Excellent use of ecological criteria</td>
<td>Excellent use of architectural/design criteria</td>
</tr>
<tr>
<td>Low gross density, high net density</td>
<td>High gross and net density (arguably a lack of integrated open space)</td>
</tr>
<tr>
<td>Pedestrianised with small car parks on the edge of the development (integrated by innovative landscaping)</td>
<td>Mixture of pedestrianised home zones and areas with low car use</td>
</tr>
<tr>
<td>Some good transport links to Helsinki Centre (number of bus routes set to increase)</td>
<td>Excellent public transport links to Helsinki Centre</td>
</tr>
<tr>
<td>Integration with nature</td>
<td>Separated from nature, but bay and park in close proximity</td>
</tr>
<tr>
<td>Well-equipped local shopping facility and access to Helsinki city centre</td>
<td>Some local shops at ground floor level and easy access to nearby Helsinki city centre</td>
</tr>
<tr>
<td>Safe, comfortable environment</td>
<td>Not so comfortable environment, some areas were not overlooked</td>
</tr>
<tr>
<td>Excellent community spirit- i.e. enhanced by the use of vegetable patches, cultivation areas.</td>
<td>Potential for improved community spirit- currently limited by separation between ‘villages’</td>
</tr>
</tbody>
</table>

On examination of strategies for sustainable urban form, Pikku Huopalahti, at first glance, should be a clear favourite; a high density compact city, close to the city centre of Helsinki. However, Pikku Huopalahti did not incorporate any ecological building criteria; renewables or energy efficiency techniques and the home zones lacked a green, inviting landscape treatment and did not integrate with open space (due to a focus to keep densities high). From the residential units, the bay and parks in the area could not be seen. Whilst, these natural elements were in relatively close proximity to the development, there was a clear contrast and ‘hard edge’ between the built environment and the natural environment and the proximity of both failed to be exploited adequately.

By contrast, Viikki is located further from the City Centre. Whilst the gross density across the site is relatively low, the densities of the built areas are very high. The development focussed on ecological building techniques and self-sufficiency (i.e. food production). The Viikki development was integrated with nature through the use of ‘green fingers’ which led to a vast area of open space (a nature conservation area). Viikki has more local facilities than Pikku Huopalahti and therefore is efficiently self-contained and self-sustainable, and in addition had direct public transport links to Helsinki Centre.

So which model of ‘sustainable urban form’ is in fact the most sustainable? To answer this ultimate question it is important to revert back to the literature which has already been researched on the definition and complexity of sustainable urban form to understand how the different characteristics of the two strategies affect energy use and sustainability. Many researchers have explored these arguments and Holden and Norland (2005) concluded that regarding energy use for housing, there are a number of land use characteristics that have significant and isolated effects on energy use and sustainability.
These include:

1. Distance to the city centre (The longer the distance, the more energy is used for transport, Næss, 1996, 2005).
2. Distance to the local sub-centre correlates with the extent of everyday travel (proximity to a centre—with corresponding accessibility to private and public services—is favourable regarding energy use).
3. Provision of sustainable transport links to centre
4. The type of housing (multifamily housing is the most energy-efficient).
5. The size of the housing (The larger the house, the more energy is used per household member).
6. Age of the housing (The older the house, the more energy is used per household member).
7. Density (In densely developed areas (net), residents use less energy than do residents in areas with lower density housing (net). This is mainly the result of more efficient energy supply systems—such as remote heating systems based on heat pumps—that can be introduced in areas with a large number of housing units per area unit).
8. Opportunity for food production

Density and distance are, however, strongly correlated, but it can be difficult to separate their respective effects. Thus, high density and high local mix must be combined with proximity to a centre offering everyday services to bring about a reduction in energy use for everyday travel.

It is important to bear these characteristics in mind in order to assess the contrasting views on models of urban form and design:

When it comes to land use characteristics that influence energy use for everyday transport, it is important to recall that Næss (1997) concluded that the following characteristics are favourable for reducing energy use per capita (based on the compact city strategy):

- compact city- high population density for the city as a whole;
- high density within each residential area;
- centralised settlement within cities and towns (i.e. higher density in the inner part than on the fringe);
- centralised workplace location;
- low parking capacity at workplaces;
- decentralised concentration at the regional level; and,
- a high population for each city.

Based on empirical evidence, Næss (1997) claimed that these characteristics are favourable in cities as different as Paris, London, New York, Melbourne, San Francisco, Copenhagen and Frederikshavn (Denmark) which emphasises that they are widely applicable (Holden and Norland, 2005).

As an antithesis to Næss’ (and others’) compact city theory, it is additionally important to recall that there is an opposing school of thought amongst environmentalists that the most sustainable way to live would be to return to rural areas and local self sufficiency, to reduce the importing of goods and services from far-off lands, and to commune more closely with nature (Jenks et al., 1996, p. 170). This theory challenges the compact city on nearly all land use characteristics, thus promoting dispersed, low-density cities (Orskog and Snickars, 1992; Radberg, 1995; Troy, 1996).

These two standpoints are conflicting and, thus, confusing to both professionals and the lay person. It is essential to explore these further in order to identify which sustainable urban form should be promoted in this study.
18. Compensatory Travel?

To fully understand the impact of urban form on energy use and sustainability, one must delve deeper into the complexity of the literature (explored in section 7). In the professional debate, some (for example, Kennedy, 1995) have claimed that people living in high-density, compact cities will, to a larger extent than their counterparts living in areas which follow a short cycle strategy, travel out of town on weekends—for instance, to a cottage—in order to compensate for the lack of access to a private garden (Holden and Norland, 2005). This certainly conflicts with the overall objectives of the compact city strategy.

Furthermore, research conducted by Holden and Norland (2005) indicate that there are two factors which have a significant effect on the energy used to travel (for example by plane): housing density and access to a private garden. Higher-density housing corresponds to higher energy use for travel by plane. Furthermore, access to a private garden seems to reduce residents’ desire to travel by plane in their leisure time. Residents that have regular access to a private garden spend less of their leisure time travelling by car and consequently use less energy for this purpose (Holden and Norland, 2005).

Research demonstrates that the list of arguments against the compact city theory is in fact even longer than the list in support of it, and includes: that it rejects suburban and semi-rural living, neglects rural communities, affords less green and open space, increases congestion and segregation, reduces environmental quality and lessens the power for making local decisions (Frey, 1999). However, there is an international consensus favouring the compact city as a sustainable development approach, which has for many years, dominated the debate (Williams et al., 2000). Although there has always been considerable scepticism, the concept of the compact city has been so dominant that it seemed inconceivable that anyone would oppose the current tide of opinion towards promoting greater sustainable development than the compact city (Smyth, 1996, p. 103).

The emphasis of this section, is to challenge the status quo, and suggest that neither the rigid definition of the compact city (supported by Naess et al (1997)), nor the opposing view of the ecological, self-sufficient dispersed, low density strategy promoted by (Orrskog et al (1992-96)) is the most sustainable urban form and that there should be more flexibility in the sustainable urban form concept adopted for a project.

On this note, one must accept that the potential impacts of types of design strategy/urban form are not only restricted to travel behaviour. The type of strategy/built form also influences social conditions, economic issues, environmental quality and ecology within the city (Williams et al., 2000b). All these aspects are also important parts of the sustainable development concept and therefore can be used as criteria for a discussion about sustainable urban form. It is obvious that a study that has minimising energy consumption as an overall goal, could easily reach different conclusions from those of a study that aims at using urban form to ‘reduce the number of people exposed to fine particles’ or to ‘promote social equity’. It is therefore necessary to balance these impacts because sustainable urban form is ultimately about values (Buxton, 2000).

Consequently, this study suggests that the most sustainable urban form can be found in a ‘middle position’, which tries to combine the best aspects of both the compact and the dispersed city strategies, while at the same time trying to avoid the disadvantages of each. Examination of the two case studies (Viikki and Pikku-Huopalahti) has brought about suggestions for improvements to each strategy. These suggestions are helpful and imply that the ‘middle position’ could be an improved hybrid of the Viikki approach to development; one that retains the ecological building criteria, green fingers, natural integration, self-sufficiency, low car parking capacity and well-equipped local services, but also includes more direct, and quick modes of public transport linking the development to the city centre of Helsinki (and other centres) and creates a centralised workplace location. This approach would essentially combine the energy efficiency gained from a compact urban form with the broader quality-of-life aspects gained from the dispersed city.
Conclusion

First and foremost, this study supports the school of thought that the type of urban form and the methods of designing and building, and choosing a location of development are of great importance to whether a development is sustainable, which demonstrates that planning and urban design do matter.

In conclusion, the Compact City Strategy advocated by the European Commission in its 1991 Green Paper on the Urban Environment as a basic model for sustainable urban design, is still essentially valid. However, it needs to be developed, paying closer attention to the need to establish a ‘green structure’ (the ‘Green Compact City’). It should draw on other approaches such as ‘decentralized concentration’ and specific integrated land use transport and ecological planning strategies at the local and city-wide level, if it is to deal with the current transformation of patterns of urban development and emerging social demands.

This study has tried to demonstrate that the Compact City strategy is not tied to the typical ‘Compact City’ vision and it is possible to envisage compact urban forms that are modernist in their conception, for example the sustainable short cycle strategy in Viikki. While the emphasis has been on the environmental benefits of the Compact City form in terms of efficiency in use of resources and global and local environmental impacts, this form can become increasingly sustainable in terms of its carbon footprint, ecological innovation, and social impacts.

To achieve this sustainable urban form, there is a need to include the more ecologically-orientated approach of the Short Cycles City which tends to focus on local autonomy, with the recognition of the economic and social necessity of inter-relatedness and accessibility and transport energy efficiency and the necessity to ensure full networking through physical infrastructure (transportation and information/telecommunications). It is also important to recognise and understand the physical and social interplay between the built up areas and the rural environment surrounding the cities to enable urban design to contribute to sustainable development. To simplify, this model will therefore relate ecological, concentrated, high density settlement forms, (whether dispersed or centralised) to public transport systems. It is considered that the basic principles are, by and large, universally applicable.

Thus, decentralised concentration can be seen as an extension of the compact city idea, rather than as an alternative vision of urban form. If we recognise the growing functional specialisation of both existing and new centres, then compaction of both types of centres can be promoted as a legitimate policy. The aim is to increase net densities to reduce the pressure on land and resources as well as to make public transport links more effective and feasible and increase the overall integration of the urban region.
Recommendations and Policy Implications

This section serves to pull together all of the recommendations that have emerged during the study. It is considered that if the recommendations set out below are followed, the successful aspects of sustainable urban design in Helsinki, that have been highlighted within this study can potentially be transferred to the UK context, whilst ensuring the risks and limitations associated with each are avoided. The section ends with suggested research for the future.

The recommendations are broadly grouped into the following categories:

1. Promoting urban design for sustainable development: in the LDF
2. Promoting knowledge exchange and good practice guidance at all levels
3. Raising the profile and monitoring urban design for sustainable development
4. Promoting urban design for sustainable development: through incentives, subsidies, taxes and funding programmes
5. Raising awareness and promoting education, information and research in urban design for sustainability and sustainable urban development
6. General Recommendations

Some of these recommendations may be more likely to be achieved at the EU, national level, the regional level or the local level. This study however focuses on the local level and the objective to present a review of best practice and recommendations for action, particularly aimed at integration into the forthcoming Local Development Framework. It is hoped that the following recommendations demonstrate that, used positively, spatial planning has a wide-ranging, pivotal role to play in sustainable urban design and it is hoped that each recommendation will be thought-provoking.

1. Promote urban design for sustainable development: in the LDF

This should include Supplementary Planning Documents (SPDs) (1a), policies in the Core Strategy (1b) or Area-specific Development Plan Documents (DPDs) (1c).

1a) SPDs can serve to advance the understanding of sustainable development among the many organisations and individuals involved in the development process. SPDs should:

- Encourage developments which safeguard the environment, whilst protecting and enriching it for future generations
- Provide practical advice to encourage and inspire the application of sustainable development thinking to each situation and locality;
- Illustrate how sustainable development can be applied at each stage, from site identification to re-use and regeneration, and
- Give examples of best practice.

Examples of types of SPD include:

- Sustainable Urban Design Frameworks/strategies which include preferred layouts, orientation of buildings, minimum densities, network of sustainable modes of transport, appropriate levels of local service provision, suitable landscaping, appropriate guidelines for independent cultivation etc, targets and guidance on specific urban design for sustainability issues
• Frameworks for sustainable land-use and transport planning and area-based sustainable development plans.

• Sustainable Design and Construction Guideline, including points system/criteria

To achieve what this study suggests is the most sustainable urban form, the ‘Green compact city’; the following characteristics need to be incorporated into policy for new developments. New developments must ensure:

1. Excellent provision of sustainable transport links to the centre and other centres
2. High Net Density (In densely developed areas (net), residents use less energy than do residents in areas with lower density housing (net). This is mainly the result of more efficient energy supply systems—such as remote heating systems based on heat pumps—that can be introduced in areas with a large number of housing units per area unit).
3. Opportunities for food production
4. Integrated built and natural environment and ‘green fingers’
5. Where possible, build at shorter distances to the city centre (The longer the distance, the more energy is used for transport, Næss, 1996, 2005).
6. Provide direct links/ short distances to the local sub-centre (proximity to a centre—with corresponding accessibility to private and public services—is favourable regarding energy use).
7. Ensure adequate facilities in the local service centre so it is well-equipped and can be self-sustainable, discouraging unnecessary car use.
8. Provide Multifamily housing where possible (most energy-efficient).
9. Limit dwelling size (The larger the house, the more energy is used per household member).

An urban design/sustainability strategy will need to accommodate the following factors:

10. Accepting the reality of the growing significance of the periphery (which a Compact City approach focused only on existing major urban centres might fail to do)
11. Increasing the density, concentration and compactness of peripheral ‘development’ and improving public transport links between new settlements and between those settlements and the centre
12. Improving the knowledge of the design and management of transport nodes and systems (as well as other elements of physical infrastructure including ICT) within the network of the functional urban region;
13. Improving the knowledge of the design and management of the green structures and green nodes as elements creating linkages between old and new forms of urbanisation;
14. Recognising that the changing patterns of urban development will change the nature of centrality within the region and offer opportunities for new centres that can provide vitality in the life of the suburbs (without competing with a main centre);
15. Recognising increasing functional specialisation across the urban region and the significance of networks of centres – polycentrism;
16. Recognising that the existing major centres will retain considerable accessibility and service advantages, providing action is taken to overcome congestion and the need for car-based commuting, and may continue to attract the highest value activities on a more specialised basis;
17. Recognising that the more disadvantaged sections of the population may be by-passed by the new developments and that local social and economic sustainability needs to be consciously addressed in any strategy of this kind.
18. Addressing functional integration across urban regions and between networks of urban centres with an urban design strategy that reinforces the identity of the region as well as clearly expressing both the links between centres and the particular character of the individual centres (Lloyd-Jones, 2004).
Key urban design themes that should be included in such a strategy are:

19. **the re-use and regeneration of urban land**: stressing the priority of brownfield redevelopment over new greenfield site development, fixing the proportion of new development to be accommodated on existing urban land;

20. **density of new development**: achieving appropriate densities, depending on local context and urban typology;
   - An appropriate urban density must allow for:
     - Efficient public transport systems.
     - Affordable urban infrastructures and services (water, sewage, garbage, etc.).
     - Easy access to collective facilities.
     - Creating community identity.
   - Designing for integration with nature

21. **location of new development** in relation to public transport provision or other accessibility factors, and in relation to the natural environment;

22. **design of green structures and city landscape**: emphasising particular features of good practice in development in relation to the natural environment and ensuring cities are integrated into their natural environment; designing the transition between built areas and green areas, and designing green structures to be sustainable in meeting both ecological and amenity needs; securing land for agricultural production and urban farming as an integrated part of the green structure on a long term basis;

23. **streets and movement structure**: including the pedestrian and cycle environment, public spaces:
   - quality, centrality and equitable distribution of public open spaces and amenities; ensuring the integrated, multifunctional role of the traditional urban street network; an integral relationship to the green structure; ensuring continuity in the fabric of the urban structure, in particular in relation to the enclosed space of the street network and knitting new and old developments together; ensuring that public transport systems including stations, stops and interchanges are safe and attractive.

24. **promoting mixed uses**: ensuring a good balance of jobs, housing and services to make the best use of public infrastructure and promoting integrated land use and transport planning within this framework; adopting a system of compulsory variety of use indexes for new developments and relating these to existing mixes of uses; using zoning policies to support small and medium enterprises which are often priced out of city centres but are critical to urban vitality and to the development of new technologies and services (this should be seen as part of a wider mixed use strategy for revitalising existing town centres and for ‘converting newer shopping malls to become mixed use centres);

25. **designing for affordable housing**: fixing a compulsory proportion of social housing within well-designed wider mixed use, income and tenure developments as way to foster diversity and social cohesion as well as ensuring access to high quality, indistinguishable, accessible, affordable housing for low and middle-income groups;

26. **accessible public amenities and services**: emphasising the provision of public and collective recreational facilities such as a public green structure over private and individual provision and ensuring good physical access to public amenities and services for all social groups;

27. **appropriate conservation, renovation and use/re-use of cultural heritage**: maintaining the national, cultural and local diversity of towns and cities; generating local models for sustainable urban planning (somewhere between the compact city and short cycle strategy, i.e. the green, dispersed, compact city) such as design guidelines and density and other standards (as set out above); developing new types of building relating to the local context and finding new ways to use existing buildings; avoiding piecemeal renewal; keeping historic central area active through retaining residential uses and existing working/living communities; good urban management and planning.
including financial planning for the maintenance of buildings (including new buildings), public space and parks, including in suburban areas;

28. **sustainable, high quality architecture and building technologies:** appropriate use of resource conservation-orientated building and recycling process technologies, within the context of the green dispersed, compact city strategy, high quality in the design of public buildings, as in public spaces, restoring their role as landmarks in the urban structure (recently lost to private buildings). Is it possible to use more than 1 architect for a project?

29. **maximum and minimum standards:** looking at the possibility of implementing ‘maximum standards’ to guarantee urban sustainability in the different national contexts and aim higher than the minimum levels, whilst ensuring that minimum standards are met in all areas (Lloyd-Jones, 2004).

**Ecology**

In addition to the above, to achieve sustainable urban form, planning documents must include more detailed ecological policies. Choice in sustainable methods is important as some areas (and types of developer) will be more suited to a particular type of sustainable method. Some examples taken from Viikki include:

30. More advanced wood Construction Methods
31. Natural ventilation
32. Solar Energy
33. Offering residents the opportunity for independent cultivation
34. District heating and ventilation systems
35. Collection and use of rainwater
36. Solar Heating System

At the local level, development plan documents (DPDs) should set policies on the provision of low carbon and renewable sources of energy to provide the platform necessary for securing and complementing the increasing high levels of energy efficiency required by Building Regulations.

1.b. **Core Strategy**

The Core Strategy, in addition to being underpinned by the principles of sustainable development, should request Sustainability Statements (as was the case in Viikki) to enable applicants to demonstrate how their scheme meets the key sustainability objectives outlined in national, regional and local planning policy, and how the development is sustainable in terms of all of the points raised above. It is important to make these statements **meaningful.** Note: Community involvement is essential in all aspects of the LDF process (as expanded upon later).

Generally, the Sustainability statement should include:

1) Energy efficient design and layout
2) Energy Efficiency and conservation
3) Renewable Energy
4) Energy standards
5) Sustainable construction
6) Water Efficiency and Conservation, and
7) Sustainable waste management

These should be of cardinal importance in the determining of planning applications and should underpin and inform master plans, development briefs, and other LDF documents.
1.c. Area-specific DPDs

Local authorities have a key role when deciding which sites and areas are suitable for development, and for what type and intensity of development. At the local level, planning authorities should take into account all of the above, including the following (some broadly echoed in the forthcoming PPS on planning and climate change):

- the location and whether there is, or there is the potential for, a realistic choice of access by sustainable modes of transport and whether the site can be serviced through sustainable transport linking to other centres and the city centre;
- the capacity of existing and potential infrastructure (including for energy supply, waste management, water and sewerage, and community infrastructure such as schools and hospitals) to service the site or area in ways consistent with cutting carbon emissions and successfully adapting to likely changes in the local climate;
- Whether there is the potential to link new development to existing areas of cultivation,
- the ability to build and sustain socially cohesive communities with appropriate community infrastructure so as to avoid social exclusion, having regard to the full range of local environmental impacts that could arise as a result of likely changes to the climate;
- whether existing natural areas can be appropriately integrated with new development (see Viikki case study) in a way that is sustainable, educational and does not detrimentally effect biodiversity and the capacity for adaptation,
- the contribution to be made from existing and new opportunities for open space to urban cooling;
- known physical and environmental constraints on the development of land such as sea level rises, flood risk and stability, and take a precautionary approach to increases in risk that could arise as a result of likely changes to the climate; and
- Whether it is necessary to allocate sites for renewable and low-carbon energy sources, and supporting infrastructure;

2. Promoting knowledge exchange and good practice guidance

- Production of Guidance ‘manuals’ on good practice in urban and regional governance, planning procedures at the national, regional and local level, and measures to improve public participation
- Improve mechanisms for sharing good practice
- Promote environmental and integrated planning and urban design tools and methods
- Promote local urban information centres and sustainability observatories
- Develop mechanisms for evaluating the implementation of sustainable policy and assessing the effectiveness of future policy

3. Raising the profile and monitoring urban design for sustainable development

- Produce ecological criteria and MONITOR RESULTS
- In Viikki, increasingly conscious building is enhanced through a four-step process: using minimum level of ecological criteria applied to all projects, using PIMWAG points which give incitement for
significant experimental projects with a high expectation value, radical experimental image buildings
advancing ecological building, and follow-up studies increasing information to be started in
connection of the building process. In addition to these, pollution, sufficiency of natural resources,
health, diversity, and food sufficiency will be used as a viewpoint into ecology.

- Monitoring of results is the most appropriate and effective way to produce an evidence base which
can be used to inform future policies on sustainable design, and to use as a tool for further
negotiation. Persuading developers to be involved in the monitoring process would be an advantage.

4. Promoting urban design for sustainability through incentives, subsidies, taxes and funding
programmes

- Develop urban design for sustainability guidelines to inform existing subsidy systems, including
subsidies for urban regeneration and those for environmental, transport and cultural heritage
programmes

- Sustainable urban design competitions for key sites

- Sustainable Design and Construction Award evenings for developers and consultants- this will raise
the profile of the developer/consultant, whilst achieving sustainable urban design (win-win situation)

- Offering assistance for new pilot projects in sustainable urban design.

5. Raising awareness and promoting education, information and research in urban design for
sustainability and sustainable urban development

- Develop a worldwide/nationwide label for excellence in design for urban sustainability and city-wide
environmental management systems, consistently applying this to all developments (so developers
have ‘no where to hide’) and training all professionals (planners, architects, urban designers,
developers and consultants, etc.) in its universal use.

- Raising public awareness of urban design for sustainable development through local
workshops/training events

- Appropriate training and education, particularly professional training and re-training at the post-
graduate level

- Promote research in sustainable urban design at the European level using existing and new
programmes to continue to learn from other European examples of best practice. Use the case studies
of good practice in the international context to learn and guide new ways of thinking

- Budget at all levels for good practice field trips with a reporting back element, i.e. annual/biannual
conferences with key speakers who can discuss their research and how to apply the good practice at
the local level
6. General Recommendations

- Local Planning Authorities should engage constructively and imaginatively with developers to secure the delivery of sustainable buildings.

- Negotiations should start from a higher starting point- i.e. Higher level of Code for Sustainable Homes than the current acceptable standard (i.e. currently level 3).

It is important at a national level to question whether the Code for Sustainable Homes is in fact sufficient to achieve sustainable urban design. Should there be more detailed ecological criteria similar to that in Viikki? Regardless of the approach, it is essential that the Government ensure an approach is adopted consistently and that the ‘code’ does not in fact restrict the level of sustainability that can be achieved by developers sticking rigidly to only minimum standards. Local Planning Authorities need to start their negotiations from a higher starting position, but must have the leverage to do so (i.e. in adopted policy in an SPD)

- Transparency and Inclusion through community involvement

To be socially sustainable, and for residents to feel ownership of the development, there needs to be participation by all stakeholders in the decision-making process.

- Joint-working

Sustainable urban design must be a process whereby all the actors involved (national, regional and local authorities, citizens, civil society and community-based organisations, research, academic and professional institutions and the private sector) work together through partnerships and effective participatory processes to integrate functional, environmental, and quality considerations to design, plan and manage a built environment

- Getting it right at the national level

Urban design for sustainability is very dependent on both the national and local context. It depends on the national policy, the local situation, the available finance and the political situation to name a few influential factors. Therefore legislation at the national (and local) level is very important. Recommendations for good practice can be useful, in particular, for promoting and incorporating urban design as an integrated approach to sustainable development into planning policies, systems and practice.

7. Research for the Future: Transforming Existing Buildings

This study has focussed on sustainable urban design for new build development. It must be remembered however, that there are still opportunities to improve the sustainability performance of existing stock. Typically these opportunities have been missed and previous efforts to improve environmental performance have primarily targeted new buildings. Existing building stock represents 98-99% of buildings in the UK at any one time. New buildings add between 1% and 1.5% to building stock each year (McAllister and Sweett, 2007). Improving the sustainability performance of existing stock is therefore a key opportunity that should be pursued and this study proposes is a logical subject for further research.
References

- Land Use and Building Act of 1999, Finland


Planning and Compulsory Purchase Act 2004, UK

Planning Policy Statement 1: Delivering Sustainable Development

Planning Policy Statement on Planning and Climate Change (draft) 2006


• UK Sustainable Development Strategy ‘Securing Our future’ (March 2005)


Appendix A:

Transcripts of Interview: Markku Siiskonen, project leader, architect (Viikki)

Interview:

MS: I think it would be beneficial to first explain about the planning system in my country. The system has three levels of land use plan with a clear division of labour between them: the ‘regional land use plan’, the ‘local master plan’ and the ‘local detailed plan’. The government defines national land use goals which are supervised by a central government or regional environmental authority when implemented in land use planning. The goals may apply to regional structure, quality of the living environment, infrastructure, ecological sustainability and natural and cultural heritage of national importance.

MS: Within a local authority, the local master plan is an instrument for guiding and coordinating land use at a general level. It can be either a very general strategic plan or a more detailed one for direct regulation of building, depending on the need. The local master plan is used to resolve questions concerning the functionality and economics of the community structure, the accessibility of services, the preservation of natural and cultural values, and the quality of the living environment and the reduction of environmental hazards. Do you understand? We like to work on plans in-house and therefore need the correct level of skill.

CS: Yes.

MS: Detailed plans, such as town plans are used for regulating, building and the formation of the physical townscape. The emphasis is on taking local conditions into account and promoting the use of the existing building stock. Special attention has to be given to ensuring that there are enough parks and local recreation areas, and detailed plans must not reduce the quality of anyone’s living environment without very good reason. In addition, every local authority has its own building ordinance, the content of which is defined according to local needs.

MS: The City of Helsinki owns a large proportion of the land in its borders and can therefore exercise strong control over the objectives and standards of development, including the social and tenure mix of housing, which is 50% owner-occupied and 50% for rent.

CS: How would you describe the urban design philosophy behind the Viikki project?

MS: The starting point was that the nature conservation area was very important and that it would remain

MS: There is good public transport links to the Viikki area...a bus...the number 68, but it is slow. Next year when the area is fully complete, there will be another bus connection. There are also bus lines to the metro station. There is one supermarket for the whole of the Viikki area. Around it will become the local service centre for the Viikki housing area. When the project is completed there will be 7 day care centres.

MS: The ecological techniques started from the science park area which is the centre of the whole Viikki area. The whole area will be complete in 2010/2011.

MS: The second stage was called the ecological experimental area. Some requirements are placed on all new housing but in this particular area, some ways of reaching excellent ecological standards were piloted.
CS: I have read that there was a design competition- how did this work?

MS: There was a design competition for the ecological experimental area.

MS: The ecological housing experimental area was the only area of Viikki where consultants were involved. The design was chosen as it had a sustainability statement which demonstrated that it achieved the ecological criteria we were looking for, and it was sustainable in every sense.

MS: In fact each design that was entered into the competition was required to produce a statement to demonstrate how it met the ecological criteria. The statement also covered: Energy efficient design and layout, Energy Efficiency and conservation, Renewable Energy, Energy standards, Sustainable construction, Water Efficiency and Conservation, and Sustainable waste management.

MS: PIMWAG points are used to evaluate the quality of experimental building projects. Sub-areas affecting ecological quality are evaluated using various weighting coefficients applied to Viikki:

MS: In order for building in Viikki to be considered comprehensively ecological on the level; of the whole area and its sub-areas, all designs shall meet the system’s minimum requirements. These requirements have been designed to be attainable with a reasonable investment. By improving the building’s ecological properties above the minimum level, the site developer accumulates PIMWAG points. The system is open-ended to allow site developers to orientate themselves and collect points following to their own ecological preference and sets of values. The maximum number of points attainable is 30. A design that has collected 10 points can be viewed as representing an ecologically excellent project; exceeding the 20 point mark requires exceptional innovation and an extensive grasp of ecological principles from the project group.

According to tests, minimum requirements can be attained with an approximately 5% increase in building costs. This cost increase should be covered using conventional housing funding.

The funding of ecologically outstanding or innovative projects can be arranged for instance by the following means:

- City policy on fees and charges
- Town Planning creates economically favourable basis for the design of the area (parking requirements, connection charges, floor area specifications, etc).

CS: What was the public response to the Viikki project?

MS: The public response at first was mixed, it was quite hairy. For example, Prince Phillip was quoted in the press to be very worried about the nature conservation area. The public seem predominantly happy with the development now.

CS: Was it problematic to integrate housing and other uses with the university and science park?

MS: The science park does have plans for extension. The University of Helsinki owns the land and part of the science park project was the ecological housing and the pilot project scheme. The residential area integrates well with the university.
CS: What is the resident profile like in Viikki? i.e. are there many elderly people/young people?

MS: This is quite a normal housing area with people of all ages- no one age group was targeted.

CS: Is the housing owner-occupied or social housing?

MS: It is 50% social-rented, 25% owner-occupied and 25% right of occupancy which is something between socially rented and owner-occupied

CS: Do you consider that development at Viikki could be improved at all?

MS: I think that this is mostly a good way to build. I wonder why this approach is not used. In Finland people mostly like to live in buildings which are sustainable and ecologically friendly. It is of course a little bit difficult to say what would be the best way to motivate people

CS: Can you explain some of the ecological criteria used and are these expensive to implement?

MS: Developers must meet minimum requirements, for example 34% less energy used and these minimum requirements cost-effect is about 5%- it’s not so much

CS: Do you suggest exactly how these requirements should be met?

MS: Developers, planners and architects work closely together to discuss how to meet these minimum requirements. They can for example use solar energy, etc.

MS: It is important to stress that the environment is assessed from the viewpoints of pollution, sufficiency of natural resources, health, natural diversity, and sufficiency of food. The intent is not to rank these factors in any order of importance; the view is that all are important to create a favourable ecosystem for people.

MS: Pollution can be reduced by building less, by building more efficiently (energy use, traffic), by building durably, and by building recyclable structures. Technical choices and innovations can affect the energy consumption in manufacturing and maintenance’.

MS: Building has a relevant effect on the use of natural resources. The easiest way to influence the use of natural resources is either by building better and less, or by using the kinds of resources that are renewable, and whose consumption is therefore acceptable (currently wood and recycled materials).

MS: In connection with ecological building, health usually means physical health. This is improved by banning building materials known to be, or suspected of being, toxic. Physical health is further enhanced by creating a favourable micro-climate around the buildings as well as healthy and comfortable conditions inside them. Health can be affected by building ‘better in a better way’.

MS: Building in Viikki can affect natural diversity only to a limited extent. The chances of survival for the animal population can be improved by leaving as much of the land unbuilt as possible and by arranging access for the animal population within and through the area to safeguard genetic exchange. This is easiest accomplished by building less and with higher density.

MS: A study of the reference building revealed that an additional investment of approximately 6% will achieve significant improvements while at the same time making it economically possible to achieve a workable solution over a longer time span.
CS: As a short cycle strategy, do you consider that this model of sustainable urban form is better than the traditional compact city?

MS: Decentralised concentration at Viikki is most definitely a sustainable urban form which deserves further consideration, and promotion at all levels. It is a hybrid of sustainable urban form…a chance to see the bigger picture…open your eyes and widen your vision to how sustainability can be best achieved. The compact city ironically is more likely to encourage increased dispersal when inhabitants dislike the lack of nature and decide to travel some long distances at the weekends and during holiday times to visit nature and open spaces in different locations.

CS: Do you think the strategy in Viikki could be transferred to the UK?

MS: Yes, I think it’s universally applicable. The initiation of ecologically conscious building is not just addition of a few new features to the present-day building practices. The issue is about a total change in the buildings mechanism that has become unresponsive to new needs. A sensitive recognition of all factors influencing, their complex connecting and parallel interaction are of fundamental importance. Isolated criteria and disconnected actions are not enough. The splitting of reality into separate scientific fields helps the limited human capacity to think and observe; in reality there are no mechanisms that can be separated from each other. Environmental problems were born just because solutions have been searched for sub-problems isolated from the whole, without paying attention to other viewpoints.

CS: Do you have any advice/last words you would like to add about the Viikki project?

MS: The project is a success because from the start, the objectives were clear for both the planners, architects, and the developers. The inclusion of the project as a local plan was a beneficial factor and the ‘adoption’ of ecological criteria that were considered by a unified front to be paramount to the project allowed leverage to obtain sustainability. The design competition was especially successful. This idea was the perfect solution to raise the developer profile and more importantly, achieve a quality sustainable urban design on the site.
Appendix B:

Transcript of Interview with Matti Visanti:

MV: I can start by explaining the Act:

MV: These are the Goals of land use planning in Finland- (quotes from the Act)

MV: The aim of land use planning is to promote the following, on a basis of interactive planning and adequate impact assessment:

1) the creation of a safe, healthy, pleasant and socially well-functioning living and working environment that meets the needs of various population groups, such as children, elderly people and the disabled;
2) economic community structures and land use;
3) a beautiful built environment and the fostering of cultural values;
4) the preservation of biodiversity and other natural values;
5) environmental conservation and the prevention of environmental hazards;
6) economic use of natural resources;
7) well-functioning communities and good construction;
8) economy in building infrastructure;
9) proper operating conditions for business and industry;
10) accessible services and
11) practical traffic arrangements, with a good background for public transport and non-vehicle traffic.

[Land Use and Building Act (5 §)]

MV: Now Pikku-Huopalahti was designed in accordance with the Act.

CS: Can you tell me a bit about the design strategy for Pikku-Huopalahti?

MV: Yes, first let me say it is an extension to the main centre of Helsinki. Helsinki is quite a new city and after the world war we built a lot and the city construction in a way had to jump over Pikku Huopalahti due to the very bad soil conditions following the World War. It was moving clay about 30 metres underground...very wet, almost water so it was not so easy to build and that’s why everybody thought that you cannot built here. But then in the 80s the pressure to obtain more land for construction was so strong that was had to find the techniques to build in these conditions.

MV: In comparing to London, in Helsinki we have solid rock, very hard and very wet (and not much in between) but in London I’ve heard that it’s hard sand.

MV: We had to construct the soil first. We had to make the city plan. The city owns the land. Most of our big projects work like this because the city owns the land and the city is also the planner and the architect for the project. So in a way, we plan our own land.

CS: What is the philosophy of the design?

MV: Our city council has decided that in every place you must have a percentage of different kinds of housing, owner-occupied owned by the people themselves and then social rented, and then some different forms in between. A mix of house types and therefore a mix of different types of residents facilitate creation
of a sustainable development. We had to ensure however that we didn’t create any additional costs. The housing therefore is built from normal concrete elements, the system used in Finland in the 80s and 90s. Almost every project was built with concrete elements.

MV: Architecturally Pikku Huopalahti was a continuation of the inner city and the orientation of the buildings for the sun was important as housing must heat up- especially in the cold winters. The idea generally was that 1 house has 1 builder and 1 architect. Normally, a larger area would have 1 builder and 1 architect but this project was different. As you walk through the area you notice that all the houses are changing.

CS: Is this plan supposed to be good for the environment- the way the houses were designed?

MV: We constructed this bay- Huopalahti – this is the Finnish word for ‘bay’, ‘pikku’ means ‘little’.
MV: It was then divided into 4, you have a different system in planning but our system is so that we make a master plan for the whole city and then we make partial master plans for project areas and then we make official town plans for parts of it. To get the building permission you must have a very detailed plan. You can not build with master plans only.

MV: Each of the 4 areas had some special difficulties. We had to move motorways, electricity lines, etc so there were many many difficulties.

MV: I planned the houses so that the highest parts- are to the dark side and to the sun are the lower ones so the sun can come to all the yards of the buildings and so the park is in the sun.

CS: There seemed to be only one commercial area with supermarket. Is there more?

MV: It was decided to divide and distribute local convenience shopping to units in the ground floor of the apartment and office blocks. The aim was to offer local shopping within the immediate vicinity for each of the ‘villages’, leaving major shopping within easy reach of the city centre. We have shops on the first floor of the buildings and there are about 5 in the whole of the site for food. Public Transportation has always been very important in Helsinki and we have linked it to here. People living in here think they are living in the city because of the efficient public transport. We also used to have trams but traffic planners in the 60s considered the trams old-fashioned and they were taken away. The need to make a concise connection to the city centre resulted in a major decision however, to allow an extension of the tramway to Pikku Huopalahti, as it imbues the resident with a sense of belonging to the urban core. Hence, public transportation connections are excellent, with direct access by tram or bus to downtown.

CS: The main focus of the Viikki development was on ecological building standards and sustainable construction- did Pikku Huopalahti include any ecological building design?

MV: No. It was towards the end of the 80s that the ecological themes came into fashion in Finland. Architecturally Pikku Huopalahti was a continuation of the inner city and the orientation of the buildings for the sun was important as housing must heat up- especially in the cold winters. The idea here was that 1 house has 1 builder and 1 architect. Normally, a larger area would have builder and 1 architect but this project was different. As you walk through the area you notice that all the houses are changing. Our town planning is therefore very much connected to our house planning.

CS: Was it the city planning department who funded this project?

MV: Yes. We have a tight connection with the central government and they help in the implementation of projects. We work together. They are gathering different builders and so on and then we have a real estate office. They own the city and then they hire different builders.
MV: My idea was for one side to be built by one builder and I architect and for the other side to be built by a different builder and a different architect. In that way, although the buildings are built the same from concrete slabs and so on they have some different characteristics.

MV: They have their own identity…

MV: This did not create any extra costs. If you look at the plan you will see that all the sites are different from each other and all the public spaces are on streets and are different. In Helsinki the architects tend to like the colour white so we also made a colour plan too. They are all different colours depending on the neighbourhood. This plan was part of the neighbourhood directives— not within the official plan. Because we own the land, we can say some conditions and extra conditions for the detailed plan. In some places the colour was so because you have activity in the townscape (cars and shops and so on)- these buildings were warm colours and then along the park and so, green and earth colours. And in areas where houses got less sun and it was dark, then the houses were yellow— this kind of thinking.

MV: It was meant to be a garden city which meant that along the streets you would have flowers.

CS: Are vehicles allowed within the villages or are these streets pedestrianised?

MV: This was very difficult…the city wanted the cars to have efficient land use but if you go above a certain efficiency there are so many cars that they create extra costs because we must put them under the soil or somewhere to the houses or something and here we could not go under the soil because there is water.

MV: Very soon after 1 or 2 metres there is water and it’s very expensive to build under the water. It’s made up of a lot of social housing and therefore there were certain limits for the efficiency of land use. The cars are in these surface car park areas. They are in some circumstances along the streets. I don’t know how it is in England but we have certain norms for how many car spaces per square metres. The car spaces along the streets are needed for the shops and visitors and so on…it does not work at all if you don’t have these extra car park spaces on the street. We have some places in Helsinki where it is forbidden for you to park your car along the street. They have to build their own car places and it happens that you can not visit the places legally.

CS: Was this area built to a high density?

MV: Quite high…I don’t remember numbers but it was quite high density. I will find out for you.

MV: The difference between Pikku Huopalahti and Viikki was that in Viikki the idea was to integrate the nature and rocks and development whereas in Pikku Huopalahti you come out from the built area and you are in the park at once. You can be very near to the park but you can not see it from anywhere so that you must go and look. All these places are planned so that you have a choice for different places. Normal principles in functionalistic town planning is that it is open and you can see but here it was different- you can’t see it at once and you must go around the corner and then see it that way.

CS: Was there a lot of public consultation when you designed this plan?

MV: Of course, of course, when this project began people were against it because of the land conditions and they said that we could not be developing it. There were also concerns with the separation from motorways too but then from the first people who moved here, we had a good connection with the people throughout the years of further construction. We asked the people living here what they wanted and took their advice for the next area in the phased scheme. We gave them information and they gave their opinion about different kinds
of things. In that way we had a good relationship and worked well together. They liked the idea of continuing the different colours as it was a typical feature of Huopalahti. I had meetings almost daily with the Director if the housing association. You must talk a lot with people before any building happens but in the beginning we planned when there wasn’t any people.

MV: At first it was talked about to build a big supermarket and lots of parking places without small shops in the villages but this would mean that everybody would have to travel by car to the supermarket. I was against it and now after 15 years all the small shops are still working - not one of them has died. This is something to be proud of as in other, older parts of Helsinki smaller shops have died.

CS: Is the area mainly made up of young families or older people?

MV: When a new development takes places it is normally always young families who move in. They are just establishing their life and there are a lot of children but them after 20 years the number of people living in the area decreases. We have had problems with day care centres. First we had not enough and then we have too much. The courtyards are used for kindergarten and children if 3 or 4 can play in the park. Its nice surroundings.

CS: Do children usually walk to the school or take the car?

MV: They usually walk and I have designed the layout of the villages so that walking is encouraged. We could have pedestrianised the whole area but it would no have been good for the shops and for the people living here if there was no means to arrive at the local service centre and school by car. The streets are only 1 lane wide so you can not pass another car and they give priority to the pedestrian. Some people complain that there are some cars on the streets but I think that it’s good to have some influence from automobiles so that the shops can be there. If you cut all the access for vehicles then you cut also the opportunity for commercial services.

MV: If you look at the statistics for Pikku Huopalahti then it shows that it is not very dangerous here for small children. We only have one pedestrian tunnel here and it is well used.

MV: There is good public transport to Helsinki.

CS: I noticed there are stairs here (points to map), how do disabled people get to the tram stop in this location?

MV: Yes, there have been some complaints as there are stairs to the tram stop at this location and as there are elderly people living in this particular area, some can not climb the stairs so we made an agreement with this firm that they create a lift here. They built the lift but it has not functioned perfectly. It is in need of repair.

CS: Have there been any other complaints/comments about the development?

MV: Most people like the area and especially like the character to the area, which stems from the many different architectural treatments, including colours. Most people were similarly impressed with the quality of the social housing. The majority of housing units, 50%, are social rented. A further 25% are owner-occupied with state subsidy assistance. In practice, social housing tends to be developer-led, i.e., state subsidies in the form of ‘Arava’ low interest loans are directly given to the developer, who in turn oversees the construction of the homes. State subsidies are therefore passed onto the tenants indirectly through control of social rents baded upon agreed state cost-limits, or to owner-occupiers by low-cost interest loans. The average social rent in 2003 was 10.6 euros/m2 per month. Thus, a 72m2, three-person house or flat would cost approximately 763 euros rental per month, including all service and maintenance charges, which normally include all central heating and water charges but exclude electricity, sauna and car parking, levied
separately. If one were to compare, for example, an average 3 person flat 72m2 in size in the area would cost around 216,000 euros (i.e. 3,000 euros/m2), a typical mortgage for 25 years would cost 1,200 euros per month, and in addition, the householder would need to pay for central heating, maintenance, electricity, and perhaps a ground rent, which would amount on average to a further 230 euros per month. In that respect, owning a home is not affordable to many households (nb. Prices quoted are 2003) and suggests clearly why social renting is the preferred option for many.
Appendix C: Place Check Form- Viikki

This Place check was undertaken on a site visit to Viikki and was completed by 5 residents who agreed to participate in the process (the most vocal residents have been given pseudonyms: Karl, Elsie and Harold). The Place check was a simple tool to discover what we collectively considered good and bad about the development, what could be improved and whether the ‘good points’ could potentially be transferred to the UK.

<table>
<thead>
<tr>
<th>Location</th>
<th>What do we like?</th>
<th>What don't we like?</th>
</tr>
</thead>
<tbody>
<tr>
<td>e.g.: building number, telegraph pole number</td>
<td>What things need protecting? Can we have more of the same?</td>
<td>What needs changing now? What problems are getting worse?</td>
</tr>
<tr>
<td></td>
<td>Safe, peaceful, colourful, very green, rural, forest, rocks</td>
<td>Need more direct, fast links to Helsinki centre and other centres</td>
</tr>
<tr>
<td></td>
<td>Beautiful and plentiful Open Space</td>
<td>Need more employment opportunities in the area- built up area dominated by residential uses.</td>
</tr>
<tr>
<td></td>
<td>There will be no more development permitted in the area</td>
<td>Vikki does not seem completely integrated into the surroundings</td>
</tr>
<tr>
<td></td>
<td>40:60 split between buildings and open fields.</td>
<td>Car Park on outskirts of development- visually attractive but not efficient- i.e. residents struggle to walk from car to home with heavy shopping.</td>
</tr>
<tr>
<td></td>
<td>Many sporting facilities (2 football pitches; people playing cricket)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vegetable patches</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Solar panels and wooden buildings- good ventilation systems</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Home zone feel- safe, overlooked</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Opportunity for food production</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Good place to live</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Feel part of the community- produce my own food and this builds social capital</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Well-equipped local services</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lots of cycle parking</td>
<td></td>
</tr>
</tbody>
</table>
No vehicles make it safe for children playing

<table>
<thead>
<tr>
<th>Location</th>
<th>What needs to be improved?</th>
</tr>
</thead>
<tbody>
<tr>
<td>e.g.: building number, telegraph pole number etc</td>
<td>Sustainable transport links to Helsinki Centre and other centres, including another direct bus route, potential for installation of tram line.</td>
</tr>
<tr>
<td></td>
<td>The level of provision of employment opportunities could be improved</td>
</tr>
<tr>
<td></td>
<td>Efficiently designed, no space wasted but cramped. Sometimes felt like living in an aquarium. Good access road, good natural surveillance- can watch children play safely- they can walk safely around the whole area. Big road is border- like a little island between forest and big city- a ‘world on its own’.</td>
</tr>
<tr>
<td></td>
<td>Community notice board- keeps people informed- nothing for teenagers but excellent for younger children. Bridges- small details effectively</td>
</tr>
<tr>
<td></td>
<td>Focus on sustainable modes of travel, especially bicycles- large construction for bike stands/parking.</td>
</tr>
</tbody>
</table>

**Observations on site visits**

<table>
<thead>
<tr>
<th>Sustainable Urban Design Characteristics</th>
<th>Potential to transfer to UK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short Cycle Strategy</td>
<td>Yes, universally possible</td>
</tr>
<tr>
<td>Ecological Building Criteria</td>
<td>Need to be fully implemented by all authorities so that developers had no where to hide. Ensure that regardless of location, the same criteria would be required on a consistent basis.</td>
</tr>
<tr>
<td>Ecological Building Criteria including cultivation areas for local food production</td>
<td>Need to integrate objectives and plans in the planning process from the outset.</td>
</tr>
<tr>
<td>Dispersed, but concentrated (low gross density, high net density)</td>
<td>Yes, this should be encouraged.</td>
</tr>
<tr>
<td></td>
<td>Need inclusion and transparency in any project so residents feel ownership of the project.</td>
</tr>
</tbody>
</table>
Appendix D: Place Check Form- Pikku-Huopalahti

This Place check was undertaken on a site visit to Pikku-Huopalahti and was completed by 3 residents who agreed to participate in the process (again the most vocal were given the following pseudonyms Susan, Mark and Tracey). The Place check was a simple tool to discover what we collectively considered good and bad about the development, what could be improved and whether the ‘good points’ could potentially be transferred to the UK.

<table>
<thead>
<tr>
<th>Location</th>
<th>What do we like?</th>
<th>What don’t we like?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>What things need protecting? Can we have more of the same?</td>
<td>What needs changing now?  What problems are getting worse?</td>
</tr>
<tr>
<td></td>
<td>Excellent location, close to Helsinki Centre</td>
<td>Not always safe for children. I can’t see them playing from my window and I like to be able to see them. The children’s play area is not overlooked enough.</td>
</tr>
<tr>
<td></td>
<td>Excellent public transport links to Helsinki centre and other centres</td>
<td>Only 1 small supermarket- not enough local services, shops, etc.</td>
</tr>
<tr>
<td></td>
<td>Not far from park and bay</td>
<td>We know the housing is not ecological or sustainable in the design or construction</td>
</tr>
<tr>
<td></td>
<td>Interesting pieces of public art</td>
<td>The whole site should be pedestrianised- too many cars still use the streets</td>
</tr>
<tr>
<td></td>
<td>Nice community feel</td>
<td>No open space or green space within the development- depressing</td>
</tr>
<tr>
<td></td>
<td>Some amenity areas, i.e. for sitting, children’s play facilities</td>
<td>I know the spectacular bay is around the corner, but I can’t see it from my window which is a shame.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location</th>
<th>What needs to be improved?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>For example: improving buildings, accessibility, safety aspects, providing things for people such as facilities for young people, organizing a street party, improving parking, car pooling, tidying up, improving security, organising a school run escort rota, improving gardens.</td>
</tr>
<tr>
<td></td>
<td>Integration between nature and built development.</td>
</tr>
<tr>
<td></td>
<td>View lines should exploit nature and the bay</td>
</tr>
</tbody>
</table>
Need a more sustainable level of local shopping provision

Observations on site visits

<table>
<thead>
<tr>
<th>Sustainable Urban Design Characteristics</th>
<th>Potential to transfer to UK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compact City Strategy</td>
<td>Yes, universally applicable</td>
</tr>
<tr>
<td>High Density</td>
<td>Yes, but need to consider whether gross density can be slightly lower to include landscaping, open space, and areas for food production.</td>
</tr>
<tr>
<td>Architectural Criteria</td>
<td>Potential if joint working can be achieved</td>
</tr>
<tr>
<td>High levels of public transport to centre</td>
<td>Yes, should explore potential for other modes of public transport- tram lines, etc and whether these can be subsidised.</td>
</tr>
</tbody>
</table>