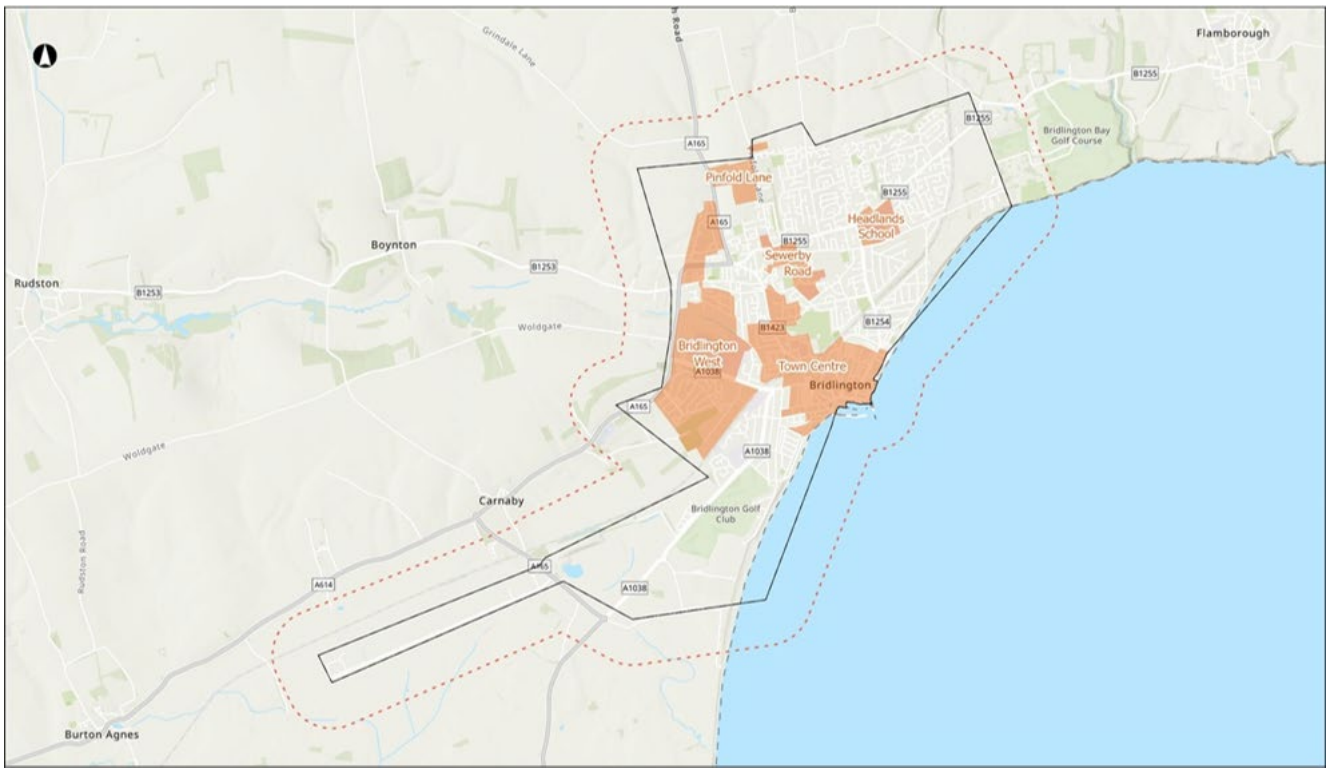
Department for
Energy Security
& Net Zero

Bridlington

Heat Network Zoning

Zone Opportunity Report



June 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

This document was produced by AECOM in partnership with East Riding of Yorkshire Council. We are grateful to all stakeholders who participated in the Pilot programme for their time and assistance.

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Contents

Executive Summary

About Bridlington: Bridlington is a coastal town in Yorkshire with a population of 34,858. It serves as a significant service, employment, and transport hub for the surrounding area.

Local Energy Policy: East Riding of Yorkshire Council (EYRC) set a net zero target of 2050 for their operations and services, aiming to explore a shared area-wide net zero target for the East Riding.

Existing heat networks: ERYC has built experience in heat network development, exploring feasibility in towns throughout the local authority area, including a scheme in the commercialisation stage in Goole.

Zones identified: Five potential heat network zones were identified in Bridlington, with two considered strategic heat network zones. The overall heat demand for all buildings potentially required to connect within zones is 20GWh/yr.

Strategic heat network zones: Two strategic zones were identified in Bridlington Town Centre and Bridlington West. The overall heat demand for all buildings potentially required to connect within strategic zones is 16GWh/yr.

Key heat demands: The overall heat demand for buildings connected to the initial zone opportunities is 14GWh/yr. Key buildings include East Riding Leisure Centre, Quay Academy, and Promenade Shopping Centre.

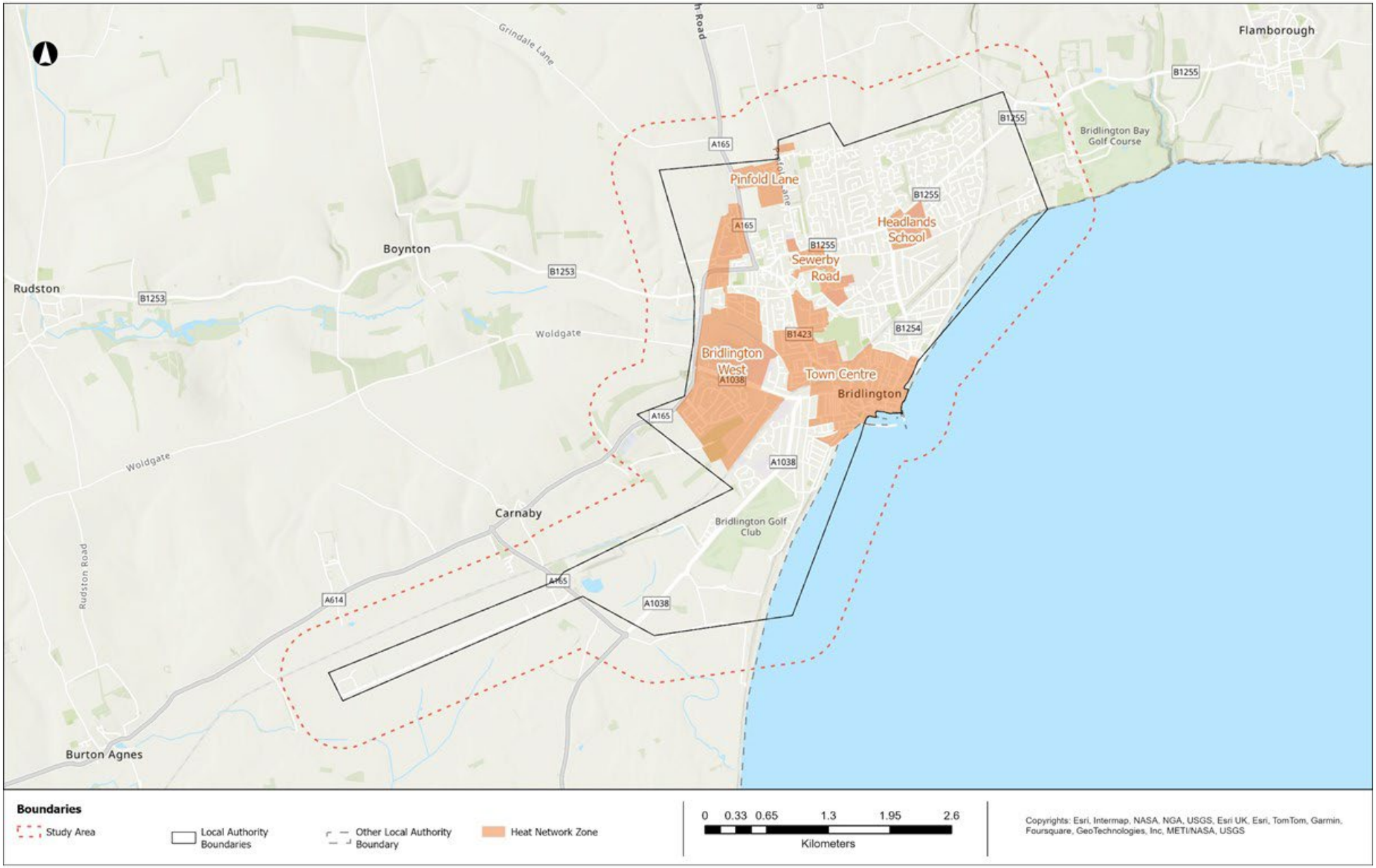
Key heat sources: Water source heat pumps recovering heat from marine water are identified as key low carbon heat sources for Bridlington Town Centre. Deep geothermal and ground source heat pumps are identified for Bridlington West.

Estimated CapEx: The high-level estimate of capital expenditure to network all buildings potentially required to connect to the initial zone opportunity in Bridlington Town Centre is ~£15m and in Bridlington West is ~£25m.

Other heat network zones: Smaller or discrete heat network zones identified in Bridlington include Sewerby Road, Pinfold Lane, and Headlands School.

Carbon savings: The estimated carbon savings for Bridlington Town Centre are ~1ktCO_{2e}/yr, and for Bridlington West are ~1ktCO_{2e}/yr.

Figure 1: Overview of Heat Network Zones in Bridlington



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. Our 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 Bridlington and is intended to showcase potential heat network zones in the town. The report indicates the heat network investment opportunity at a town 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.

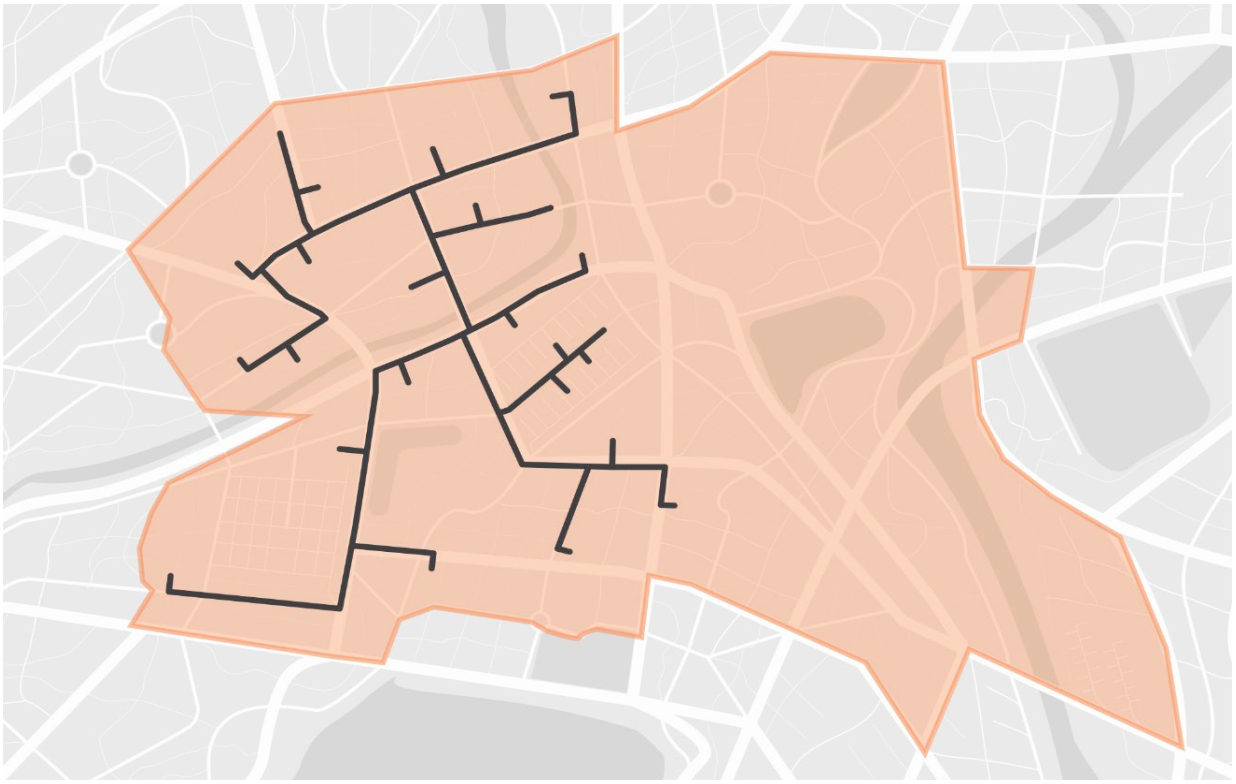
[1] More information can be found in the Heat Network Zoning Methodology Statements (Appendix 3, 4 & 5)

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 potentially 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 below 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 potentially 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.

2) Bridlington Heat Networks Context

2.1) Bridlington Town Overview

Bridlington is a town in the Yorkshire and Humber Region of England. It is the second largest town on the Yorkshire coast and the largest town in the East Riding of Yorkshire local authority in terms of population, with a population of 34,858[3]. It is situated on the Holderness part of the Yorkshire Coast in the northeast of the East Riding and has two beaches that extend either side of its working harbour. The town is located about 26 miles (42km) north of the major industrial city and port of Hull and 40 miles (65km) east of York.

Bridlington is a coastal tourist and fishing town just south of Flamborough Head Nature Reserve between the North York Moors National Park to the north and Humber Estuary to the south. The town has a sub-regional role as a significant service, employment and transport hub for the surrounding area. It has an important role as a tourism destination[4]. Employment is concentrated in the town centre, and at Bessingby, Pinfold Lane and Carnaby Industrial Estates. The town is also home to the largest lobster port in Europe.

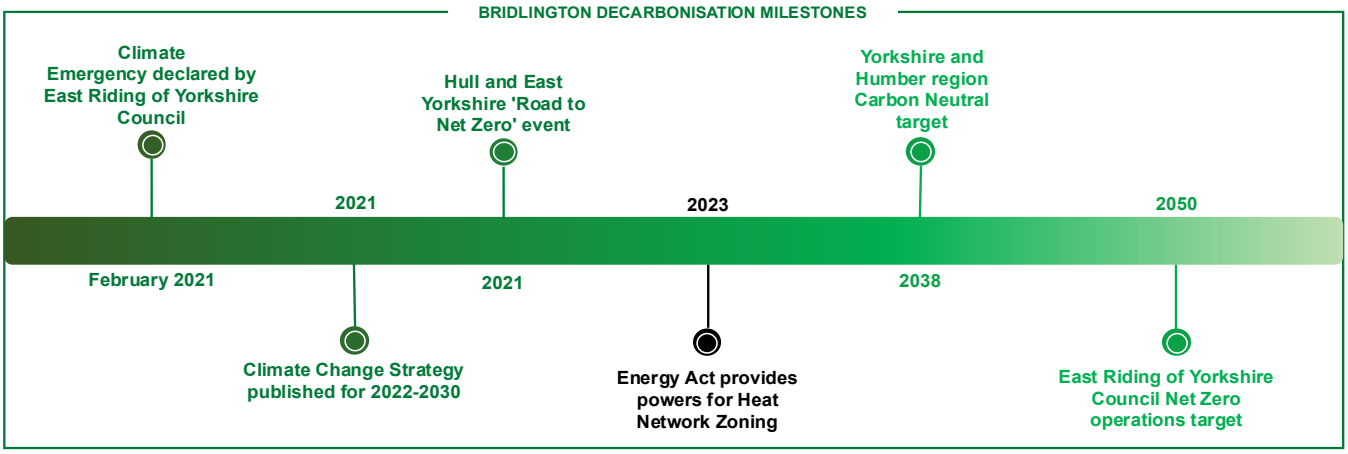
2.2) Bridlington Net Zero Targets and Commitments

In February 2021, East Riding of Yorkshire Council (ERYC) set a net zero target of 2050 for their own operations and services as part of their climate change strategy, and plans for their strategy to be a launch pad for exploring a shared area-wide net zero target for the East Riding[5]. The climate change strategy document highlights the requirement for buildings to move away from natural gas-based heating systems and to move towards heat pump and hydrogen-based heating systems. The document also affirms ERYC's commitment to developing heat networks as they have stated: "(The Council) look to finalise construction, and identify new opportunities, for district energy networks in suitable locations across the East Riding, maximising opportunities for the utilisation of waste energy and renewable technology."

Figure 3 summarises key dates in ERYC's plans for decarbonisation and demonstrates their progress towards decarbonisation targets announced. While ERYC have set a net-zero target date of 2050 for the council's own operations, the Yorkshire and Humber Climate Commission have set a 2038 target for net zero emissions within the region for industry, buildings, transport and agriculture.

[3] Office for National Statistics (2021) – https://www.ons.gov.uk/peoplepopulationandcommunity/housing/bulletins/housingenglandandwales/census2021
[4] East Riding of Yorkshire Council (2016) – https://www.eastriding.gov.uk/planning-permission-and-building-control/planning-policy-and-the-local-plan/east-riding-local-plan/
[5] East Riding of Yorkshire Council (2021) - https://downloads.eastriding.org.uk/corporate/pages/climate-change-what-we-do/Climate%20Change%20Strategy%202022-2030.pdf

Figure 3: Bridlington Decarbonisation Milestones



2.3) Delivering Heat Networks in Bridlington

ERYC is committed to supporting the delivery of heat networks to decarbonise heat within the local authority area. In 2015 and 2016, ERYC commissioned district energy feasibility studies for Bridlington in which, similarly to the Pilot programme, several suitable areas for heat networks were identified. Since then, ERYC has built its experience of heat network development, exploring their feasibility in towns throughout the local authority area and have a scheme in the commercialisation stage nearby, in Goole. Please refer to Appendix 2 for further information about the evidence compiled during the Pilot programme and held by DESNZ for Bridlington. This includes a fully populated stakeholder directory and records of interactions with those stakeholders as well key studies and reports shared with DESNZ

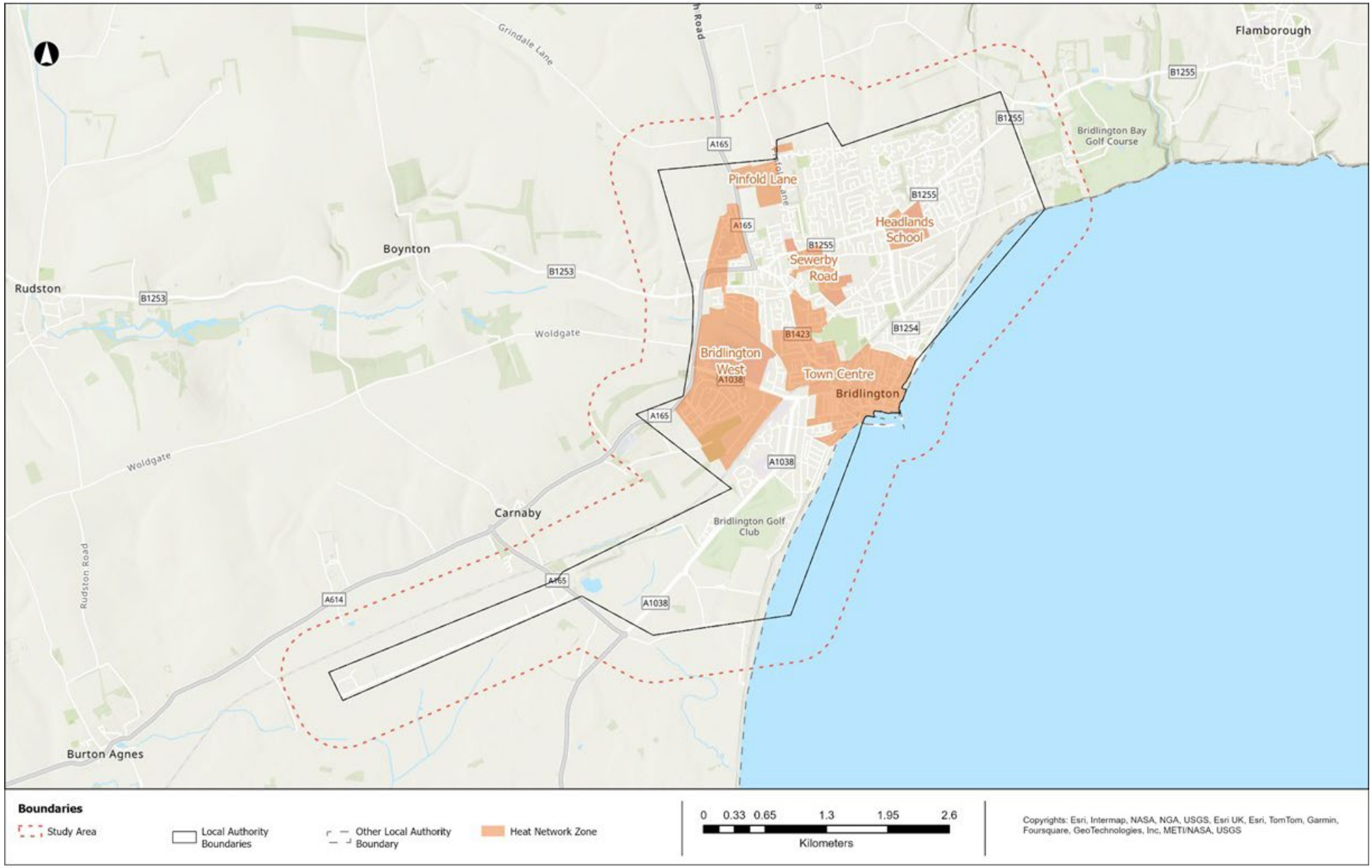
2.4) Bridlington Heat Network Zones

A total of five potential HNZs were identified in Bridlington, with two considered Strategic HNZs. Figure 4 shows the study area boundary, including the boundaries of all HNZs identified, with HNZs allocated a meaningful name agreed as relevant from a local perspective.

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

- A: Bridlington Typology Map – shows building typologies which dominate by area.
- B: Key Heat Loads Map – highlights key buildings potentially 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.

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



3) Strategic Heat Network Zones

Strategic HNZs in Bridlington

This section examines the strategic HNZs and IZOs identified within them. This covers the key heat demands, heat sources, energy centre locations and potential constraints. 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 below presents a high-level estimate of the scale of opportunities across Bridlington. 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]	20
All buildings required to connect in strategic zones	16
All buildings connected to the IZOs	14

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.

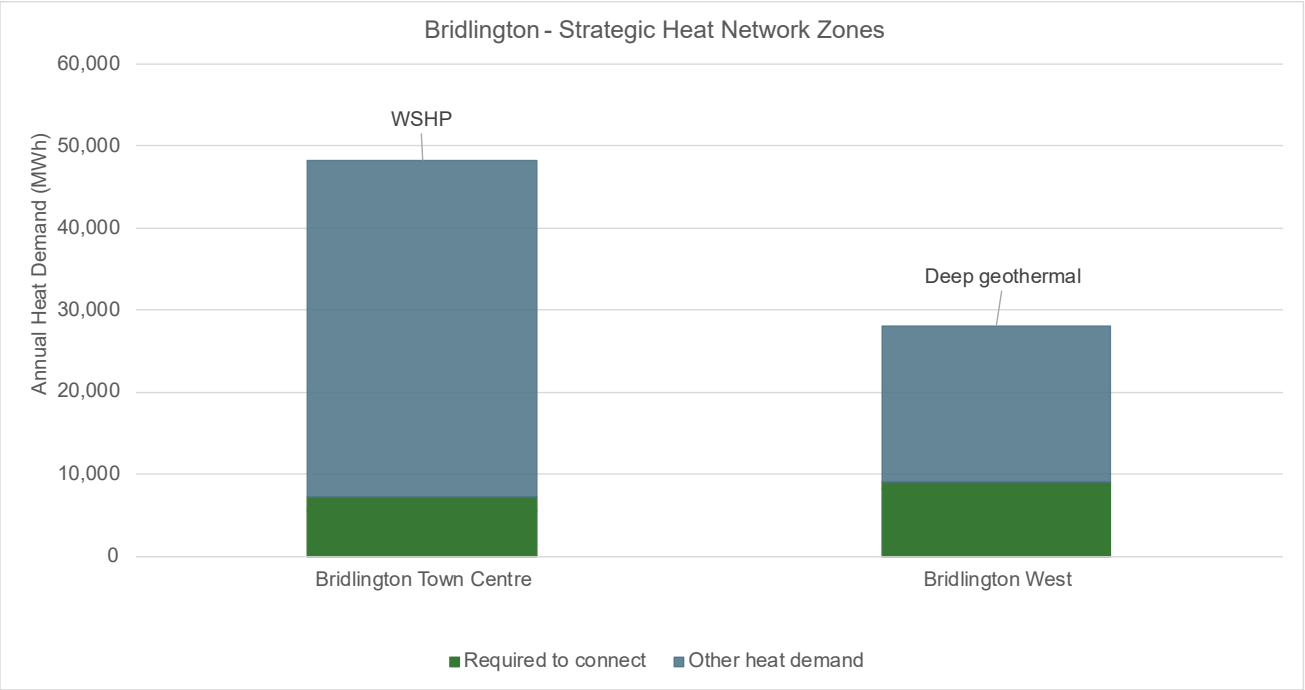
The two strategic zones are summarised below. Figure 5 illustrates the size of each, alongside the key potential heat source and the proportion of buildings that may be required to connect.

Bridlington Town Centre is the second largest HNZ in Bridlington in terms of heat demand from buildings that are potentially required to connect. It covers most of the town centre and includes the Town Hall, Magistrates Court and East Riding Leisure Centre. This zone, however, has the largest total heat demand, when loads not required to connect are accounted for. For more information, please see Section 3.1.

[6] Row 1 is an estimate of heat demand across buildings potentially 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.

Bridlington West is the largest HNZ in terms of both heat demand from buildings potentially required to connect and by area. It covers an area to the west of the town centre which encompasses Bridlington School and Bridlington and District Hospital. For more information, please see Section 3.2.

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



3.1) Bridlington Town Centre

3.1.1) Bridlington Town Centre – HNZ Summary

Bridlington Town Centre is the second largest zone in Bridlington, in terms of heat demand from buildings potentially required to connect, but has the largest total heat demand, when loads not required to connect are accounted for. The zone covers the town centre, as shown in Figure 6 and includes 21 existing buildings which could be required to connect to a heat network, as well as four new development sites. Key anchor loads include the Town Hall, Magistrates Court, East Riding Leisure Centre and Quay Academy. Key potential low carbon heat sources identified include water source heat pumps (WSHP) recovering heat from marine water.

3.1.2) Bridlington Town Centre - Existing Heat Networks

There are currently no operational, planned or proposed heat network developments in Bridlington Town Centre HNZ.

ERYC have previously identified areas suitable for heat networks in Bridlington, including the town centre, having commissioned HNDU district energy feasibility studies for Bridlington in 2015 and 2016. These studies were largely based on a natural gas combined heat and power (CHP) system rather than the low-carbon heat sources identified during the Pilot programme and the outcomes are therefore not directly comparable.

3.1.3) Bridlington Town Centre - Initial Zone Opportunities

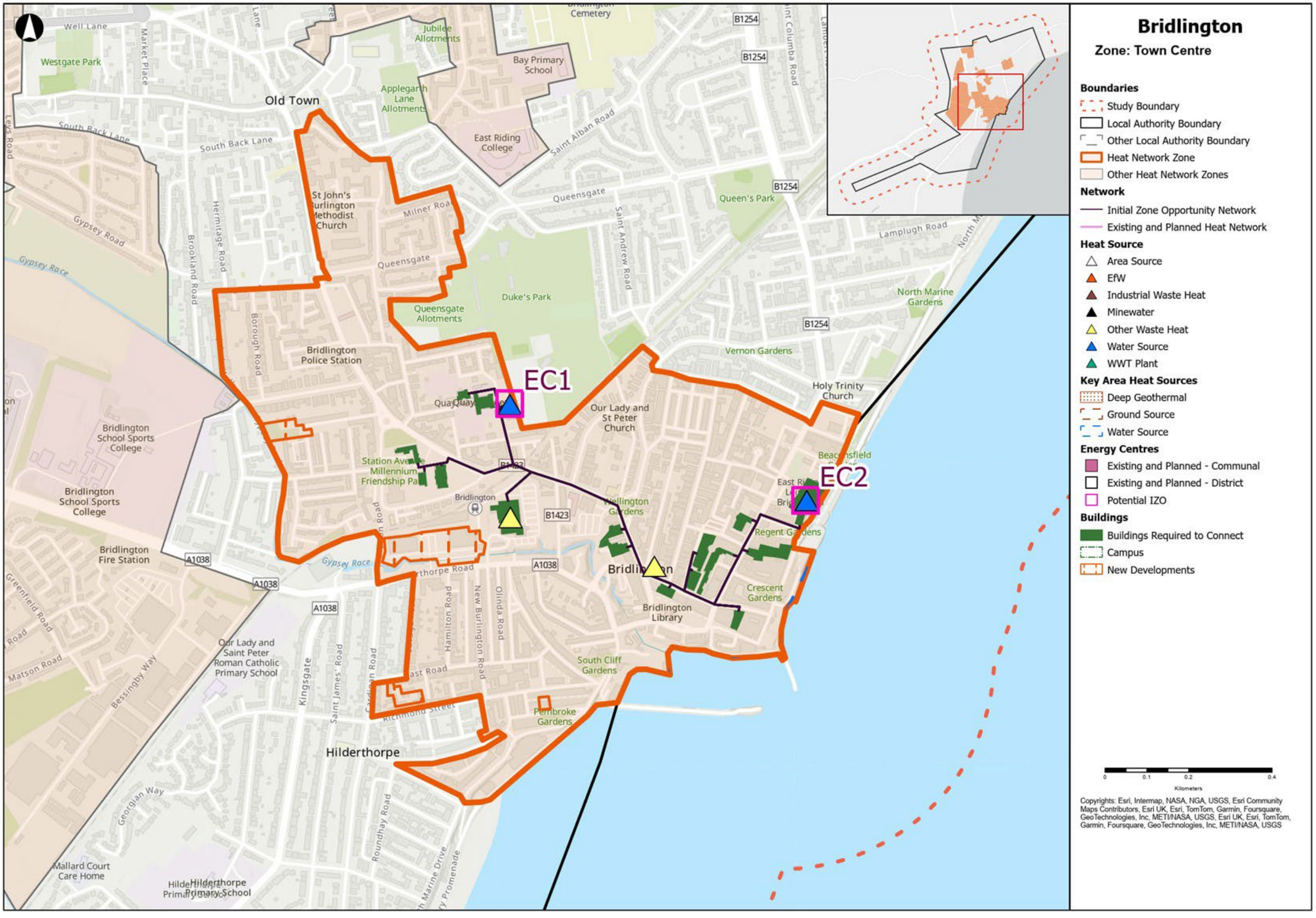
A single IZO was identified in the Bridlington Town Centre zone. Potential routing[7] is shown in Figure 6 and summary statistics provided in Table 2. It was identified due to the dense urban town centre as well as the proximity to the marine environment, which presents a low carbon heat source opportunity for the zone.

Table 2: Bridlington Town Centre - Summary Statistics for Initial Zone Opportunities[8]

CapEx	Heat	Network	CO_{2e} savings	Linear Heat Density	Heat Sources
~£15m	~6GWh/yr	~2km	~1ktCO_2e/yr	2.9MWh/m	WSHP

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

Figure 6: Initial Zone Opportunities in Bridlington Town Centre HNZ



3.1.4) Bridlington Town Centre – IZO Heat Demands

The heat demands identified 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 IZO connects 16 existing buildings which could potentially be required to connect to a heat network. The overall heat demand connected is estimated at about 6GWh/yr. It includes key heat demands such as the Town Hall, Magistrates Court, East Riding Leisure Centre, Quay Academy, and Promenade Shopping Centre. The East Riding Leisure Centre is the largest heat demand connected, with a demand of over 2GWh/yr.

Figure 7 shows the breakdown of heat demand connected based on building type and Table 3 lists the ten highest heat demands identified.

Figure 7: Bridlington Town Centre - Categorisation of Heat Demand for Buildings Potentially Required to Connect in the IZO

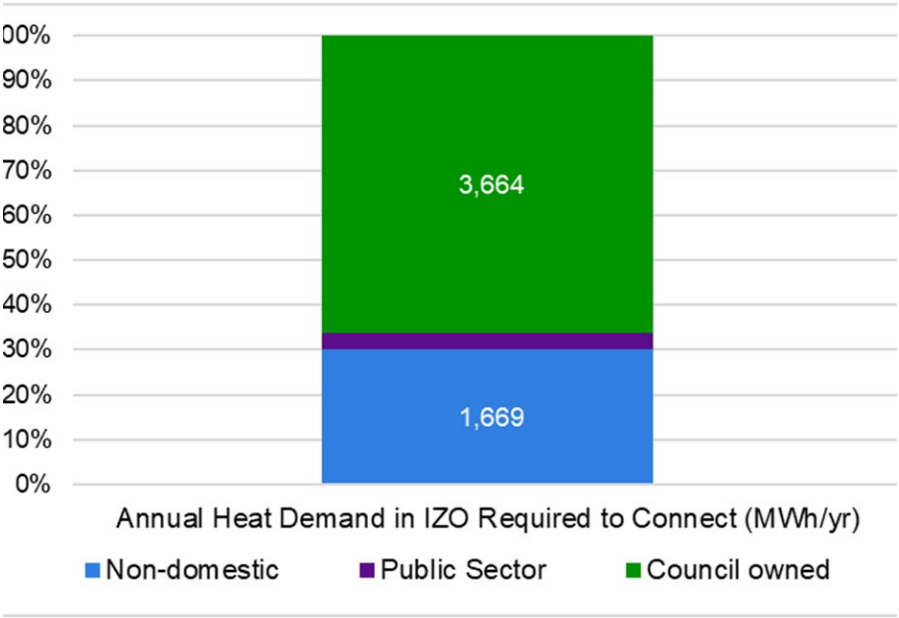


Table 3: Bridlington Town Centre - Key Heat Demands Required to Connect in the IZO[9]

Building name	Building category	Number of connections	Annual heat demand (MWh)	Data source
East Riding Leisure Centre Bridlington	Council owned	1	2,560	Metered
Quay Academy (School)	Council owned	2	437	Metered
Promenade Shopping Centre	Non-domestic	2	425	Benchmark (NZM)
Tesco Superstore	Non-domestic	1	350	Benchmark (NZM)
The Forum	Non-domestic	1	250	Benchmark (NZM)
Bridlington Town Hall	Council owned	1	214	Metered
Bridlington Magistrates' Court	Public Sector	1	200	Benchmark (NZM)
Yorkshire Trading Company	Non-domestic	1	175	Benchmark (NZM)
Boyes department store	Non-domestic	1	175	Benchmark (NZM)
Regal Bingo	Non-domestic	1	150	Benchmark (NZM)

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

3.1.5) Bridlington Town Centre – IZO Heat Sources

A WSHP has been identified as the preferred low carbon heat source within the Bridlington Town Centre HNZ, recovering heat from the North Sea. A WSHP is estimated to provide a capacity of 25MW. Smaller waste heat opportunities from supermarkets' refrigeration plant have also been identified although the latter have not been investigated in detail due to the relatively low availability compared to the marine heat source opportunity.

Two possible energy centre locations have been identified: EC1, a council owned car park at Moorfield Road, adjacent to Quay Academy, and EC2, a car park at the East Riding Leisure Centre.

Table 4 and Table 5 in this section summarise the key heat sources and potential energy centre locations identified. These are also shown on Figure 6 in Section 3.1.3 above and on Map C in Appendix 1.

Table 4: Bridlington Town Centre - Key Heat Source Opportunities for the IZO

Heat source type	Capacity (kWp)	Temperature (ºC)	Potential energy centre location
WSHP	1,500	10	EC1 or EC2

Table 5: Bridlington Town Centre - Potential IZO Energy Centre Locations

EC ref number	Site type	Size (m^2)	Ownership	Heat source
EC1	Carpark	8,000	ERYC	WSHP
EC2	Carpark	1,250	ERYC	WSHP

3.1.6) Bridlington Town 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 routing was developed solely around buildings which could potentially 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 6 shows the network statistics

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

Figure 6 illustrates the proposed network route. Heat is distributed from an energy centre located at the council owned Moorfield Road car park, adjacent to Quay Academy (EC1) along Moorfield Road. The network then branches out west to the municipal complex at Quay Road, as well as east down Quay Road and Prospect Street, turning onto Chapel Street and then the promenade, to reach the Leisure centre.

Table 6: Bridlington Town Centre - Indicative Heat Network Statistics for the IZO

IZO description	Network length (km)	Network cost (£m)
Bridlington Town Centre	~3	~10

3.1.7) Bridlington Town Centre – IZO Key Constraints and Mitigations

[C1] Rail crossing: The IZO network crosses a local railway line running along the western edge of the zone and crosses Quay Road near Station Approach Road and Bridlington Station. A feasibility assessment would be required to assess installing route pipework beneath the road and railway line and would require engagement with Network Rail and relevant highways team.

3.2) Bridlington West

3.2.1) Bridlington West – HNZ Summary

Bridlington West is the largest zone within Bridlington in terms of both heat demand from buildings potentially required to connect and by area. It covers an area to the west of the town centre which encompasses Bridlington School, Bridlington and District Hospital, and Bessingby Industrial Estate. The zone includes 14 existing buildings which could be required to connect to a heat network. Key low carbon heat sources identified include the potential for ground source heat pumps (GSHP) and deep geothermal heat. Both potential heat sources could be sourced from council owned land adjacent to Bridlington and District Hospital.

3.2.2) Bridlington West - Existing Heat Networks

There are currently no operational heat networks, planned heat networks in late-stage development or early stage proposed heat network developments in Bridlington West HNZ.

ERYC have previously investigated the feasibility of heat networks in the area, having commissioned HNDU district energy feasibility studies for Bridlington in 2015 and 2016, which included the area around Bridlington and District Hospital. These studies investigated the viability of heat networks in Bridlington supplied by deep geothermal heat and CHPs which indicated potential viability for a heat network scheme. Recently, York and Scarborough Teaching Hospitals NHS Foundation Trust received £4.7m of grant funding as part of the government's Public Sector Decarbonisation Scheme (PSDS). The funding will be used towards the installation of air source heat pumps and solar PV systems[10].

3.2.3) Bridlington West - Initial Zone Opportunities

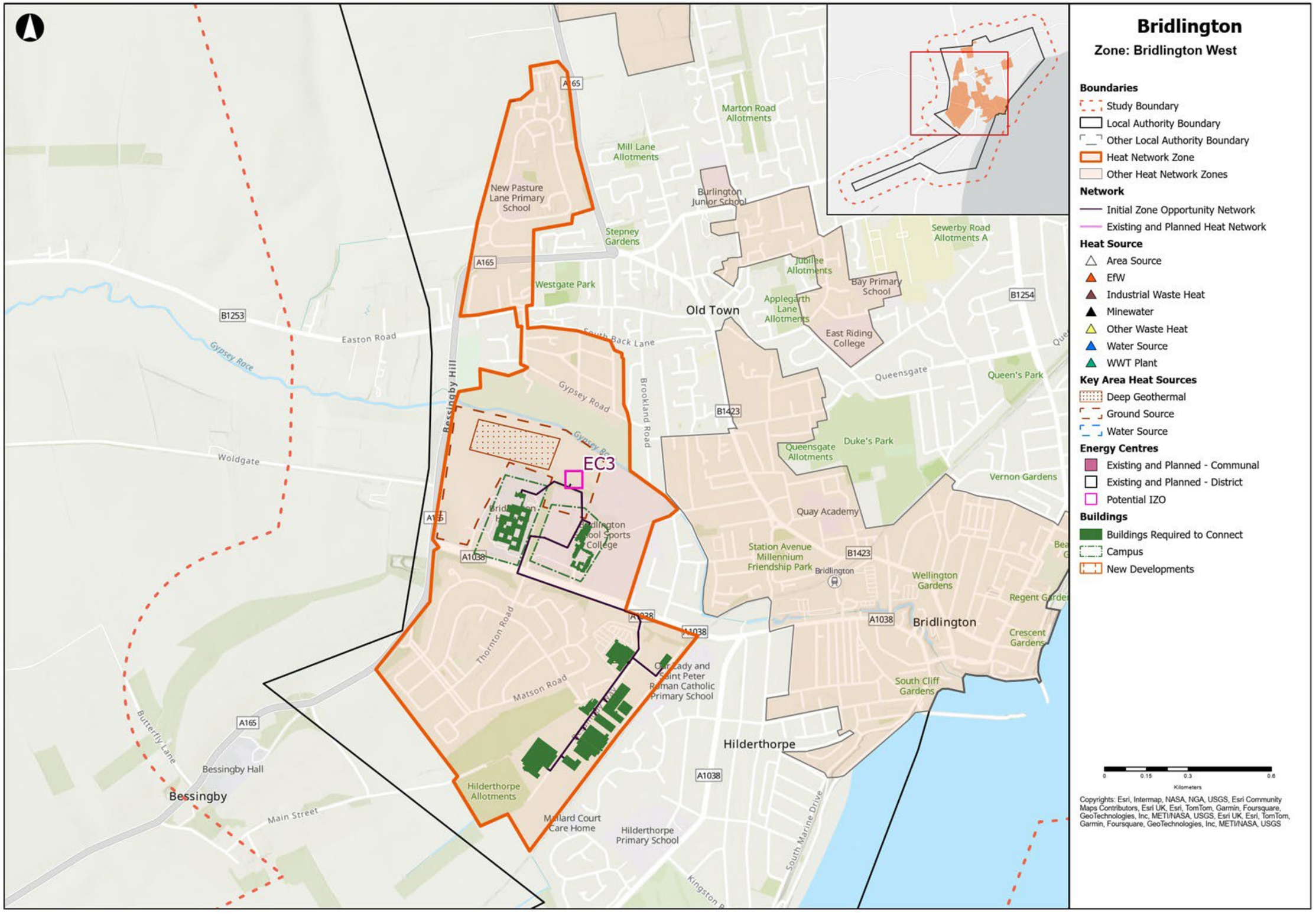
A single IZO was identified in the Bridlington West zone. Potential routing[11] is shown in Figure 8 and summary statistics provided in Table 7. It was identified due to the high demand from Bridlington and District Hospital as well as the proximity to the deep geothermal opportunity adjacent to the hospital which provides a potential low carbon heat source.

Table 7: Bridlington West - Summary Statistics for Initial Zone Opportunities[12]

CapEx	Heat	Network	CO_{2e} savings	Linear Heat Density	Heat Sources
~£25m	~6.5GWh/yr	~2km	~1ktCO_2e/yr	3.1MWh/m	Deep geothermal & GSHP

[10] https://carbonandenergyfund.net/bridlington-hospital-receives-4-7m-of-grant-funding
[11] Routes can be expected to change as a better understanding of local constraints is developed through design.
[12] Please see Appendix 3 – Glossary, "Specific definitions" of the main report for definitions related to this table.

Figure 8: Initial Zone Opportunities in Bridlington West HNZ



3.2.4) Bridlington West – IZO Heat Demands

The IZO in Bridlington West HNZ connects to 11 existing buildings which could potentially be required to connect to a heat network, with a total heat demand of approximately 6.5GWh/yr. Key heat demands are Bridlington and District Hospital and Bridlington School.

Figure 9 shows that the largest proportion of heat demand connected is from non-domestic buildings making up 41% of the connected heat demand. These buildings are primarily located within the Bessingby industrial estate. Bridlington and District Hospital accounts for all the public sector demand, making up 31% of the connected heat demand, with the remaining 28% of the demand from council owned buildings, namely Bridlington School.

Bridlington and District Hospital is the largest demand connected at just over 2GWh/yr. Many of the large industrial buildings connected in the Bessingby Industrial Estate have an estimated heat demand from the prototype version of the NZM rather than metering or billing data, see Section 3.1.4 and Appendix 4 for more detail.

Figure 9: Bridlington West - Categorisation of Heat Demand for Buildings Potentially Required to Connect in the IZO

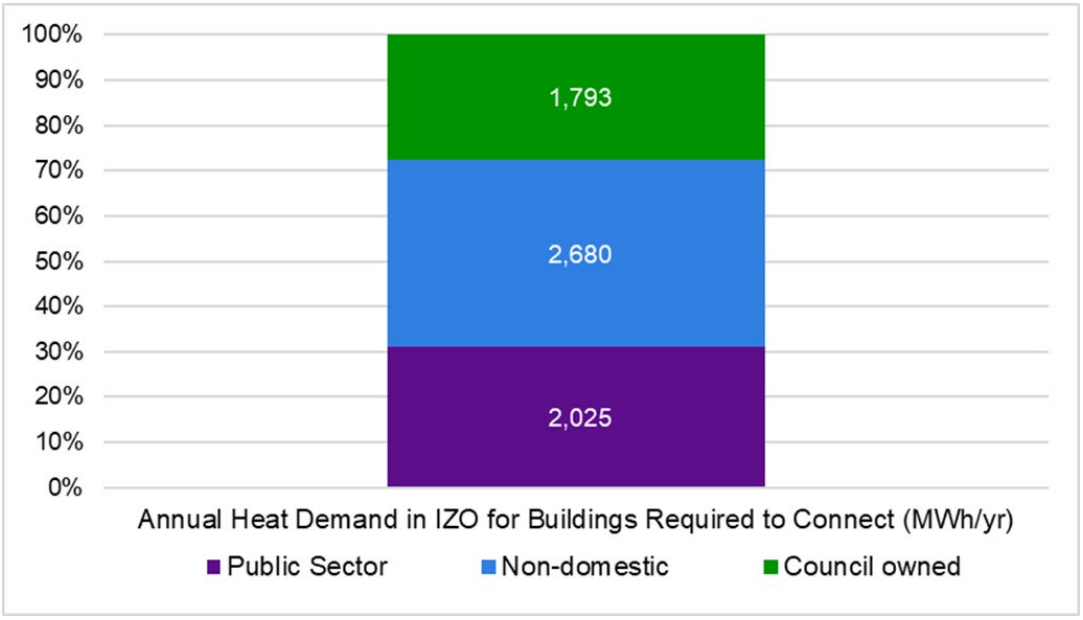


Table 8: Bridlington West - Key Heat Demands Required to Connect in the IZO[13]

Building name	Building category	Number of connections	Annual heat demand (MWh)	Data source
Bridlington and District Hospital Campus	Public Sector	1	2,025	ERIC
Bridlington School	Council owned	1	1,800	Metered
Unit 20 Bessingby Way	Non-domestic	1	600	Benchmark (NZM)
Bessingby Industrial Estate Moorhouse Storage	Non-domestic	2	550	Benchmark (NZM)
Morrisons	Non-domestic	1	500	Benchmark (NZM)
West Building Supplies Centre	Non-domestic	1	425	Benchmark (NZM)
West Building Supplies Builders Merchant	Non-domestic	1	225	Benchmark (NZM)
Unit 1 Bessingby Way	Non-domestic	1	125	Benchmark (NZM)
Farmfoods	Non-domestic	1	125	Benchmark (NZM)
Moor House Bessingby Way	Non-domestic	1	100	Benchmark (NZM)

3.2.5) Bridlington West – IZO Heat Sources

The area north of Bridlington and District Hospital has been identified as an area with potential for deep geothermal heat extraction due to the local Sherwood Sandstone Aquifer. Previous geothermal studies indicate hot water within this permeable sandstone at a temperature of 40°c to 50°c at depths of approximately 1000m to 1500m deep. The 2015 and 2016 HNDU district energy feasibility studies for Bridlington highlighted the need for a network with enough connected load to enable the economics of a deep geothermal installation and recommended that this heat source be considered for a later phase of a heat network in Bridlington so that its

[13] Please refer to Appendix 3 for definitions related to building categories in this table.

costs can be paid back by being fully utilised as soon as it is installed. This site has therefore also been considered for a GSHP installation which could serve earlier phases of a heat network in Bridlington.

There is a wastewater treatment plant to the south-west of the town centre, shown on Map C in Appendix 1, which could potentially provide a further opportunity for waste heat extraction, although this has not been investigated further in this report due to the distance of around 3km between the plant and the nearest HNZ.

Table 9 and Table 10 in this section summarise the key heat sources and potential energy centre locations identified. These are also shown in Figure 8 in Section 3.2.3 above and on Map C in Appendix 1. The main heat source identified is deep geothermal heat, with a capacity of 5MW. A GSHP could provide a further capacity of 1.4MW. The council owned land adjacent to Bridlington and District Hospital has been proposed as an energy centre location.

Table 9: Bridlington West - Key Heat Source Opportunities for the IZO

Heat source type	Capacity (kWp)	Temperature (ºC)	Potential energy centre location
Deep geothermal	5,000	45	EC3
GSHP	1,400	10	EC3

Table 10: Bridlington West - Potential IZO Energy Centre Locations

EC ref number	Site type	Size (m^2)	Ownership	Heat source
EC3	Green space adjacent to the Hospital	19,000	ERYC	Deep geothermal heat and GSHP

3.2.6) Bridlington West – IZO Heat Distribution

Table 11 shows the network statistics including the network length and associated costs. Please refer to Section 3.1.6 and Appendix 5 for the assumptions used.

Table 11: Bridlington West - Indicative Heat Network Statistics for the IZO

IZO description	Network length (km)	Network cost (£m)
Bridlington West	~2	~5

3.2.7) Bridlington West – IZO Key Constraints and Mitigations

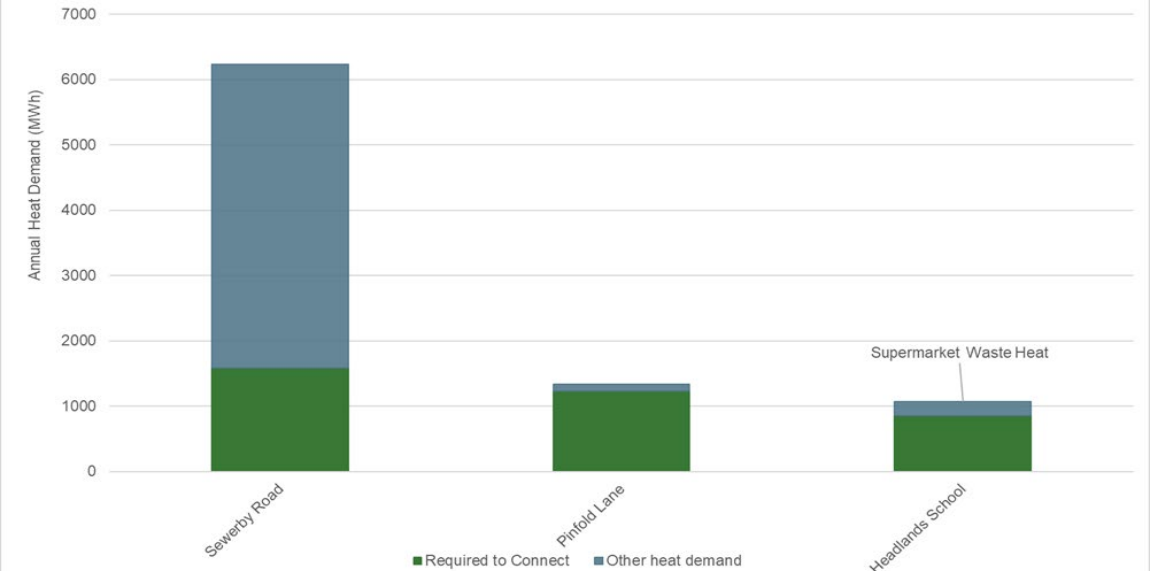
There are no major constraints identified for the proposed IZO network route.

4) Other Heat Network Zones

This section describes the 'Other' potential heat network zones that were identified in Bridlington. 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 10 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 10: Total Heat Demand and Proportion Required to Connect in Other HNZs



Sewerby Road: is situated in the centre of Bridlington, north-west of the town centre. This zone contains multiple educational buildings which could be required to connect to a heat network, including the Burlington schools, Bay Infant School and East Riding College, as well as a significant area of council owned social housing.

Pinfold Lane: is situated on the northern boundary of Bridlington. This zone is comprised entirely of new residential developments which could potentially be required to connect to a heat network. The timings of these developments are important to understand, to enable the successful rollout of a heat network within this zone.

Headlands School: is situated in the north-east of Bridlington, north of the town centre. This zone is small but is dense, containing a good proportion of heat demands that could be required to connect including Headlands School, Martongate Primary School and Bridlington North Library. The Co-op Food Store across the road from these schools offers a potential waste heat source.

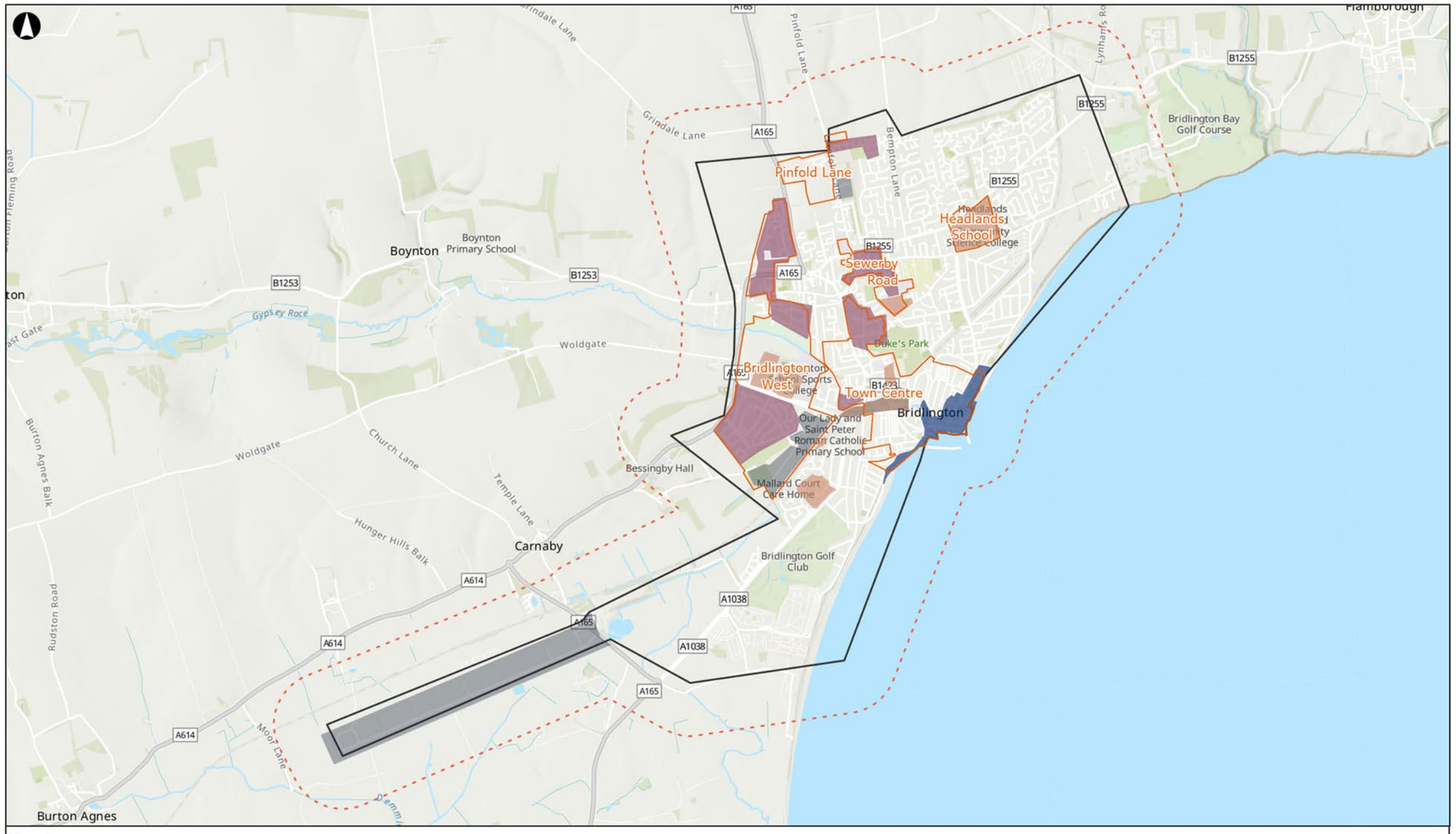
Appendix 1: Maps and Legends

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 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. Bridlington Typology Map



B. Key Heat Demands

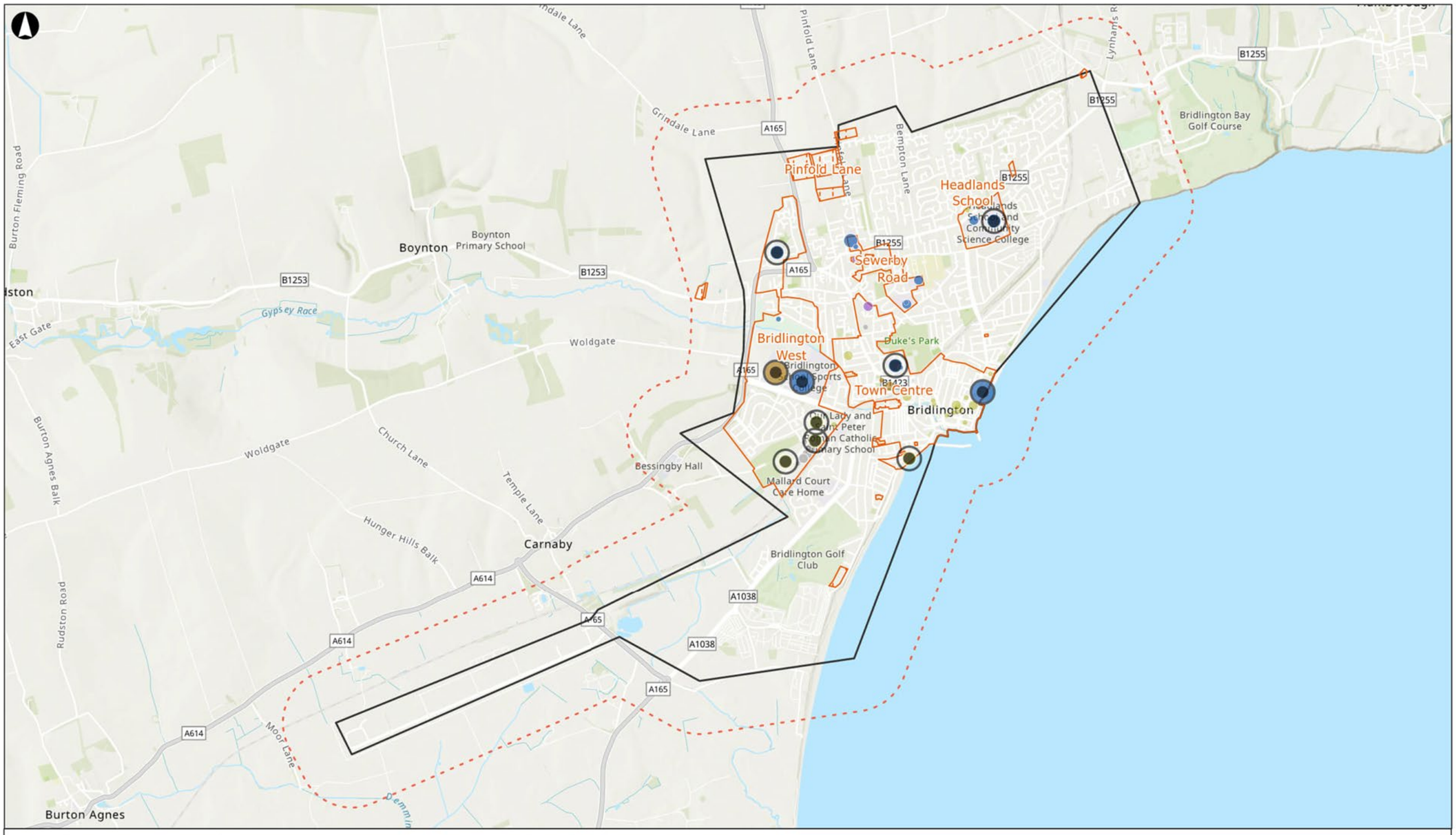
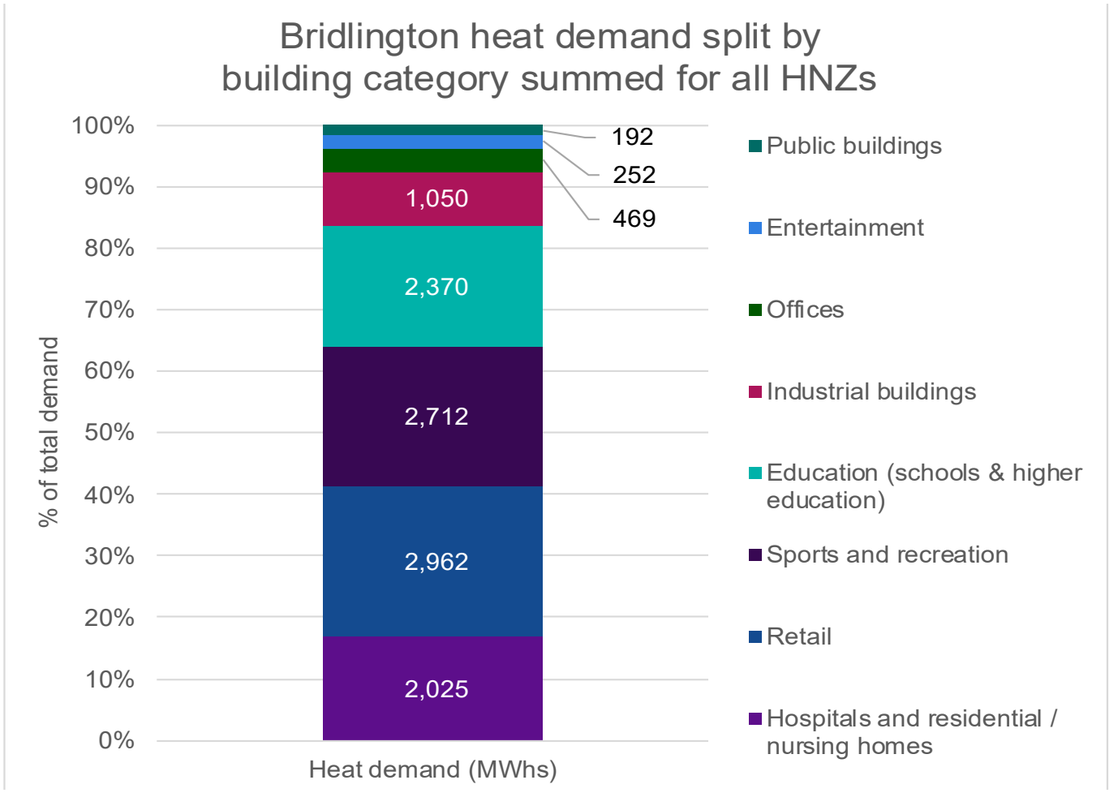


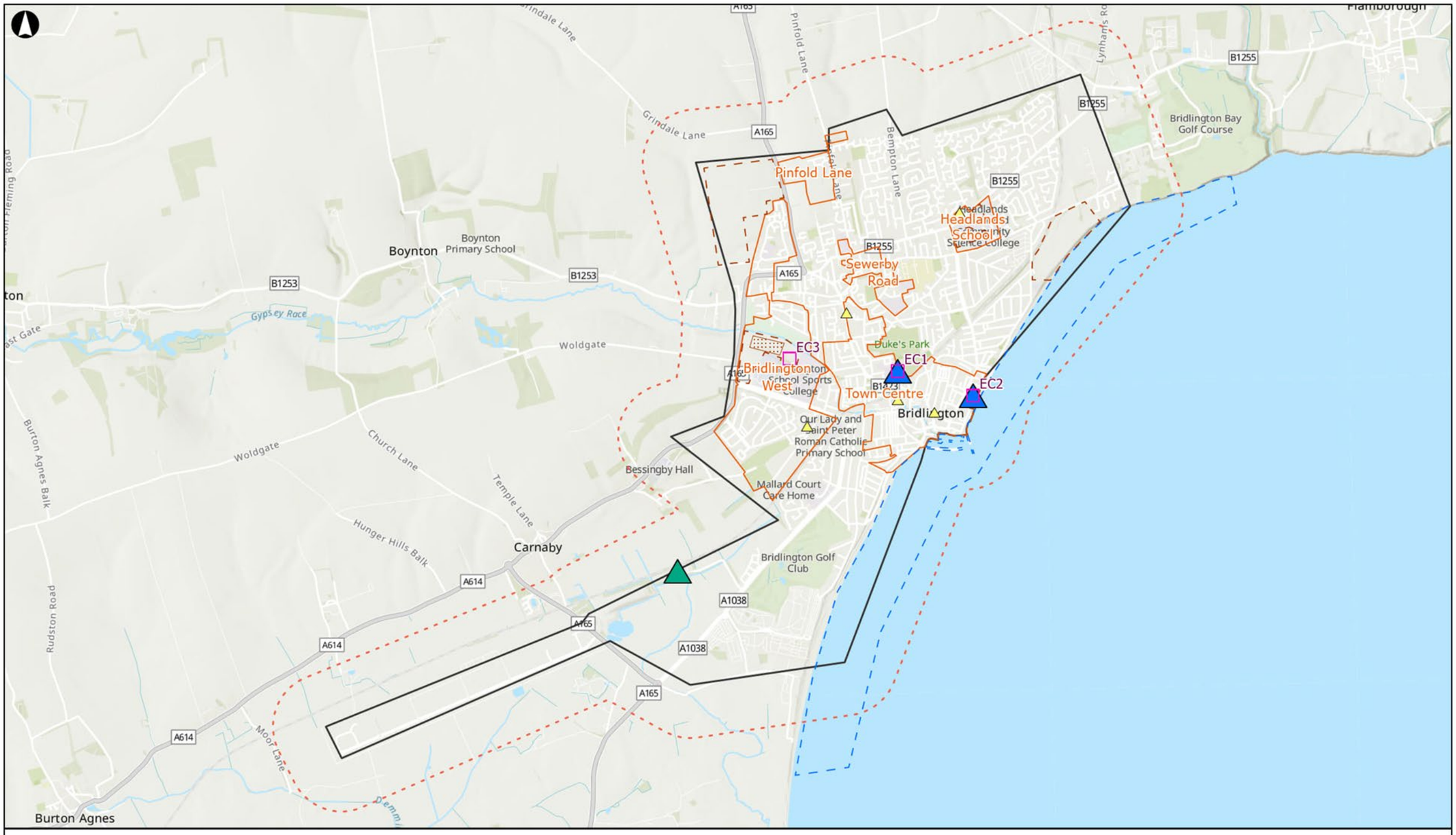
Table 12: Heat demand split further by Building Categories across all Initial Zone Opportunities identified in Strategic HNZs in the Study Area

Building category	Number of buildings required to connect in this category	Annual Heat Demand of buildings required to connect across IZOs (MWh)
Domestic	0	-
Education (schools & higher education)	3	2,350
Entertainment	1	250
Hospitals and residential / nursing homes	1	2,025
Hotels	0	-
Industrial buildings	4	1,050
Offices	3	475
Public buildings	1	200
Retail	12	2,950
Sports and recreation	2	2,700
Totals	**27**	**12,000**



Note: In Bridlington there are five HNZs with a total of two IZOs identified across them. The table and graph above summarise and categorise the heat demand for buildings potentially required to connect for all 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)
- < 0.5
- 0.5 - 1
- 1 - 10
- > 10

Energy Centres
- Potential IZO

0 0.5 1 2
Kilometers

Scale: 1:35,000
Coordinate System: British National Grid

Department for Energy Security & Net Zero

Bridlington

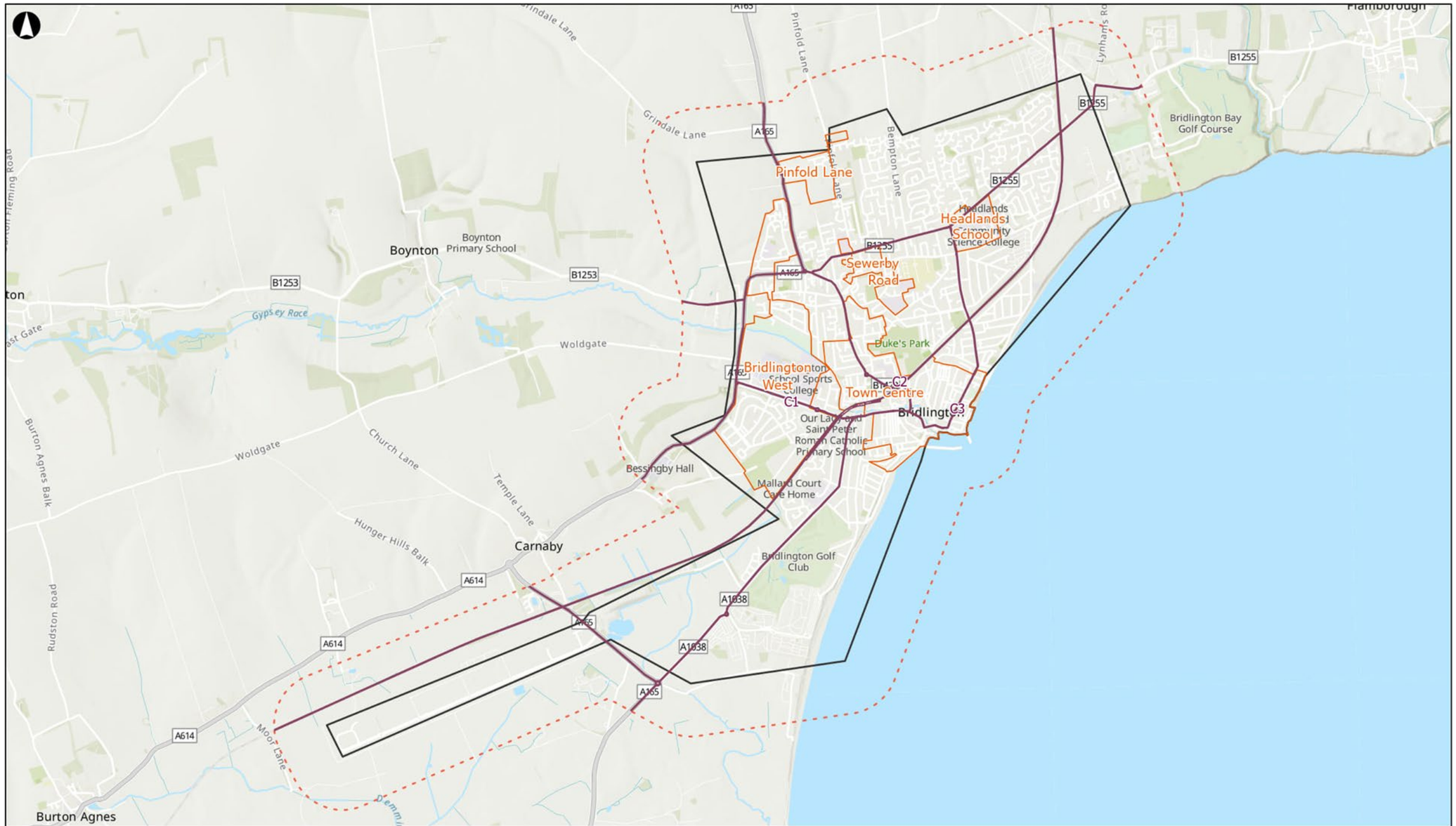
Map C

Key Heat Sources and Energy Centres

D. Existing and Planned Heat Networks

No relevant information available.

E. Physical Constraints



Boundaries

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

Key Constraints

0 0.5 1 2
Kilometers

Scale: 1:35,000

Coordinate System: British National Grid

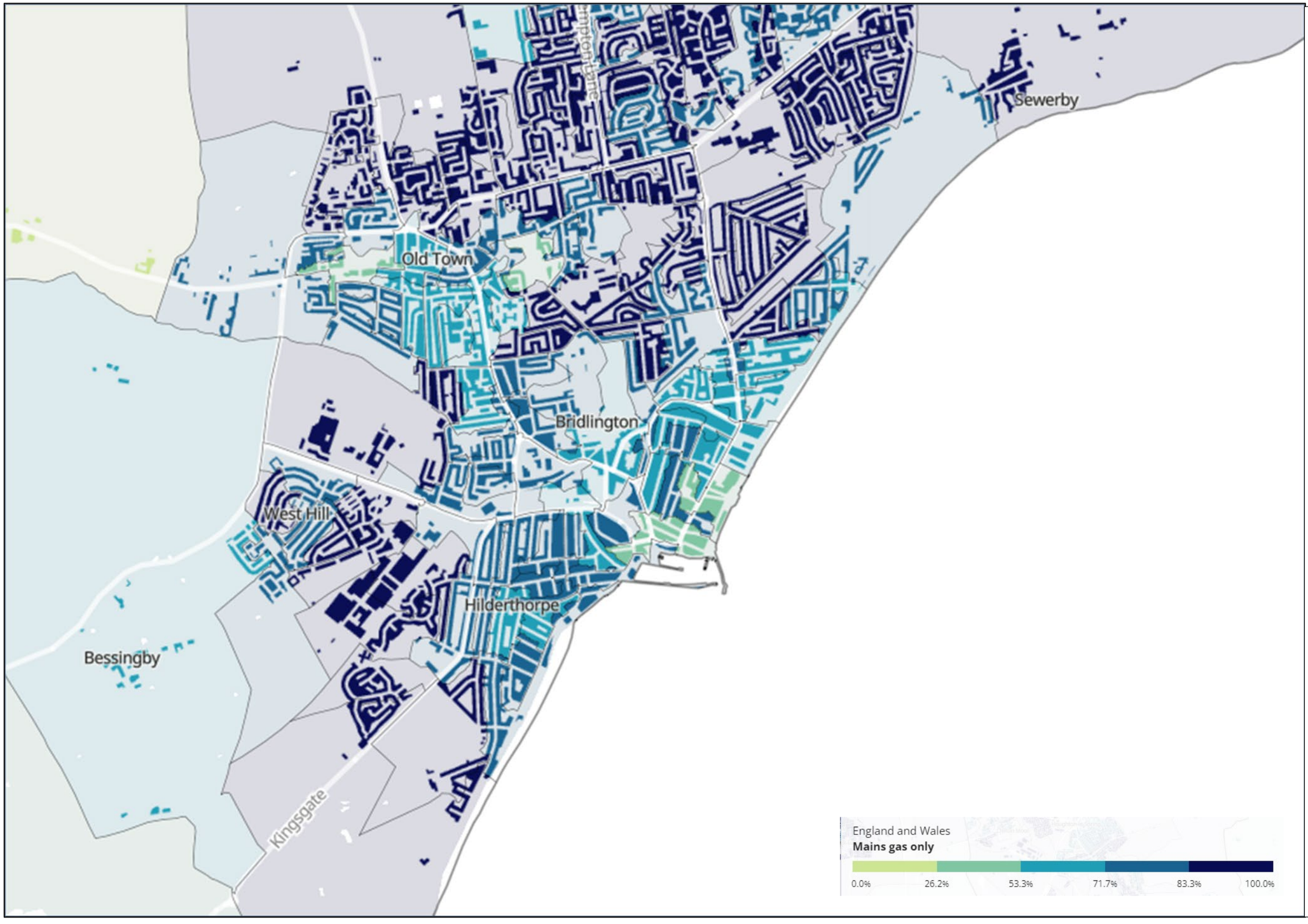
Department for Energy Security & Net Zero

Bridlington

Map E

Physical Constraints

F. Off-Gas Grid Areas in Bridlington



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 13: 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 14: Pilot Programme Study-Area-Specific Information Resources

Information resource	Description of resource
Bridlington Heat Network report (2015)	A heat network study investigating CHP and geothermal-led heat networks in Bridlington.
Bridlington District Energy Feasibility Study (2016)	A heat network study updating a previous heat network study carried out in 2015, including heat mapping and energy modelling and comparison of various CHP led networks.
Addendum to Bridlington District Energy Feasibility Study (2019)	An update to the 2016 study including geothermal heat as a potential heat source.
East Riding Local Plan 2012 - 2029	Local plan document showing site allocations, strategy and Bridlington Town Centre Area Action Plan

Information resource	Description of resource
East Riding of Yorkshire Council Heat Network Feasibility Study (2015)	A hydrogeological report looking into the feasibility of using deep geothermal boreholes to supply heat to district heat networks in the county.

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

If you need a version of this document in a more accessible format, please email alt.formats@energysecurity.gov.uk. Please tell us what format you need. It will help us if you say what assistive technology you use.