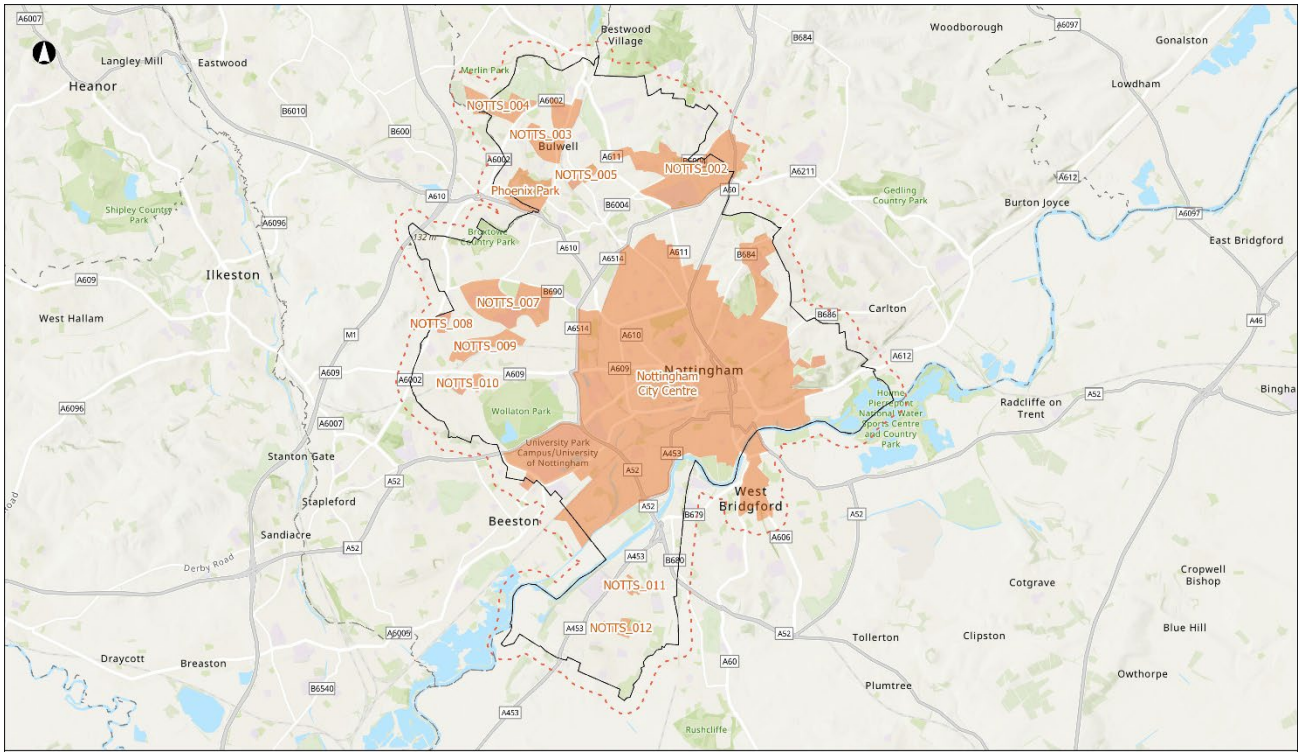
Department for Energy Security & Net Zero

Nottingham

Heat Network Zoning

Zone Opportunity Report



February 2025

Disclaimer

Please read the following licence conditions thoroughly to understand your responsibility for use of this report and data presented within it.

This report contains outputs from the Heat Network Zoning Pilot Programme. The Pilot was undertaken prior to full details of the Heat Network Zoning policy being available. Therefore, the contents, including data shown in maps, technical and economic data within the report, are likely to change and potentially sensitive information is withheld. No part of this report shall be relied upon for any business decisions.

Acknowledgements

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Contents

Executive Summary

About Nottingham: Nottingham City Council is the local authority for Nottingham, a city with a population of over 300,000 and an area of 75km². The city declared a climate emergency in 2020.

Local Energy Policy: Nottingham's Carbon Neutral Charter and Action Plan focuses on achieving carbon neutrality by 2028, which includes expanding and decarbonising existing heat network infrastructure.

Existing heat networks: Nottingham has one of the largest and oldest heat networks in the UK, Enviroenergy. It connects over 5,000 homes and 100 non-domestic buildings. Nottingham is an Advanced Zoning Programme (AZP) city.

Zones identified: A total of 12 heat network zones were identified in Nottingham, with two considered strategic zones. The total annual heat demand across buildings required to connect within identified zones is 650GWh/yr.

Strategic heat network zones: The overall heat demand for all buildings required to connect within strategic zones is 550GWh/yr. The Nottingham City Centre zone is the largest in terms of heat demand and geographical area.

Key heat demands: The total annual heat demand for buildings connected to the initial zone opportunities is 225GWh/yr. Significant buildings include hospital sites and several redevelopments across the city.

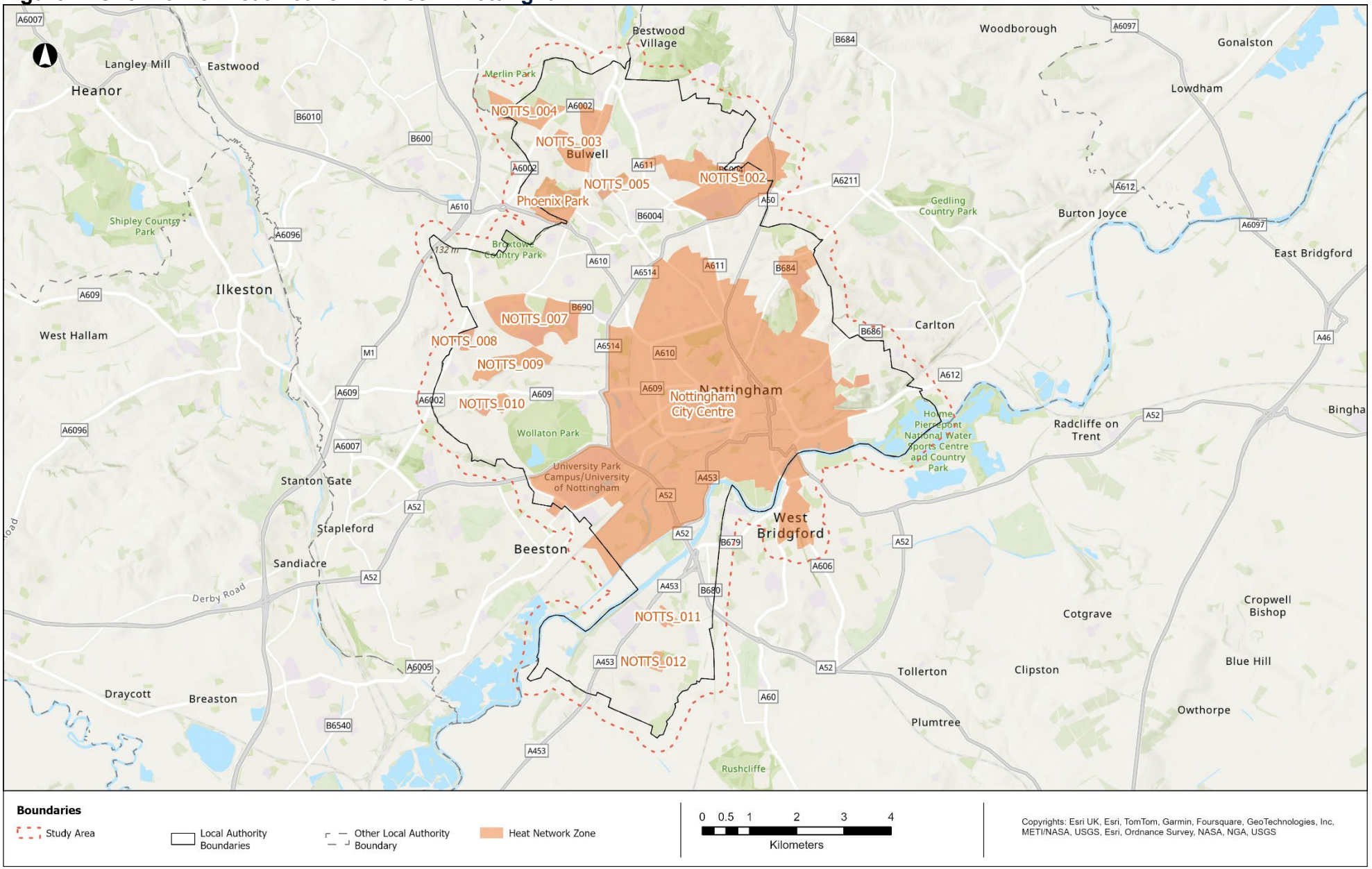
Key heat sources: Potential heat sources include Eastcroft energy from waste plant, water source heat pumps, mine water heat, and air source heat pumps.

Estimated CapEx: The high-level estimate of capital expenditure to network all buildings required to connect in all zones is approximately £1.9bn, of which the initial zone opportunities amount to approximately £650m.

Other heat network zones: Several smaller zones were identified in areas such as the City Hospital and Bulwell.

Carbon savings: The initial zone opportunities identified could deliver carbon savings of more than 35ktCO_{2e} annually.

Figure 1: Overview of Heat Network Zones in Nottingham



1) Introduction

Heat networks will play a crucial role in decarbonising heat in buildings. Heat networks take heating, cooling or hot water from a central source(s) and deliver it to a variety of premises such as public buildings, shops, offices, hospitals, universities, and homes. They are also an important part of securing the UK's energy independence through local, low carbon heat sources and reducing the cost of living through efficient, affordable heating in densely populated areas. Analysis shows that heat networks could provide about 20% of total heat by 2050. They currently provide about 3%.

The Department for Energy Security and Net Zero (DESNZ) is enabling the development of heat network infrastructure through a range of targeted funding, policy and legislative support to de-risk projects and attract investment. The Energy Act 2023 establishes the regulatory framework for heat networks in Great Britain and provides powers to introduce heat network zoning in England through secondary legislation. A heat network zone (HNZ) is a formally designated geographical area in England where heat networks are expected to provide the lowest-cost solution for decarbonising heating.

Under heat network zoning, central and local government will work with industry and local stakeholders to identify and designate areas of England where heat networks are expected to be the lowest-cost solution to decarbonising heat. Heat network zoning will be essential to speeding up the development of new heat networks and we hope to catalyse growth where it's most needed.

Heat network zoning will significantly increase private sector investment in the sector by removing the barriers which currently limit the pace of developing large scale heat networks. It will also give local communities the tools to accelerate the development of heat networks in their own areas and ensure that more homes and businesses can have access to greener, cheaper heat. It also has the potential to create tens of thousands of jobs across the country.

This report shows the Pilot programme outputs for Nottingham and is intended to showcase potential heat network zones in the city. The report indicates the heat network investment opportunity at a city scale, the potential location of heat network zones, and key opportunities for initial heat network development within those potential zones

Please note that all information presented in this report, including the location of identified heat network zones, is subject to change. These are the findings of Pilot programme that were developed alongside the emerging Heat Network Zoning policy and therefore reflect our understanding at a moment in time. As the methodology improves, we will update these reports to improve our understanding of how heat network zoning may be rolled out in each area. Any potential zones that are identified fully, or partly, in an adjacent local authority area will need to be discussed further once local zone co-ordinators are established.

Heat Network Zoning Pilot Methodology

Heat network zones will be identified using a standardised national zoning methodology[1]. The Heat Network Zoning Pilot Programme (hereafter Pilot programme) set out to develop a process to identify potential zones in a consistent and standardised manner across a range of towns and cities in England. The programme was fully funded and led by DESNZ, working alongside 28 Local Authorities, and multiple consultancy firms, to develop and test this approach at a local level. As such the final outputs are supported by each Local Authority but do not reflect an approved, endorsed, or adopted position on how zones may be delivered.

Lessons from the Pilot have been used to inform the development of the Heat Network Zoning policy. This includes improvements to the identification approach itself, but also wider policy design relating to the number and size of potential zones; existing heat networks; and the impacts of the policy on a range of stakeholders. Once the response to the heat network zoning consultation is published, we will update the methodology to reflect the final policy position.

The key concepts, definitions and complementary workstreams relevant to this report are introduced below. For a fuller description of the Heat Network Zoning policy, and up to date information regarding its implementation, please visit https://www.gov.uk/government/collections/heat-network-zoning.

Heat Network Zone Identification

Heat network zones will be identified using a standardised national zoning methodology. The December 2023 consultation on Heat Network Zoning proposes that the methodology will consist of two stages:

1. a national mapping exercise (using a data-led spatial energy model – the National Zoning Model, (or NZM), to identify indicative heat network zones across England;
2. a refinement stage where relevant local stakeholders will input to the review and refinement of potential heat network zones prior to formal designation.

For the purposes of this study, indicative heat network zones have been identified using a prototype version of the NZM. These indicative zones were then refined by technical consultants with input from local stakeholders. The NZM outputs are already of considerably higher quality than those shared for this work and therefore these reports will improve over time.

This study split heat network zones into two different categories. These are **'strategic'** zones – the largest zones which are generally seen as strategically significant to developing heat networks in an area; and **'other'** zones – which are generally smaller and discrete. These are terms specific to the Pilot programme and the report focuses primarily on the strategic zones.

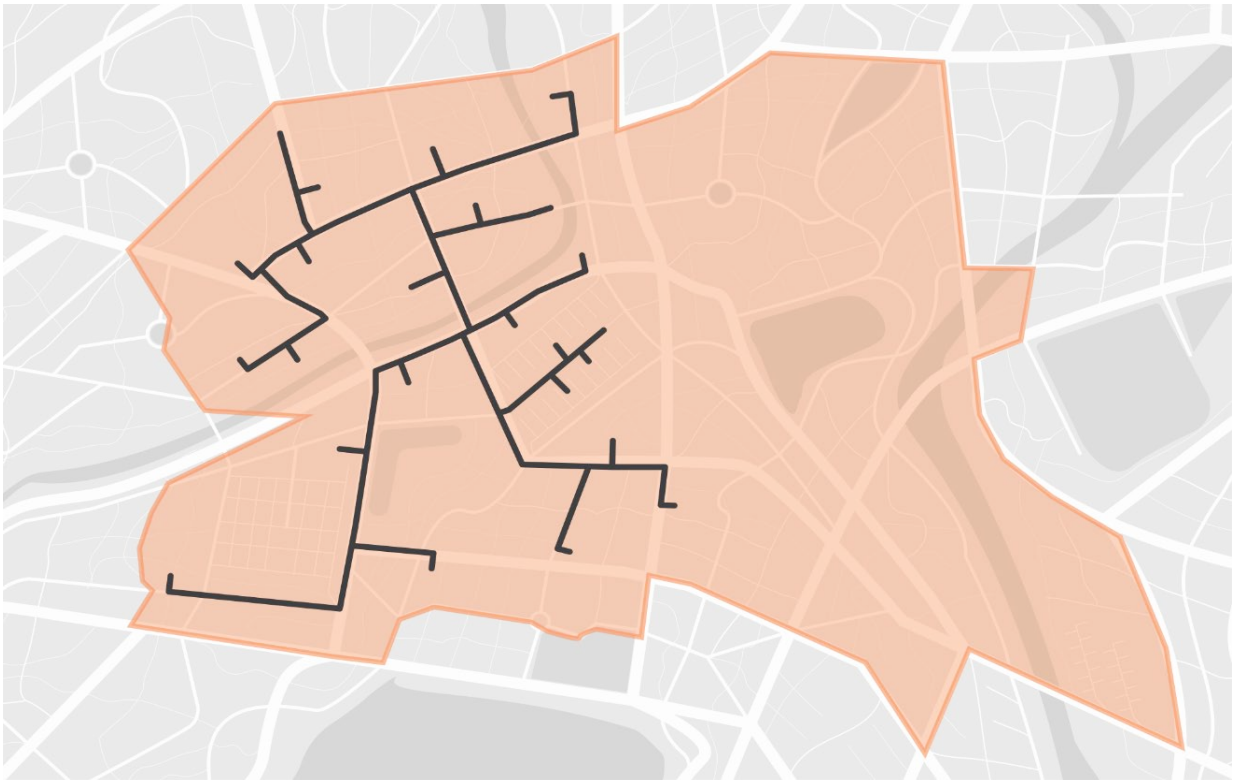
[1] More information can be found in the Heat Network Zoning Methodology Statements (Appendix 3, 4 & 5)

Initial Zone Opportunities

Alongside the identification of potential heat network zones, the Pilot programme has attempted to define areas within zones where the most attractive heat network development opportunities might exist. For the purposes of this programme *only* these are called an "initial zone opportunity" (or IZO). The approach considered economic viability, investment scale and returns, decarbonisation impact and deliverability. They were developed solely around buildings which could be required to connect[2] under the proposed Heat Network Zoning policy and did not consider potential voluntary connections.

Initial zone opportunity design targeted a linear heat density (LHD) of 4MWh/m/yr, for the existing built environment. This is considered a relatively low proxy for economic viability with the heat network sector in England. A more flexible approach was used for new development sites, where different economic success criteria are likely to be applied. To standardise the way opportunities were assessed, the IZOs presented in this report may differ from, or overlap with, existing or planned heat network infrastructure. Campus style heat networks (e.g. in hospitals or university campuses) were considered as potential heat loads with a single point connection. Figure 2 shows an example of a heat network zone and an IZO.

Figure 2: Illustration of a Heat Network Zone (HNZ) and an Initial Zone Opportunity (IZO)



[2] The building categories being considered as required to connect include new developments, large non-domestic buildings, and communally heated residential blocks as described in Heat Network Zoning Consultation (2023)

Study Scope

This document is presented as a zone opportunity report as it was developed in advance of the final policy design. As such, the report does not include:

- references to the **central authority** or **zoning co-ordinator** roles;
- assumptions about rights of **existing heat networks,** or **zone delivery areas**;
- an options appraisal on which **routes to market** may be taken;
- calculations on the **cost of heat** (connection/tariffs) to specific buildings**;**
- any inferences as the suitability for **public/private sector delivery** unless it's matter of fact (existing network or Heat Network Investment Project/Green Heat Network Fund project);
- references to **local community benefit** or **consumer protection** (subject to a live consultation).

In the future, it is intended that a document, similar in style, will be produced to incorporate these policy design aspects and be used as a Zone Market Prospectus (ZMP) to market heat network zoning opportunities in an area. Further detail on the methodology and initial zone opportunity criteria is provided in Appendix 4 and Appendix 5.

Advanced Zoning Programme

The Advanced Zoning Programme (AZP) is working with 19 areas (including Nottingham) to support the construction of new zone scale heat networks as quickly as possible following the launch of heat network zoning in 2025. Amongst the programmes aims are to accelerate the delivery and construction of heat network zones; develop best practice guidance; provide project development support services; and promoting market transformation ready for the national rollout of Heat Network Zoning policy.

The programme builds upon lessons learnt from the Pilot programme and these outputs. In October 2024, DESNZ announced that ground-breaking heat network schemes in Leeds, Plymouth, Bristol, Stockport, Sheffield, and two more in London will receive prioritised support to advance to construction by the end of 2026.

AZP uses the latest zoning methodology (i.e. developed after the Pilot programme) and has undertaken further detailed development work with local stakeholders to further improve confidence and accuracy. The programme may also have applied local strategic and commercial considerations and therefore the opportunities may differ slightly from those presented here, using a national standardised approach. Where there is overlap, AZP studies should be considered more appropriate for use than the outputs from this Pilot programme.

2) Nottingham Heat Networks Context

2.1) Nottingham City Overview

Nottingham City Council (NCC) is the local authority for the city of Nottingham, a unitary authority in Nottinghamshire in the East Midlands. The city has a population of over 300,000 and an area of 75km^2. The city has an extensive tram network and is dissected by multiple waterways, including the River Trent, River Leen and Nottingham Canal.

Most of the NCC's local authority area is urban/suburban and densely populated. NCC owns approximately 24,000 social homes, with approximately a further 10,500 homes owned by other social landlords.

Over 5,000 homes in Nottingham are currently supplied with heat from the Enviroenergy heat network. It is owned and operated by NCC and supplied by heat and energy recovered at the Eastcroft Energy from Waste (EfW) plant.

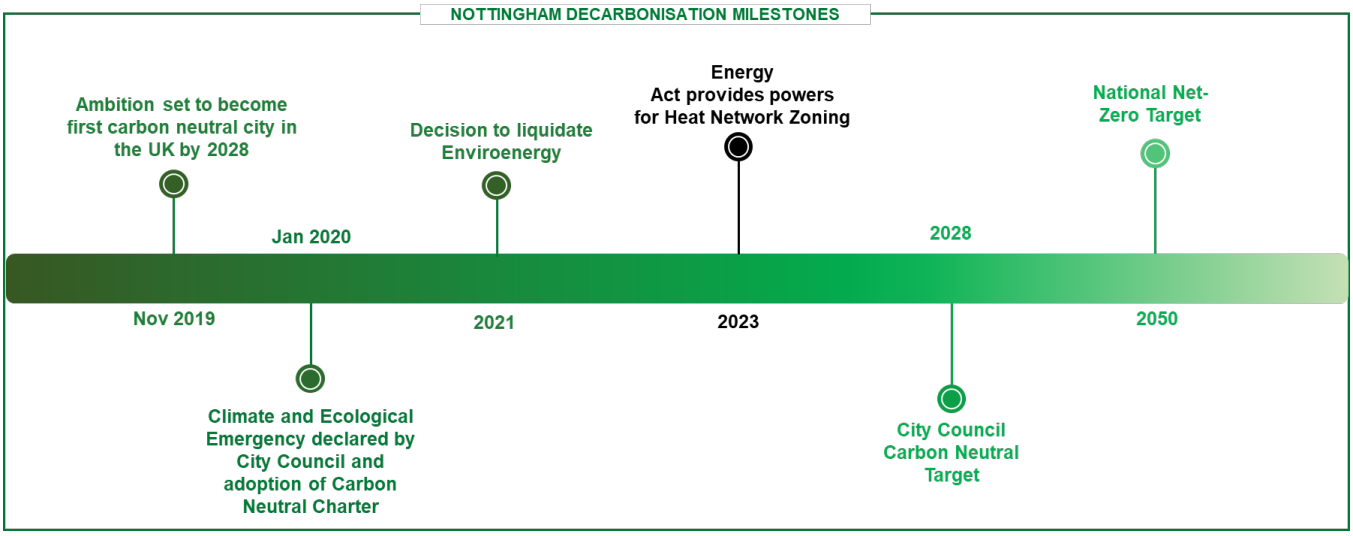
2.2) Nottingham Net Zero Targets and Commitments

In January 2019, NCC set an ambition to become the first carbon-neutral city in the UK by 2028. A Carbon Neutral Charter was developed that set out a vision to achieve carbon neutrality alongside improving quality of life and building a new form of clean growth for the economy through a 'green industrial revolution'. The Carbon Neutral Charter highlights NCC's role in delivering the net zero vision through leadership, partnership, communication, planning/policy, signposting, and providing skills[3].

A year later in January 2020, the city declared a Climate and Ecological Emergency and launched a consultation on its Carbon Neutral Nottingham 2020-2028 Action Plan. This Action Plan builds upon the Charter and sets out high-level objectives to achieve a resilient and carbon-neutral Nottingham by 2028. A key theme within the Action Plan is energy generation. This theme focusses on decarbonisation local generation through solar PV rollout and continued deployment of heat networks[4].

[3] Nottingham City Council (2019). *Nottingham 2028 Carbon Neutral Charter*. Available at: https://www.nottinghamcity.gov.uk/media/otthf3fs/nottinghams-2028-carbon-neutral-charter-3.pdf
[4] Nottingham City Council (2020). *Carbon Neutral Nottingham. 2020-2028 Action Plan*. Available at: https://www.nottinghamcity.gov.uk/media/rtdli3vq/2028-carbon-neutral-action-plan-v2-160620.pdf

Figure 3: Nottingham Decarbonisation Milestones



2.3) Delivering Heat Networks in Nottingham

NCC has one of the largest and oldest heat networks in the UK, dating back to the early 1970s. The heat network is known as Enviroenergy and is currently run in-house by NCC[5]. The network has over 85km of insulated pipework connecting over 5000 homes and over 100 non-domestic buildings. The heat network connects several major heat loads, including the Victoria Baths, National Ice Area, Nottingham Trent University's Newton Buildings, BioCity, the former HMRC buildings (now owned by the University of Nottingham) and NCC offices.

Heat is supplied via a steam pipe from the Eastcroft EfW plant. Backup heat is provided by gas boilers. Eastcroft EfW is operated by FCC Environment and incinerates approximately 180,000 tonnes of household and business waste per year. The steam offtake contract between NCC and Eastcroft will run until 2030 and negotiations are ongoing to secure the future supply of steam.

NCC's planning policies support the deployment of heat networks. Within the Local Plan, Policy CC2 is dedicated to decentralised energy and heat networks, outlining that 'low carbon and renewable energy sources (including decentralised heat and power networks) should be considered as part of development proposals'.

Please refer to Appendix 2 for further information about the evidence compiled for heat network opportunities in Nottingham. This includes a stakeholder directory and records of interactions with those stakeholders as well key studies and reports.

[5] The heat network was owned by Enviroenergy, a company wholly owned by Nottingham City Council. Recently the Council has liquidated the company and taken running of the company's services in house. This will improve opportunities for investment in network upgrades.

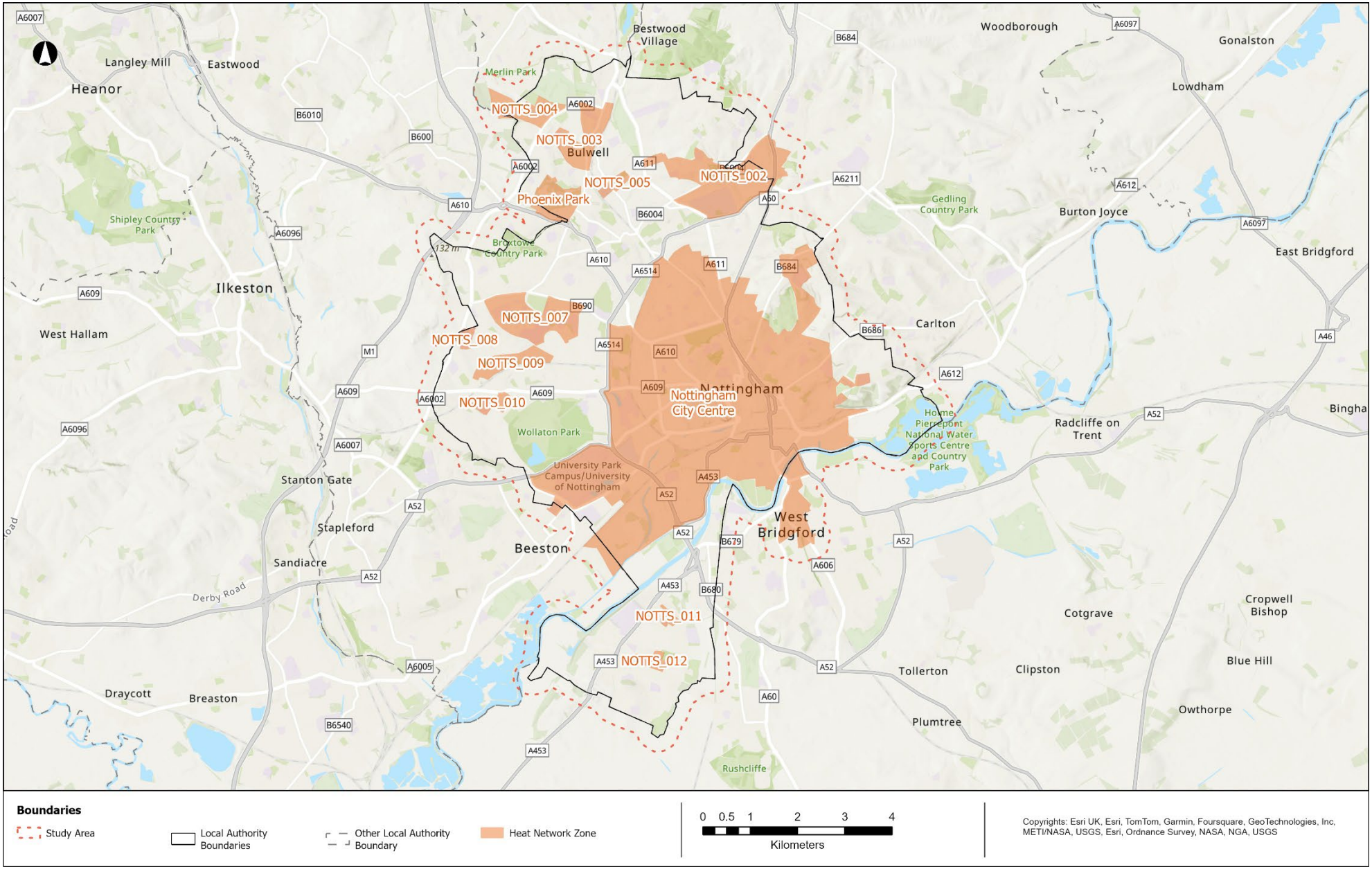
2.4) Nottingham Heat Network Zones

A total of twelve potential HNZs were identified in Nottingham, with two considered Strategic HNZs. Figure 4 shows the study area boundary as well as the boundaries of all HNZs identified within Nottingham. Strategic HNZs have been allocated a meaningful name agreed as relevant from a local perspective whilst Other HNZs have a reference number allocated instead. In both cases, these names are shown on the map.

Please see Appendix 1 for the following maps giving more detail:

- A: City Typology Map – shows building typologies which dominate by area.
- B: Key Heat Loads Map – highlights key buildings required to connect by heat demand.
- C: Key Heat Sources Map – highlights key heat sources by type and potential energy centre locations as well as any existing district heat network energy centres.
- D: Existing / Planned Heat Networks Map – shows existing heat networks, planned extensions, and planned networks at an advanced development stage.
- E: Key Constraints Map – shows key topographical constraints identified.
- F: Off-gas Grid Areas – presents areas with differing levels of properties off the gas grid within the study area.
- G: Coal Mine Authority Map - shows area where coal mine water may be a possible heat source.

Figure 4: Heat Network Zones Identified within the Nottingham Study Area



3) Strategic Heat Network Zones

Strategic HNZs in Nottingham

This section examines the two Strategic HNZs and the IZOs identified within each. This covers the key heat demands, heat sources, energy centre locations and potential constraints for each IZO identified. Heat network distribution routes are conceptual and designed to illustrate the potential size and scale of the heat network opportunity that may be realised as part of the upcoming Heat Network Zoning policy. Other heat network zones are listed in Section 4.

Table 1 presents a high-level estimate of the scale of opportunities across Nottingham. Please refer to Appendix 4 for more detail.

Table 1: Annual Heat Demand for Buildings in All Zones, Strategic Zones and IZOs

Scope	Annual heat demand (GWh/yr)
All buildings required to connect in all zones[6]	650
All buildings required to connect in strategic zones	550
All buildings connected to the IZOs	225

Existing/planned heat networks that overlap with IZOs are described, though their locations may vary due to different approaches. The Pilot programme applied a standard set of technical and economic assumptions across each of the 28 areas that participated in the programme and uses a proxy for economic viability (see Section 1 and Appendix 4 for more detail). Existing and planned networks will often be based on more detailed design work and have taken account of strategic and commercial considerations that were relevant at the time of their development. Future iterations of this report will consider how to better align local studies whilst retaining a nationally consistent approach.

The two strategic zones are summarised below. Figure 5 illustrates the size of each, alongside the key potential heat source and the proportion of buildings that may be required to connect.

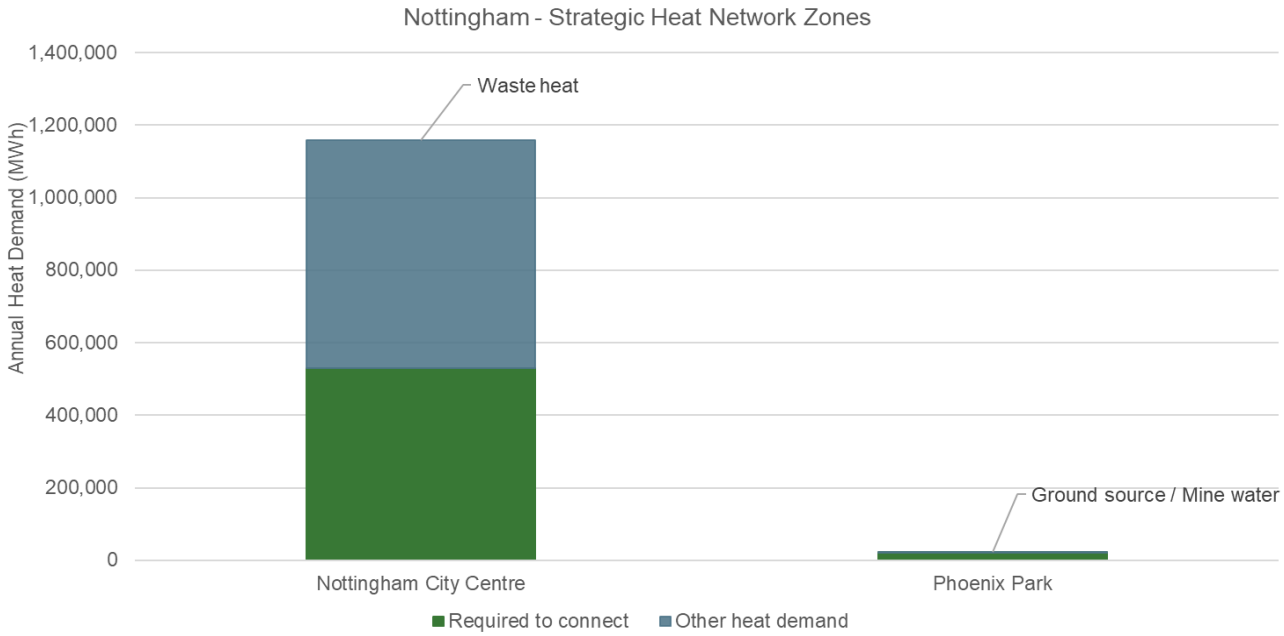
Nottingham City Centre is the largest potential HNZ in Nottingham in terms of geographical area and heat demand and includes two IZOs. The HNZ covers Nottingham's high-density urban centre within which the existing council owned heat network supplies many buildings. The zone includes several city tram and national train lines, as well as the Nottingham Canal and River Trent. Potential heat sources include the existing Eastcroft EfW plant, and water

[6] Row 1 is an estimate of heat demand across buildings required to connect in all zones identified. Row 2 is as per row 1, but only within strategic zones. Row 3 includes buildings connected to the IZOs described and largely comprise of buildings potentially required to connect. Figures are generally rounded up to the nearest 25 or 50GWh/yr.

extracted from the River Trent and Nottingham Canal. For more information, please see Section 3.1.

Phoenix Park is in north-west Nottingham and includes one IZO. It covers Phoenix Industrial Park and the wider Phoenix Park area where there are significant plans for new suburban residential development. Potential heat sources include deep geothermal or mine water heat extraction located around the new development. For more information, please see Section 3.2.

Figure 5: Summary of Heat Demands in All Strategic HNZs Identified



3.1) Nottingham City Centre

3.1.1) Nottingham City Centre – HNZ Summary

Nottingham City Centre is the largest HNZ in terms of heat demand and geographical area. In total, there are 439 buildings potentially required to connect in the HNZ. Amongst these, the Queen's Medical Centre (the largest hospital in Nottingham), Horizon Factory, and the Broadmarsh Shopping Centre redevelopment are identified as significant heat demands. Several planned new developments are also located within the zone. This includes the Boots campus redevelopment and the Island Quarter and Waterside mixed-use regeneration sites.

A key heat source identified within this zone is the Eastcroft EfW plant. A water source heat pump (WSHP) extracting heat from the River Trent, has also been identified as a potential heat source. Furthermore, the geology underneath Nottingham City Centre is considered favourable for both open-loop ground sources and/or mine water heat recovery.

There are several potential constraints within this zone, including the network of tramlines running throughout the city, the Nottingham Canal and River Leen. The tramlines may cause technical challenges when growing networks within the city centre.

There is a strategic opportunity to accelerate the delivery of heat networks in the Nottingham City Centre zone. This could be delivered via new network development or expansion of the existing NCC owned heat network, described further in the following section.

3.1.2) Nottingham City Centre - Existing Heat Networks

The existing and planned heat networks are described below and shown in Appendix 1: Map D. Proposed heat networks which are in early stages of development, may be described here, but not included in maps as firm plans for network routing is yet to be established. There are two operational heat networks, three planned heat networks and one proposed heat network that is at an early feasibility stage within this zone.

Operational Heat Networks and Planned Expansions

Enviroenergy Heat Network
The Enviroenergy heat network is one of the oldest and most extensive heat networks in the UK, supplying heat to buildings from Crocus Street in the south of the city centre to the Coppice Park area in the St Ann's estate in the north. The network was established in 1972 and serves over 5,000 residential and 100 non-domestic buildings.

Enviroenergy currently operates as a department within NCC and the network is owned, operated and maintained by NCC. The heat network is supplied by the Eastcroft EfW facility, which provides high temperature steam to the London Road Heat Station. The steam is passed through a 11.4MW_e condensing turbine as part of a CHP process, resulting in water at ~85°C which supplies the heat network. The steam offtake contract between NCC and Eastcroft will run until 2030, and negotiations are ongoing to secure the future supply of steam.

Plans to increase the capacity of heat from the Eastcroft EfW site would require further detailed development and consideration alongside facility owners FCC Environment.

Existing University Park Heat Network
20 separate buildings are served by a district heating network on the University Park campus. The network delivers heat to those buildings through a network of pipes which takes high pressure hot water from the central boiler house, adjacent to the Life Sciences building, to one or more calorifiers / plate heat exchangers in each of the buildings. This delivers heat for both space and water heating.

The network was installed around 1950 to the core buildings and halls at that time and subsequent buildings, such as Hallward Library built in 1975, have been added. Much of the distribution pipework is therefore over 70 years old, where the life expectancy is 50 years for pipework and less for connection, gaskets, brackets, and similar. In the early 1990's the halls were removed from the network leaving the circa 20 buildings that are served by the system today and at that time the boilers were replaced, and the system resized accordingly.

It comprises of a central boiler facility housing three 4,700kW gas fired boilers, an estimated 5km of distribution pipework and associated receiving plant within each of the buildings served.

The energy source for the central boiler was originally coal fired but switched to natural gas in the mid-1990s.

The maximum gas consumption seen over a 24hr period in recent years is 212MWh with peak of 11MW which equates to a heat output of around 9MW. The annual gas demand for the boilers is usually around 23GWh giving a heat output of about 18GWh. The gas consumed today accounts for approximately 25% of all the gas used across the University's UK Estate, some 5,000 tonnes of CO_2/yr of Scope 1 emissions.

Queen's Medical Centre Air Source Heat Network
There is an existing communal scale network which serves a portion of the hospital site, with an estimated heat demand of 3GWh/yr. There is a plan to introduce an additional 350kW of air source heat pumps (ASHPs) to support decarbonisation and expansion of the network.

Planned Heat Networks

Queens Medical Centre (QMC) Ground Source Heat Network
Nottingham University Hospitals NHS Trust is installing ground source heat pumps (GSHPs) to supply the existing campus-scale network on the hospital site. Phase 1 of the energy centre development will install a 4MW heat pump with 2.88MW cooling capacity to support the QMC's existing gas turbine and standby boilers. In phase 2, the heat pump capacity will increase to 8MW with a further 5.8MW of cooling capacity. This project is funded by the Public Sector Decarbonisation Scheme.

University of Nottingham Jubilee Campus
The University of Nottingham plans to construct a small-scale heat network on its Jubilee Campus. The intention is to use a combination of WSHPs, GSHPs, ASHPs, and biomass boilers to supply the university buildings. The estimated heat demand of this network is 4GWh/yr.

University of Nottingham University Park
The University of Nottingham plans to construct a small-scale heat network to supply the Creative Energy Homes project which is located on the University Park campus. Heat will be provided from ASHPs and GSHPs. The estimated heat demand of this network is 1GWh/yr.

Proposed Heat Networks

The Island Quarter Phase 2 – Student Accommodation
The Island Quarter Phase 2 is a new build student accommodation development currently under construction. There are proposals to supply the large 700-bed student complex with a communal heat network using ASHPs.

3.1.3) Nottingham City Centre - Initial Zone Opportunities

Two discrete IZOs were identified in the Nottingham City Centre zone. Potential routing[7] for the IZOs is shown in Figure 6 and summary statistics provided in Table 2.

[7] Routes can be expected to change as a better understanding of local constraints is developed through design.

Table 2: Nottingham City Centre - Summary Statistics for Initial Zone Opportunities[8]

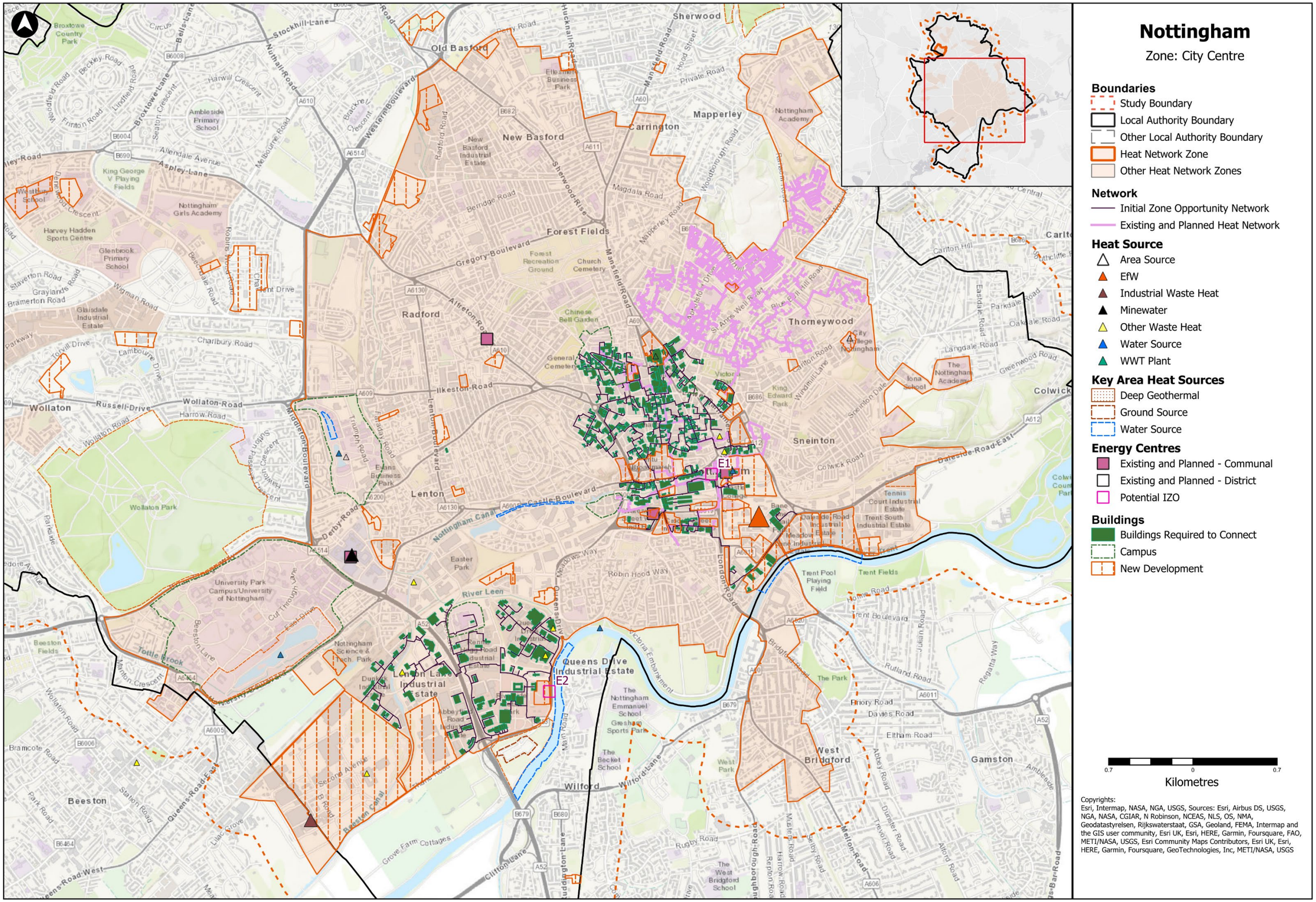
Capex	Heat	Network	CO_{2e} savings	Linear Heat Density	Heat Sources
~£625m	>200GWh/yr	20km	~35ktCO_{2e}/yr	3.5MWh/m	EfW, River WSHPs, ASHPs

The **Central Area IZO** is in the centre of the Nottingham City Centre HNZ and encompasses the area already served by the Enviroenergy heat network, presenting an expansion and infill opportunity. The IZO connects to around 350 buildings potentially required to connect, with a heat demand of 150GWh/yr, including non-domestic buildings as well as new developments, public sector buildings, and residential buildings. Combined, these buildings represent a diverse and dense heat demand. The Eastcroft EfW plant has been identified as a potential low-carbon heat source for this IZO, subject to availability.

The **Boots IZO** is located south of the Nottingham City Centre HNZ and predominantly serves the Boots campus redevelopment. Around 90 buildings are potentially required to connect with a heat demand of around 40GWh/yr. There is a significant amount of new development expected within the Boots campus area, accounting for over 80% of the expected heat demand. Centralised WSHPs and ASHPs have been identified as potential low-carbon heat sources for this IZO.

[8] Please see Appendix 3 – Glossary, “Specific definitions” of the main report for definitions related to Table 2.

Figure 6: Initial Zone Opportunities in Nottingham City Centre HNZ



3.1.4) Nottingham City Centre – IZO Heat Demands

The heat demands identified within the IZO are described below. The Pilot programme used several sources including local data collected from building owners; national energy demand datasets; benchmarks applied via the National Zoning Model (NZM); and a standardised approach to estimate the potential heat demands of new development sites. More information is provided in Appendix 4.

Where there are different values between datasets, the methodology prioritised the use of the early prototype version of the National Zoning Model, for consistency. This has led to an overestimation of some commercial and light industrial heat demands presented in this report. Large anchor loads that are already connected to existing district-scale heat networks are not listed.

The heat demand in the **Central Area IZO** is estimated at circa 150GWh/yr. Approximately 60% of this heat demand is composed of existing non-domestic properties, including commercial offices, retail, and hotels. The remaining demand is mostly divided between new developments and public sector buildings, with a small amount of residential demand. The network capitalises on a high density of buildings potentially required to connect in the urban centre. Significant heat loads within the IZO include new developments located at the former Broadmarsh Shopping Centre and Meadowland sites, as well as the existing Capital One building and Nottingham Family Court.

A breakdown of the categorisation of heat demand can be found in Figure 7. Further details of the key heat demands are listed in Table 3.

Figure 7: Nottingham City Centre - Categorisation of Heat Demand for Buildings Required to Connect in Central Area IZO

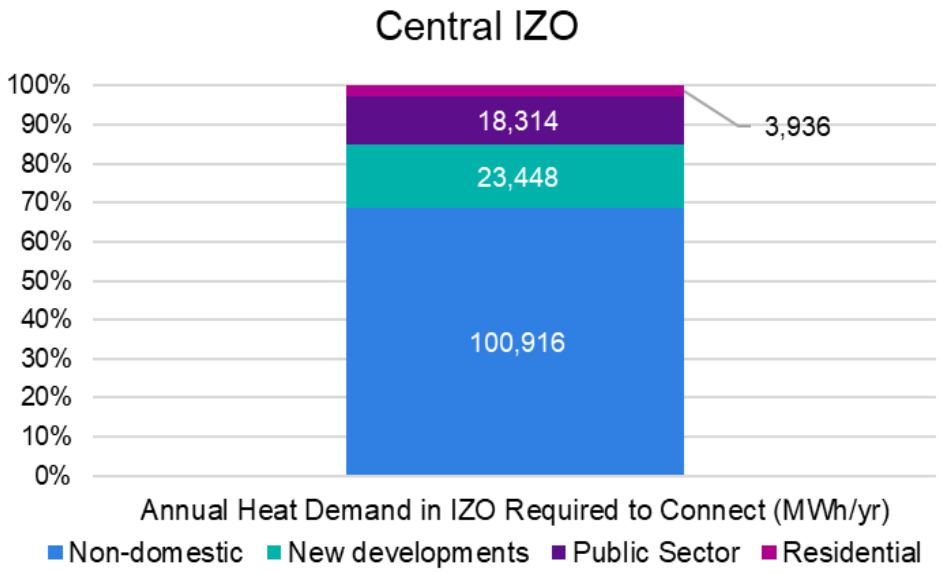


Table 3: Nottingham City Centre - Key Heat Demands Required to Connect in Central Area IZO[9]

Building name	Building category	Number of connections	Annual heat demand (MWh)	Data source
Meadowland Development	New developments	Unknown	5,900	Pilot Methodology
Broadmarsh Shopping Development	New developments	Unknown	5,700	Pilot Methodology
Capital One Building	Non-domestic	Unknown	3,500	Benchmark (NZM)
Eastcroft Depot Development	New developments	Unknown	3,300	Benchmark (NZM)
Cineworld	Non-domestic	Unknown	3,050	Benchmark (NZM)
Royal Concert Hall	Non-domestic	Unknown	2,550	Benchmark (NZM)
Arthur Johnson Development	New developments	Unknown	2,400	Benchmark (NZM)
Nottingham Magistrates Court	Public sector	Unknown	2,100	Benchmark (NZM)
Nottingham Trent Newton Building	Non-domestic	Unknown	2,050	Benchmark (NZM)
Victoria Centre Northern Section	Non-domestic	Unknown	2,050	Benchmark (NZM)

[9] Please refer to Appendix 3 for definitions related to building categories in Table 3.

The heat demand in the **Boots IZO** is approximately 70GWh/yr. Around 87% of this heat demand is associated with new non-domestic developments. The re-development of the existing Boots campus will account for most of the heat demand associated with this IZO.

The remaining heat demand is from existing non-domestic buildings with a small contribution from public sector buildings. A breakdown of the categorisation of heat demand can be found in Figure 8. Further details of the key heat demands are listed in Table 4.

Figure 8: Nottingham City Centre - Categorisation of Heat Demand for Buildings Required to Connect in Boots IZO

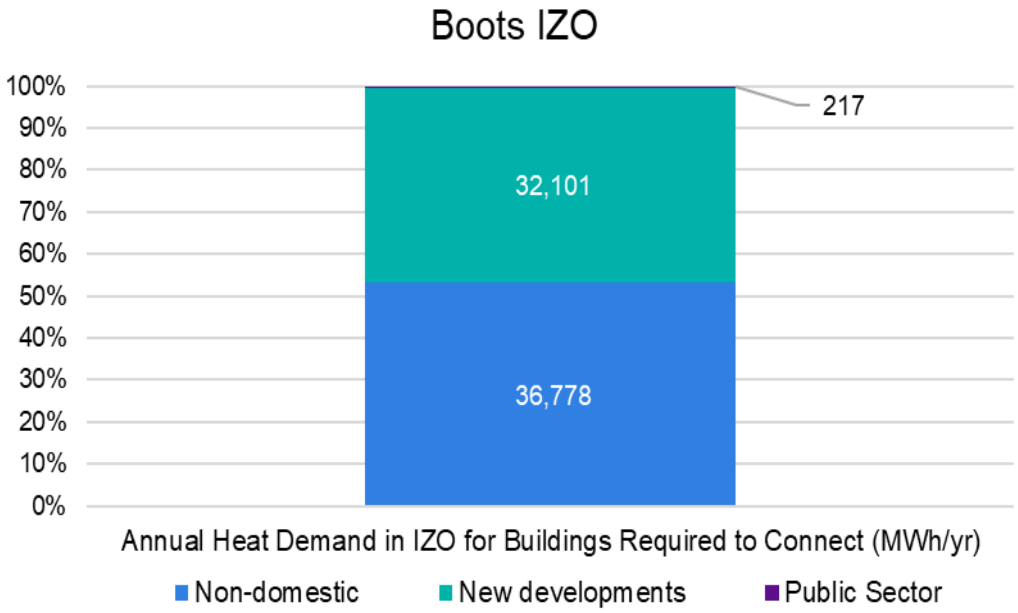


Table 4: Nottingham City Centre - Key Heat Demands Required to Connect in the Boots IZO[10]

Building name	Building category	Number of connections	Annual heat demand (MWh)	Data source
Boots Campus Development	New developments	Unknown	29,570	Pilot Methodology
Queens Drive Development	New developments	Unknown	2,530	Pilot Methodology
Queens Drive Industrial Estate	Non-domestic	Unknown	2,220	Benchmark (NZM)
Riverside Bakery	Non-domestic	1	2,130	Benchmark (NZM)

[10] Please refer to Appendix 3 for definitions related to building categories in Table 4.

Building name	Building category	Number of connections	Annual heat demand (MWh)	Data source
Pizza Factory	Non-domestic	1	2,020	Benchmark (NZM)
B&Q Riverside	Non-domestic	1	1,800	Benchmark (NZM)
Bampton Packaging	Non-domestic	1	1,180	Benchmark (NZM)
Riverleen House	Non-domestic	1	1,080	Benchmark (NZM)
Showcase Cinemas	Non-domestic	1	1,070	Benchmark (NZM)
ZF Services	Non-domestic	1	1,000	Benchmark (NZM)

3.1.5) Nottingham City Centre – IZO Heat Sources

The primary opportunity to deliver low-carbon heat within the zone is via the Eastcroft EfW plant. In addition to the existing provision to the Enviroenergy network, there may be opportunities to expand the capacity of the Eastcroft facility in the future, subject to decisions by facility owner, FCC Environmental.

There is also potential for water source extraction from the River Trent or River Leen, and/or from the Nottingham or Beeston Canals, but there are yet to be any assessments of capacity or technical feasibility. Extraction from the River Trent, adjacent to the Queens Drive development, has been identified as a preferred heat source.

Furthermore, the geology underneath Nottingham City Centre is considered favourable for both open-loop ground source and/or mine water heat recovery, subject to further feasibility and borehole assessments.

Table 5 and Table 6 summarise the key heat sources and potential energy centre locations identified within the IZO. These are also shown in Figure 6 in Section 3.1.3 and in Appendix 1: Maps C and G. The capacities shown are the estimated ‘full opportunity capacity’ of the heat sources, i.e. the heat available pre-heat pump.

Table 5: Nottingham City Centre - Key Heat Source Opportunities for the IZOs

Heat source type	Capacity (kWp)	Temperature (ºC)	Potential energy centre location
Industrial Heat – EfW Possible expansion of the EfW plant (subject to availability)	40,000	365 ºC Alternate: 140 ºC	E1
WSHP River Trent Extraction	9,350[11]	6 ºC (winter)	E2
Existing heat network Enviroenergy	38,200[12]	120 ºC[13]	E1

Table 6: Nottingham City Centre - Potential IZO Energy Centre Locations

EC ref number	Site type	Name	Size (m^2)	Ownership	Heat source
E1	Existing building	London Road Heat Station	3,200	NCC	EfW
E2	Land	Queens Drive Development	9,000	Unknown	WSHP

3.1.6) Nottingham City Centre – IZO Heat Distribution

The approach to developing the heat network route considered economic viability, investment scale and returns, decarbonisation impact and deliverability. These criteria were applied in a standardised manner across all opportunities identified in the Pilot programme and therefore may not reflect detailed designs or proposed routes identified in more detailed feasibility work. Routing within the site boundary of a building or campus may not have been included if insufficient information was available. The IZO routing was developed solely around buildings which could be required to connect and did not consider potential voluntary connections.

The purpose of the concept heat network route is to define the scale, potential routing and identified associated constraints within the zone. Further work will be required to undertake a more detailed route assessment to take account of the buried utilities, building connections and other local strategic and local planning considerations. Table 7 shows the network statistics for

[11] Note that this capacity assessment is based on high-level assumptions around acceptable temperature differential and available flow in the River Trent and is subject to significant further technical development.

[12] Note the Enviroenergy network is supplied by an existing Eastcroft EfW connection.

[13] The temperature at which existing energy centre plant supplies heat to heat off-takers.

the IZO including the network length and associated cost. Please see Appendix 5 for related methodology statements and assumptions.

For the **Central Area IZO**, the proposed network extends from the existing Enviroenergy network energy centre at London Road. The network branches south to connect several non-domestic loads in and around Nottingham train station, and north into the urban centre. The network sprawls across the centre to access the buildings potentially required to connect, working as far north as Nottingham Trent University. Whilst like the routing of the existing Enviroenergy network, the IZO expands further westward into the urban centre, crossing Maid Marion Way to supply more non-domestic loads south of Wellington Circus.

For the **Boots IZO**, it is expected that the energy centre would be located on the Queens Drive development site adjacent to the River Trent, minimising the distance from the river heat source to the heat pumps. The network spreads north to supply several food processing and non-domestic buildings, and west across Clifton Boulevard. It routes up Lenton Lane to supply the University of Nottingham Meadow Lane campus and crosses the canal via the Chain Lane bridge. It then routes to the Boots development site via Harrimans Lane.

Table 7: Nottingham City Centre - Indicative Heat Network Statistics for the IZOs

IZO heat network description	Network length (km)	Network cost (£m)
Central Area	42.3	170
Boots	74.9	225

3.1.7) Nottingham City Centre – IZO Key Constraints and Mitigations

Central Area IZO:

[C1–C6] Rail/tram crossings: The primary physical constraints within the zone are largely related to transport infrastructure within the city, including the principal railway line laterally bisecting the zone and the tram lines which run from the city centre out to New Basford in the north, the Meadows in the south and Beeston in the west. There are seven tram crossings and one principal rail crossing on the proposed network route. Mitigations could include making use of existing routes used by the Enviroenergy network. For the larger rail crossing, the possibility of routing above-ground via Carrington Street bridge could be explored.

[C8] Canal crossings: The Nottingham Canal bisects the city centre, with 3 crossings in the proposed network route. Mitigations could include consolidation of these crossings (in further stages of network development) as well as the utilisation of existing routes (and agreements) arranged for the Enviroenergy network, which currently includes several canal crossings.

Boots IZO:

[C8] Canal crossing: The only potential constraint identified to routing in the Boots IZO is the Nottingham Canal, with a single crossing in the proposed network. The crossing is necessary to access both the proposed river source heat and the Boots development, but there are two bridges available (at Chain Lane and Redfield Road) which could support crossings.

3.2) Phoenix Park

3.2.1) Phoenix Park – HNZ Summary

The Phoenix Park zone is a smaller contributor to the overall heat demand across Nottingham but considered a key strategic opportunity for heat network development due to the significant area of planned development.

The zone has 19 existing buildings that may be required to connect, comprising of mostly non-domestic buildings in the Phoenix Industrial Park. The total estimated heat demand is 20GWh/yr, the majority of which is from the new residential development at Stanton Tip which accounts for over two-thirds of the expected annual heat demand.

This development is also well suited to extract heat from the local Babbington mine water block, however current (conservative) assumptions on available heat suggest that this is likely to need supplementing with ASHPs.

The main constraint identified within the zone is the tram line to Phoenix Industrial Park from the city centre.

3.2.2) Phoenix Park - Existing Heat Networks

No existing district-scale heat networks have been identified in the HNZ.

3.2.3) Phoenix Park – Initial Zone Opportunities

A single IZO was identified in the Phoenix Park zone. Potential routing[14] for the IZO is shown in Figure 9 and summary statistics provided in Table 8.

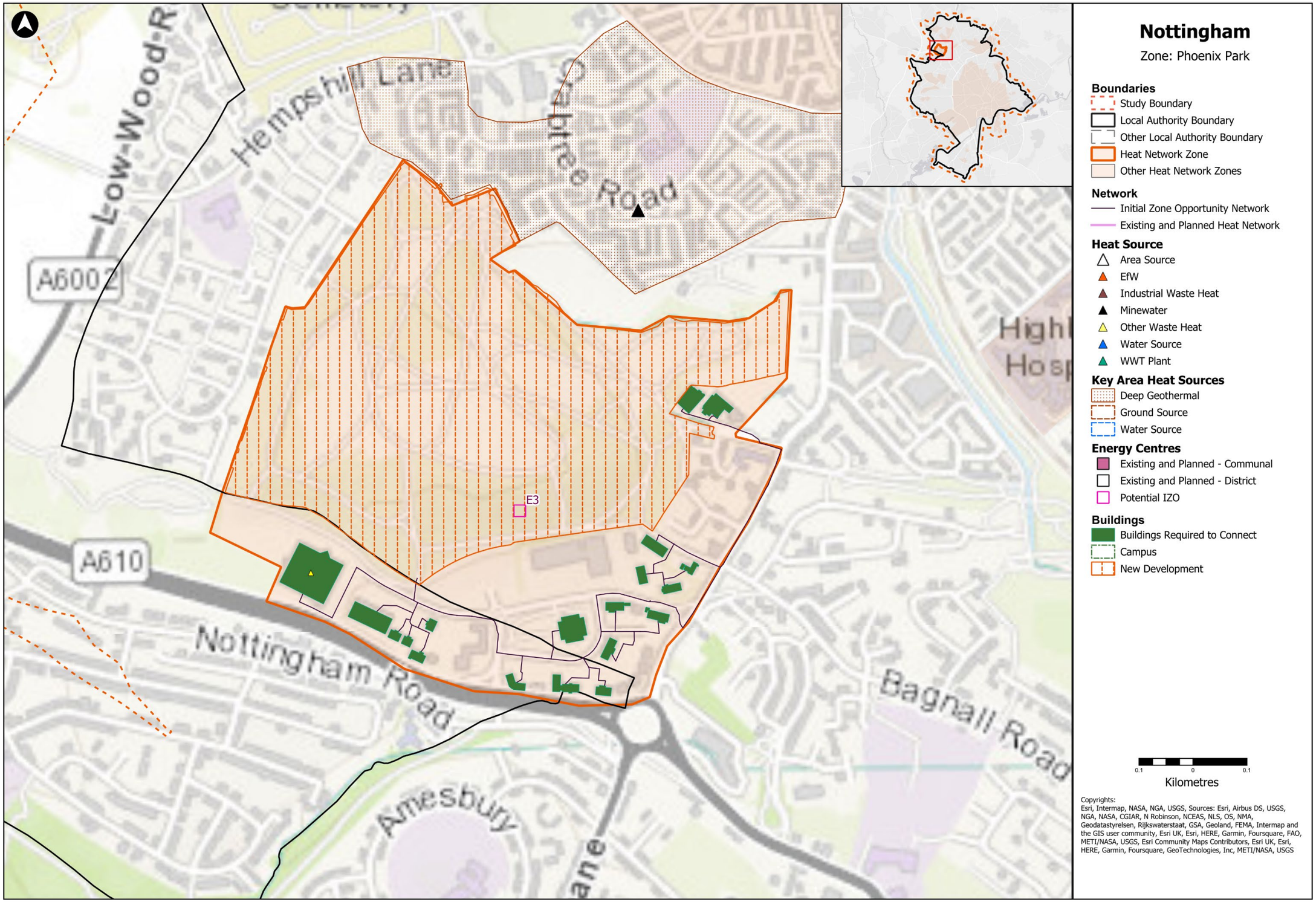
Table 8: Phoenix Park - Summary Statistics for Initial Zone Opportunities[15]

Capex	Heat	Network	CO_{2e} savings	Linear Heat Density	Heat Sources
~£50m	>20GWh/yr	~35km	3ktCO_{2e}/yr	1.9MWh/m	Mine water WSHPs & ASHP

The identified IZO supplies all buildings potentially required to connect within the zone, including 19 existing buildings and a single large development site, with an estimated heat demand of around 20GWh/yr. The IZO is close to the Babbington mine water block, which provides the opportunity for a low-carbon heat source to the network via mine water heat pumps, supplemented by ASHPs.

[14] Routes can be expected to change as a better understanding of local constraints is developed through design.
[15] Please see Appendix 3 – Glossary, “Specific definitions” of the main report for definitions related to Table 8.

Figure 9: Initial Zone Opportunity in Phoenix Park HNZ



3.2.4) Phoenix Park – IZO Heat Demands

The heat demand of buildings potentially required to connect in the IZO is approximately 20GWh/yr[16]. Most of this demand is associated with a single new development residential site, currently anticipated to be 500-600 homes and accounting for around 71% of the demand. The remaining heat demand is largely from non-domestic (25%) and a small amount from public sector buildings (4%). A breakdown of the categorisation of heat demand can be found in Figure 10 and further details of the key heat demands are listed in Table 9.

Figure 10: Phoenix Park - Categorisation of Heat Demand for Buildings Required to Connect in IZO

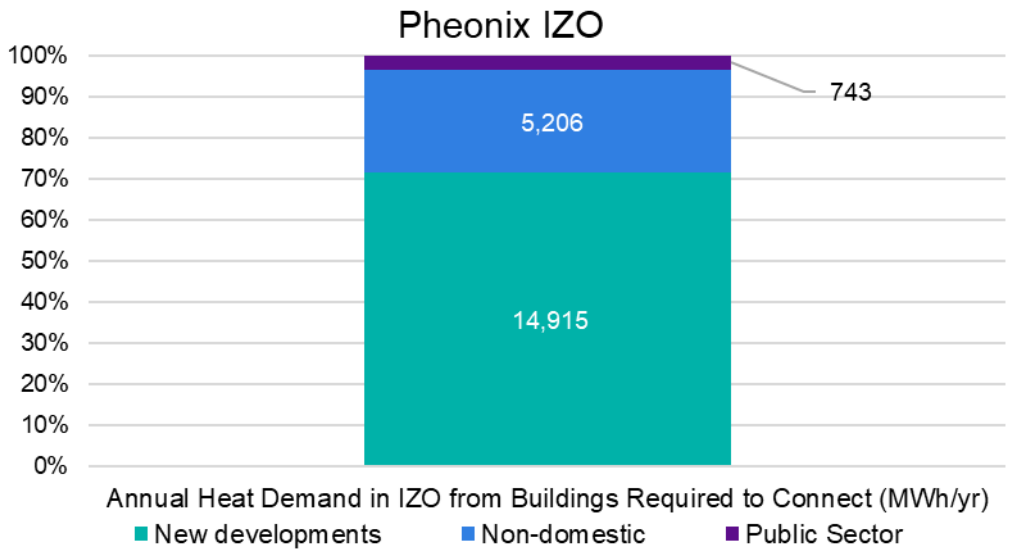


Table 9: Phoenix Park - Key Heat Demands Required to Connect in the IZO[17]

Building name	Building category	Number of connections	Annual heat demand (MWh)	Data source
Phoenix Park Residential Development	New development	Unknown	14,900	Pilot Methodology
Multi Packaging Solutions	Non-domestic	1	1850	Benchmark (NZM)
E.ON office buildings	Non-domestic	Unknown	975	Benchmark (NZM)
Fittleworth	Public sector	1	600	Benchmark (NZM)

[16] Please refer to section 3.1.4 for a description of IZO heat demands.
[17] Please refer to Appendix 3 for definitions related to building categories in Table 9.

3.2.5) Phoenix Park – IZO Heat Sources

The primary opportunity to deliver low-carbon heat within the zone is via mine water extraction from the Babbington mine water block, considered relatively accessible via the Phoenix Park development site. The geology in this area is also considered favourable for open-loop ground source systems, but this is also subject to further feasibility and borehole assessments.

Table 10 and Table 11 summarise the key heat sources and potential energy centre locations identified for this IZO. These are also shown in the zone-level map in Figure 9 in Section 3.2.3 above and Appendix 1: Maps C and G. The capacity shown is the estimated 'full opportunity capacity' of the heat sources, i.e. the heat available pre-heat pump.

Table 10: Phoenix Park - Key Heat Source Opportunities for the IZO

Heat source type	Capacity (kWp)	Temperature (ºC)	Potential energy centre location
WSHP Mine water	1,000	10-15 ºC	South-east of Pheonix Park (E3)

Table 11: Phoenix Park - Potential IZO Energy Centre Locations

EC ref number	Site type	Name	Size (m^2)	Ownership	Heat source
E3	Land	Land to south-east of Phoenix Park development[18]	10,100	Unknown	WSHP

3.2.6) Phoenix Park – IZO Heat Distribution

Table 12 shows the network statistics for the IZO including the network length and associated costs. Please refer to Section 3.1.6 and Appendix 5 for the assumptions used

From the proposed energy centre location in the south-east corner of the new development, the network branches west and east to supply Phoenix Industrial Park. From the eastern leg, it routes north via Cinderhill Road to supply further non-domestic buildings along Occupation Road.

Table 12: Phoenix Park - Indicative Heat Network statistics for the IZO

IZO heat network description	Network length (km)	Network cost (£m)
Phoenix Park	32.9	34

[18] Could be location-agnostic within the development site to best suit heat extraction location.

3.2.7) Phoenix Park – IZO Key Constraints and Mitigations

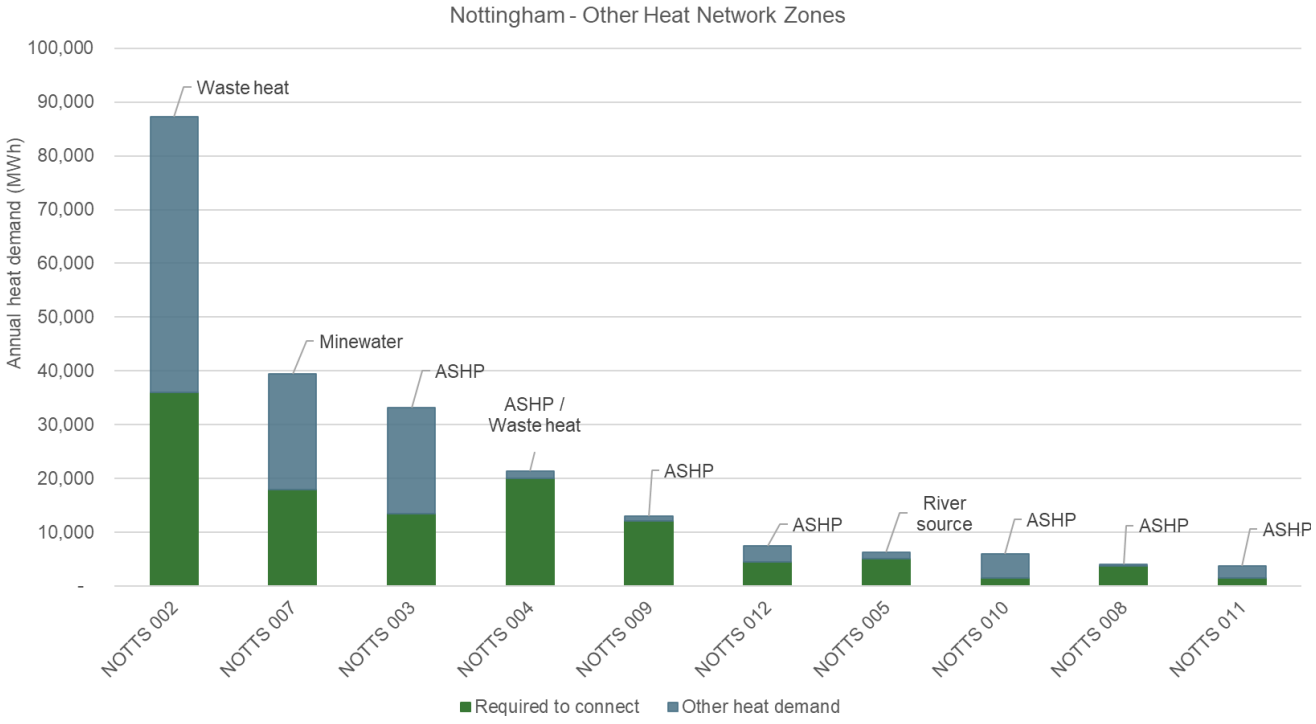
[C7] Tram crossing: The primary physical constraints within the zone are limited to the small amount of transport infrastructure, namely the tram line connecting Phoenix Industrial Estate to the city centre. There is one tram crossing in the proposed network route. Mitigations could include re-routing through the development site to supply the buildings in the northern part of the zone, subject to engagement and technical assessments with the developer.

4) Other Heat Network Zones

This section describes the 'Other' potential heat network zones that were identified in Nottingham. These are areas where heat networks were deemed to offer the lowest carbon route to decarbonising heat but are often much smaller or discrete in nature than the 'Strategic' heat network zones identified. The approach taken in the Pilot programme did not apply a minimum threshold for zone identification and therefore future work will need to consider factors such as size and aggregation to ensure efficient and effective delivery of heat networks in the area.

Figure 11 illustrates the total annual heat demand, and the proportion of which is associated with buildings that may be required to connect within each zone. Where potential heat sources have been identified these are labelled against each bar. A map of all zones can be found in Figure 4.

Figure 11: Total Heat Demand and Proportion Required to Connect in Other HNZs



City Hospital (NOTTS 002): is in the north-east of the local authority, bound by Valley Road to the south and Hucknail Road to the west. The primary opportunity within the zone is the City Hospital campus; a site which already deploys several smaller-scale communal networks and low or zero-carbon heat sources.

Bulwell (NOTTS 003): is situated in the northern part of the local authority, bound by the railway line on its eastern edge. The primary heat demands include several non-domestic buildings within Greasley Street Industrial Estate and Springfield Retail Park, and Bulwell Academy. This zone's proximity to the Phoenix Park area suggests there may also be opportunities for mine water or open-loop ground source heat extraction.

Blenheim Industrial Estate (NOTTS 004): is bound by Bulwell Hall Park to the north and Bulwell Hall Wood to the east. It includes an area of proposed development adjacent to Blenheim Lane Allotments and the Blenheim Industrial Estate. Key loads include Asda Home Shopping Centre and Bestways.

Highbury Vale (NOTTS 005): is a smaller zone east of the railway line and spanning Highbury Road, is largely composed of Highbury Hospital and the Mellish Sports Centre anchor loads.

Western Zones (NOTTS 007, 008, 009, 010): is a collection of zones to the west of the city centre and is bisected by the railway line. They are largely composed of university, school, and sports/leisure heat demands, other than NOTTS 009 for which a retail park surrounding Glaisdale Parkway provides most of the heat demand**.**

Southern Zones (NOTTS 011, 012): are two smaller zones to the south of the city centre and are based around a few key anchor loads. For NOTTS 011 these are Dovecote Primary and Nursery School and some surrounding communally heated residential blocks. For NOTTS 012 the key heat demands are associated with the Clifton Village retail area.

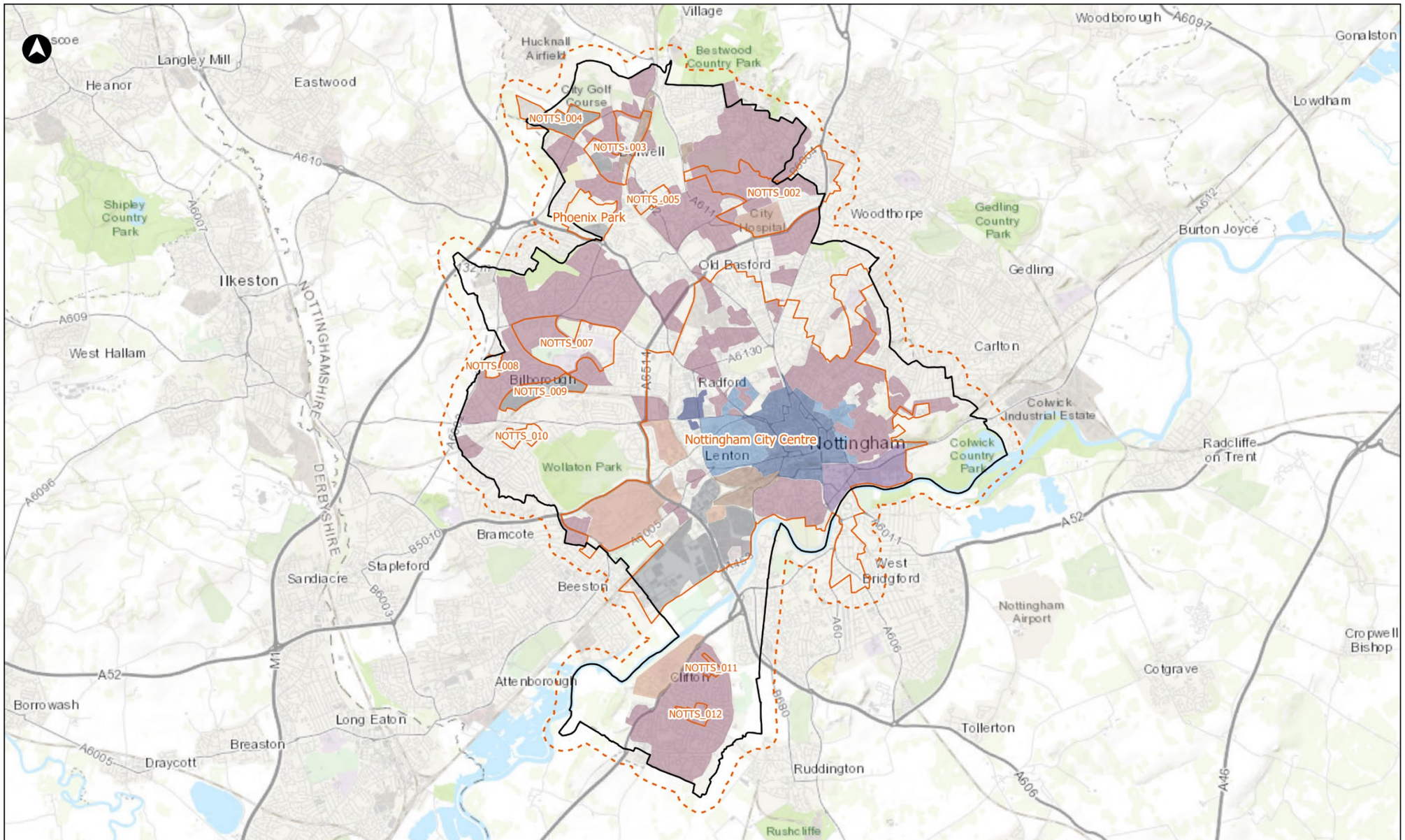
Appendix 1: Maps and Legends

This section provides guidance on interpreting the icons and legends used throughout this report and Maps A-G that follow:

Legend / icon	Relevant map(s)	What this represents on the map	Comments on interpretation
	Report maps	Study boundary	Extends 1km beyond Local Authority boundary to include cross boundary opportunities
	Report maps	Local Authority boundary	
	Report maps	Other Local Authority boundary	
	Report maps	Heat network zones	This includes both Strategic HNZs and Other HNZs.
	Report maps	Other heat network zones	Smaller or discrete heat network zone opportunities
	Report maps	New developments	New development within heat network zones and IZOs that will still be in construction post-2025
Gates Hill	Report maps	Heat network zone name / reference number	‘Strategic’ zones are named; ‘Other’ zones are represented by a reference number
	Report maps	Buildings potentially required to connect	Buildings that could be required to connect (as described in the HNZ Consultation 2023)
	Report maps	Campuses	Multiple buildings owned and operated by the same organisation (e.g. Universities, Hospitals)
	Report maps	Initial Zone Opportunity concept network route	Conceptual heat network pipe routes between buildings that could be required to connect
	Report maps	Existing and Planned Heat Networks	Known existing or planned heat network pipe routes as provided by local stakeholders
	Report maps	Potential energy centre - IZO	Potential energy centre location for an IZO (see section 3)
	Report maps	Existing/planned energy centre - Communal HNs	‘Communal’ energy centres are those operated within a single building or across a campus
	Report maps	Existing/planned energy centre - District HNs	‘District’ energy centres supply multiple buildings across multiple sites
Appendix 1: A – Typology map			
	Appendix 1: Map A	Dense City Centre	Locally recognised as the City or Town centre, where buildings development is most dense
	Appendix 1: Map A	City Centre Fringe	Around the City or Town Centre or at its outskirts, where both building density reduces
	Appendix 1: Map A	Mixed Use District	A variety of building typologies, with no single typology prevailing in the area
	Appendix 1: Map A	Social Housing	Public, private and third sector social housing
	Appendix 1: Map A	Campus (health / education)	Buildings that are owned and operated together (e.g. Universities, Hospitals)

	Appendix 1: Map A	Commercial / business office	Public & private office space
	Appendix 1: Map A	Industrial areas	Primarily used for manufacturing, engineering, and warehousing
Appendix 1: B – Key heat demands			
	Appendix 1: Map B	Top 10 Heat Demands	The largest (anchor) heat loads within the Pilot programme study area (see Section 3)
	Appendix 1: Map B	Local Authority	Buildings owned or operated by the Local Authority
	Appendix 1: Map B	Other public sector	Other buildings owned or operated by the public sector (e.g. hospital, universities, Govt. estates)
	Appendix 1: Map B	Residential with existing communal heating	Residential buildings with existing communal heating systems installed
	Appendix 1: Map B	Non-domestic private	Non-domestic private buildings (e.g. commercial, offices)
	Appendix 1: Map B	Industrial	Mixed industrial sites (e.g. light or heavy industry, manufacturing, warehouses and distribution)
400 - 600	Appendix 1: Map B	Building heat demand (MWh/yr)	Circle size increases with size of heat demand
Appendix 1: C – Key Heat Sources and Potential Energy Centres			
	Appendix 1: Map C	EfW plant	**Point heat sources** have known or likely points of heat offtake/abstraction Mine water and water source ‘points’ indicate potential abstraction points. Other waste heat sources include sewers, electrical substations and other sources of heat. See section 3 for more detail on heat source capacities, where known. On the City-level Map C only, the heat waste symbol is sized according to its scale in GWh/yr
	Appendix 1: Map C	Industrial Waste Heat	
	Appendix 1: Map C	Mine water	
	Appendix 1: Map C	Other Waste Heat	
	Appendix 1: Map C	Water Source	
	Appendix 1: Map C	Waste Water Treatment	
	Appendix 1: Map C	Deep geothermal or mine water heat	**Area heat sources** differ from point-heat sources in that the exact location for extracting heat from the resource is not yet determined
	Appendix 1: Map C	Ground source	
	Appendix 1: Map C	Water source	
Appendix 1: D – Existing and planned heat networks			
	Appendix 1: Map D	Existing and planned heat networks	At this scale the route of an existing HN cannot be displayed, so an area outline is used instead
Appendix 1: E – Physical constraints			
	Appendix 1: Map E	Key constraints	Key heat network routing constraints as described in section 3

A. Nottingham Typology Map



Boundaries
- Study Boundary
- Local Authority Boundary
- Other Local Authority Boundary
- Heat Network Zones

Key Typologies
- Dense city centre
- City centre fringe
- Mixed use district
- Social housing
- Campus (health/education)
- Commercial / business office district
- Industrial areas

2 0 2
Kilometres
Scale: 1:70,000
Coordinate System: OSGB36 / British National Grid

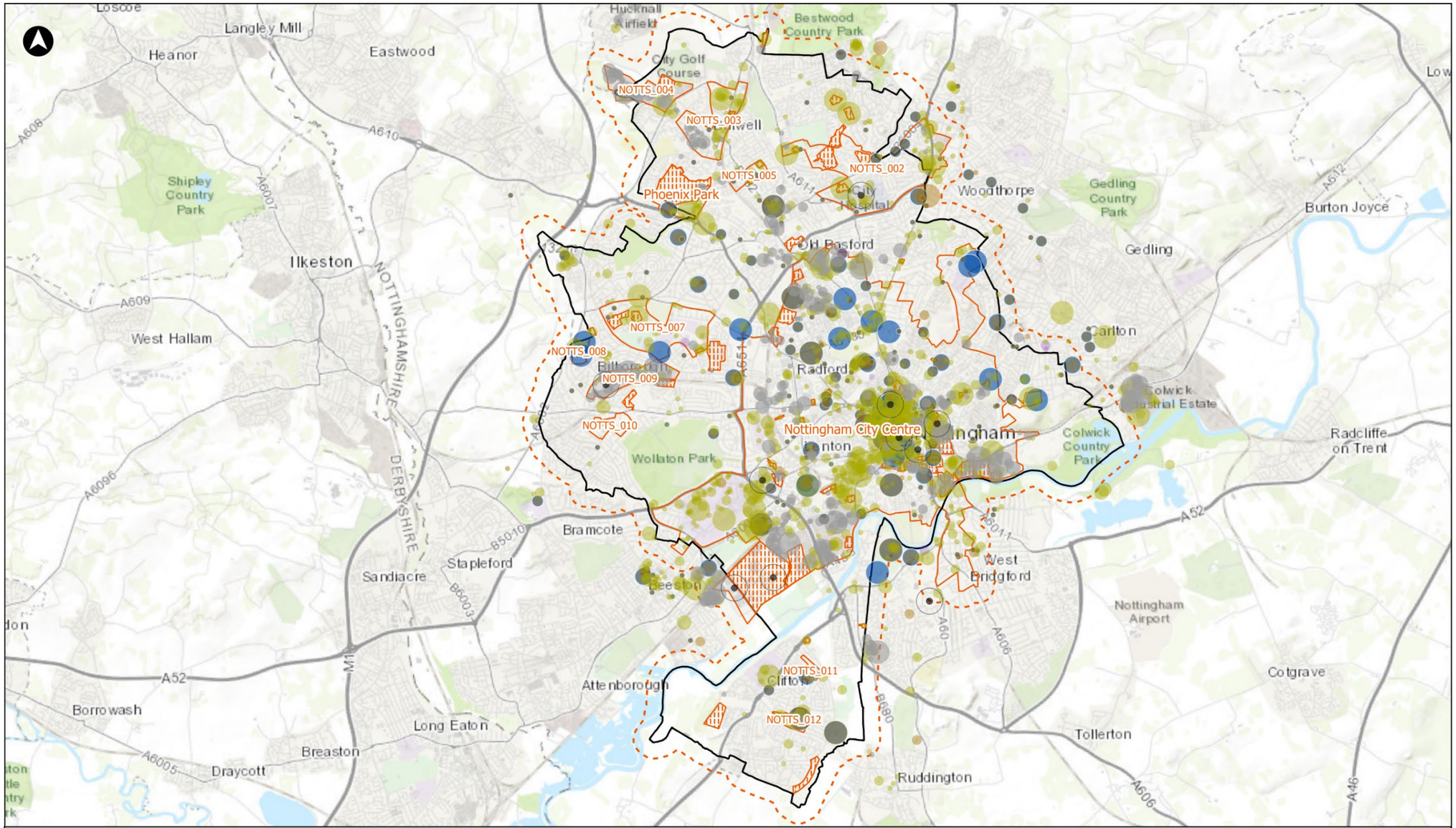
Department for Energy Security & Net Zero

Nottingham

Map A

City Typologies

B. Key Heat Demands



Boundaries

- Study Boundary
- Local Authority Boundary
- Other Local Authority Boundary
- Heat Network Zones
- New Development

Key Heat Demand

- Local authority loads
- Other public sector loads
- Residential with communal heating
- Non-domestic private buildings
- Industrial
- Top 10 heat demands

Heat Demand (MWh/Year)

- 100 - 200
- 200 - 400
- 400 - 600
- 600 - 1000

4 0 4
Kilometres

Scale: 1:70,000

Coordinate System: OSGB36 / British National Grid

Department for Energy Security & Net Zero

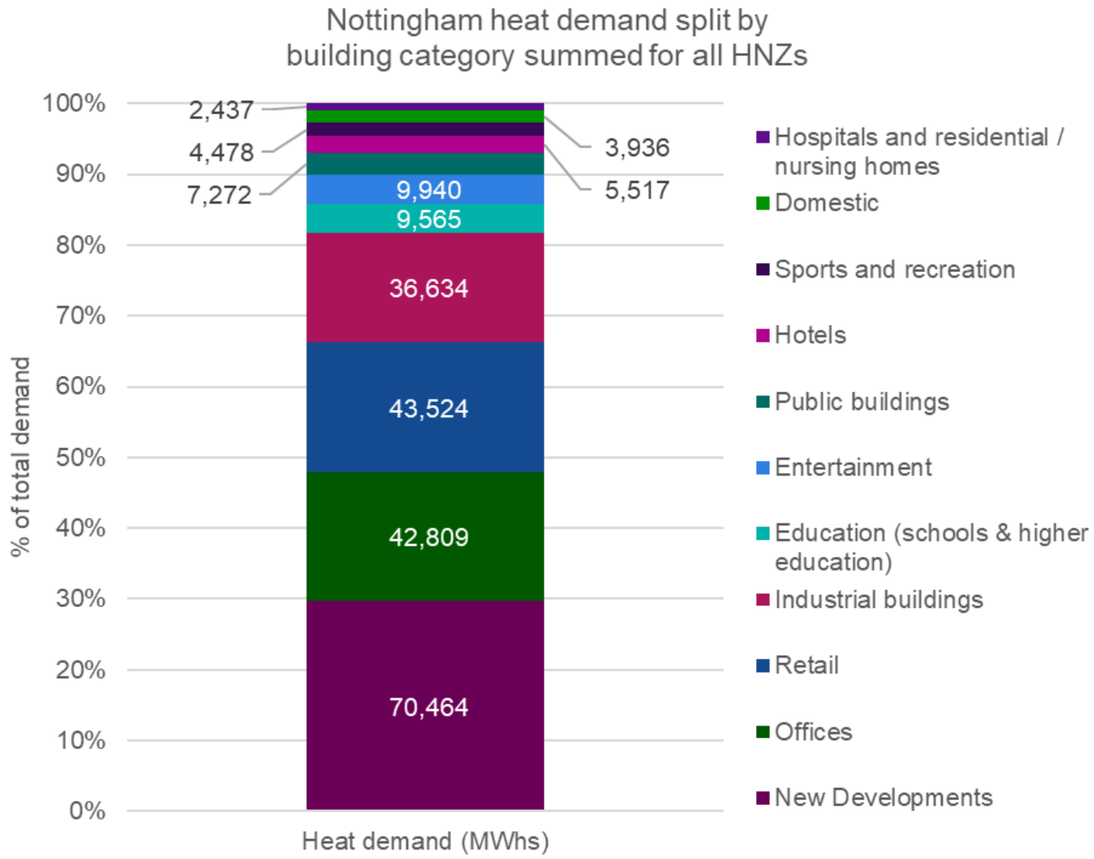
Nottingham

Map B

Key Heat Demand

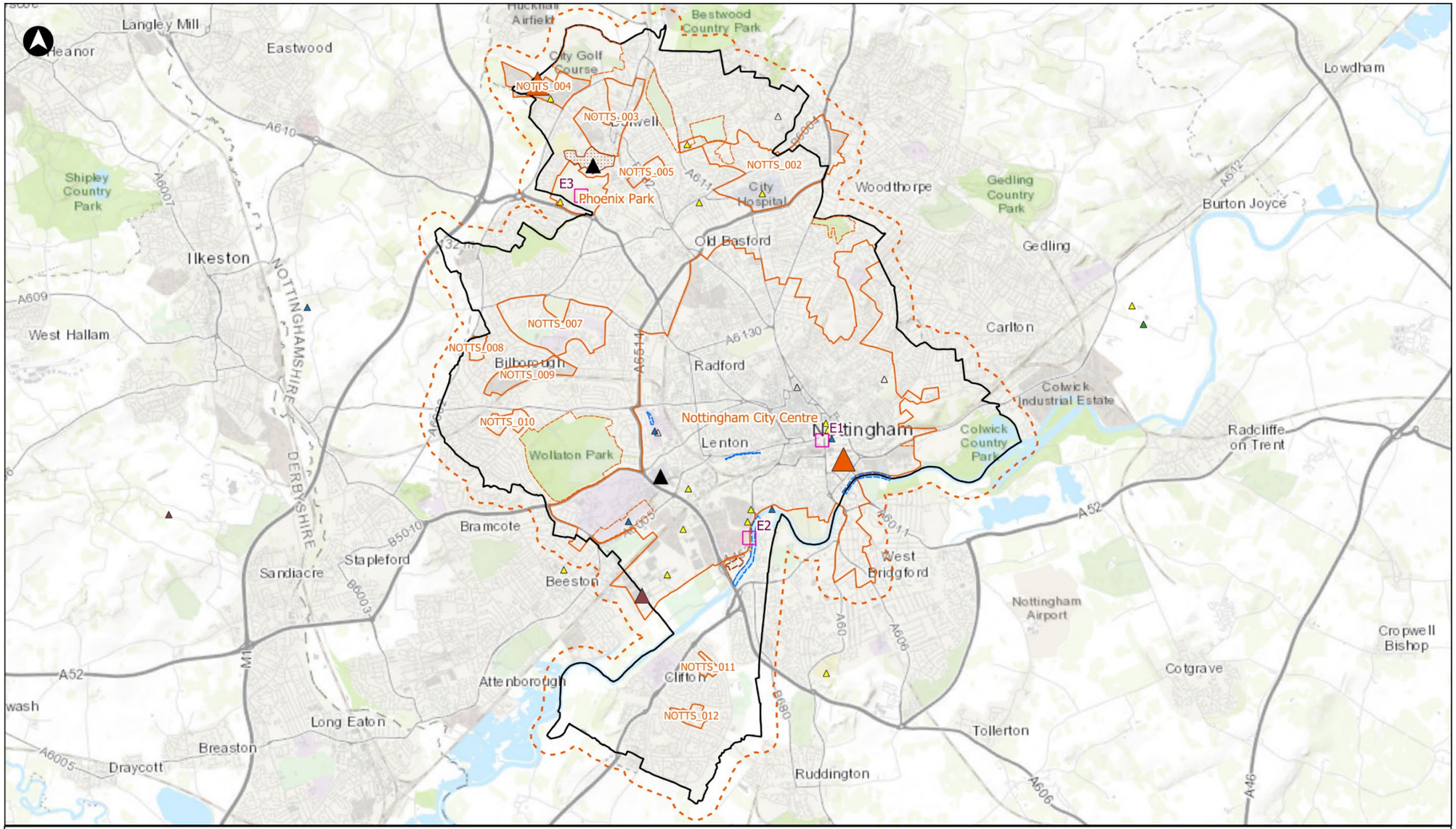
Table 13: Heat Demand split further by Building Categories across all Initial Zone Opportunities identified in Strategic HNZs in the Study Area

Building category	Number of buildings required to connect in this category	Annual Heat Demand of buildings required to connect across IZOs (MWh)
Domestic	11	3,950
Education (schools & higher education)	15	9,550
Entertainment	14	9,950
Hospitals and residential / nursing homes	8	2,450
Hotels	11	5,500
Industrial buildings	99	36,650
Offices	138	42,800
Public buildings	15	7,250
Retail	129	43,500
Sports and recreation	7	4,500
New Developments	14	70,450
Totals	461	**236,550**



Note: In Nottingham there are twelve HNZs with a total of three IZOs identified across them. The table and graph above summarise and categorise the heat demand for buildings required to connect to these IZOs.

C. Key Heat Sources and Potential Energy Centres



Boundaries
- Study Boundary
- Local Authority Boundary
- Other Local Authority Boundary
- Heat Network Zones

Key Area Heat Sources
- Deep Geothermal
- Ground Source
- Water Source

Heat Source
- Area Source
- EfW
- Industrial Waste Heat
- Minewater
- Other Waste Heat
- Water Source
- WWT Plant

Capacity (GWh/year)
- 0 - 2
- 2 - 4
- 4 - 6
- 6 - 8+

Energy Centres
- Potential IZO

2 0 2
Kilometres
Scale: 1:70,000
Coordinate System: OSGB36 / British National Grid

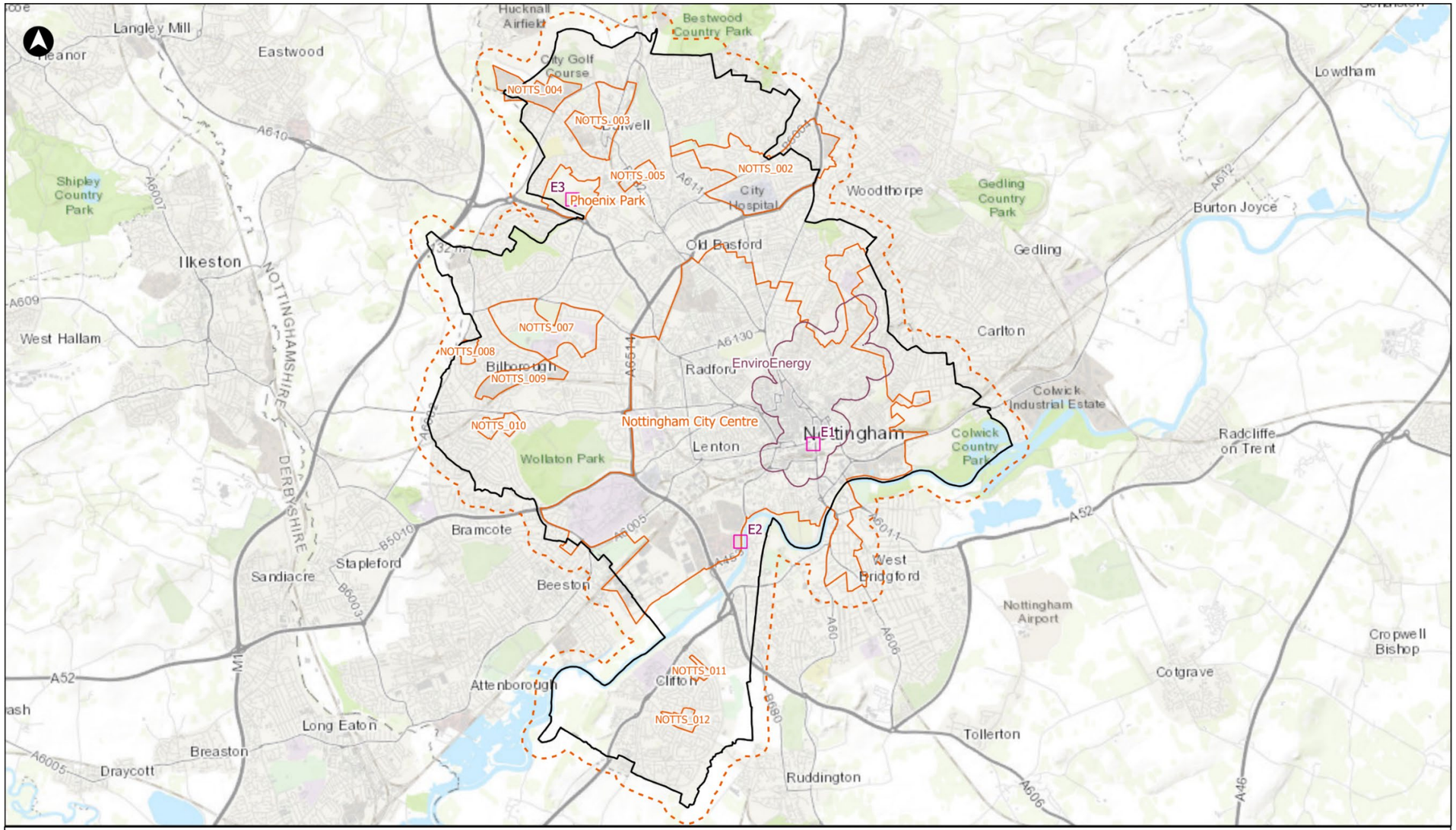
Department for Energy Security & Net Zero

Nottingham

Map C

Key Heat Sources and Energy Centres

D. Existing and Planned Heat Networks



Boundaries
- Study Boundary
- Local Authority Boundary
- Other Local Authority Boundary
- Heat Network Zones

Existing and Planned Heat Networks

Energy Centres
- Potential IZO site

4 0 4
Kilometres
Scale: 1:70,000
Coordinate System: OSGB36 / British National Grid

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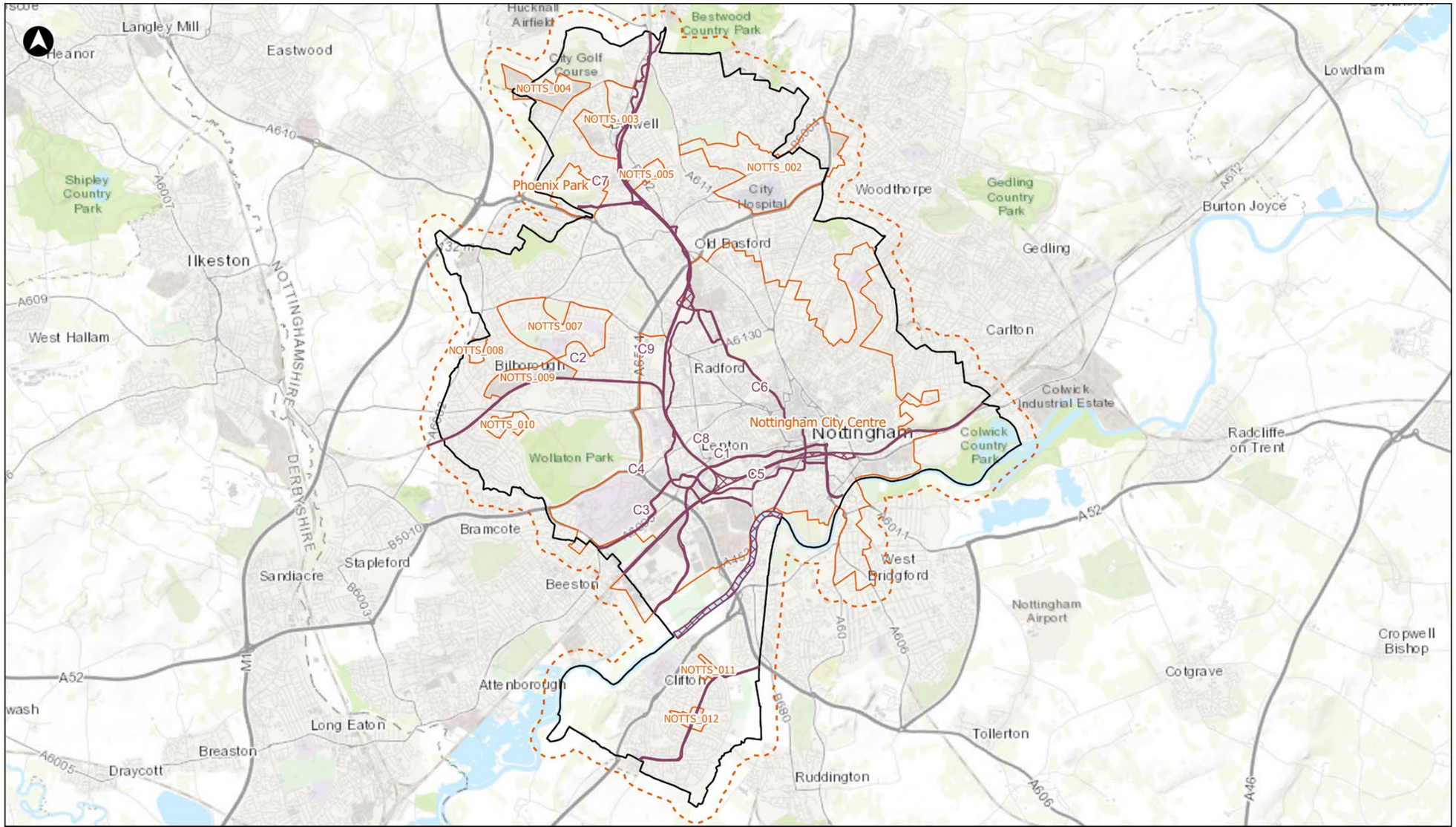
Map D

Existing and Planned Heat Networks

E. Physical Constraints



Boundaries

- Study Boundary
- Local Authority Boundary
- Other Local Authority Boundary
- Heat Network Zones

Key Constraints

4 0 4
Kilometres
Scale: 1:70,000

Coordinate System: OSGB36 / British National Grid

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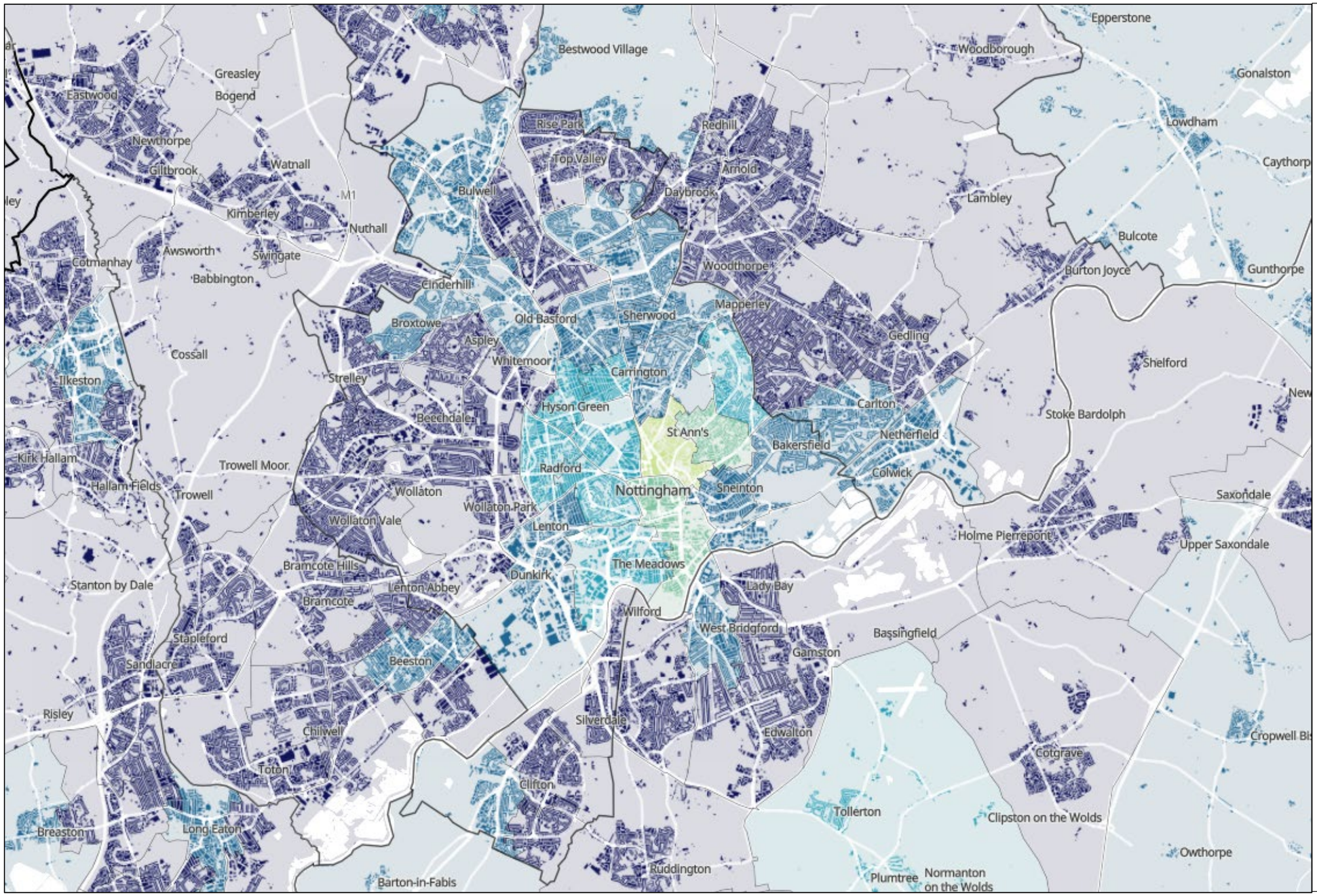
Map E

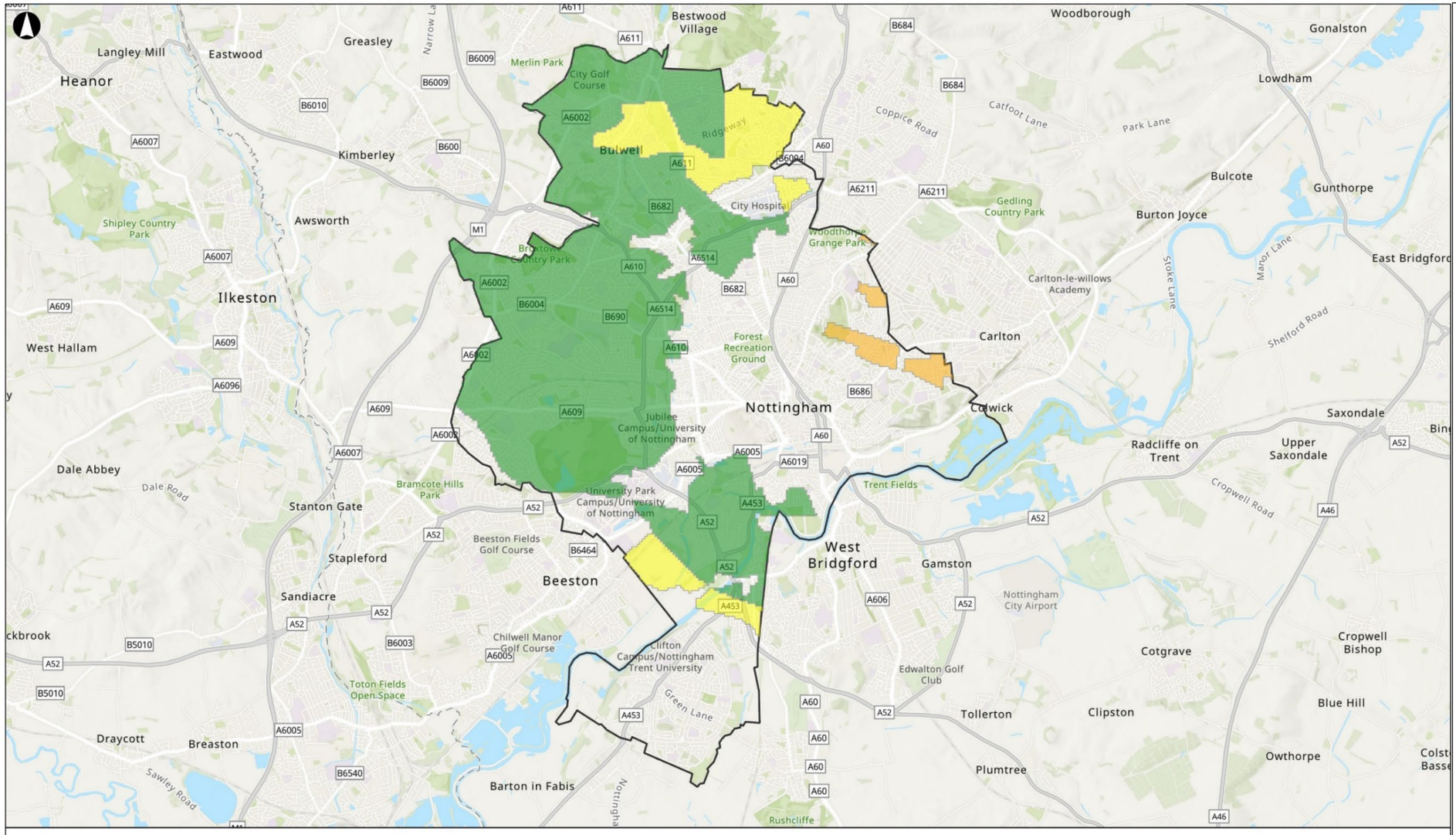
Physical Constraints

F. Off-Gas Grid Areas in Nottingham



Credit: This is an excerpt from the ONS Census Maps 2021 which is available to explore online. The data shown is subject to Crown copyright protection, is published under the Open Government Licence (OGL) and embeds map data which is copyright of Ordnance Survey and Street maps.

G. Coal Mine Water Map



This mine-water heat opportunity map, developed by The Coal Authority, provides an indication of where water from former mine workings could potentially be extracted to provide a source of heat to supply heat networks. The areas of historic coal mine workings within the Local Authority boundary were assessed and a number of factors, such as depth to workings and water levels, were analysed to identify areas of potential opportunity and classified as either 'Good', 'Possible' or 'Challenging'. This opportunity map can be used in combination with plans for heat network projects to identify specific locations where more detailed feasibility studies could be undertaken.

Appendix 2: Data Room Resources

Throughout the delivery of the Pilot programme, information resources have been compiled for future use in relation to the development of heat network zones.

These resources will remain restricted to DESNZ and the local authority. This is to ensure that the department remains within its Data Privacy Notice as shared with stakeholders providing the information. GIS outputs are not being published alongside the report as they are subject to change.

Table 14: Pilot Programme Standardised Information Resources

Information resource	Description of resource
Stakeholder Directory	A directory listing key stakeholders identified and approached during the Pilot programme, including organisation name, address, or website, contact names, work title and contact details.
Stakeholder meetings log and records	A log of key meetings held and related meeting records.
Datasets Directory	A list of datasets / reports shared by stakeholders cross-referencing who provided the item from the stakeholder directory and a description of the dataset.
Geospatial packages and related geo-coded datasets	Geo-coded datasets and descriptions related to maps produced in this report.

Table 15: Pilot Programme Study-Area-Specific Information Resources

Information resource	Description of resource
Enviroenergy District Heating Scheme Load Study (DRAFT)	Technical assessment of the potential for Enviroenergy network to supply additional customers/support expansion
Enviroenergy CDDP4 Opportunities Report - Heat Recovery and Storage (DRAFT)	Enviroenergy report detailing heat losses and opportunities for additional heat reuse in the Enviroenergy network including outputs of a hydraulic study that identifies areas of surplus capacity and necessary upgrades to improve system efficiency.

This publication is available from: https://www.gov.uk/government/collections/heat-networks

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