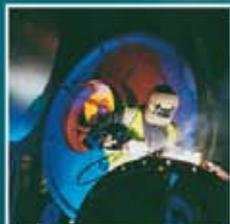
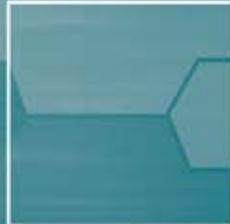


# Royal Borough of Kensington and Chelsea

## Heat Mapping Study

Final Report

May 2010



# Entec

*Creating the environment for business*

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## Royal Borough of Kensington and Chelsea

### Heat Mapping Study

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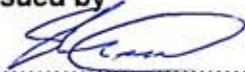
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Final Report

May 2010

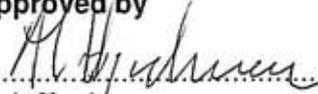
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## Executive Summary

### Purpose of this Report

This report has been produced for the purpose of determining potentially suitable locations for Decentralised Energy (DE) schemes within the Royal Borough of Kensington and Chelsea. The borough is the most densely populated in the UK, with many large buildings with high energy use. As such there is significant potential for DE, and in such a built up environment it represents one of the key technologies that can be deployed to reduce carbon dioxide emissions. The study has three key aims:

- To gather energy usage data from existing sites across the borough where available, and the production of a heat map from real and estimated data;
- To identify and evaluate potential DE schemes using the heat map; and
- To develop high level implementation plans for each potential scheme.

This study identifies areas where there are significant opportunities for DE networks in the borough, and suggests appropriate actions that should be taken in order to evaluate the opportunities in more detail.

### 1.1 Conclusions

The results of this study can be summarised as follows:

- The heat map produced as a result of the first stage of the study is a useful tool for identifying potential opportunities for DE schemes. However, obtaining data from sites proved very challenging for a number of reasons, so a significant number of estimates have been made.
- The borough presents several good opportunities for DE schemes. A total of 10 potential schemes of significant size have been identified, of which 6 are expected to definitely be worth further investigation either immediately or at some point in the future.
- It is recommended that the following schemes proceed to the next stage, i.e. acting on the implementation plans and gaining commitment from relevant decision makers to carry out a full feasibility study:
  - Zone 1 – ‘Albertopolis’;
  - Zone 2 – Chelsea Hospitals;
  - Zone 6 – South Chelsea



- Zone 1 is expected to offer the most immediate potential and contains sites that are already using DE and sharing heat and electricity; hence it is recommended that this scheme is given highest priority.
- The following schemes may also offer excellent potential and should be considered for DE, but as they consist predominantly of future development areas there is limited opportunity to act in the short to medium term:
  - Zone 5 – Earl’s Court;
  - Zone 4 – North Kensington;
  - Zone 10 – Notting Hill Gate



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## 2. Introduction

### 2.1 Background

The London Development Agency (LDA) is developing a heat map for Greater London in order to accelerate the development of Decentralised Energy (DE) networks across the city. DE refers to locally generated energy supplied independently of the conventional, centralised energy network (i.e. national electricity grid and gas network). Typically schemes consist of heat supplied from one or more boilers or combined heat and power (CHP) plants in conjunction with hot water district heating networks supplying multiple sites on the network. Electricity generated on-site may also be distributed via local networks. When fuelled by renewable and low carbon energy (such as biomass and waste) or efficient use of fossil fuels (such as gas CHP) this can help to dramatically reduce carbon dioxide emissions, particularly in urban areas where buildings are located in close proximity to each other.

In some circumstances DE can also help to tackle fuel poverty, particularly in more deprived regions, and also has potential to increase energy security and therefore reducing reliance on imported gas. The potential benefits and crucial role of DE across London are such that the Mayor of London set a target of 25% of the city's heat and electricity to be supplied in this way by 2025.

However, the implementation of DE schemes is very challenging with numerous technical, economic and commercial barriers. The high capital cost and long payback of the infrastructure often requires a great deal of commitment from all parties involved with appropriate incentives to ensure the transition from conventional sources of energy is made in a cost effective way.

The Royal Borough of Kensington and Chelsea (RBKC) is the most densely populated borough in the UK, with many large buildings with high energy use. As such there is significant potential for DE, and in such a built up environment it represents one of the key technologies that can be deployed to reduce carbon dioxide emissions.

### 2.2 Scope

Entec have undertaken this study on behalf of the LDA and the RBKC as part of Phase 1 (Capacity Building) support of the Decentralised Energy Masterplanning Project (DEMaP). There are three key aims of this study:

- To gather energy usage data from existing sites across the borough where available, and the production of a heat map from real and estimated data;
- To identify and evaluate potential DE schemes using the heat map; and
- To develop high level implementation plans for each potential scheme.



This study identifies areas where there are significant opportunities for DE networks in the borough, and suggests appropriate actions that should be taken in order to evaluate the opportunities in more detail.

It should be noted that as the entire borough falls under a Air Quality Management Area, the potential for biomass and waste as a fuel source is low at present. The key energy supply technology for DE in the borough is therefore gas CHP, and as such is the only technology considered in this study. However in future there may be the possibility of linking in to a wider heating network<sup>1</sup>, which will allow alternative energy sources to be used remotely.

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<sup>1</sup> Some larger schemes are already planned, such as the London Thames Gateway Heat Network (<http://www.ltgheat.net/heat-network/>)



## 3. Data Gathering and Heat Map Production

### 3.1 Introduction

This section outlines the approach adopted for data gathering from stakeholders within the borough. This was a collaborative process involving Entec, the LDA and RBKC. Work carried out for the production of the energy dataset which would populate the heat map falls into two areas; data gathering from stakeholders and estimation of energy consumption both of which are described in the following sections.

### 3.2 Methodology

#### 3.2.1 Actual Data

RBKC provided the energy consumption data which was available for sites functioning under the Council's operation. Alongside this data, Entec were provided with a list of priority sites within the borough falling under the following categories:

- Businesses (top 15 by floor area);
- Hotels (top 10 by number of rooms);
- Museums;
- Sports and leisure centres;
- Housing estates;
- Police and fire stations;
- Schools;
- Hospitals and health care sites; and
- Places of worship.

A full list of sites was agreed at the inception meeting, and from this Entec agreed to contact approximately 90 sites for the purpose of obtaining actual annual fuel consumption data (see Table 3.2). Of the categories listed above, attempts were made to contact all sites in the borough, with the exception of schools, sports and leisure centres and places of worship, for which a selection of the more significant sites were selected. Priority for obtaining data was given to the businesses, museums, hotels, hospitals and housing associations which typically have high demand and are likely to be key to any DE network.



A questionnaire was developed based on a spreadsheet template provided to Entec from the LDA, along with a covering letter. Initial contact for each of the sites was made over the phone to identify the ‘energy manager’ or equivalent person who could assist with the provision of energy data, and to obtain their contact details. As part of this initial contact the London Heat Map project was introduced in order to explain the reasons behind the data request. The initial phone call was then followed up with an email to the energy manager with both the questionnaire and a letter from RBKC explaining the project. Where no response was received, the sites were contacted a second time over the phone to follow up in the following week and also the week following that as per the approach described in Table 3.1.

**Table 3.1 Engagement Procedure**

Activity	Date
Initial contact – phone call to introduce project and identify relevant contact; Email with questionnaire and letter sent to relevant contact where possible	Week commencing 08/03/2010
1 <sup>st</sup> round of follow up phone calls to contacts already engaged Continued attempts to make contact by phone and email for sites not yet engaged	Week commencing 15/03/2010
2 <sup>nd</sup> round of follow up phone calls and emailed reminders to contacts already engaged Continued attempts to make contact by phone and email for sites not yet engaged	Week commencing 22/03/2010

### 3.2.2 Estimated Data

Where data was not forthcoming from sites, and for future development areas, heat demand estimates were made. This was only carried out for larger sites where some idea of the heat demand was necessary due to the large scale and potential importance as part of a DE network. Smaller sites such as private schools and smaller religious buildings were not considered as knowing the heat demand is less essential at this stage as they will not be core to a scheme.

Benchmark energy consumption for commercial buildings was taken from CIBSE Guide F, which contains industry standard benchmark assumptions. This was combined with floor area estimates using aerial mapping software together with the number of floors, or actual floor area data where this has been published (for sites such as Harrods, Earl’s Court and Olympia for example). Such estimates inevitably have a large degree of uncertainty, but help in understanding the scale of the demand and hence the opportunity for DE.

For future residential buildings estimates were based on benchmark figures in a cost analysis of the Code for Sustainable Homes published by the Department for Communities and Local Government in 2009.



## 3.3 Results

The response level was low, with only 8 out of the 90 organisations contacted returning completed questionnaires or some form of annual fuel consumption data. A summary is provided in Table 3.2.

**Table 3.2 Contacted Sites and Returned Questionnaires**

Site type	No. of sites contacted	No. of completed questionnaires
Businesses	17	1
Hotels	10	2
Museums	10	Data received from one contact for 3 sites
Housing providers	8	1
Sports/leisure centres	6	0
Police/fire stations	6	3
Schools	22	0
Religious buildings	5	0
NHS	6	Data obtained from public domain
<b>TOTAL</b>	<b>90</b>	<b>8</b>

There are thought to be a number of reasons for the low response rates, which vary depending on the site type. Some underlying reasons for the poor provision of data are outlined in Table 3.3.



**Table 3.3 Potential Reasons for the Difficulties in Obtaining Data**

Reasons	Applicable to
Difficulty to identify/engage a relevant 'energy manager' or other person with access to appropriate data	Small organisations which have stretched resources and little resource dedicated to energy management and monitoring: such as small <b>schools</b> , <b>places of worship</b> , some <b>businesses</b> . Some organisations contacted were genuinely unclear on which person could provide the data requested.
Energy Manager not able to spare the time for data provision	<p>This issue was encountered with hotels and <b>leisure centres</b> especially; the person responsible was identified and phoned/emailed, but no response was received.</p> <p>This also occurred for some of the <b>museums</b>; the relevant contact who holds energy data for all museum sites was engaged, however his available time was limited. This resulted in only limited data provision, significantly later than was anticipated.</p>
Organisation has no incentive to provide energy consumption information, particular where data is confidential	<p>Particularly for <b>businesses</b> and <b>schools</b>: to many of the sites the London Heat Map project seemed to be a high level government initiative with no immediate benefit, and so any perceived benefits were distant and ambiguous. This led to the request for information being a low priority, and combined with the other factors in the table led to a poor response rate in the timescales of the study.</p> <p>This issue could potentially be overcome to some extent with increased marketing/awareness of the project and the potential benefits throughout the borough.</p>
Organisations' energy records are collected and managed centrally/off site/at head office	<p>This is applicable to some <b>businesses</b>, <b>hotels</b> and <b>leisure centres</b>. This issue in itself does not prevent data from being eventually acquired, however it adds a level of difficulty in engaging the organisation.</p> <p>This issue was also especially prevalent for the <b>housing associations</b>: energy management of these organisations is closely tied in with the service charge system – contacts explained that energy data would be difficult and onerous to extrapolate from service charging records.</p> <p>This issue could potentially be overcome by engaging directly with large organisations with multiple sites across the Greater London area; an approach which has been successful with <b>Fire &amp; Rescue</b> and <b>Police Stations</b>.</p>
Organisation is unused/unwilling to providing energy data to third parties' requests on behalf of the council	<p>Many organisations responded to the engagement as though the request was entirely from 'left field'. This was true for <b>businesses</b>, <b>museums</b>, <b>places of worship</b> and <b>schools</b>.</p> <p>This could potentially be overcome by introducing the project to organisations at an early stage, prior to engagement for data gathering – e.g. by distributing letters or fliers. It is thought that greater motivation to provide data could be invoked if engagement came from the Council directly, or if personal visits could be arranged.</p>
Organisations did not respond within the time frame of the engagement stage	<p>Some organisations were difficult to engage in general: persons contacted did not respond to several phone messages and emails, or did not respond after the initial introduction to the project. This was true for <b>businesses</b>, <b>hotels</b>, some <b>housing associations</b> and <b>schools</b>.</p> <p>This issue could be partly overcome by a longer engagement period.</p>
Organisation willing to but unable to provide data in format requested	<p>One of the <b>housing associations</b> attempted to provide a download from its energy database, however the database was not functioning correctly at the time of data request. Another attempted to provide useful SAP energy data, which could not be used in the LDA heat map template.</p>



Overall, Entec made contact with a significantly greater number of sites within the borough than initially planned but the response rate was still very poor. However any adverse impact on the next phases of the study as a result of the low response rate was minimised by:

- The use of energy demand estimations to account for gaps in actual gathered data;
- The fact that the actual fuel/heat demand is just one factor of many to consider when assessing potential DE schemes (see Section 3); and
- The potential to re-approach sites identified as having particular potential for DE with a clear proposal that may offer tangible benefits in terms of costs and carbon dioxide emissions reductions. This could potentially involve face-to-face meetings, and may increase the likelihood of the data being supplied.

## 3.4 Production of Heat Map

The data gathered during this exercise was issued to the LDA who produced a GIS dataset suitable for displaying as a map. Entec then used this data to produce a map showing scaled heat loads across the borough in Appendix D.



## 4. Identification of Potential Schemes

### 4.1 Introduction

The heat map allowed areas where there are clusters of high heat demand to be clearly identified. The aim of this task was to use this information to identify a number of discrete potential DE schemes, and to analyse the opportunity presented by each one as objectively as possible. However, given that the heat loads in the borough are all in relatively close proximity it is difficult to specify where one zone should end and another begin, as it is not possible to know the optimum solution without carrying out more detailed analysis than is possible in the scope of this study. Therefore this represents a starting point on to which more detailed studies can build, with the implementation plans developed in Section 4 a first step in this process.

### 4.2 Methodology

In order to identify potential DE schemes and overcome the issues described above, the following methodology has been applied:

- Key existing ‘anchor loads’ were identified. An anchor load is defined as a building that will form the core of a scheme, and include sites that are well suited to CHP with both a high and relatively constant heat (and ideally electrical) demand. Examples of such sites are hospitals, civic buildings, large hotels and leisure centres. Other potential anchor loads include sites where there are existing CHP installations or buildings already linked via district heating. Additionally, public sector sites are preferred as they are typically lower risk commercially and may be able to ‘drive’ a scheme.
- Using the heat map, other large energy users in immediate proximity were also included in the scheme. These sites may be less well suited to CHP but could be supplied with heat via a district heating connection and are likely to be an integral part of the scheme; these sites are defined as ‘key loads’. Examples of such loads include large commercial buildings, large residential buildings (particularly high-rise blocks), and smaller hospitals and leisure centres.
- Having established the likely core sites within the scheme, other smaller loads in the vicinity were included as ‘additional loads’, which are less critical to the success of the scheme and may be included at a later date as an extension to the network.

By following this methodology a total of nine potential networks have been identified. Of these five are thought to offer a definite significant opportunity, with the remainder offering somewhat lower potential either due to a lack of a clear anchor load or loads, very small number of sites or dependence on future development of which the details are presently unclear.

Of course, there is inevitably an element of subjectivity in analysis of this kind; hence this task is just a starting point with the detail being developed as the process moves forward. To analyse and prioritise the identified opportunities, each potential scheme was assessed against a total of 13 criteria in order to give an indicative score



(see Section 3.4 for detail). This allowed the sites to be ranked by the level of opportunity in as objective a manner as possible.

Only the ‘anchor loads’ and ‘key loads’ have been included in the calculations at this stage. Given that the analysis is subject to a very high level of uncertainty, the smaller sites will be ‘lost in the noise’ so there is no significant benefit in attempting to include such detail at this stage.

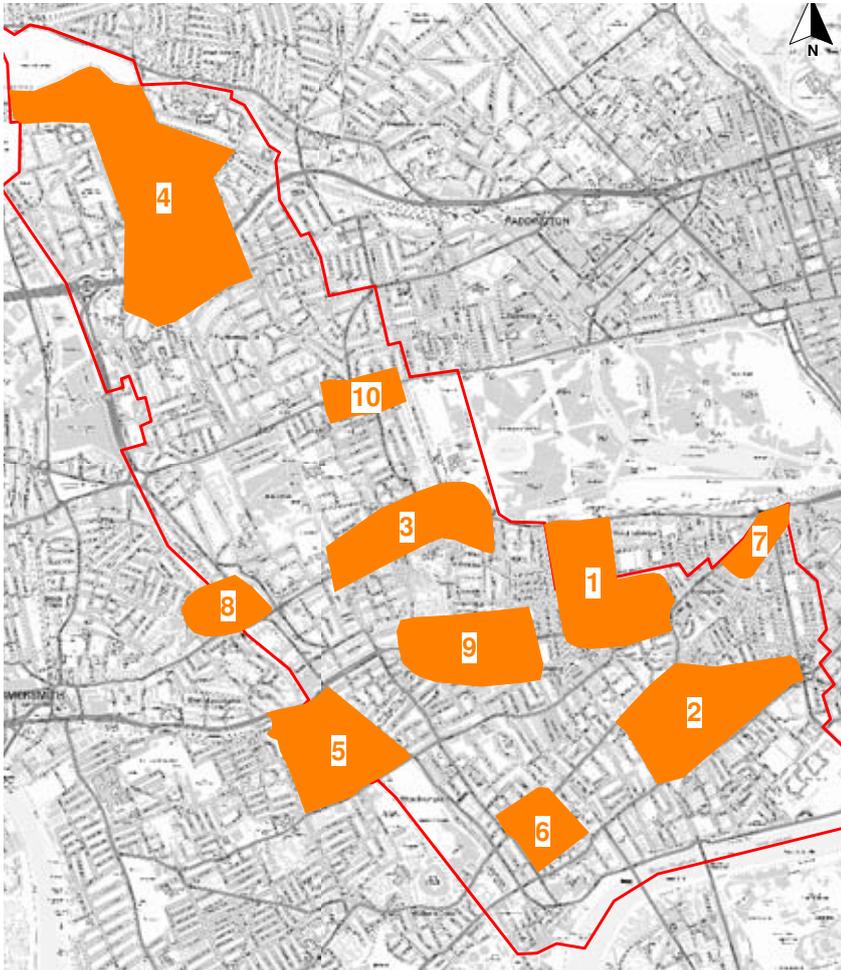
Because the majority of the potential schemes are in close proximity to each other there are clear opportunities to create much larger networks with schemes linked together via share heating infrastructure (such as along Cromwell Road and Kensington High Street).

## 4.3 Identified Schemes

This section summarises the results of the assessment. A brief description of each potential scheme is presented, with further details and the results of the spreadsheet models provided in Appendix B. The broad location of each scheme is shown in Figure 4.1, with more detailed maps showing the scaled heat demand of individual sites provided in Appendix E.



Figure 4.1 Location of Potential DE Schemes



## Zone 1 – Albertopolis

This opportunity is centred on the area known colloquially as ‘Albertopolis’, particularly the three large museums on Exhibition Road; the Natural History Museum, Victoria and Albert Museum and the Science Museum. The Natural History Museum has an existing gas fired Combined Cooling Heat and Power (CCHP) system, and exports both electricity and heat to the adjacent Victoria and Albert Museum via a short district heating pipeline and private wire electrical connection. The Science Museum has a stand-alone gas fired CHP system.

Immediately north of the three museums is the main Imperial College campus and the Royal Albert Hall, though both sites are located just outside the boundary of the borough in Westminster. Although outside the remit of the heat map, Imperial College has a very high heat demand (81,400MWh of gas used in 2004/05, nearly three times the combined total of the museums) and has an existing 3.9MWe gas fired CHP unit. Based on information supplied to Entec as part of the data gathering stage, it is known that as of 2005 the CHP system was not operating efficiently and contributed to only a relatively small proportion of the total heat demand, with virtually no operation



outside of the winter months. This implies the plant may be oversized, and hence it is possible there could be significant benefits from the use of a shared system in this area, aggregating the demand and allowing surplus heat to be used at other sites, giving significantly greater efficiencies and allowing much longer operational periods. However the current status of this system is unknown.

The Royal Albert Hall has a moderate heat demand (3,500 MWh of gas in 2004/05), and the profile is erratic given the usage of the building. Hence an independent on-site CHP system is unlikely to be an appropriate solution given the large difference between peak and base load, but connection to a DE network and buying heat from other sites is a definite possibility. Also of note is that the site has a particularly high cooling demand, and the possibility of decentralised heat *and* cooling being supplied around this zone should be considered given that the cooling demand is expected to be high for the majority of the sites.

Other 'additional loads' that could be connected to a DE network in this zone include several medium size hotels, a school and Brompton Oratory, a large church adjacent to the Victoria and Albert Museum.

All sites in this scheme are existing buildings with no significant expansion planned. Given that is the case, and that there is already a small DE network this may be an opportunity that could be developed in the short term, though the potential may depend greatly on the technical feasibility of such an arrangement, and the willingness of Imperial College to be involved.

## Zone 2 – Royal Hospitals

This opportunity is centred on two medium size specialist hospitals, the Royal Brompton (approximately 350 beds) and the Royal Marsden (approximately 270 beds). Also in this region are several large mansion blocks that may be suitable for supplying heat to, but this will be dependent on their internal heating systems, particularly whether there are individual boilers in apartments or whether there is a communal heating system with central boilers.

Neither hospital has a CHP plant at present, so there may be good scope to reduce carbon dioxide emissions by using this technology. Hospitals are generally well suited to CHP as they tend to have a large and relatively constant heat demand which varies relatively little through the day (particularly compared to buildings such as offices that are occupied only in the day requiring the system to be switched off regularly). This enables a CHP system to run for a large proportion of the time which is advantageous both economically and from a carbon emissions perspective.

Other possible 'additional loads' in this zone include Chelsea Old Town Hall, Chelsea fire station, Holy Trinity school, several hotels and various residential buildings.

## Zone 3 – Kensington High Street

This potential scheme is centred on Kensington High Street and contains a large number of sites with moderate to high demand, the majority of which are hotels and large retail buildings. The exact extent of this site suitable for



inclusion in a DE network is unclear due to the high concentration of large buildings, but it appears most appropriately centred on a core of several sites; Kensington Town Hall, the Royal Garden Hotel, the Copthorne Tara Hotel and the Thistle Hyde Park. These are predicted to be the sites with the highest heat demand, and the Copthorne Tara Hotel has an existing CHP plant (as may some of the other hotels but it was not possible to ascertain this from the data gathering stage). A scheme emanating from the town hall may be possible particularly if the building is well suited to CHP, given that the council may be able to drive such a scheme.

As well as the core sites, there is potential to connect many other buildings to this network. However, this may be challenging commercially since the vast majority of sites in this zone are privately owned. A connection is likely to only be attractive if heat can be provided at a cost significantly below the current gas price, which may be difficult to achieve where gas CHP is the primary technology. Despite this there will be a very large heat demand and pipe lengths required will be relatively low.

## Zone 4 – North Kensington

North Kensington varies significantly in character from the south of the borough. There is considerable regeneration and new development planned in the long term, and this area offers the opportunity for a decentralised energy network with a different focus; a predominantly residential network covering a wider area, with the potential to help both reduce carbon emissions and fuel poverty in areas where the deprivation index is greater than in the rest of the borough. The main strategic sites earmarked for development are Kensal Gasworks and around the existing North Kensington Sports Centre, with a smaller site at Wornington Green; detail on these sites is provided in Appendix C. There are also various existing areas of social housing (including a number of tower blocks) which may benefit from a DE scheme.

However the sites are much more scattered than the other zones, so pipe lengths will be greater and the capital cost could be considerably higher. It may be appropriate to develop smaller independent schemes initially (e.g. at the strategic sites), before linking these at a later date particularly given that it is unlikely that all the sites will be developed at the same time. Even if this is preferable to developing a large network from the outset, the possibility of linking smaller networks together should be considered at an early stage, with future developers being kept informed.

## Zone 5 – Earl's Court

This scheme involves just two key developments; Earl's Court Exhibition Centre and the surrounding Earl's Court strategic development site, details of which are provided in Appendix C. The exhibition centre is the largest such centre in London. Major redevelopment in the Earl's Court area is planned in the long term (potentially including the replacement of the exhibition centre with a new facility), and the site straddles RBKC and the London Borough of Hammersmith and Fulham. Hence a network in this region would require some degree of cross-borough working. The site is bisected by a railway line which is a potential barrier to the routing of pipes (though not likely to be an insurmountable obstacle).



Also in this zone are several hotels which primarily serve the exhibition centre, and it is noted that there are also a large number of hotels (around 30) a short distance away just outside the zone. These are mostly relatively small and will not be core to a network but could be included as an extension should a DE scheme at Earl's Court go ahead.

## Zone 6 – South Chelsea

This is a small zone which is dominated by a single site, the Chelsea and Westminster Hospital. The hospital has a high heat demand and is not known to have an existing CHP plant (though this is unconfirmed). As such there could be good potential to reduce carbon dioxide emissions by installing CHP plant at this site, and it could also be very cost effective to do so.

There is limited heat demand in the vicinity however, though there is a large residential development at Elm Park Mansions. A couple of small schools and a small leisure centre could also be included in a district heating network.

Hence though this zone offers low potential for a wider DE network, the potential benefits of CHP at the hospital are sufficient to include this as part of the study.

## Zone 7 – Brompton Road

This zone includes several very large commercial buildings in the upmarket Brompton Road area, which borders the City of Westminster. The key anchor load is Harrods (the largest store of any kind in the UK with a correspondingly high energy demand), with other key loads being the Sheraton Park Tower Hotel and Harvey Nichols.

The Sheraton Park Tower Hotel has a CHP unit, though it appears unlikely to have a significant surplus that could be exported (discussions with the site would be required to confirm this).

This zone is in close proximity to zone 1, and a larger scheme incorporating sites in both may be possible in the long term. Additionally it is noted that the potential for DE in this region is being investigated by the City of Westminster as part of the heat mapping work carried out by this authority.

## Zone 8 – Olympia

This small zone is based around the Olympia Exhibition Centre and Hilton London Olympia. It could also incorporate a number of other smaller hotels, all of which are in very close proximity to each other. There is little other large development or existing sites in the vicinity.



## Zone 9 – Cromwell Road

This zone contains a large number of hotels and is similar in character to zone 3. However, the absence of any public sector sites or a dominant anchor load is likely to make development of a scheme in this location more challenging. It does contain a number of relatively high heat consumers including the Holiday Inn (London Kensington Forum), the Millennium Gloucester Hotel, Cromwell hospital (a 120 bed private hospital operated by Bupa) and Point West, a mansion block.

## Zone 10 – Notting Hill Gate

This zone covers existing and potential future development in the Notting Hill area. The area is mostly residential, with a number of existing high-rise residential blocks that may benefit from CHP plant or connection to a district heating network. Future development and refurbishment of existing building stock is focused on the north of the region in the Portobello Road and the south at Notting Hill Gate, as outlined in the draft Core Strategy. Some limited development is planned in the Portobello Road area, but the majority of redevelopment is expected in Notting Hill Gate to the south, so this is the focus of this zone.

The main area of redevelopment is centred on five sites in the centre of Notting Hill Gate; United House, Foxton/RBS, David Game House, Newcombe House and Astley House. The Core Strategy also notes the potential for district heating in the area around the Coronet cinema (planned for refurbishment), and there may be an opportunity to include the Campden Hill Towers (private flats opposite the cinema earmarked for refurbishment) in such a scheme. Further detail regarding development proposals is provided in Appendix C.

Given the lack of firm proposals at the present time it has not been possible to estimate the likely heat demand in this region, though it is not expected to be as high as the other zones identified here. However there may be buildings in this zone that offer an immediate opportunity for DE systems, particularly by incorporating CHP plant as part of the refurbishment of residential and commercial blocks, particularly at the five aforementioned buildings.

## 4.4 Analysis

A spreadsheet tool was used to assess each zone. The full results of this exercise are presented in Appendix B, which also gives further details on how this was carried out. The criteria against which each scheme was judged are as follows. The weightings that have been applied to each are shown in parentheses.

### Technical

- **Overall energy demand (high)** - Total heat and electricity demand in proportion to the number of units in the potential scheme
- **Demand profile suitability for CHP (high)** - Developments with steady heat load better suited to CHP. A mix of building types can help aggregate and smooth the demand



- **Likely carbon emission reductions (medium/high)** - Will depend on fuel type displaced, condition of existing boilers, whether existing CHP units are already installed and criteria 1 and 2
- **Available space, pipe routes and access (medium)** - Available space for energy centre (though not a major concern for gas CHP), opportunities for pipe routes including major barriers such as watercourses, railways and where significant disruption may be encountered

## Economic

- **Proximity of sites (medium)** - Minimising pipe lengths is important as this is usually by far the most significant capital cost element of a DE scheme
- **Estimated payback/NPV (medium/low)** – Though clearly of fundamental importance to the viability of a DE scheme, it is impossible to understand at this very early stage. At this stage a score has been allocated based on high-level estimates, but the weighting is lower to reflect the degree of uncertainty and avoid over emphasising this factor.
- **Impact on fuel and energy costs (medium/low)** - Benefit to consumers (both in terms of reduced heat and electricity costs as a result of increased efficiency by using CHP. Comments for payback/NPV also apply here.
- **Potential for funding (low)** - Potential for receiving grant or other funding (e.g. the Low Carbon Infrastructure Fund)

## Societal

- **Potential alleviation of fuel poverty (medium)** – Reduction in fuel costs from DE scheme helping less affluent residents (households considered to be in fuel poverty if they have to spend in excess of 10% of total income on domestic fuel). Largely applicable to housing estates such as those in North Kensington
- **Environmental impacts other than carbon (low)** - Possible additional environmental and health benefits in terms of air quality, noise etc

## Deliverability

- **Commercial suitability (high)** – Critical for a scheme to proceed. High proportion of public sector sites will give a greater chance of a scheme being successful. Also having an impact on the deliverability is the number of sites and ownership type, risk (particularly where relying on private sites) and the potential attractiveness to an Energy Services Company (ESCO) who could build and operate the scheme
- **Presence of anchor loads (medium/high)** - The higher the proportion of large anchor loads as a proportion of the whole scheme the better, particularly where these sites are public sector with ability to take a long term view on energy supply (e.g. hospitals)



- **Phasing and flexibility (medium)** - Good if predominantly older existing buildings, or future development far enough away to plan for DE. Not good if new development about to be started or recently built sites

## 4.5 Results

The results of the exercise are summarised in Table 4.1, with the top five highlighted as these are the schemes for which implementation plans have been developed. The remaining zones may also be worth pursuing, but are not considered as high a priority.

**Table 4.1 Results of Ranking Exercise**

Scheme	Weighted Score	Position in Ranking
<b>Zone 1 (Albertopolis)</b>	<b>149 (73%)</b>	<b>1</b>
<b>Zone 2 (Royal Hospitals)</b>	<b>135 (66%)</b>	<b>2 =</b>
<b>Zone 5 (Earl's Court)</b>	<b>135 (66%)</b>	<b>2 =</b>
<b>Zone 6 (South Chelsea)</b>	<b>126 (61%)</b>	<b>4</b>
<b>Zone 4 (North Kensington)</b>	<b>123 (60%)</b>	<b>5</b>
Zone 10 (Notting Hill Gate)	113 (55%)	6
Zone 7 (Brompton Road)	110 (54%)	7
Zone 3 (Kensington High Street)	101 (49%)	8
Zone 8 (Olympia)	100 (49%)	9
Zone 9 (Cromwell Road)	97 (47%)	10

Note that some zones (4, 5 and 10 in particular) contain future development areas and clearly it may be many years before work can commence. For these sites early communication is just as essential, but it is the schemes consisting mostly of existing buildings and existing CHP plant that are likely to be developed initially and hence are higher priority.



## 5. Implementation Plans

### 5.1 Introduction

Implementation plans have been developed for the top 5 ranked schemes using templates provided by the LDA. Recommendations have been made as to whether a full feasibility study is appropriate or whether other steps need to be taken prior to this (to identify any 'showstoppers', e.g. where a scheme is dependent on the participation of an anchor load) in Section 6.

It is anticipated that in the long term it may be possible with the appropriate levels of effort and cooperation to develop a large scale DE network across the borough and beyond. This will start with small separate networks powered predominantly by gas CHP, which can subsequently be linked together via larger hot water transmission pipes. Ultimately alternative fuel sources could be used to reduce carbon dioxide emissions much further (since typically gas CHP will only give reductions of the order of 20-30%), such as Energy from Waste and biomass plant located outside the borough but linked to a large transmission pipeline (located where air quality is less of an issue).

In addition there is currently significant work underway into the potential for biogas produced from anaerobic digestion to be injected into gas distribution network. Should this be done on a large scale this would further reduce carbon dioxide emissions.

One further point of note is that although very limited data was obtained from the housing providers, it is recognised that there could be opportunities for DE schemes in existing high density social housing, not all of which have necessarily been identified from the heat map. This could be part of a scheme in zone 4 (North Kensington), or a separate scheme entirely. To understand the potential opportunities it may be worth discussing with the appropriate contact within the housing association (a face-to-face meeting may be necessary), to go through not only the energy demand and existing heating systems, but also the location, layout and condition of the buildings (this is beyond the scope of this study, but may be worthwhile as DE schemes could be of significant benefit to these developments).

### 5.2 Implementation Plans

Full implementation plans for the five highest ranked schemes are provided in Table 5.1.



**Table 5.1 High-Level Implementation Plans**

DE Opportunity	Priority	Notes	Barriers/Key Issues	Next Steps/Key Actions	Key dates	Responsible person
Zone 1 (Albertopolis)	High	See Section 3.3 for full description	Existing CHP plants at three of the sites may limit benefits in terms of CO <sub>2</sub> and cost savings (if they are currently operating efficiently). However, linking these could result in significant benefits but this is not possible to quantify at present.	Ascertain nature of existing CHP systems at all site where currently installed. Understand efficiencies, spare capacity etc		Initial contact likely to be Declan Rajasingam ( <a href="mailto:d.rajasingam@nhm.ac.uk">d.rajasingam@nhm.ac.uk</a> ) at the NHM. Alternative contact at Science Museum: <a href="mailto:andrew.haycock@sciencemuseum.org.uk">andrew.haycock@sciencemuseum.org.uk</a>
			Investigations into shared energy schemes appear to have been carried out previously (based on information from the contact at the NHM)	Confirm what past investigations into shared energy networks have taken place and current status – are there any ongoing projects looking into shared energy schemes?		Initial contact likely to be Declan Rajasingam ( <a href="mailto:d.rajasingam@nhm.ac.uk">d.rajasingam@nhm.ac.uk</a> ) at the NHM
			Imperial College interest or technical suitability to be part of scheme unknown	Confirm whether contact with Imperial College has already taken place. If not contact to discuss potential and to obtain energy usage data and status of CHP plant (appears to be operational at present).		Contact is Nick Roalfe, Director of Facilities ( <a href="mailto:n.roalfe@imperial.ac.uk">n.roalfe@imperial.ac.uk</a> )
			Imperial College and the RAH are in Westminster, so outside the remit of the heat study	It is understood that these sites are not being considered as part of DE scheme under the DEMaP project. Development of this scheme may require some degree of cross-borough working with City of Westminster		Appropriate contact at RBKC



DE Opportunity	Priority	Notes	Barriers/Key Issues	Next Steps/Key Actions	Key dates	Responsible person
Zone 2 (Royal Hospitals)	Medium/High	See Section 3.3 for full description	The two hospitals (Royal Brompton and Royal Marsden) are key to this scheme, so without their participation the scheme is unlikely to proceed.	Contact hospitals and ascertain energy demand and detail on type and condition of existing heating systems, check whether they have or are planning to install any CHP capacity, or have any other plans to refurbish or replace equipment. Entec have contacted the sites already as part of the first phase, but without success (data on heat obtained from ERIC records).	1	_____
			Limited data available on other key sites in this zone at present	Approach the three large Mansion Blocks (Chelsea Cloisters, Nell Gwyn and Sloane Avenue Mansions) to determine their current energy supply systems. If any have communal systems gather system/fuel use data and discuss possibilities of DE connection/CHP (where apartments have individual boilers this information may be difficult or impossible to obtain).		Appropriate contact at RBKC
			Limited data available on other additional sites in this zone at present	If a scheme appears possible following completion of the previous two steps, approach other sites identified in this zone to discuss potential for connection to DE and what commercial terms would be required for this to be attractive. This will help determine if the expansion of a network beyond the hospitals is likely to be viable		To be confirmed following completion of above actions



DE Opportunity	Priority	Notes	Barriers/Key Issues	Next Steps/Key Actions	Key dates	Responsible person
Zone 5 (Earl's Court)	Medium/ High	See Section 3.3 for full description	No actual data on the sites within this zone at present which means there are significant uncertainties	Approach Earl's Court exhibition centre regarding energy demand and to determine what their current systems are (no information received during data gathering phase). Knowledge of actual energy demand profile (heat, cooling and electricity) would be of benefit.		<a href="#">C[ ] - 3^} 033</a>
			Uncertainty regarding the future of the exhibition centre means the existing site may not be willing to considering investment in CHP plant and associated infrastructure at present. However any new site will be required to have a CHP plant as per the Core Strategy. Key will be to ensure that opportunities for sharing heat with other existing and future development sites are maximised	No immediate actions		Brendon Roberts at RBKC
			Railway through site may present a barrier to routing pipelines (lower priority)	Survey site for suitable crossing points (tunnels, bridges etc). No immediate actions.		To be confirmed when further details known regarding development proposals



DE Opportunity	Priority	Notes	Barriers/Key Issues	Next Steps/Key Actions	Key dates	Responsible person
			Limited data available on other sites in this zone at present	If a scheme appears possible following completion of the previous two steps, approach other sites identified in this zone to discuss potential for connection to DE and what commercial terms would be required for this to be attractive. This will help determine if the expansion of a network beyond the hospitals is likely to be viable		To be confirmed when further details known regarding development proposals
Zone 6 (South Chelsea)	Medium	See Section 3.3 for full description	The Chelsea and Westminster Hospital is by far the largest site in this zone and critical to a DE opportunity. Hence if there is little possibility of CHP being installed then the opportunity may not exist. If there is existing CHP, opportunities to increase capacity could be investigated.	Contact site, confirm if there is existing CHP, and ascertain energy demand and details of existing energy supply. If appropriate set up a meeting to discuss potential opportunity with the site in more detail.		C[ ] - 3.3 } 3.3 <hr/> <hr/>
Zone 4 (North Kensington)	Medium	See Section 3.3 for full description	Phasing of developments and the likely involvement of more than one developer means it may be challenging to develop as a single large network	Best approach may be to take forward as individual DE schemes but ensure they are designed such that they can be linked together at a later date. No specific action required at present, but RBKC to work with developers to encourage linked schemes when detailed development proposals available).		Brendon Roberts at RBKC
			St Charles Hospital may be a good starting point from which a network could be developed. Suitability for CHP is not known at present however	Contact hospital to discuss potential		Con- 3.3 } 3.3



DE Opportunity	Priority	Notes	Barriers/Key Issues	Next Steps/Key Actions	Key dates	Responsible person
			Definite potential for incorporating existing social housing areas, but limited data received and lack of knowledge of existing heating systems means the viability is unknown	Contact relevant housing associations active in the North Kensington area		Appropriate contact at RBKC



## 6. Conclusions and Recommendations

### 6.1 Conclusions

The results of this study can be summarised as follows:

- The heat map produced as a result of the first stage of the study is a useful tool for identifying potential opportunities for DE schemes. However, obtaining data from sites proved very challenging for a number of reasons, so a significant number of estimates have been made.
- The Royal Borough of Kensington and Chelsea presents several good opportunities for DE schemes. A total of 10 potential schemes of significant size have been identified, of which 6 are expected to definitely be worth further investigation either immediately or at some point in the future.
- It is recommended that the following schemes proceed to the next stage, i.e. acting on the implementation plans and gaining commitment from relevant decision makers to carry out a full feasibility study:
  - Zone 1 – ‘Albertopolis’;
  - Zone 2 – Chelsea Hospitals;
  - Zone 6 – South Chelsea
- Zone 1 is expected to offer the most immediate potential and contains sites that are already using DE and sharing heat and electricity; hence it is recommended that this scheme is given highest priority.
- The following schemes may also offer excellent potential and should be considered for DE, but as they consist predominantly of future development areas there is limited opportunity to act in the short to medium term:
  - Zone 5 – Earl’s Court
  - Zone 4 – North Kensington
  - Zone 10 – Notting Hill Gate

### 6.2 Next Steps

If the decision is made to proceed to full feasibility for any of the schemes, it will be important to act on the next steps in the implementation plans, clearly determine the boundaries of the scheme (i.e. which sites and developments are to be included) and contact all relevant stakeholders prior to commencement of the study. This initial pre-feasibility work will help to confirm whether the scheme is worth taking forward, and is particularly



important for zones where there are just one or two dominant sites whose commitment to the project will be essential if the scheme is to proceed.





## Appendix A Contacts at Priority Sites



## Appendix B Assessment of Potential DE Schemes

### Overview

The following tables are a summary of the assessment of each zone, used to generate the ranking in Table 4.1.

The score in each category was multiplied by the appropriate weighting (detailed for each criteria in Section 4.2). The figures used are as follows:

**Table 6.1 Weightings**

Importance	Low	Low/Medium	Medium	Medium/High	High
Weighting	1	2	3	4	5

The weightings are included to reflect the relative importance of each criteria, and also the level of detail known. For example, despite being of critical importance to the viability of a DE scheme, economic factors are given a low weighting as very little is known at this stage. Should any of the schemes proceed to detailed feasibility, the additional data will allow a more accurate assessment of costs and viability, and the weighting can be increased accordingly.

The total mark available is 205, and the total score for each zone is contained in the green cell in each table.



**Table 6.2 Zone 1 (Albertopolis)**

	Criteria	1	2	3	4	5	Scoring
	<b>Technical</b>						
1	Overall energy demand					5	25
2	Demand profile suitability for CHP				4		20
3	Likely carbon emission reductions			3			12
4	Available space, pipe routes and access					5	15
	<b>Economic</b>						
5	Proximity of sites					5	15
6	Estimated payback/NPV			3			6
7	Impact on fuel and energy costs			3			6
8	Potential for funding			3			3
	<b>Societal</b>						
9	Potential alleviation of fuel poverty	1					3
10	Other impacts (health, environmental)	1					1
	<b>Deliverability</b>						
11	Commercial suitability			3			15
12	Presence of anchor loads				4		16
13	Phasing and flexibility				4		12
	<b>Total</b>						149



**Table 6.3 Zone 2 (Chelsea Hospitals)**

	Criteria	1	2	3	4	5	Scoring
	<b>Technical</b>						
1	Overall energy demand			3			15
2	Demand profile suitability for CHP			3			15
3	Likely carbon emission reductions				4		16
4	Available space, pipe routes and access			3			9
	<b>Economic</b>						
5	Proximity of sites			3			9
6	Estimated payback/NPV				4		8
7	Impact on fuel and energy costs				4		8
8	Potential for funding			3			3
	<b>Societal</b>						
9	Potential alleviation of fuel poverty	1					3
10	Other impacts (health, environmental)	1					1
	<b>Deliverability</b>						
11	Commercial suitability				4		20
12	Presence of anchor loads				4		16
13	Phasing and flexibility				4		12
	<b>Total</b>						135



**Table 6.4 Zone 3 (Kensington High Street)**

	Criteria	1	2	3	4	5	Scoring
	<b>Technical</b>						
1	Overall energy demand			3			15
2	Demand profile suitability for CHP			3			15
3	Likely carbon emission reductions			3			12
4	Available space, pipe routes and access			3			9
	<b>Economic</b>						
5	Proximity of sites			3			9
6	Estimated payback/NPV		2				4
7	Impact on fuel and energy costs		2				4
8	Potential for funding		2				2
	<b>Societal</b>						
9	Potential alleviation of fuel poverty	1					3
10	Other impacts (health, environmental)	1					1
	<b>Deliverability</b>						
11	Commercial suitability		2				10
12	Presence of anchor loads		2				8
13	Phasing and flexibility			3			9
	<b>Total</b>						101



**Table 6.5 Zone 4 (North Kensington)**

	Criteria	1	2	3	4	5	Scoring
	<b>Technical</b>						
1	Overall energy demand					5	25
2	Demand profile suitability for CHP			3			15
3	Likely carbon emission reductions			3			12
4	Available space, pipe routes and access			3			9
	<b>Economic</b>						
5	Proximity of sites		2				6
6	Estimated payback/NPV			3			6
7	Impact on fuel and energy costs			3			6
8	Potential for funding			3			3
	<b>Societal</b>						
9	Potential alleviation of fuel poverty				4		12
10	Other impacts (health, environmental)		2				2
	<b>Deliverability</b>						
11	Commercial suitability		2				10
12	Presence of anchor loads		2				8
13	Phasing and flexibility			3			9
	<b>Total</b>						123



**Table 6.6 Zone 5 (Earl's Court)**

	Criteria	1	2	3	4	5	Scoring
	<b>Technical</b>						
1	Overall energy demand		2				10
2	Demand profile suitability for CHP				4		20
3	Likely carbon emission reductions			3			12
4	Available space, pipe routes and access			3			9
	<b>Economic</b>						
5	Proximity of sites					5	15
6	Estimated payback/NPV				4		8
7	Impact on fuel and energy costs			3			6
8	Potential for funding			3			3
	<b>Societal</b>						
9	Potential alleviation of fuel poverty		2				6
10	Other impacts (health, environmental)	1					1
	<b>Deliverability</b>						
11	Commercial suitability				4		20
12	Presence of anchor loads				4		16
13	Phasing and flexibility			3			9
	<b>Total</b>						135



**Table 6.7 Zone 6 (South Chelsea)**

	Criteria	1	2	3	4	5	Scoring
	<b>Technical</b>						
1	Overall energy demand			3			15
2	Demand profile suitability for CHP			3			15
3	Likely carbon emission reductions			3			12
4	Available space, pipe routes and access				4		12
	<b>Economic</b>						
5	Proximity of sites				4		12
6	Estimated payback/NPV			3			6
7	Impact on fuel and energy costs			3			6
8	Potential for funding			3			3
	<b>Societal</b>						
9	Potential alleviation of fuel poverty	1					3
10	Other impacts (health, environmental)	1					1
	<b>Deliverability</b>						
11	Commercial suitability				4		20
12	Presence of anchor loads			3			12
13	Phasing and flexibility			3			9
	<b>Total</b>						126



**Table 6.8 Zone 7 (Brompton Road)**

	Criteria	1	2	3	4	5	Scoring
	<b>Technical</b>						
1	Overall energy demand			3			15
2	Demand profile suitability for CHP			3			15
3	Likely carbon emission reductions			3			12
4	Available space, pipe routes and access			3			9
	<b>Economic</b>						
5	Proximity of sites				4		12
6	Estimated payback/NPV		2				4
7	Impact on fuel and energy costs			3			6
8	Potential for funding		2				2
	<b>Societal</b>						
9	Potential alleviation of fuel poverty	1					3
10	Other impacts (health, environmental)	1					1
	<b>Deliverability</b>						
11	Commercial suitability		2				10
12	Presence of anchor loads			3			12
13	Phasing and flexibility			3			9
	<b>Total</b>						110



**Table 6.9 Zone 8 (Olympia)**

	Criteria	1	2	3	4	5	Scoring
	<b>Technical</b>						
1	Overall energy demand		2				10
2	Demand profile suitability for CHP		2				10
3	Likely carbon emission reductions			3			12
4	Available space, pipe routes and access			3			9
	<b>Economic</b>						
5	Proximity of sites				4		12
6	Estimated payback/NPV			3			6
7	Impact on fuel and energy costs		2				4
8	Potential for funding		2				2
	<b>Societal</b>						
9	Potential alleviation of fuel poverty	1					3
10	Other impacts (health, environmental)	1					1
	<b>Deliverability</b>						
11	Commercial suitability		2				10
12	Presence of anchor loads			3			12
13	Phasing and flexibility			3			9
	<b>Total</b>						100



**Table 6.10 Zone 9 (Cromwell Road)**

	Criteria	1	2	3	4	5	Scoring
	<b>Technical</b>						
1	Overall energy demand			3			15
2	Demand profile suitability for CHP			3			15
3	Likely carbon emission reductions		2				8
4	Available space, pipe routes and access			3			9
	<b>Economic</b>						
5	Proximity of sites			3			9
6	Estimated payback/NPV		2				4
7	Impact on fuel and energy costs		2				4
8	Potential for funding		2				2
	<b>Societal</b>						
9	Potential alleviation of fuel poverty	1					3
10	Other impacts (health, environmental)	1					1
	<b>Deliverability</b>						
11	Commercial suitability		2				10
12	Presence of anchor loads		2				8
13	Phasing and flexibility			3			9
	<b>Total</b>						97



**Table 6.11 Zone 10 (Notting Hill Gate)**

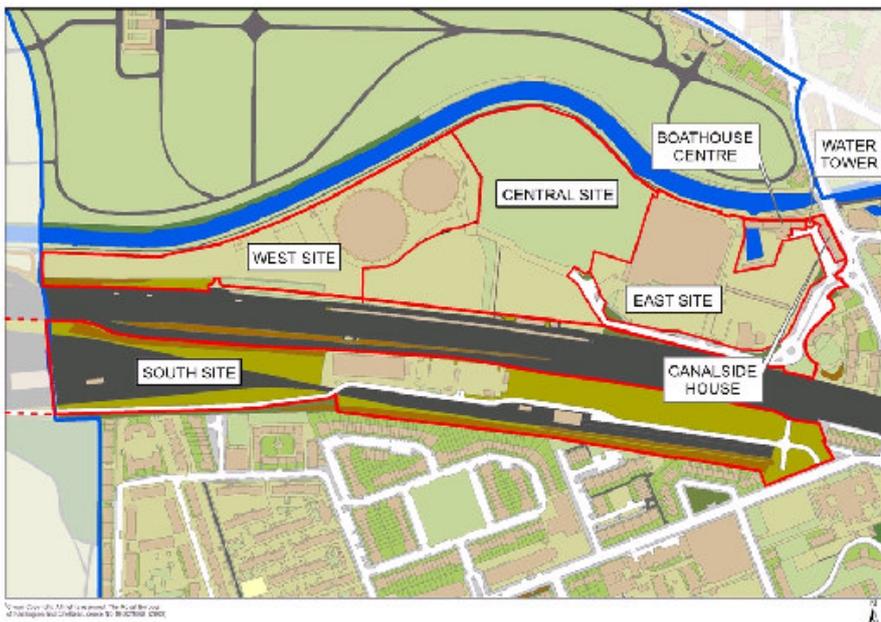
	Criteria	1	2	3	4	5	Scoring
	<b>Technical</b>						
1	Overall energy demand		2				10
2	Demand profile suitability for CHP			3			15
3	Likely carbon emission reductions			3			12
4	Available space, pipe routes and access			3			9
	<b>Economic</b>						
5	Proximity of sites				4		12
6	Estimated payback/NPV			3			6
7	Impact on fuel and energy costs			3			6
8	Potential for funding			3			3
	<b>Societal</b>						
9	Potential alleviation of fuel poverty			3			9
10	Other impacts (health, environmental)	1					1
	<b>Deliverability</b>						
11	Commercial suitability		2				10
12	Presence of anchor loads		2				8
13	Phasing and flexibility				4		12
	<b>Total</b>						113



## Appendix C Information on Strategic Sites

### Kensal Gasworks (Sites north & south of railway) – Chapter 20

There are seven sites which make up the proposed Kensal Gasworks site allocation. Six of these sites lie to the north of the railway: the west site (the current gas holders site itself), the central site (currently vacant), the east site (Sainsbury's supermarket), Canalside House, the Water Tower and the Boathouse Centre. To the south of the railway lies the south site (the North Pole railway depot)(42). These sites are indicated within the plan below.



These sites have been combined into a single Strategic Site due to their regeneration potential. The sites are located in the north of the Borough and are situated to the west of Ladbrooke Grove. The site will comprise primarily private development. Their combined site area is 16.65 hectares.

The site is allocated for upwards of 2,500 new dwellings and an excess of 12,000m<sup>2</sup> of non-residential floorspace including social and community facilities to provide for local needs.



## Delivery Milestones

Site	Likely Phasing
Kensal Gasworks	Phased development. 2009: Scope Planning Framework and enter into Planning Performance Agreement with Landowners 2009-2010: Prepare and adopt Planning Framework
Phase 1 (central and eastern Sites, The Boathouse Centre and Canalside House):	2010-2011: Grant Planning Permission (eastern and central sites) 2011: Commence work on site 2017: Crossrail Open and phase complete
Phase 2 (southern and western sites):	2017-18: Grant Planning Permission for southern and western sites 2018: Decommissioning of gasholders and commencing decontamination as necessary 2019: Start work on site 2023: Phase complete

There is planning permission on the Water Tower site for its conversion into a residential dwelling. This was granted planning permission in 2007 but is yet to be implemented.

## Wornington Green – Chapter 21

New development on this site is expected to provide the following minimums:

- Residential – Redevelopment on this site will comprise of a minimum of 538 affordable units and a minimum of 150 private dwellings;
- Leisure and Community Facilities – Replacement of the Venture Centre, including the Adventure Playground and Ball Court – 2,500m<sup>2</sup> (GEA) (27,000 sq ft);
- Open Space – Replacement Athlone Gardens – approximately 10,000m<sup>2</sup> (GEA) (108,000 sq ft);
- Tertiary education facilities;
- Provision of CCHP or similar, which serves the estate and which can, in future, be adapted to serve a wider area; and
- Replacement of storage used by market traders in Munroe Mews.

The site is shown on the following plan (comprising 5.3ha):





There are no existing permissions on site. The Kensington Housing Trust/Catalyst Housing Group, Homes and Communities Agency and possibly a private housing developer are expected to deliver this development.

## Delivery milestones

- 2009 Supplementary Planning Document consultation and adoption
- 2009 planning performance agreement signed with KHT
- 2009 KHT planning application submitted
- 2010 planning application determined
- 2010 HCA funding secured
- 2010 site works begin
- 2015 completion of phase 1
- 2021 phases 2 and 3 completed

## Earl's Court – Chapter 26

This site is of strategic importance because of its size and its current pan-London function as an exhibition centre. The aim on this site is to provide a mixed-use development including residential and employment uses. The wider Earl's Court site includes sites in the London Borough (LB) of Hammersmith and Fulham.



The site area is 7.43 hectares. However the wider Earl's Court site as a whole extends into the LB of Hammersmith and Fulham and covers an area of approximately 27 hectares. Within the Royal Borough of Kensington and Chelsea: Exhibition Centre and associated ancillary uses (D1) and offices (Class B1).

Over the wider Earl's Court site a minimum of 2,500 dwellings and further non-residential floorspace is envisaged along with a convention or exhibition function. It is foreseen that a minimum of 500 dwellings and 10,000m<sup>2</sup> of non-residential floor space will be provided in the Kensington borough itself together with an exhibition centre. The wider area is to be designed as a vibrant world class new quarter of the city linking well with its surroundings, especially to the west and east.

## **Delivery milestones**

- 2009: agree scope and arrangements for preparation of a Planning Framework with the London Borough of Hammersmith and Fulham.
- 2009-2011: preparation of the Planning Framework.
- 2012: grant planning permission.
- 2013: start implementation on site.
- 2023: completion.

There are no existing permissions on the site.

## **North Kensington Sports Centre – Chapter 23**

The North Kensington Sports Centre is located in the north west of the borough, within Latimer. It is a strategic site as it has been identified to accommodate the new secondary school required in the north of the borough. The site is also currently an important sports and leisure facility in this part of the borough.

The proposed allocation for the site is for:

- A new secondary school of an area no less than 6,000m<sup>2</sup>.
- The existing public sports centre will be refurbished or replaced. If replaced, the new sports centre will offer equivalent sports facilities to the existing centre, including a swimming pool and facilities based on demand, built in a way that is flexible for the future.
- An element of residential development depending on the layout of the site. This development would be regarded as enabling the provision of the school.



- Incorporation of CCHP or similar that can form the starting point for a district network should wider housing estate renewal take place in the area.

A plan of the site (1.9ha) is below:

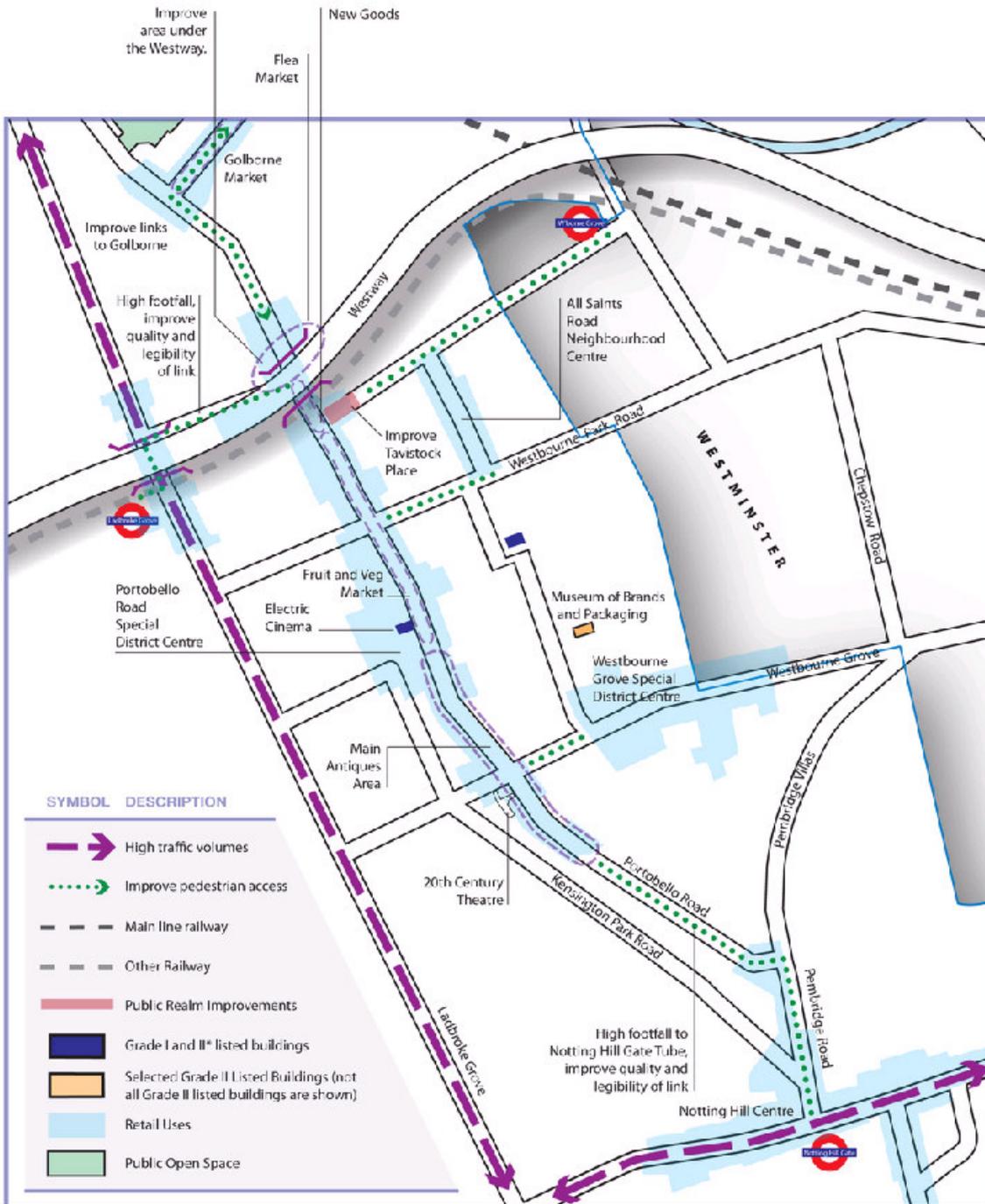


In terms of delivery, a bid to Building Schools for the Future will be made shortly, with a planning application to be submitted in 2010/2011. The school is likely to be completed by 2014 and fully utilised by 2018. The development is to be initiated by RBKC, Building Schools for the Future funding 2011/12 and private investment.

## Notting Hill – Chapters 7 & 16

The Notting Hill area is covered by 2 of the 14 places within the Borough for which a summary is provided within the Draft Core Strategy. These comprise first the 'Portobello/Notting Hill' place. This area consists of two quite different characters of retail trading: Portobello Road and Westbourne Grove that make up Notting Hill. The vision provided within the Strategy for the Portobello/Notting Hill area seeks to retain both areas as internationally vibrant retail areas. This includes a number of existing shopping streets and a street market. The following plan provides an indication of planned development in the 'Portobello/Notting Hill' area. However it is of note there is minimal planned development in this area, with the Strategy aiming to retain its existing character.

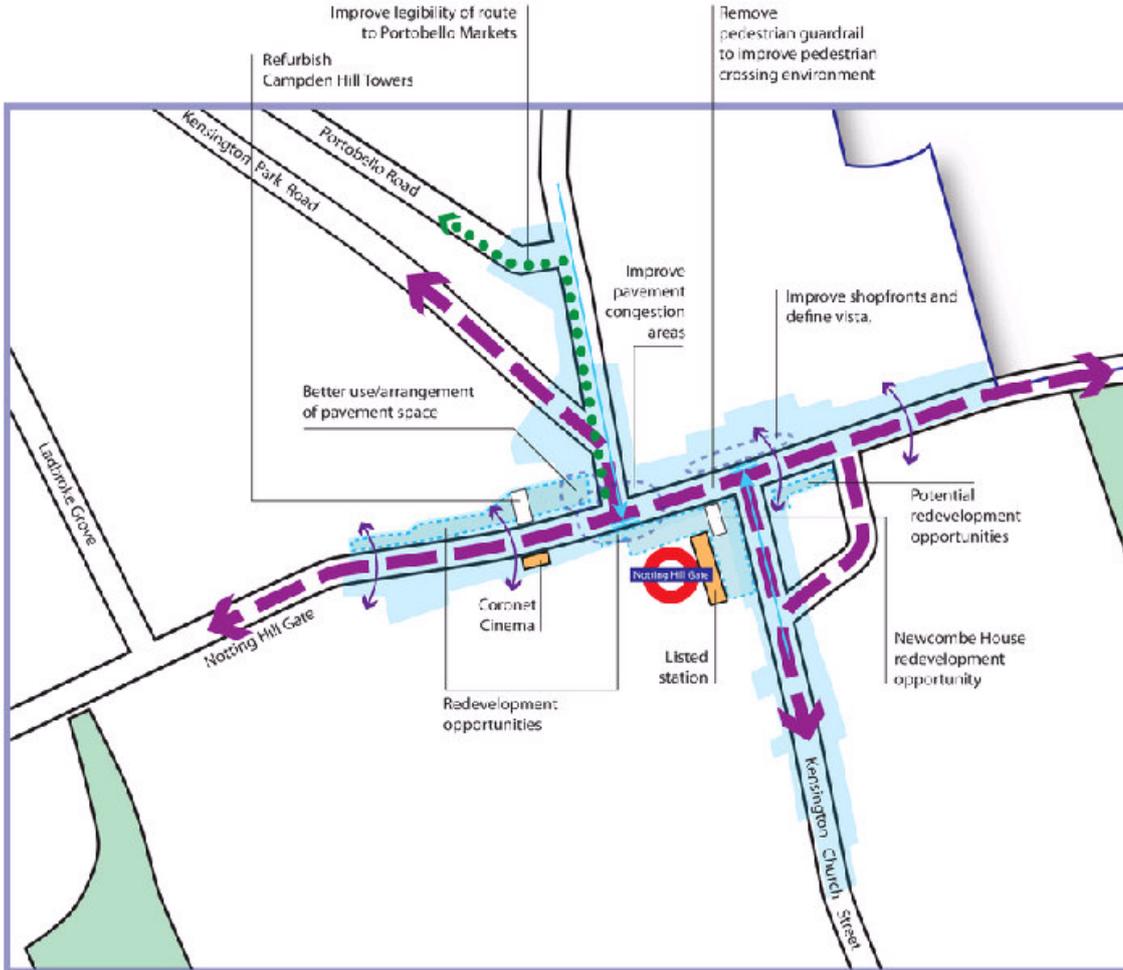




The second place is defined as 'Notting Hill Gate' within the draft Core Strategy. Much of the current retail centre in this area received planning permission in 1957/58. The plan below provides an indication of planned development within the area. The Strategy's vision for the area is to significantly strengthen it as a District



Shopping Centre, with enhanced shops and restaurants that reflect the needs of the local catchment, with premium-quality brands and outlets. The centre is to continue as a major office location.



**SYMBOL DESCRIPTION**

-  Improve linkages/relationship
-  High traffic volumes
-  Improve pedestrian access
-  Vista
-  Selected Grade II Listed Buildings (not all Grade II listed buildings are shown)
-  Retail Uses
-  Public Open Space
-  Potential development sites



The plan indicates that there is likely to be significant redevelopment of shops along the streets within the area (as indicated in light blue). One development within the area of particular note is the Council's aim to secure the full restoration of the Coronet Cinema. Furthermore the draft Strategy recognises that:

Major redevelopment of the centre will also offer an opportunity for a low pollution strategy and district heat source, which will be especially efficient as energy loads can be shared between the mix of uses. This district heat source might be located in the basement of Newcombe House.



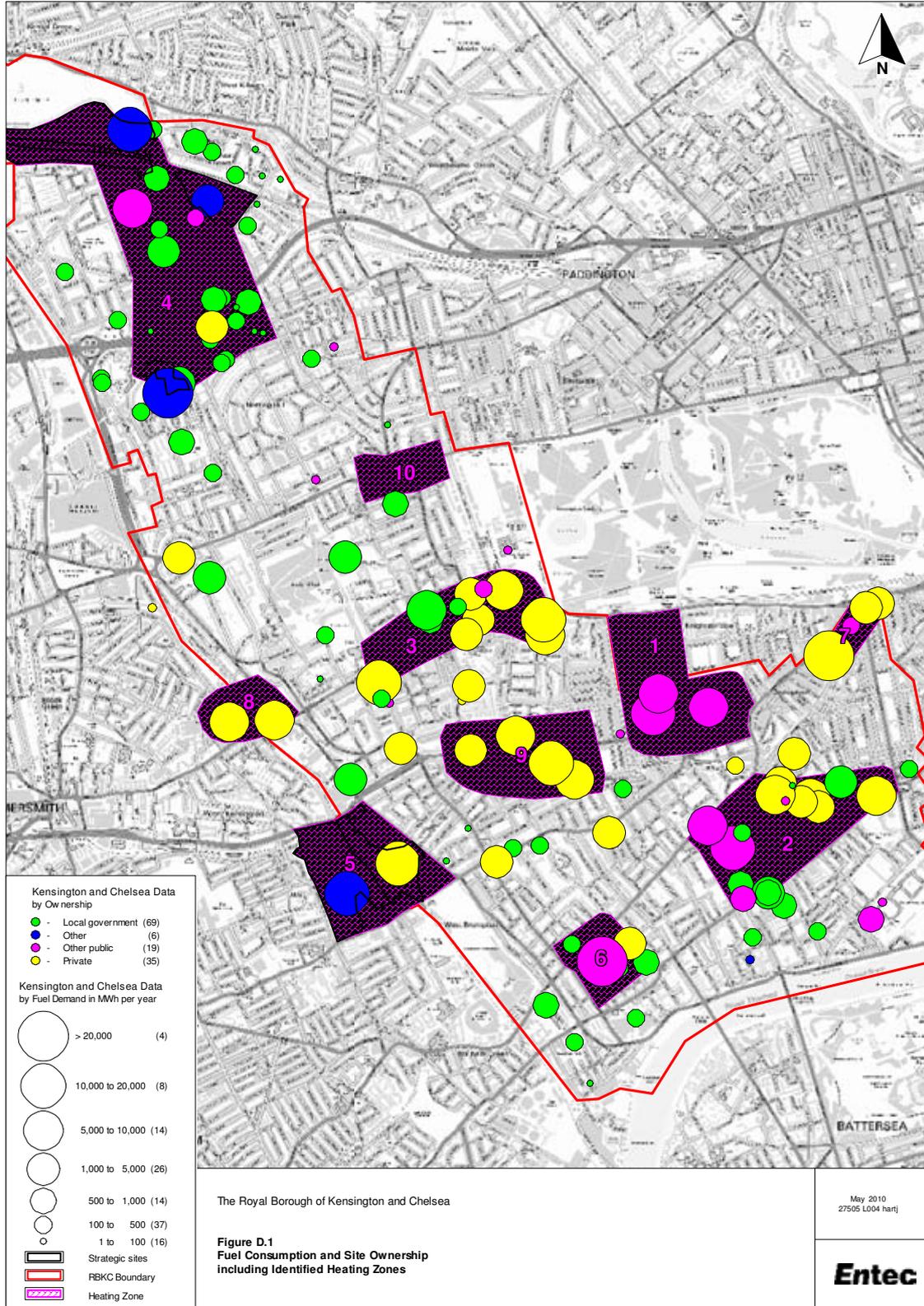
## Appendix D Overall Heat Map



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## Appendix E Detailed Heat Maps



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