

## 05 THE STRATEGIC GROWTH MODEL

This section deals with the development of a Strategic Growth Model (SGM) for Ashford, seeking to locate the overall quantum of development within the context of Ashford. The earlier ‘broad brush’ calculations undertaken gave an indication of the scale of change anticipated in Ashford to meet the requirements of 31,000 homes and 28,000 jobs as some 16 square kilometres of development landtake. The SGM quantifies in further detail these landtake requirements. It looks to where this land could be allocated and what form new development should take. It develops this in the context of previous studies, determined physical constraints and the overall ambitions and objectives of the strategic vision. It informs and supports the emerging Economic Vision and Town Centre Development Framework. More particularly develops the SGM within the requirements of the ODPM’s ‘Sustainable Communities Plan’, the emerging Ashford ‘Local Development Framework’ and the delivery requirements of Ashford’s Future.

This section tests three growth scenarios from which a preferred scenario and Master Option for growth is identified. An assessment of these scenarios from a workstream perspective is included.

## 05.1 DEVELOPING THE STRATEGIC GROWTH MODEL



Critical to moving the Vision forward to a physical reality was the need to develop effective tools to engage with the wider stakeholder group in a meaningful way. This was particularly relevant to the challenge of growth and change demanded, recognising that a collaborative working approach had not occurred at this scale of development before.

Although we recognised that a strong and directive plan would have to be shaped by a clearly defined urban structure, we also recognised that we needed to test different development scenarios with these stakeholder groups. Testing options allowed us to assess as a group a number of issues:

- What is a scenario that is optimal for respecting the floodplain?
- What is a model that is optimal to really support a viable and convenient public transport system?
- What is a model that will generate sufficient enthusiasm for people to set up job opportunities?
- What is a model that would be supportive of a diverse range of housing options?



Playing the Strategic Growth Model game at Eastwell Manor

### The Game

In order to move this forward, Urban Initiatives developed a simulation game that enabled the participants at the Eastwell Manor Workshop to envision and evaluate:

- where we wanted development to be;
- what form it should take; and
- the implications of such choices

Participants were drawn from amenity, voluntary and residents groups, parish councils, service providers, Borough councillors and Ashford's Future partners.

The main purpose of the game was to get those people who would be affected by growth and/or who would have to deliver the growth, to consider the broad model that should underpin the development of the town. Stakeholders were asked to consider the interrelated and complex issues of community development, rather than just the spatial implications.

The simulation game had three components:

- 1. Tiles:** Scaled units of development for various density, mix and land use types.
- 2. Boards:** Scaled plans for three different growth scenarios, showing physical constraints, key elements of movement infrastructure and potential zones for development for a range of density, mix and land use types.
- 3. Rules:** Identifying the conditions under which the tiles could be played on the boards to achieve walkable neighbourhoods, sustainable public transport and efficient use of land and resources.

This game and its components has been a key determinant in developing the Working Masterplan and the emergent land use and density calculations can be tracked back to this process. It has been taken forward in the development of the Design Codes

## The Tiles

### The Unit of Development

Our goal for the game was to produce a series of tiles that would reflect the true nature of the land acreage of different types of urban development, particularly when residential homes are involved. It was therefore important to select a tile size that reflected the scale of a reasonable sized neighbourhood containing homes, play space, schools, retail and services

In order to achieve a realistic land take estimate, a 500m x 500m (25 hectare) square was chosen as the unit containing a theoretical centre comprising retail and community services serving a local (5 minute) walking catchment of all residences within the tile. For ease of comparison, this 25 hectare unit was used for employment and public open space tiles as well. Central amenity uses such as health and higher education had smaller land use requirements, but did not need population or employment calculations performed on them at this stage.

As regards other space-extensive uses, the 25 hectare tile was used to show industrial land take and parkland. For smaller units of development such as learning, arts and cultural quarters; an office precinct; and, major health and wellbeing facilities, a quarter tile was used

### Residential Uses

Although the terms of reference of this study called for the creation of 31,000 residential units, the Team needed to create some understanding of how different residential environments have different demographic profiles. At the moment, Ashford's average number of residents per household stands at 2.4, but neither suburban homes nor town centre apartments would reflect this measure of population. We have taken into account the recent Halcrow Study that estimates an average of 2.06 person/household in the plan period. However, to ensure that we have provided the maximum amount of land take possible, we have kept the current 2.4 average as a 'safety factor'. In addition, to reflect demographic differences, approximately 25% more people per household, and town centre homes with 25% less. The connection between area and units in the three different residential tiles is defined by its density, or dwellings per hectare. The density figure for each tile results from the goals for the quality of residential area, the mix of other uses, application of space standards for community infrastructure and proximity of high quality public transport and higher order amenities. Thus, we created 3 types of tiles that had major residential components:

**Residential Neighbourhood** – This comprises housing at the lower levels of PPG3 densities, which meant predominantly family houses in the form of detached, semidetached and terrace houses with limited apartment living closer to local centres, as part of a predominantly residential neighbourhood. The nature

of this development would generally allow on-site or on-street car parking. The average density of this tile was calculated as the mean between 30-50 dph giving 40 dph or some 650 dwellings per tile. Poundbury, in Dorset, was used as a proxy for this type of development.

**Living Quarter** – This comprises medium density residential development, being largely townhouse and apartment living with undercroft and on-street parking as part of a mixed use district. This would be say, predominantly 3-4 storey development, although this could increase to six stories along main streets and spaces. The density range would be between 50-100 dph giving an average density of 75 dph. Taking other uses into consideration this would give rise to some 1200 units per tile. Crown Street in Glasgow was used as a proxy for this residential tile.

**Town Centre** – This comprises higher density residential as part of more mixed-use development, including living-over-the-shop/business with predominantly undercroft or structured car parking. It was assumed that densities would range from 100-200 dph with an average density of 150 dph. Taking other uses into consideration this would give rise to some 1500 units per tile. Temple Bar in Dublin was used as the proxy for this tile.

### Definition for Dwellings per hectare

The definition of dwellings per hectare (DPH) in the planning system is based on the policy document PPG 3 (Housing). DPH is a measure of net site area, including only those areas which will be developed for housing and directly associated uses. This will include:

- access roads within the site;
- private gardens;
- car parking;
- incidental open space and landscaping; and
- children's play areas.

It therefore excludes:

- major distributor roads;
- schools;
- open spaces serving a wider area; and
- significant landscape buffer strips.

Therefore, not all of the 25 ha tiles are part of the net site area used to calculate DPH. In the Residential Neighbourhood and Living Quarter tiles, only about 70% of the land will fall into this category, with schools and distributor roads taking up a significant amount of space. In the Town Centre, where there is intensive mixed-use activity, the new site area would equate to around 40% of the land.

**The Residential Neighbourhood**



600	homes
5	hectares of open space
1.2	schools
2	community facilities
1.5	shops
-0	jobs (negligible)

**The Living Quarter**



1200	homes
3.5	hectares of open space
1.1	schools
2.2	community facilities
6	shops
750	jobs

**The Town Centre**



1500	homes
0.75	hectares of open space
1	school
(civic)	community facilities
60,000 m <sup>2</sup>	retail floorspace
3000	jobs

Examples of 25 hectare tiles

## Standards of Provision

This section deals with the principles and assumptions that the Consultant Team developed in order to test three different growth models for Ashford.

### Community Infrastructure

Planning standards in recent publications such as 'Shaping Neighbourhoods' use population as a measure to provide services to residential tiles. We needed to make a connection between the population, number of units and the area required by the community services inside residential tiles. These measures are supplemented by residential amenity standards in the 'Kent Structure Plan' and the 'Ashford Borough Local Plan'.

These standards included:

- **Outdoor Playspace** 2.4 ha / 1000 people
- **Schools** 0.52 children / household
- **Shops** 1 / 1500 people
- **Community Centres** 1 / 4,000 people
- **Health Centres** 1 / 10,000 people
- **Libraries** 1 / 15,000 people
- **Houses of Worship** 1 / 10,000 people
- **Pubs** 1 / 6,000 people
- **Post Offices** 1 / 5,000 people

### Applying the Standards

Using these standards, applying the adjusted household sizes, and making considered judgements as to the application of these standards within the range of density types, we calculated the following requirements:

**Local and Regional Open Space** - Common sense assumptions were made on the location of open space in residential areas. In the Residential Neighbourhood, all of the open space requirements directly associated with new build housing were to be met by 5 hectares of open space available within its own 25 hectare tile. In the Living Quarter and Town Centre tiles, the open space was reduced with the deficit made up by creating intensely managed regional parkland represented by 25 hectare tiles of their own. These spaces would serve the wider community, unlike those within the Residential Neighbourhood, and serve an important role in civic identity.

**Local Amenities** - The provision of local amenities and their respective land take was calculated for each residential type. The Living Quarter and Town Centre tiles also contain further allocations of amenities to satisfy the demand produced by surrounding residential neighbourhood areas. This took into account land take requirements based on the accepted standards and best practice alluded to above. This is outlined in the table below.

**Education** - The provision of schools was based on the pupil/product ratio (children per household) produced by KCC. This was varied to take into account demographic predictions of the number of families living in each sector of the town.

### Circulation

The tiles take into consideration primary roads such as the Victoria Way, local distributor roads and main streets. All other roads are included in the gross residential areas. An allowance of 5% of the tile area has been given over to this higher order circulation.

	Residential Neighbourhood	Living Quarter	Town Centre
<b>Residential population - Max. feasible</b>	1800	2800	2700
<b>Public Open Space</b>	5ha	3.5ha (garden squares)	0.75 (urban squares)
<b>Primary Schools</b>	1	1	1
<b>Secondary Schools</b>	0.2	0.1	0
<b>Local Shops</b>	1.5	6	Part of retail component
<b>Community Centre</b>	0.5	0.6	0.6
<b>Health Centre</b>	0.2	0.3	0.3
<b>Library</b>	0.1	0.2	0.2
<b>Places of Worship</b>	0.2	0.3	0.3
<b>Public Houses</b>	0.3	0.5	0.5
<b>Post Office</b>	0.4	0.6	0.6

Table: Local amenities and public space to support 25 hectare tile (these figures will be subsequently reviewed by service providers)

## Employment Uses

In exploring the location and type of employment space to meet the requirements of 28,000 jobs, a number of brush assumptions were made regarding the nature of employment demanded. This was partly informed by the emerging Economic Vision and by an examination of best practice elsewhere.

The provision of employment space took four forms:

### 1. As part of Mixed-Use Development

In a typical town centre of a medium density district, a significant number of office units intermingle within a residential community. These could be horizontally mixed in separate office and residential blocks, or vertically mixed in with residential, retail, or community uses. In order to quantify this type of development an estimate of 10% of the land in a Living Quarter tile and 40% of the land in a Town Centre tile was given over to local and town centre employment uses. Mixed use employment was calculated at a medium density (1 worker/30m<sup>2</sup>) with a less intense demand, a lower building height, a new plot ratio of 1:0 was used for the Living Quarter. In the Town Centre, with increased retail/office demand, a net plot ratio of 1:5 was used. The same demand for circulation and parking (15% of land area) was assumed to calculate the net development area. This translated into 750 and 3,000 commercial and office jobs in Living Quarter and Town Centre tiles, respectively.

### 2. As Part of a Dedicated Office Precinct

A major proportion of office employment will be located within an office precinct within close distance of the Ashford International Station. This precinct would have a gross plot ratio of 1.5:1 and a high (1 worker / 20 square metres) employment density. A quarter tile accommodated some 3750 jobs.

### 3. As Part of Business park/ Industrial Estates

Not more than 20% of new jobs to be provided in low-density (1,125 jobs per 25 hectare tile) industrial estates at motorway junctions.

### 4. As a Result of Intensifying Existing Employment Areas

This includes redevelopment and adaptive reuse of employment zones within close proximity of the town centre. The density of jobs was not calculated but broad assumptions made that would need to be tested in detail later.

## Higher Order Land Uses

A range of quarter tiles were produced to reflect such uses as:

- An arts and cultural quarter
- A civic quarter
- A learning quarter, including student residential development, and
- A health and wellbeing complex

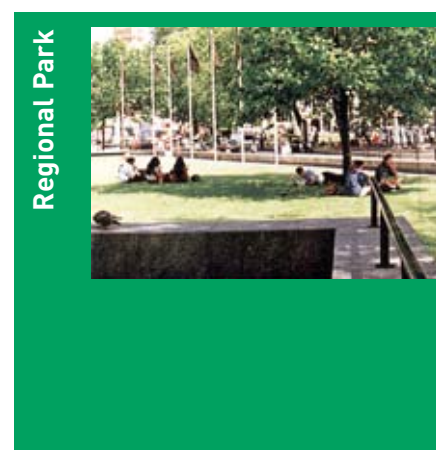
No detailed land take assumptions were made for these specific uses, as it was assumed the bulk of these would be accommodated within general mixed use development. This assumption would need to be tested in detail as part of developing the Strategic Concept Plan.

### Open Space

A series of parkland, wetland and woodland tiles were also produced using the 25 hectare format. These could be grouped to create a major wetlands park, an active recreation park or to create a woodland corridor. Local open space was provided for in the Residential Neighbourhood and Living Quarter tiles.



Examples of higher order tiles



## The Boards

### Developing the Scenarios

Three development scenarios were constructed, each representing a potential growth model. We developed three different gameboards approximately 2 x 2.5 meters with a large aerial photo of Ashford as the primary game surface. The boards showed a number of key bits of information:

- A 25 hectare grid to complement the size of the tiles.
- The floodplain
- Key transport corridors, including the approximate position of Junction 10a, the proposed Victoria Way and New Town Bridge and the dotted alignment of a southern orbital route.
- The Ashford International Station and proposed new stations at Great Chart and Park Farm, all showing their relative walking catchments.
- The extent of development for each scenario shown as coloured squares. For each scenario there were four times as many playable squares as there were tiles that could be played.
- As a general rule special squares for industrial/business park development were identified at M20 junctions.

In all cases the extent of development was determined by combining all potential sites into potential development zones. These sites were identified through a number of sources:

- The areas of search identified in other strategic studies such as Halcrow Report (including their transport diagram) and the RPS transport work.
- The areas of search identified in Regional Planning Guidance.
- Sites identified by BDP in their Town Centre Strategy.
- Sites identified by Ashford Borough Council through representations from landowners, housebuilders and other interested parties.
- Sites that have been identified through analysis by the team.

The extent of the identified development area was not prescriptive and stakeholders were allowed, within reason, play outside the limits.

Each scenario had different development prospects:

**1) The Suburban Model** – largely qualified by dispersed lower density growth on the peripheral edge of Ashford broadly reflecting current growth patterns in Ashford. This scenario assumes that any new development would broadly achieve low PPG3 densities in predominantly mono-functional suburbs, supported by local centres. The maximum extent of potential playable squares was allowed for this scenario.

**2) The Decentralised Neighbourhood Model** – growth is polycentric and is defined by a series of larger medium density 'neighbourhoods' where development is focused around a strong district centre with a wide range of amenities and residential choice. The number of playable squares as reduced for this option with the additional requirement that any tiles played within a new station catchment had to be Living Quarter tiles.

**3) The Compact Urban Model** – growth is linear focusing as much development as possible in close proximity to the existing Town Centre and expanding the sense of the centre along highly developed transport corridors. The number of playable squares as further reduced to hold development closer to the town centre. As before, the additional requirement that any tiles played within a new station catchment had to be Living Quarter tiles. In addition potential relocation squares were identified that allowed underutilised areas to be regenerated. A further complication was that, development was allowed in the floodplain but only if an area could be identified for its relocation.

The following elements are common to all three scenarios:

- All of the tiles added up to the 31000 housing units and 28000 jobs that have to be delivered;
- Two Town Centre tiles to accommodate the intense and effective development of the Town Centre Area;

- One Office Precinct quarter tile to deal with key jobs within close proximity to the Ashford International Station;
- Six civic institution quarter tiles to denote higher order public institutions that are not absorbed in any of the housing tiles, such as a Learning and Skills Campus, a Health and Well-Being Centre, Arts, Cultural and Recreational Facilities.
- Players could trade up two Residential Neighbourhood tiles for one Living Quarter tile or vice versa, but they could only do this once.



Extent of potential development land



Potential development land translated into development zones

## The Rules

Generative Urbanism, outlined in the previous section, was proposed as our approach to a growth and change model for sustainable development - public transport accessibility in combination with walkability being the primary generators of urban form and, by definition, urban activity. The primary determinant in calculating the scale and density of a settlement therefore is the quality and quantity of public and other forms of transport. If public transport were the only determinant, most settlements would be linear in form. Combined with walkability they become both linear and nodal.

The diagram to the right demonstrates the scale of settlement relative to walking distances and public transport provision required to meet the modal split requirements.

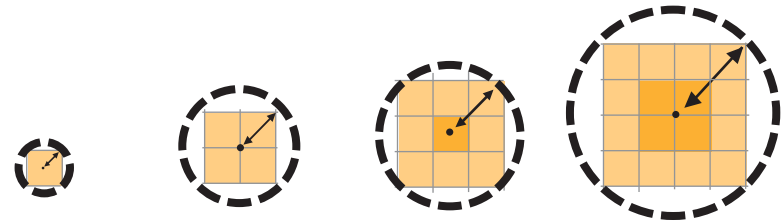
Current best practice shows that a 5 minute walkband to neighbourhood centres or to high quality bus services is a good target. This implies a scale of neighbourhood of 9 tiles, approximating some 6,000 units, assuming 8 yellow tiles and one orange tile.

The diagram to the right shows that in order to increase the bus usage to a level better than the UK average, the scale of neighbourhood should be closer to 10 yellow tiles (6000 units).

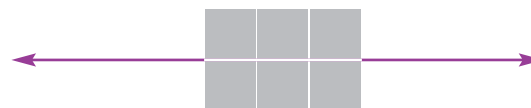
Both confirm the optimum sizes of neighbourhood to be in the order of 6,000 units that equates to a neighbourhood population size of say 12,000 people. This becomes one of the most important informants to playing the game.

Analysis shows:

- Size of tiles relative to walking and cycling catchments
- Number of residential units in each tile type estimated



Tiles	1	4	9	25
<b>Area:</b> sq.km ha	0.25 25	1 100	2.25 225	6.25 625
<b>No. Units (approx)</b>				
Yellow	600	2400	4800	7200
Orange	N/A	N/A	1200	4800
<b>Total</b>	<b>600</b>	<b>2400</b>	<b>6000</b>	<b>12000</b>
<b>Walking catchment</b>	All within 5 minutes	All within 5 minutes	80% within 5 minutes	All within 10 minutes



**Bus Route**  
(every 15 minutes)

1. Just about viable with current bus use



**Bus Route**  
(every 5 minutes)

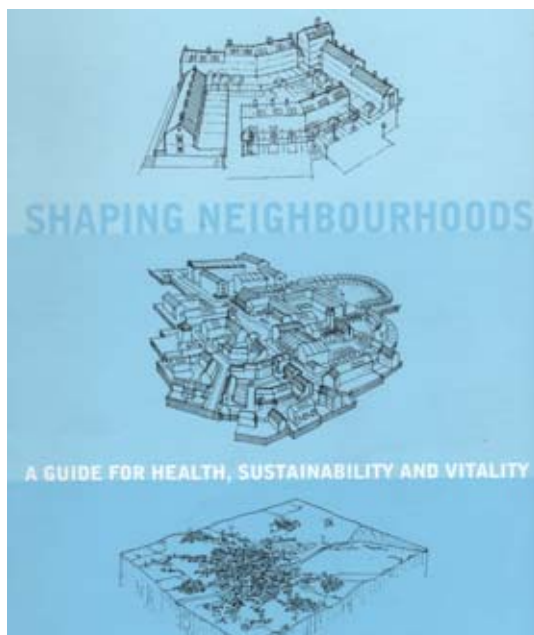
2. Better service with higher use (at UK average)

**It is also important that we consider the scale of neighbourhood required to sustain a comprehensive range of community infrastructure and non-residential uses.**

There is no real optimal scale of neighbourhood in social and economic terms and looking for the perfect scale has troubled planners in the past. The early work of the Urban Villages Forum proposed urban villages of 40 hectares (as in its Greenville proposal's) although this was not fully justified.

Calthorpe's work on transit-oriented development (TODs) in the United States proposes a scale of development unit that is related to scale of public transport provision but not scale of community infrastructure provision. The Urban Design Compendium (English Partnerships) only uses walkbands to determine scale of neighbourhood unit (50 hectares).

Sustainable urban neighbourhoods are far too complex to be determined by walkbands alone.



'Shaping Neighbourhoods' (UWE, 2002) was a valuable document to clarify the scale and nature of community infrastructure required to make sustainable urban neighbourhoods.

### Community infrastructure

It is however at the level of local provision of community infrastructure that optimum sizes become a fundamental issue to making neighbourhoods work and building communities. How much development is needed to support a local foodstore, sustain local jobs or provide health, welfare or education uses?

The table below shows that neighbourhoods of some 5-6, 000 units is optimal in terms of providing the full range of community infrastructure. Using 9 tiles (one orange and eight yellow) we have a neighbourhood that can support:

- a local high street with a wide range of local shopping facilities including a foodstore;
- a full range of local facilities including health centre, the post office, leisure centres and places of worship;
- four primary schools and one secondary school
- a major neighbourhood park with local play areas within the neighbourhood

The sources supporting this conclusion for a 5-6,000 unit neighbourhood derive from Kent County Council standards, 'Shaping Neighbourhoods,' and current best practice for foodstore development in the UK (Source:DTZ Piedad), amongst others.

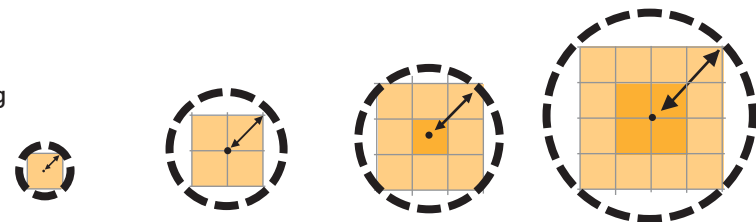
In taking forward the work of others we have identified that the scale of their neighbourhoods, based largely on walkbands only, are more likely to operate as sub-neighbourhoods. That is four sub-neighbourhoods of say 50 hectares will make one sustainable urban neighbourhood. Each sub-neighbourhood has access to its own primary school and local play areas and facilities.

This equates to say, nine of our tiles. It should be borne in mind that the tiles allow for some 20% open space, which could be largely grouped around the edges of the neighbourhood and create compactness closer to the neighbourhood centre.

This becomes the second basic informant to playing the game and supports the public transport case.

Analysis shows:

- Size of tiles relative to walking and cycling catchments
- Extent of community infrastructure to be provided



Tiles	1	4	9	16
Area: ha	25	100	225	400
No. Units Living Quarter	0	0	1200	4800
No. Units Residential Neighbourhood	600	2400	4800	7200
Population @ 1.91 (LQ), 2.18 (RN)	1,308	8,720	12,756	24,864
Range of facilities supported (Education)	None	1 Primary School	1 Secondary School 4 Primary Schools	2 Secondary Schools 8 Primary Schools
(Shops)	1 Corner Shop	4 Shops	1 Supermarket 8 Shops	1 Hypermarket 12 Shops
(Community Centres)	None	1	2	3
(Health Centres)	None	1	2	3
(Library)	None	None	1	2
(Pubs)	None	1	3	2
(Post Offices)	None	1	2	2
(Employment)	0	0	500 jobs	2000 jobs
Public open space	5 ha (25%)	25 ha (25%)	43.5 ha (19%)	74 ha (18%)
Green Dividend	0	0	+12.75 ha	+ 26

### Common Rules

- All tiles that were calculated for each respective scenario have to be played. - 31000 housing units and 28000 jobs have to be delivered.
- Two Town Centre tiles are always played in the town centre to accommodate the intense and effective development of the Town Centre Area;
- One office tile to deal with key jobs outside of the Town Centre and Industrial areas;
- One industrial tile to deal with industrial development areas;
- Six civic institution tiles to denote higher order public institutions that are not absorbed in any of the housing tiles, such as a Learning and Skills Campus, a Health and Well-Being Centre, Cultural and Recreational Facilities.
- Each game allowed for two opportunities to swap tiles: 2 yellows could be swapped for one orange tile, two orange tiles could be swapped for one red tile.
- Games 1 and 2 did not permit any development tiles to be played in the floodplain.
- Game 3 allowed for conditional development in the floodplain. Any floodplain area allocated for development would have to be relocated on a 1:1 basis.
- For each game, there was three times the spaces allocated against the tiles that had to be played.

### Basic Informants

- 8 yellow tiles and one orange tile were required to sustain a five minute bus service and a full range of community services.
- These could be played to create a separate urban neighbourhood or could be added to existing development to make these areas function better.

Basic principles of clustering began to reinforce the basic benefits of urbanity – if the tiles were well played they could generate access to convenient public transport and neighbourhoods that could support a range of public services.

### The Green Dividend

The principle of a 'green dividend' was established that rewarded scenarios with less land take with parkland/wetland/woodland tiles that could be played to create landscaped parks. These were allocated as follows:

Scenario	No of Green Tiles
The Suburban Model	None
The Decentralised Neighbourhood Model	8
The Compact Urban Model	16

By adding these Green Tiles to the number of tiles for each of the scenarios, they all came out to the same land take.

### Playing the Game

The stakeholder group of 120 people were divided into groups and each group played through each scenario. In each scenario there were therefore three responses. The first 15 minutes of the first game caused many heated debates and arguments – each person trying to steer the game in favour of their own particular interests. Gradually however the greater principles began to come to the fore. Two critical understandings developed during the course of the games. The first is that you cannot solve the problems of a whole town from the perspective of your own backyard – "Nimbyism" limits the potential of the whole. Secondly growth at this scale is complex. There are competing and overlapping concerns and agendas so that within reason, trade-offs have to be made.

The tangible, physical quality of the game gave people a chance to shift around development blocks and directly explore the implications of their actions. It proved to be an extremely useful participation tool.

Each gameboard was controlled by a Gamesmaster who had a clear remit to keep the game playing. Each gameboard was supported by a range of experts in transport, environment, flooding, urban design and planning. They could be consulted throughout the game.

**The fundamental rule of the game was simple: 'All tiles had to be played!'**



Grouping the tiles together creates sustainable neighbourhoods with facilities within close walking distance