PETERBOROUGH RESIDENTIAL DENSITY STUDY 2007

Contents Amendment Record

This report has been issued and amended as follows:

Issue	Revision	Description	Date	Approved by
1		Revised Tables & Text	26/07/07	
2		Revised Text	02/08/07	

Contents

Tables

Figure

1 Introduction

1.1 Halcrow Group Limited was instructed by Peterborough City Council to undertake a desktop study of the prevailing densities in Peterborough.

1.2 The purpose of the study is to provide evidence which will help to determine appropriate residential densities for the urban and rural areas within Peterborough. Application of the resultant potential densities will be used to estimate the urban capacity that will in turn be fed into the Integrated Growth Study being currently undertaken by other consultants. This is a key study informing the City Council's Preferred Option for its Core Strategy Development Plan Document.

1.3 The structure and order of this Study is as follows:

- Chapter I, Introduction: An introduction stating the purpose of the study which is to recommend a range of densities that can be used in the calculation of land requirements in the different growth scenarios;

- Chapter 2, Definition of Residential Density: Provides definitions of gross and net residential densities and indicates that net residential density expressed as dwellings per hectare (dph) will be used in the study;
- Chapter 3, Policy Context: Sets out the National, Regional and Local policies on density levels and requirement of density in development plans. Best practice in reviewing housing densities though brief is undertaken in this chapter;
- Chapter 4, Densities Achieved in Peterborough: Densities achieved in both urban and rural areas in Peterborough from 2003 -2007 are reviewed to ascertain trends if any;
- Chapter 5, Density Context: Sets out the prevailing densities within different locales in Peterborough both urban and rural and this sets the basis for recommending new densities;
- Chapter 6, Appropriate Densities: Sets out densities considered appropriate for different locations based on prevailing densities, achieved densities, Public Transport Accessibility Level (PTAL – a measure of frequency and distance to public transport i.e. bus, train station, distance from the City Centre and availability of open space; and
- Chapter 7, Conclusions: Indicates that densities vary considerably between the urban and rural areas but overall developments are being undertaken at higher densities than in previous years. This chapter reiterates the need to undertake an in depth study to confirm recommended density ranges and to also provide a more robust evidence base.

2 Definition of Residential Density

2.1 Residential density is used to measure the intensity of development within a given land area. “Gross” density is used to define the number of dwellings in a site/development area including major and local distributor roads, primary schools, churches, local shopping etc., open spaces serving a wider area and significant landscape buffer strips which may define the site boundary/development edge; the density assumption applied will need to reflect the inclusion of these elements.

2.2 A net site density measure is a more refined estimate than a gross site density measure. It includes only those areas which will be developed for housing and directly associated uses such as access roads within the site, private garden space, car parking areas, incidental open space and landscaping, and children’s play areas where these are to be provided.

2.3 A net density is the most commonly used approach in residential allocations in Local Plans or Action Area Plans. Net density is more appropriate in instances where there are clearly defined boundaries and where the proposed use is residential.

2.4 The most appropriate measure for estimating gross/net residential density yield of existing or future housing is dwellings per hectare (dph). Net density and dwellings per hectare are used throughout this study.

3 Policy Context

3.1 England has a comprehensive hierarchy of planning policies, beginning with national guidance which provides a broad framework for regional plans and strategies through to local development plans and policies.

3.2 The Government is currently implementing the reforms to the planning system outlined in the Planning and Compulsory Purchase Act 2004 with Planning Policy Statements (PPS) and Regional Spatial Strategies (RSS) replacing Planning Policy Guidance (PPG) and Regional Planning Guidance (RPG) respectively, and Local Development Frameworks (LDF) replacing Structure and Local Plans and Unitary Development Plans (UDP).

3.3 As a result, a range of current consultation and draft planning policies are relevant to this study and in order to set the context, the key documents have been reviewed and presented below.

National Policy

3.4 PPS 3 – Housing (November 2006)

3.5 PPS3 puts in place a new national policy framework for planning for housing at the local and regional levels. It provides an enabling framework for Local Planning Authorities, working with their stakeholders, including developers, to deliver both the right quantity of housing to address need and demand in their areas and the right quality and mix of housing for their communities. PPS3, along with other Government housing policy and planning policy statements provides the context for plan preparation in relation to housing development.

3.6 PPS3 states four main housing objectives. These are as follows:

- To achieve a wide choice of high quality homes, both affordable and market housing, to address the requirements of the community;
- To widen opportunities for home ownership, and ensure high quality housing for those who cannot afford market housing, in particular those who are vulnerable or in need;
- To improve affordability across the housing market, including by increasing the supply of housing; and
- To create sustainable, inclusive, mixed communities in all areas, both urban and rural.

3.7 Below are the housing policy objectives that provide the context for planning for housing through development plans and planning decisions. Specific outcomes that the planning system should deliver are:

- High quality housing that is well-designed and built to a high standard;

- A mix of housing, both market and affordable, particularly in terms of tenure and price, to support a wide variety of households in all areas both urban and rural;
- A sufficient quantity of housing taking into account need and demand and seeking to improve choice;
- Housing developments in suitable locations, which offer a good range of community facilities and with good access to jobs, key services and infrastructure; and
- A flexible, responsive supply of land – managed in a way that makes efficient and effective use of land, including re-use of previously developed land, where appropriate.

3.8 With regards to the latter bullet point, Local Planning Authorities are required to consider a range of incentives or interventions that could help ensure development of previously-developed land. Incentives or interventions may include considering whether sites that are currently allocated for industrial or commercial use could be more appropriately re-allocated for housing development (in accordance with the local Employment Land Review).

Good design is fundamental to the development of high quality housing, which contributes to the creation of sustainable, mixed communities. Matters to consider when assessing design quality include the extent to which the proposed development:

- Is easily accessible and well connected to public transport and community facilities and services and is well laid out so that all the space is used efficiently, is safe, accessible and user-friendly.
- Provides, or enables good access to, community and green and open amenity and recreational space as well as private outdoor space such as residential gardens, patios and balconies.
- Is well integrated with, and complements, the neighbouring buildings and the local area more generally in terms of scale, density, layout and access.
- Facilitates the efficient use of resources, during construction and in use, and seeks to adapt to and reduce the impact of, and on, climate change.
- Takes a design-led approach to the provision of car-parking space that is well-integrated with a high quality public realm and streets that are pedestrian, cycle and vehicle friendly.
- Creates, or enhances, a distinctive character that relates well to the surroundings and supports a sense of local pride and civic identity.
- Provides for the retention or re-establishment of the bio-diversity within residential environments.

3.9 The document states that using land efficiently is a key consideration in planning for housing. Regional Spatial Strategies should set the region's housing density policies including any target.

3.10 Achieving a mix of housing, particularly in terms of tenure and price and a mix of different households such as families with children, single person households and older people is an important consideration.

3.11 Local Planning Authorities should develop housing density policies having regard to:

- The spatial vision and strategy for housing development in their area, including the level of housing demand and need and the availability of suitable land in the area;
- The current and future level and capacity of infrastructure, services and facilities such as public and private amenity space, in particular green and open space;
- The desirability of using land efficiently and reducing, and adapting to the impacts of climate change;
- The current and future levels of accessibility, particularly public transport accessibility;
- The characteristics of the area, including the current and proposed mix of uses; and
- The desirability of achieving high quality, well designed housing.

3.12 The Planning Policy Statement suggests that Local Planning Authorities may wish to set out a range of densities across the plan area rather than one broad density range although 30 dwellings per hectare (dph) net should be used as a national indicative minimum to guide policy development and decision-making, until local density policies are in place. Where Local Planning Authorities wish to plan for, or agree to, densities below this minimum, this will need to be justified, having regard to the above considerations.

3.13 Good design is fundamental to using land efficiently. Local Planning Authorities should facilitate good design by identifying the distinctive features that define the character of a particular local area.

3.14 The density of existing development should not dictate that of new housing by stifling change or requiring replication of existing style or form. If done well, imaginative design and layout of new development can lead to a more efficient use of land without compromising the quality of the local environment.

Regional Policy

3.15 Following the Planning and Compulsory Purchase Act 2004, Regional Planning Guidance became part of the statutory development plan and has since been replaced by the Regional Spatial Strategy (RSS). The draft RSS14 sets out the regional planning policy for the East of England to 2021. It identifies the scale and distribution of provision for new housing and priorities for the environment, transport, infrastructure, economic development, agriculture, energy, minerals and waste treatment and disposal. It will provide, once adopted, the statutory framework for all local authorities in the region to update their planning policies through Local Development Frameworks.

3.16 Policy H1: Regional Housing Provision 2001-2021 states that in the East of England as a whole provision will be made for at least 508,000 additional dwellings over the period 2001-2021. Peterborough has been allocated a minimum of 25,000 additional dwellings for the period 2001-2021. District

allocations in this policy should be regarded as minimum targets to be achieved, rather than ceilings which should not be exceeded.

3.17 Local planning authorities are advised to seek as soon as possible to (a) achieve at least the annual average developments for the period 2006-2021 and (b) make up any accumulated shortfall from 2001 onwards.

3.18 The advice is to try and exceed the annual average rates for 2006-2021 if more housing can be delivered without breaching environmental limits and infrastructure constraints. Increased housing provision can be achieved by:

- Increasing density, consistent with criteria in PPS3;
- Encouraging opportunities on suitable previously developed sites; and
- Making best use of policies on exceptions sites to provide affordable housing in rural areas.

3.19 To plan for continuous delivery of housing for at least 15 years from the date of adoption, the first round of local development documents should make the assumption that the annual average rate of provision during the early years after 2021 will be the same as for 2006 to 2021.

3.20 Paragraph 7.47 of The East of England Panel Report states that 'The same considerations as above apply to density and the reference in draft Policy SS16 to a minimum density of 30 dwellings per hectare. Obviously densities can be much higher than this in many parts of the region. In some locations, housing density needs to be very carefully considered in relation to the local character and make up of the area. We have considered whether there is, for the East of England, a specific approach to density that needs to be given, either through a minimum value, a range or an average density. We conclude that setting detailed density standards and requirements is something that needs to be done at the local level having regard to all the relevant local considerations and within the framework of national guidance given in PPG3/PPS3 (Annex C). While this needs to be done effectively in order to implement the RSS, and it may be appropriate to monitor the densities of development being achieved, we do not see any regionally distinctive guidance on densities that needs to be added.''

Local Policy

3.21 Peterborough Local Plan (First Replacement) Adopted 2005

3.22 The Local Plan sets out the Council's policies for guiding and controlling the way that buildings and land are used and developed.

3.23 Policy H1 states that land will be made available during the period from mid 1991 to mid 2006 which allows for the provision of approximately 9,800 dwellings on sites other than at Hampton.

Policy H2 states that land will be made available during the period from mid 1991 to mid 2006 which allows for the provision of at least 5,200 dwellings on sites at Hampton.

3.24 Paragraph 2.25 of the Local Plan states that although the Structure Plan and the Local Plan provide for some 5,200 dwellings to be built at Hampton, it is clear to the City Council that there is scope for a higher number of dwellings to be delivered from this development. The City Council considers that Hampton can accommodate about 7,200 dwellings in total and that this would be entirely consistent with national, regional and local planning policy to make best use of previously developed land; to concentrate development in and around large urban centres (as planned urban extensions); and to increase densities in sustainable locations. Planning for this higher number would have no impact on the overall housing strategy for this Plan, since it is most unlikely that any dwellings in excess of 5,200 would be delivered before mid 2006. However, to facilitate the most effective long-term planning of Hampton and to enable the most efficient provision of infrastructure, the City Council will work in partnership with the developers with a view to increasing the ultimate scale of residential development to this figure of approximately 7,200 dwellings.

3.25 Policy H15 states that new residential development throughout the Plan area should be undertaken at the highest net residential density that is compatible with:

a) The character and appearance of the site and the surrounding area;

b) The living conditions of local residents, particularly in terms of privacy, light, aspect and avoidance of excessive noise;

c) Achieving a good standard of design and layout;

d) Providing adequate open space appropriate to the type of development;

Net densities should be within the range 30-50 dwellings per hectare unless;

e) The above criteria determine otherwise and the proposal is acceptable in all other respects; and

f) Higher densities are appropriate in the City Centre, District Centres, and within 400 metres of bus stops along the Primary Public Transport Corridor.

3.26 Net densities below 30 dwellings per hectare are not encouraged.

3.27 The need to make full and effective use of land for residential development in sustainable locations is increasingly recognised. In applying the above policy, the City Council will generally seek to avoid developments of less than 30 dwellings per hectare.

3.28 Density standards should not be prescriptive. The aim should be to make more efficient use of land without compromising the quality of the environment, and the appropriate density for a particular site will need to be determined by applying the

criteria in the policy. However, local character can be taken into account without replicating existing densities and through good design and layout; it may be possible to achieve higher densities without adverse impacts.

3.29 In terms of mixed housing, the Local Plan emphasises the importance of maintaining a range of housing to meet different needs. Large existing houses in generous plots, including older properties and those in conservation areas, may help owners and managers considering Peterborough as a potential development location. Maintaining such housing will contribute to implementing the Council's economic strategy and this will be taken into account when considering proposals that could reduce that stock through insensitive infill development or redevelopment.

3.30 In terms of residential design and amenity, planning permission will only be granted for residential development (including changes of use) if the following amenities are provided to a satisfactory standard:

- daylight and natural sunlight;
- privacy in habitable rooms;
- noise attenuation; and
- a convenient area of private garden or outdoor amenity space with reasonable privacy.

3.32 This policy aims to secure a basic level of amenity for new dwellings throughout the Plan area, in the interests of both sustainability and residential amenity. The layout of the proposed development, the aspect of individual dwellings, and the relationship of a dwelling with adjacent properties will be all factors to be taken into account in meeting the requirements of the policy. The principles and guidelines set out in the Peterborough Residential Design Guide will assist in determining whether or not a proposal achieves a satisfactory standard in terms of the policy.

3.33 In the case of flats, communal gardens may provide an alternative to individual private open space, and on upper floors balconies can help to meet the requirements of the policy. Exceptionally, housing developments may be permitted where outdoor amenity space cannot be provided, such as in the change of use of existing buildings where these is no scope for it; or where the nature of the occupants makes it unnecessary (e.g. for accommodation for single persons in the City Centre).

Best Practice in Reviewing Housing Densities

3.34 It is vital to look at best practice disseminated both nationally and locally in order to assess desirable housing densities within the area. Best practice is the best way of informing further policy reviews and developing a practice within a local or regional area. 'Best practice' aims to assist practitioners and others and is a valuable form of reference and guidance.

3.35 This section therefore examines the existing best practice at both the national and local scale, including: **UK Roundtable on Sustainable Development: Housing and Urban Capacity** (1997), **The Use of Density in Planning** (1998), selected local authority best practice and best practice identified by the planning press. These documents provide sample methodologies for conducting urban capacity studies, particularly in assigning density assumptions for use in tabulating capacity figures. The section also reviews **Sustainable Residential Quality: Exploring the Housing Potential of Large Sites** (2000) a study undertaken by Llewelyn-Davies which explores the housing capacity potential of sites over one hectare.

UK Roundtable on Sustainable Development: Housing and Urban Capacity (1997)

3.36 The UK Roundtable on Sustainable Development appointed a subgroup to explore the issue of increasing government targets for new house provision on previously developed land. The ensuing report, *Housing and Urban Capacity*, recommended improving the efficiency of land use by increasing the use of previously developed land, employing fiscal instruments to ensure that development on greenfield sites reflects true social costs, and encouraging local authorities to conduct detailed urban capacity assessments with an eye to urban regeneration goals. The subgroup also commissioned a study by Llewelyn-Davies to review urban capacity practices by local authorities.

3.37 The review concluded that urban capacity studies should meet three criteria: base their findings on original site survey work, include a significant physical design component and not be constrained by existing policies and standards. The report concluded that none of the studies under review had met those criteria. The case study local authorities used methods for assigning density assumptions, such as:

- Assigning a single density assumption for all sites, based on general development planning practice;
- Assuming that developments must reflect densities of developments in their surroundings;
- Scenario-testing based on three density assumptions for all development; and
- Assessing the densities of recent housing schemes and calculating average densities for four different types of location.

3.38 The Roundtable Study found that these approaches did not reconsider existing policy assumptions and past development densities in order to test alternate frameworks for more sustainable development.

The Use of Density in Planning (1998)

3.39 This DETR report contains several key findings on the relationship between density and design, the relationship between density and travel, the effect of car parking and service provision on density and the advantages of various density measurements. Relevant findings include:

- Design quality does not correlate strongly with density. Area character is related primarily to housing layout and partly to housing mix;
- Specific density in terms of dwellings/area and habitable rooms/area tend to generate different dwelling mixes;
- In theory, higher densities mean less motorised travel demand and evidence shows that travel by all modes is lowest in areas with a density of over 50 people per hectare (approximately 25 dph). However, more research is needed on density's effect as part of the total mix of variables;
- Provision for car parking can significantly affect built form, the quality of the residential environment and the intensity of development;
- In seeking to achieve the efficient use of land, the greatest potential land savings are to be gained by minimising the amount of development below 20 dph;
- Residential density cannot be viewed in isolation from the need for supporting facilities and the demands for other urban land uses;
- Net site densities are appropriate where only residential uses are being planned on a site;
- Dwellings per hectare is the most appropriate measure for estimating development land requirements, making housing land allocations and monitoring completions/take ups; and,
- Dwellings or habitable rooms per hectare are useful in providing a broad indication of the intensity/form of development envisaged on a site or area.

Sustainable Residential Quality: Exploring the Potential of Large Sites (2000)

3.40 Sustainable Residential Quality (SRQ) was first developed in 1997 and highlighted the potential for higher density and well designed housing development on vacant, underused and derelict sites within the urban area of London, i.e. small sites. In January 2000 Llewelyn-Davies was commissioned by the Department of the Environment, Transport and the Regions (DETR) to explore the potential of expanding SRQ to large housing sites.

3.41 The Llewellyn-Davies Study 'Sustainable Residential Quality: Exploring the Housing Potential of Large Sites' is the most up to date publication with regard urban capacity studies. The Study seeks to extend the application of SRQ initially developed for small town centre sites to large sites across London. It was produced in association with LPAC, DETR and The Housing Association.

3.42 The main findings of the study are listed as follows:

- There is potential to significantly increase residential densities and at the same time improve the environmental quality of new residential development achieved through creative design-led approaches;
- The approach achieves both increased densities and improved quality because of the focus on good design rather than general planning standards;
- The study seeks to ensure that the amount of space required for roads and car parking is kept to a minimum and replacing road hierarchy with layouts based on traditional building structures;
- Approach is consistent with the need for housing choice and meeting the requirements of a community without returning to high rise housing;
- Even on suburban sites, net densities of 250 hrh (50 dph) were achieved with a mix of terrace, semi-detached and detached houses with gardens. Widening the choice to include apartments with a mix of private and communal gardens can increase densities to between 300 and 400 hrh (115 dph);
- On urban sites, densities can increase to 3-4 times LPAC's current density maxima (up to 1,100 hrh). This can be achieved subject to a high level of public transport and facilities.

3.43 The study recommended a new policy approach to density. It was recommended that housing sites with a high level of accessibility to public transport and facilities should provide for a net residential density of between 150 and 1,110 hrh (50-370 dph). This should be measured in relation to pedestrian accessibility to public transport and facilities, but must also be sensitive to differences in established character of places.

- Developers must invest in design in order to achieve higher densities. This means less reliance on standard types and greater response to individual sites;
- UDP's should place greater emphasis on principles of good design. Planning briefs should be submitted as part of a planning application for a large site;
- Access to facilities and public transport. A new approach is required to evaluate a site's accessibility to determine the appropriate level of car parking. Improvements to non-car access should be rewarded with greater densities and reduced car parking requirements;
- A greater emphasis on the potential to walk to local facilities. Establish safe and direct walking routes through development;
- Integrating public transport into new developments;
- Social inclusion - large sites planned on fully integrated neighbourhoods;
- Affordable housing - contributing to affordable housing needs but requirements for different house types must be matched carefully to the potential of sites;
- Community facilities - large sites can contribute to improving the range and quality of community facilities;
- Culture of planning and development - Councils should consider establishing development-enabling teams to help bring forward large sites; and,
- Design and development skills - Councils should develop stronger design capabilities and development skills, in particular understanding the market process.

Densities Achieved in Peterborough

4.1 This section reviews the net residential densities that have been achieved in Peterborough over the past few years. The base data used in the tables has been provided by the Strategic Planning & Enabling Section, Peterborough City Council. The base data is collected for monitoring purposes and is therefore up to date. The information provided both Gross Area and Net Area. However for the purposes of this study, only the Net Area is used to calculate Net Density in the form of dwellings per hectare (dph).

4.2 Table 1 shows the net densities for the whole (urban and rural) area of Peterborough from 2003 to 2007. The average net density for 2003 was 24.62dph which is below the recommended 30dph. Figure 1 shows net densities achieved on estate size developments. However, in 2004 and 2005 the net densities rose to 26.18 and 27.98 respectively. In 2006 the net density decreased to 24.71dph but in 2007 the net density increased substantially to 37.80dph.

Table 1: Net Density Achieved per Annum 2003-2007

Year	Net Area (ha)	Completed Dwellings	Net Density (dph)
Dwellings completed - 2003	29.45	725	24.62
Dwellings completed - 2004	19.29	505	26.18
Dwellings completed - 2005	41.81	1,170	27.98
Dwellings completed - 2006	31.44	777	24.71
Dwellings completed - 2007	24.94	943	37.80
Incomplete Developments	51.87	995	19.18
Overall	**198.8**	**5,115**	**25.72**

Source: Peterborough City Council Database: Completions

4.3 Table 2 below shows the achieved net densities in the villages. In 2003 net densities achieved in villages were 18.79dph and this dropped to 8.86dph the following year and rose again in 2005 to 16.94dph. In 2006 the density dropped to a very low level of 10.51dph. However, in 2007 the net density rose to 19.76dph. Overall the densities in the villages are increasing albeit still below the 30dph mark.

Table 2: Net Density Achieved in Village Area per Annum 2003 - 2007

Year	Net Area (ha)	Completed Dwellings	Net Density (dph)
Dwellings completed - 2003	10.48	197	18.79
Dwellings completed - 2004	2.03	18	8.86
Dwellings completed - 2005	4.84	82	16.94
Dwellings completed - 2006	3.33	35	10.51
Dwellings completed - 2007	2.58	51	19.76
Incomplete Developments	5.39	141	26.15
Overall	**28.65**	**524**	**18.28**

Source: Peterborough City Council Database: Completions

4.4 Table 3 below shows the net densities achieved in the urban area from 2003 to 2007. The density has increased from 29.24dph in 2003 to 42.78dph in 2007. In 2004 and 2005 the net density of completed dwellings were 29.85dph and 30.74dph respectively. In 2006 the net density dropped to 28.16dph which is below the policy requirement of 30dph. Also included in Table 3 is an indication of incomplete schemes and the resultant net density.

Table 3: Net Density Achieved in Urban Area per Annum 2003-2007

Year	Net Area (ha)	Completed Dwellings	Net Density (dph)
Dwellings completed -2003	18.02	527	29.24
Dwellings completed -2004	16.21	484	29.85
Dwellings completed -2005	35.29	1085	30.74
Dwellings completed-2006	26.17	737	28.16
Dwellings completed -2007	20.78	889	42.78
Incomplete Developments	45.85	1493	32.49
Overall	**162.32**	**5215**	**32.12**

Source: Peterborough City Council Database: Completions

4.5 Table 4 below shows the spread of achieved densities in Peterborough. It is evident from the table that 60% of the developments were at a density of less than 30dph. However, approximately 34% of the developments were developed at 30-119dph. The very low percentage (2.3%) of development at the higher end of the density band (200-433dph) indicates that these high densities are an exception rather than the norm. Overall, 80% of the dwellings were completed at below 50dph.

Table 4: Spread of Achieved Densities

Number of Developments	Density Band	% in Density Band
364	Less than 30dph	60%
119	30- 50 dph	20%
85	51-119 dph	14%
12	120- 199dph	2%
11	200-299 dph	1.8%
3	300-433 dph	0.5%

Source: Peterborough City Council Database: Completions

4.6 Table 5 is taken from the Peterborough Council Annual Monitoring Report 2006 and shows the net density of completed dwellings on sites of 10+ dwellings. From the table it can be seen that over the period 2001/2 - 2004/5 the net density on completed dwellings remained constant at 31dph with the exception of 2003/4 where the net density dropped to 29dph, which is below the policy requirement of 30dph. However, in 2005/6 the net density rose to 40dph. When Table 5 is considered in conjunction with Tables 1 - 4 it shows that net densities in Peterborough are rising and this trend might continue given the city's growth agenda and the need to meet the RSS housing requirement of at least 25,000 dwellings by 2021.

Table 5: Net Density of Completed Dwellings on Sites of 10+ dwellings

Density	2001/02	2002/03	2003/04	2004/05	2005/06
Less than 30dph	24%	48%	36%	21%	13%
30-50dph	64%	38%	58%	62%	46%
50+dph	12%	14%	6%	17%	41%
Overall	31dph	31 dph	29 dph	31dph	40 dph

Source: Peterborough Local Development Framework: Annual Monitoring Report 2006

4.7 Table 6 shows the net densities brought forward in Hampton. Hampton is a relatively new development and might be expected to reflect what is happening to net densities in the urban area in Peterborough. The table shows that net densities in Hampton range from 8dph -111dph. However, the 8dph and 111dph are exceptions in that the 8dph was specifically for 7 large individually architecturally designed executive type dwellings and the 111dph was for a care housing scheme. Both cases are extremes and not the norm. For this reason the 8dph and 111dph have not been used in this study to indicate the lowest and highest densities achieved in Hampton. The remaining net densities in Hampton vary from 20dph to 91 dph. The completions and permissions in Hampton comprise a mix of house types, from detached executive dwellings to apartments. Hampton was and is being developed on reclaimed brickfields and there was no built form to dictate appropriate densities. As a new and potentially sustainable community the location and scale of Hampton offered an opportunity to determine its own appropriate net densities to achieve a vision of the current settlement. Evident in some parts of Hampton is the impact of low provision of off-street parking. This has resulted in prevalent on-street parking, making navigation rather difficult for both residents and visitors. Accessibility into the city centre is provided by public transport (bus) running every 20 minutes.

4.8 The net densities in Hampton do vary from phase to phase but the overall achieved density is 36dph.

Table 6: Net Density on Sites in Hampton

	Net Area	Number of Dwellings	Net Density (dph)
Tranche HT01 Hargate	2.72	66	24
Tranche HT02 Hargate	2.48	83	33
Hargate Local Centre	0.32	10	31
Tranche HT03 Hargate (Land off Silver Hill)	2.02	91	45
Tranche HT03B Hargate	0.43	22	51
Tranche HC03, Hargate	0.32	29	91
Tranche HT04 Hargate	2.75	73	27
Tranche HT04c + 4d Hargate	2.02	56	28
Tranche HT05a, Hargate	0.85	40	47
Tranche HT05b, Hargate	0.50	30	60
Tranche HT06A Hargate	1.46	58	40

Tranche HT06b, Hargate	0.88	30	34
Tranche Ht07A, Hargate	1.72	45	26
Tranche Ht07B, Hargate	2.59	64	25
Tranche HT07c, Hargate	2.70	77	29
Tranche HT07C (part B) Hargate	1.32	26	20
Tranche HT08a, Hargate	3.00	111	37
Tranche HT08b Hargate	2.49	77	31
Tranche HT80C Hargate	0.53	16	30
Tranche HT09 Hargate	2.90	86	30
Tranche HT10 Hargate	2.98	84	28
Tranche HT11A Hargate	2.53	98	39
Tranche HT12A Hargate	1.03	38	37
Tranche HT13 Hargate Way	1.71	53	31
Tranche HT14A Hargate	2.33	75	32
Tranche HT15 Hargate	2.84	84	30
Parcel SW1 off London Road	0.90	7	8
Tranche HV06a Vale	1.80	69	38
Tranches HV06B, HV07, HV13, HV17B	2.04	80	39
Tranches HV08/HV09 Vale	2.64	84	32
Tranche HV10 Vale	1.78	52	29
Tranche HV11 Vale	1.60	55	34
Tranche HV12 Vale	2.10	68	32
Tranches HV14a/HV14b Vale	2.16	62	29
Tranche HV15 Vale	2.80	79	28
Tranche HV16, Vale	1.92	82	43
Tranche HV17A Vale	0.78	35	45
Tranche HV18 and HV19 Vale	3.25	109	34
Tranches 10A, 19, 20A and 20B1	1.30	101	78
Tranche TC18 Hampton	1.28	78	61
Tranches TC16 and TC17 Hampton	1.29	85	66
Tranches TC19a and TC20b2 Hampton	0.82	59	72
Tranches TC6 and TC7 Hampton	1.39	55	40
Tranches TC28 and part of TC21	2.03	135	67
TC27 Off Hargate Way	0.46	51	111
land off Hargate Way	0.17	12	71
Tranche TC8A Hampton Centre	0.56	36	64
Overall	**80.49**	**2,916**	**36**

Source: Peterborough City Council Database

5 Density Contexts

5.1 Prior to considering potential future densities it was necessary to understand the characteristics of housing areas in Peterborough. This was accomplished through a desk exercise and a meeting with Peterborough City Council planners and officers who have local knowledge.

5.2 Based on the foregoing 6 tables, the following conclusions can be made:

Table 1 indicated that the overall net density achieved in Peterborough has been increasing steadily and currently stands at approximately 38dph.

- Table 2 shows that net densities achieved in villages have increased only marginally from about 19 to 20dph between 2003 and 2007. Although there has been an increase, the achieved 20dph is well below the national and local plan policy indicative minimum of 30dph. Based on the evidence from this table, any future density consideration should ensure that densities achieved in villages should be at least be 30dph unless there are overriding reasons relating to village character or individual site circumstances.
- Table 3 shows that in the urban area the average density achieved is now approximately 43dph which is above the policy minimum of 30dph. The average net density achieved in the urban area is a pointer for future urban development in that future density consideration would need to adopt 40dph as an average minimum density if land is to be used more efficiently.
- Table 4 shows that about 60% of developments were at a net density of less than 30dph and these fell below the indicative minimum of 30dph. In order to comply with policy, the Council will need to consider carefully whether to allow further developments at less than 30 dph. Also based on Table 4, it can be seen that 80% of the developments in Peterborough were in the density bands of 50dph and below. The 51-119 dph band accounted for 14% of the development. Developments in the 120-433 dph account for only 4.3% of developments and these high densities appear to be exceptions rather than the norm. In considerations of future density ranges for adoption it is apparent that the minimum average density should normally be 30dph and the maximum for most developments will be in the region of 120dph. However, allowance could be made for instances where higher densities could be achieved.

5.3 Table 5, by providing densities achieved on large sites (10^{+} dwellings), reinforces that most of the developments undertaken so far since 2001 are within the 30-50^{+} dph band and this density band appears to be most prevalent on the large sites.

5.4 Table 6 shows that the net density achieved in Hampton varies from tranche to tranche. The varying net densities also reflect the different housing types, mix and sizes. However, the overall density in Hampton is 36 dph.

5.5 From the foregoing it can be concluded that:

- Overall net densities achieved in Peterborough have been rising and are now at an average of 43dph, which is above the national and local policy indicative minimum of 30dph. This increase reflects more efficient use of land and should be encouraged in future developments where appropriate.
- Average net densities within villages have been below the indicative minimum 30dph and any density recommendations will have to set a minimum average density that complies with the Local Plan policy requirement of 30dph.

5.6 The conclusions discussed above, together with the lowest and highest densities achieved (see Table 7) were then used in trying to determine appropriate densities for new developments in both the rural and urban area.

5.7 Based on local knowledge and desk exercise, density contexts were initially determined by identifying areas that were similar in terms of age of housing stock, built form and character, Public Transport Accessibility Levels (PTAL – a measure of the distance to public transport i.e. bus, train station), accessibility to facilities, and location in relation to the city centre. The existing Peterborough settlement hierarchy was used to categorise density contexts in villages. The categories in the settlement hierarchy are distinguished by accessibility to public transport links, accessibility to the city centre or local facilities and proximity to open space.

5.8 Table 7 below shows both the lowest and highest density achieved within each of the proposed density contexts. These low and high densities have been used as a guide in determining appropriate densities for each of the suggested density contexts.

Table 7 Spread of Densities on Sites of 0.3ha and above

Location	Type	Lowest Density (dph)	Highest Density (dph)
City Centre			
Central	Urban	40	121
Inner City Area			
Fletton	Urban	12	100
Dogsthorpe	Urban	27	77
Park	Urban	9	48
East	Urban	20	49
West	Urban	1	51
Suburban			
Bretton North	Urban	24	-
Bretton South	Urban	18	-
Walton	Urban	8	77
Ravensthorpe	Urban	52	81
Stanground West	Urban	42	83
Stanground East	Urban	32	37
Werrington North	Urban	20	39

Werrington South	Urban	12	13
Orton Waterville	Urban	6	50
Urban Fringe			
East of England Showground	Urban	9	-
East of England Showground (Residual)	Urban	-	38*
Urban Extension			
Hampton	Urban	24	71
Villages (Growth/Limited Growth)			
Eye	Village	3	30
Eye Green	Village	13	-
Thorney	Village	1	37
Wittering	Village	41	46
Newborough	Village	2	28
Ailsworth, Barnack	Village	2	34
Village (Group/Infill Settlements)			
Maxey	Village	5	13
Peakirk	Village	6	16
Wansford	Village	16	44
Wothorpe	Village	2.5	7.5

5.9 **City Centre –** This is characterised by maximum accessibility to the railway station, high frequency bus routes and various urban facilities. New developments to include mansion blocks and free standing clusters of flatted housing, 4-6 storeys high. Parking of 0-1 space per dwelling may be provided on site (as defined in Peterborough Local Plan (First Replacement)).

5.10 The city centre has the greatest potential for sustainable development due to its range of employment, recreation, educational, commercial and retail uses, which will reduce travel demand.

5.11 According to Table 7, the achieved net densities in Central are 40 dph and 121dph for lowest and highest densities respectively. A density of 40dph is relatively low for the City Centre and based on the range of achieved densities it is prudent to increase this to a minimum of 50dph. The current Car Parking policy (CC5) provides for minimal parking and promotion of public transport. High densities can be achieved within the town centre and this would add vibrancy and vitality to the city centre. A critical mass in the city centre due to increased density will help promote a night economy that will help the regeneration of the City Centre. The 100dph net density is recommended as the top of the range in central and this was arrived at by checking on densities achieved thus far in Central together with good practice guidance and planning policy. The Cathedral Views policy (CC17), by restricting building heights, will impact on the highest permissible density. However, the relationship between the Cathedral Views policy and density requires further investigation.

5.12 The highest densities are recommended for the city centre subject to compliance with prevailing policies and standards on public and private open space, acceptable space standards of proposed development, conformity with the urban

form vision with regard to height and massing. Further investigation will be required to ascertain more definitive lower and higher density bands within the City Centre.

5.13 **Inner City Area –** This area has good pedestrian access (400 metres walk) to some facilities and primary bus routes to the city centre e.g. Millfield, Dogsthorpe, New England, Fengate, Woodston & Fletton.

5.14 This area has the potential to accommodate additional dwellings due its proximity to the city centre and availability of public transport corridors. A high PTAL means that parking standards can be as stringent as those in the City Centre thereby allowing for higher density levels. Envisaged development will be mostly infill and the sites will range from small gap infill, unused /derelict land or former industrial land. This area has an established character and development would have to recognize the general character of the area.

5.15 Based on net density achieved (see Table 7) in the inner City Area it can be seen that the lowest band of net density ranges from 1dph -100dph. Since a net density of less than 30dph is not in accordance with the national and local indicative minimum it is essential that any development achieves densities above 30dph. Given the foregoing, the lowest band for this area was taken as 48dph which is within the highest density column on Table 7. Based on the same Table 7 the highest density band ranges from 48-100dph. In determining the higher top end of the density range in the Inner City Area, densities around 50dph i.e. 48dph, 49dph and 51dph were discounted since they form the lower level of the range and only 77dph -100dph were used in consideration of the highest suggested density. Further investigation will be required to ascertain more definitive lower and higher density bands within the Inner City Area.

5.16 **Suburban –** This area is characterised by lower density residential neighbourhoods with 2 to 3 storey detached, semi-detached and terraced housing. There is some pedestrian access to public transport and local facilities. Provision is made for off-street parking (1-2 spaces) with 0-1 spaces of on-street parking provision. However, with parking mostly off-street, together with improved public transport this area could achieve higher densities than hitherto. Also based on recent development the trend appears to be towards higher densities e.g. Stanground West. Due to availability of private open space within the building curtillage there is a reduced requirement for open space provision e.g. Werrington, Walton, Gunthorpe, Paston, Stanground, Orton Malborne, Orton Goldhay, Orton Brimbles, Orton Wistow, Longthorpe, Bretton

5.17 Based on net density achieved (see Table 7) in the Suburban Area it can be seen that the lowest band of net density ranges from 6 to 52dph. Since a net density of less than 30dph is not in accordance with the national and local indicative minimum it is essential that any development achieves densities above 30dph. Given the foregoing the lowest band for this area was taken as 32-52dph. Based on the same Table 7, the highest density band ranges from 13-83dph. In determining the higher top end of the density range in the Suburban Area, the Bretton North and Bretton South net densities of 18dph and 24 dph were taken into consideration together with the highest densities shown on Table 7 under the

Highest Density column. Apart from 3 developments that achieved densities of 77^{+}dph the remaining highest densities achieved were 50dph or below. Consequently a highest net density of 50dph is suggested for the Suburban Area. Further investigation will be required to ascertain more definitive lower and higher density bands within the Suburban Area.

5.18 **Urban Fringe** – These are recently-constructed areas on the edge of the built up area but contiguous with it. Housing is predominantly 2-3 storeys semi-detached but with some detached. The lower levels of accessibility to facilities and public transport and the provision of on-site parking (1-4 spaces) point to lower densities. Proximity to the countryside may mean that the requirement for open space may be lower e.g. East of England Showground.

5.19 The next phase of the East of England Showground development, when completed, will achieve net densities of 38dph. In terms of making efficient use of available land these 9dph (achieved on completed phase) and 38 dph (planned for next phase are rather low especially in view of the Peterborough Growth Agenda. Consequently a net density range of 40-45 is suggested for the Urban Fringe.

5.20 **Urban Extensions -** These sites are usually over a certain size and capable of forming sustainable communities. Based on the preliminary findings of the current Urban Capacity Study, Peterborough might require urban extensions to accommodate additional growth. Although the exact size of any extension/s that might be needed is yet unknown it is reasonable to assume that the scale of these extensions requires the provision of substantial public infrastructure. Appropriate densities have to be carefully considered since the achieved density might be reduced due to infrastructure provision.

5.21 In most cases, new extension areas would be located within areas of no definable built character. Urban extension areas are often undeveloped and new development would be unlikely to interfere with any existing character. Density in these areas will be guided by issues of sustainability, public transport considerations, current and planned accessibility connectivity and capacity in accordance with principles of sustainable development.

5.22 For the purposes of this exercise Hampton, being the nearest Peterborough has to an urban extension, has been used as a basis for determining possible future urban extension net densities. Completions within Hampton represent a cross range of house types and sizes and consequently a range of net density. The overall net density in Hampton is 36dph which is relatively low. The net density in Hampton ranges from 20dph – 91dph (8dph and 111dph have been disregarded because they both fall way below or above the lowest range and highest range of most achieved densities). The minimum density suggested for Urban Extensions is 45dph. The suggested range of 45-50dph will require further investigation to determine feasibility.

5.23 **Villages Rural Growth/Limited Growth** – These are low density residential areas where the Council's aspiration is for a degree of growth. Some of the villages have on-street parking. Although many of these villages are served by public transport, the Public Transport Accessibility Level is poor relative to the urban area.. In some villages there are employment opportunities, albeit limited.

5.24 Based on Table 7, the lowest net density achieved in this type of village is 3dph and the highest is 46dph. The starting point for the villages should be a minimum of 30dph in accordance with the national and local policy. A net density of 30dph is recommended for the villages since this will assist in maintaining the local characteristics of the locale. At some future date it might be essential to reassess this minimum net density in the event of a growth strategy that directs substantial development to villages such as Thorney and Wittering.

5.25 **Villages (Group/Infill Settlements)** – These are low density residential areas characterised by detached/semi-detached properties with limited access to public transport and local facilities. Typically, there is on-site parking (2-3 spaces), with little on-street parking provision. (All villages as identified in the Peterborough Local Plan (First Replacement)).

These villages are in most cases relatively small and overdevelopment might have an adverse impact on the nature of the village. The suggested net density for this type of village is 30dph.

6 Appropriate Densities

6.1 Based on the categories above and consideration of existing planning policy, good practice guidance, public transport accessibility, availability of open space, parking standards and the local character of areas, net density ranges and an average net density recommended for each context in Peterborough are shown in Table 8. Net density ranges are based on existing housing in Peterborough and on selected sample sites rather than a comprehensive review of all sites within Peterborough.

Table 8 Proposed Net Density Ranges for Peterborough

Category	Typical House Templates/Types	Net Density Ranges (dph)	Average Net Density (dph)
City Centre	Flats	45-100	100
Inner City	Flats, terraces and semi-detached	45-100	70
Suburban	Mostly semi-detached	40-45	40
Urban Fringe	Detached and some semi-detached	40-45	45
Urban Extensions	Flats, terraces, semi-detached and detached	45-50	50
Villages (Growth/Limited Growth)	Detached, semi-detached and terraces	30	30
Villages (Small)	Detached, semi-detached and terraces	30	30

7 Conclusions

7.1 A review of residential completions indicates that net densities have increased and will continue to increase in Peterborough. The increase in density is more evident within and around the City Centre. Sustaining these densities will need to be supported by higher levels of public transport accessibility.

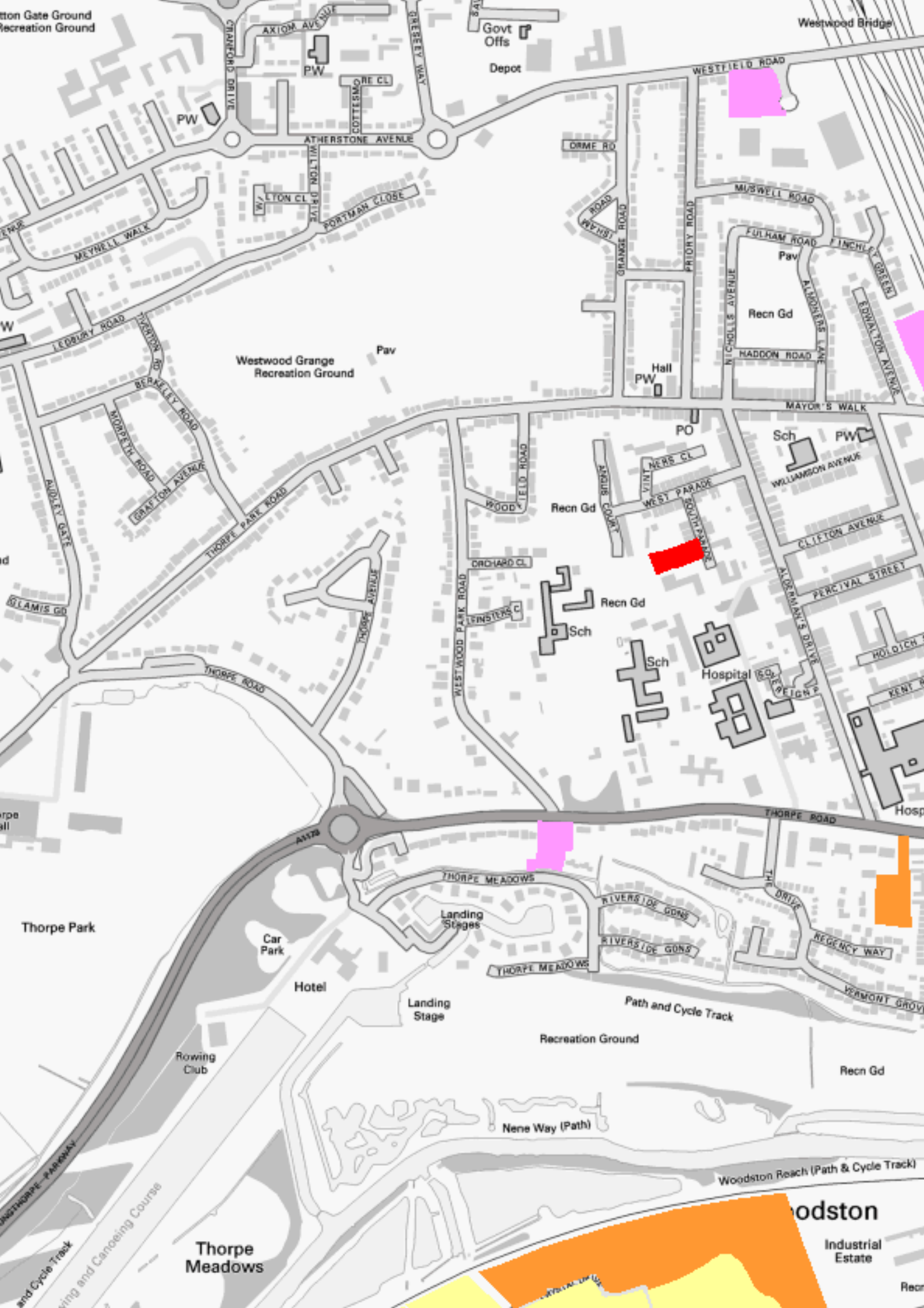
7.2 A review and revision if necessary of other Development Plan policies such as prevailing adjacent densities or maintenance of existing character, height restrictions, off street parking standards and access will be required to ensure higher densities can be achieved within the emerging development framework.

7.3 Determining appropriate densities within proposed mixed use developments will require further investigation in order to determine an appropriate mix.

7.4 Additional work is required to further investigate the proposed densities within financial and design frameworks in order to ensure that the proposed higher densities are sustainable within the given contexts.

7.5 Whilst the densities recommended in this study can be used to calculate broad overall land requirements for different growth scenarios, they cannot be applied as policy requirements. This can only be achieved through the development of a density policy, taking into account all objectives (in addition to that of maximising the efficient use of land) and full public consultation, in an appropriate Development Plan Document.

7.6 In conclusion, it is important to note that in order to get a robust evidence base for density the above review requires further work in terms of ascertaining and confirmation of generic house types, determining the Public Transport Accessibility Levels for each of the identified site contexts and finally testing the proposed densities.


Westwood Grange Recreation Ground
Pav
Recn Gd
Hall
PW
PO
Sch
Hospital
Depot
Govt Offs
Westwood Bridge
WESTFIELD ROAD
ATHERSTONE AVENUE
CRANFORD DRIVE
AXHOLME AVENUE
CROWLEY WAY
COTTESMORE CL
WILTON DRIVE
WYLTON CL
PORTMAN CLOSE
MEYNELL WALK
LEDBURY ROAD
TYVERTON RD
BERKELEY ROAD
NORPETH ROAD
GRAFTON AVENUE
AUDLEY GATE
GLAMIS GD
THORPE PARK ROAD
THORPE ROAD
THORPE AVENUE
ORME RD
GRANGE ROAD
PRIORY ROAD
MUSWELL ROAD
FULHAM ROAD
FINCHLEY GREEN
NICHOLLS AVENUE
ALMONERS LANE
EDWALTON AVENUE
HADDON ROAD
MAYOR'S WALK
WILLIAMSON AVENUE
WOODFIELD ROAD
WESTWOOD PARK ROAD
ARGYLE COURT
WEST PARADE
SOUTH PARADE
CLIFTON AVENUE
PERCIVAL STREET
ALDERMAN'S DRIVE
ORCHARD CL
LINSTEAD CL
A1179
THORPE MEADOWS
RIVERSIDE GDNS
THE DRIVE
REGENCY WAY
VERMONT GROVE
Landing Stages
Car Park
Hotel
Landing Stage
Rowing Club
Path and Cycle Track
Recreation Ground
Nene Way (Path)
Woodston Reach (Path & Cycle Track)
Thorpe Park
Thorpe Meadows
Industrial Estate
Woodston