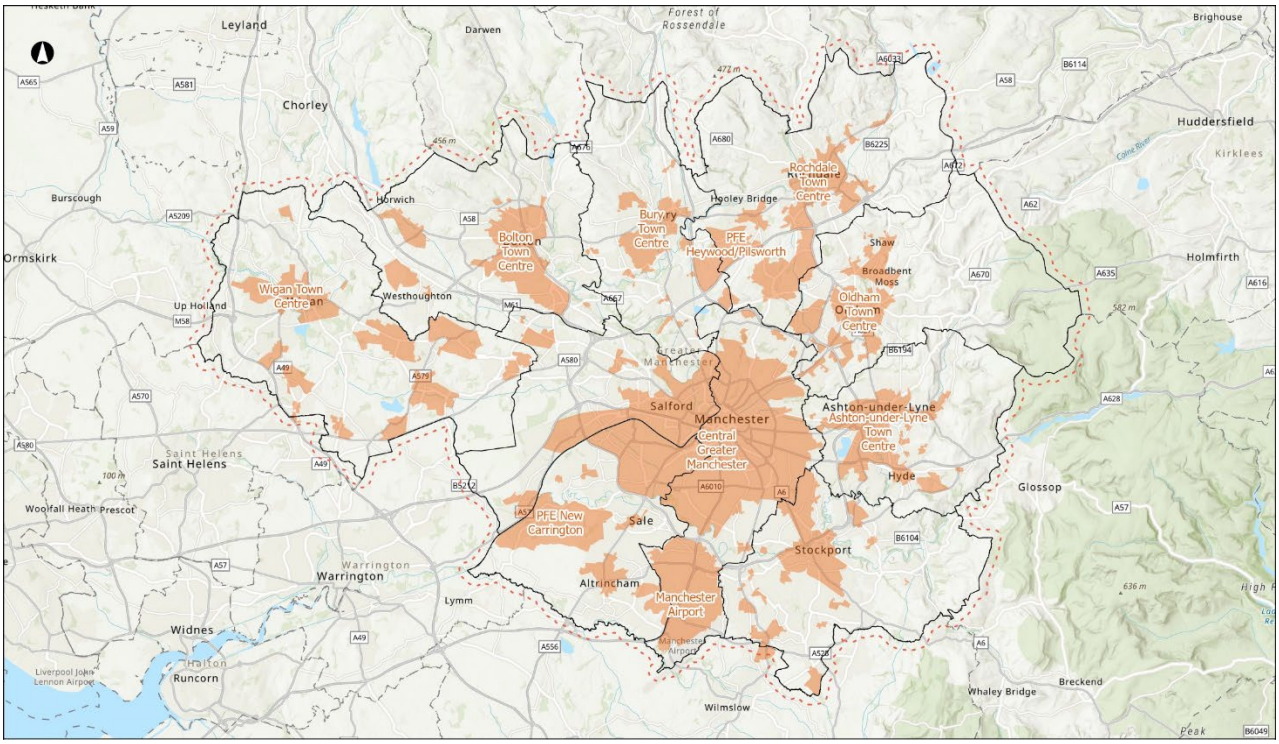
Department for Energy Security & Net Zero

Greater Manchester Combined Authority

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 with support from Greater Manchester Combined Authority. We are grateful to all stakeholders who participated in the Pilot programme.

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Contents

Executive Summary

About Greater Manchester: Greater Manchester is a city region in the north-west of England, home to over 2.8 million people and the third largest conurbation in the UK. This report contains opportunities across all ten metropolitan boroughs.

Local Energy Policy: GMCA declared a Climate Emergency in August 2019, aiming for carbon neutrality by 2038. Heat networks are a key part of their decarbonisation strategy.

Existing heat networks: There are over 800 existing heat networks in Greater Manchester, including Media City, Manchester Energy Network and St Mary's in Oldham. Numerous other networks are planned or in development.

Zones identified: 80 heat network zones were identified in GMCA, with a total annual heat demand of 4,650GWh/yr for all buildings potentially required to connect within these zones.

Strategic heat network zones: Ten strategic zones were identified, with a total heat demand of 3,400GWh/yr for buildings potentially required to connect. These include zones in Manchester city centre, Stockport, Trafford, Bolton, and Oldham.

Key heat demands: The overall heat demand for buildings connected to the initial zone opportunities is 2,000GWh/yr. Key buildings include local hospitals, Manchester University, Manchester Airport and new developments.

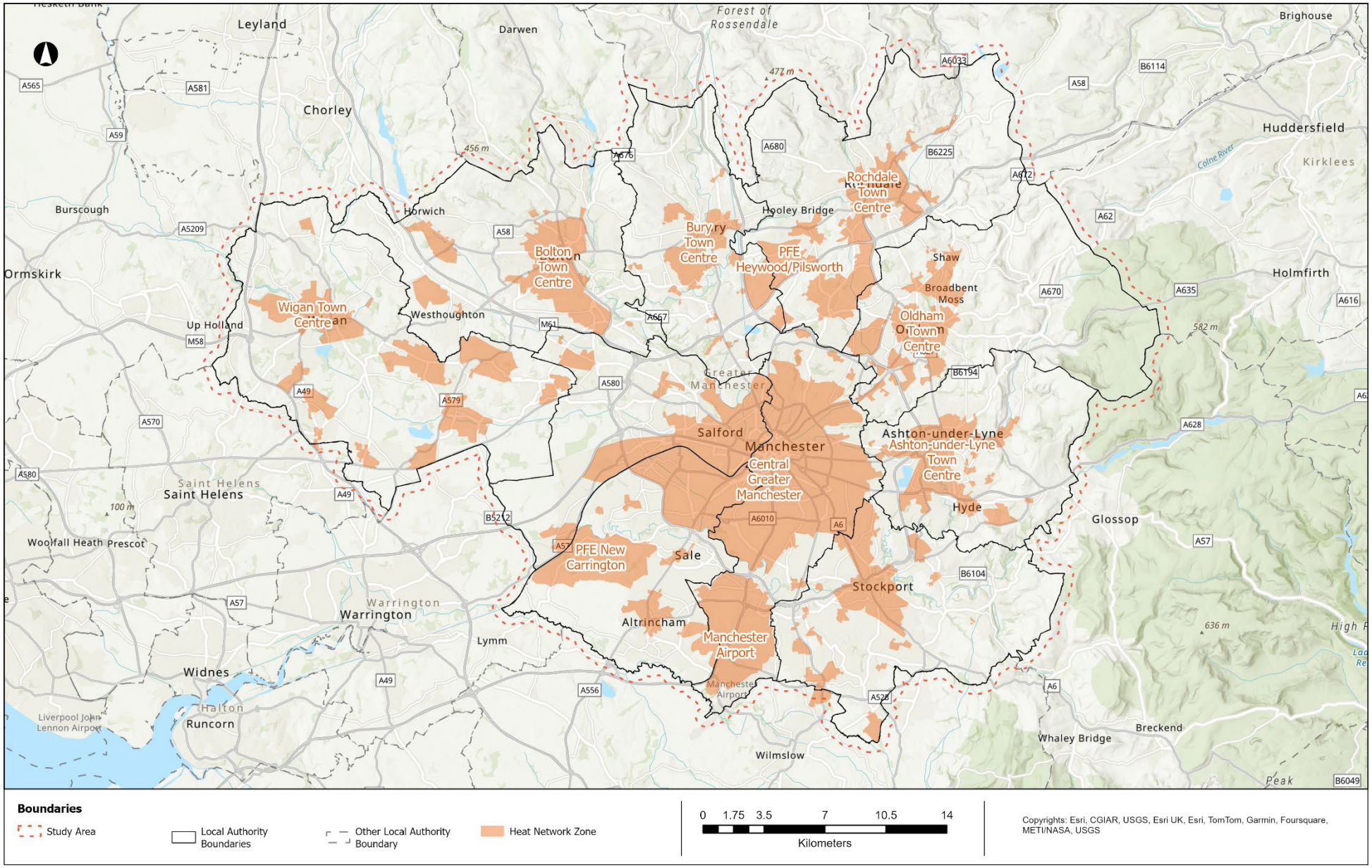
Key heat sources: Key potential heat sources include water source, sewer source and air source heat pumps, waste heat recovery and deep geothermal.

Estimated CapEx: The high-level estimate of capital expenditure to network all buildings required to connect in all zones is approximately £5.4bn, of which the initial zone opportunities amount to approximately £2.3bn.

Other heat network zones: Other smaller and standalone heat network zones have been identified in areas such as Prestwich Hospital, future development areas in Stockport, and HMP Hindley Prison.

Carbon savings: The initial zone opportunities identified could deliver carbon savings of around 300ktCO_{2e}/yr.

Figure 1: Overview of Heat Network Zones in GMCA



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 Greater Manchester and is intended to showcase potential heat network zones in the city region. The report indicates the heat network investment opportunity, 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.

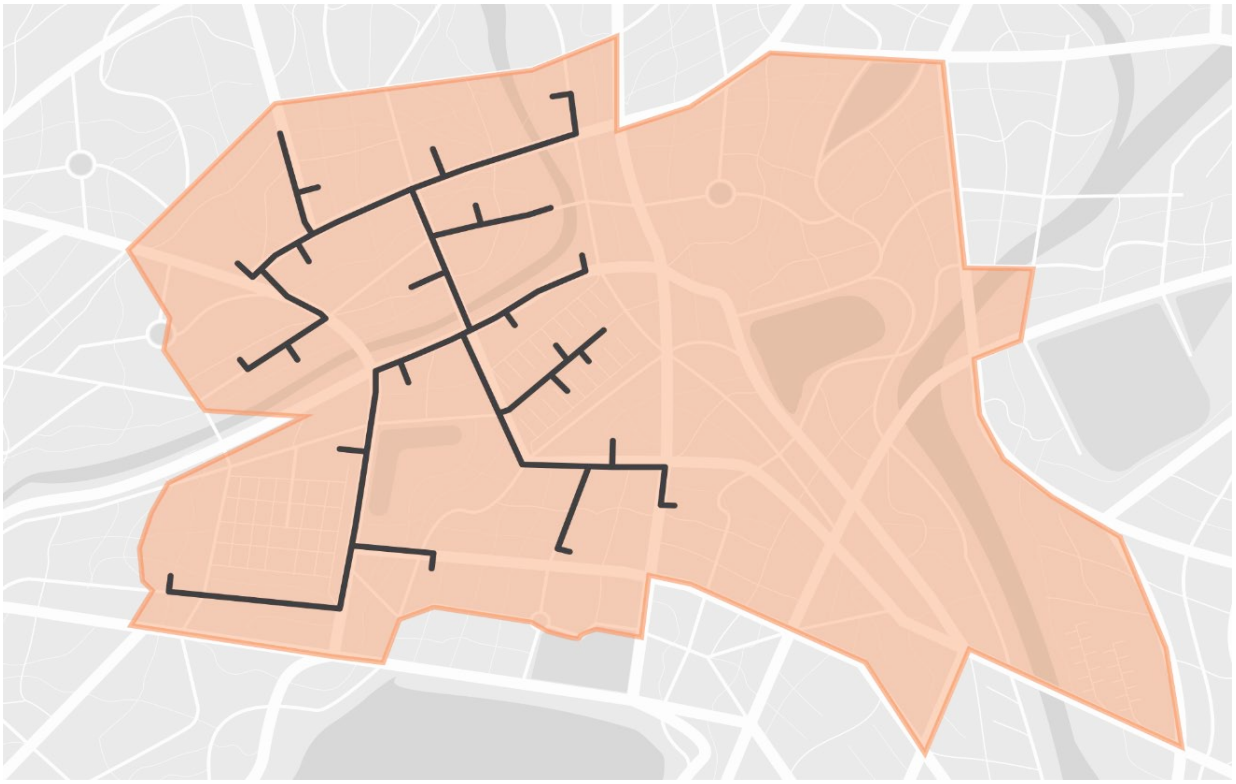
[1] More information can be found in the Heat Network Zoning Methodology Statements (Appendix 3, 4 & 5)

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 potentially 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 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.

Advanced Zoning Programme

The Advanced Zoning Programme (AZP) is working with 19 areas 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) GMCA Heat Networks Context

2.1) GMCA Area Overview

Greater Manchester is a city region in the north-west of the England, which is home to more than 2.8m people, a land area of 1,277km^2 and an economy bigger than that of Wales or Northern Ireland.

The Greater Manchester Combined Authority (GMCA) is made up of the ten local authorities: Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Stockport, Tameside, Trafford, and Wigan. These ten local authorities have a history of collaboration, which resulted in the formation of the combined authority which is the GMCA. In 2014, the GMCA entered a Devolution Agreement with the Government, this has given the GMCA an elected mayor, and has enabled the GMCA to have increased powers and control with their budgets and planning[3]. The Local Area Energy Plans (LAEPs) for the ten local authorities were published between May and October 2022, laying out the extent to which action is needed in each district to meet GMCA's net zero target of 2038. Generally, heat networks are seen as a priority in higher density areas. All ten local authorities have heat network studies at various stages.

There are large areas of both commercial and residential future development within Greater Manchester outlined in the Places for Everyone allocation document[4], such as the Heywood/Pilsworth (Northern Gateway) employment-led and New Carrington residential-led developments. These two areas have been included as Strategic HNZs as detailed in Section 3. In the 2021 consensus[5], 21% of households lived in social housing in Greater Manchester, slightly above the figure for England as a whole (17%). Greater Manchester Housing Providers provide over 250,000 affordable homes in the GMCA, this is a collaboration with 26 different housing providers and the GMCA[6].

2.2) GMCA Net Zero Targets and Commitments

GMCA declared a climate emergency in July 2019 following the publication of the Five-Year Environment Plan for Greater Manchester in March 2019, in which GMCA stated its ambition to achieve carbon neutrality by 2038.

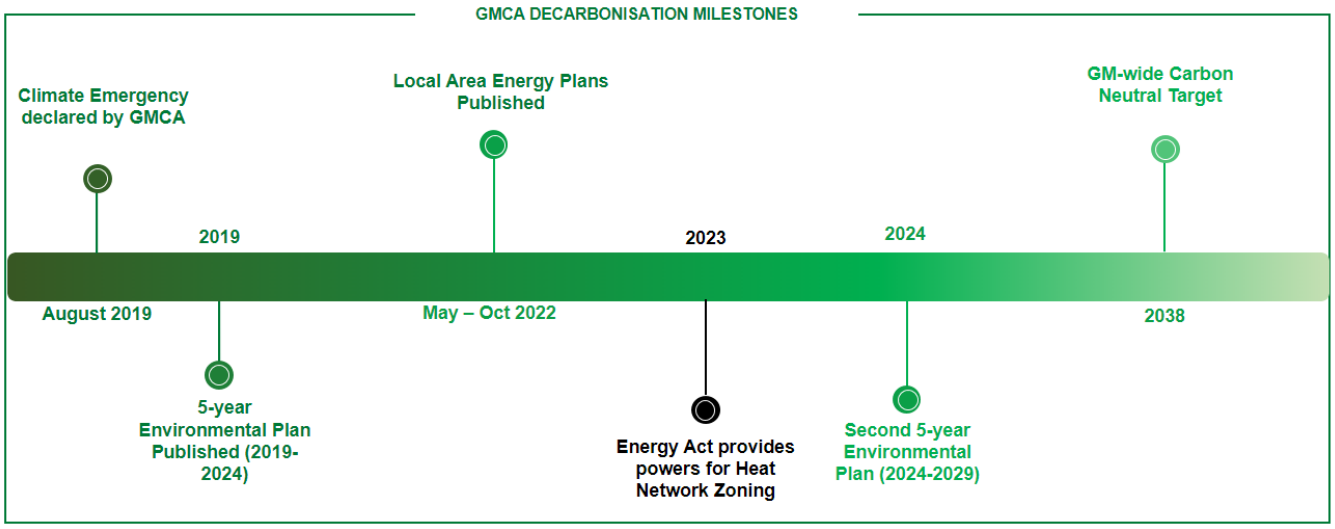
To inform these ambitions GMCA worked with the Tyndall Centre for Climate Research to develop a carbon budget for Greater Manchester that would be compatible with the Paris Agreement and limit global temperature rise this century to below 2°C and preferably 1.5°C.

[3]GMCA https://www.greatermanchester-ca.gov.uk/who-we-are/devolution/
[4]GMCA (2024) https://www.greatermanchester-ca.gov.uk/what-we-do/planning-and-housing/strategic-planning/places-for-everyone/
[5] GMCA (2023) Census 2021 Briefing Available at: https://www.greatermanchester-ca.gov.uk/media/7877/230414-housing-tenure-accessible.pdf
[6] Greater Manchester (2021) Greater Manchester Tripartite Agreement Available at: https://publication.max-mediagroup.co.uk/gmca-tripartite-agreement/cover/

GMCA commissioned the SCATTER tool to develop pathways to model the reduction needed in CO_2 emissions across Greater Manchester against the budgets recommended by the Tyndall Centre. The Five-Year Environment Plan sets out the immediate steps required from 2019 to 2024 to support the delivery of the region's carbon neutral ambitions. GMCA is currently in the process of developing a second 5-year Environment Plan for 2024 to 2029.

Figure 3 below, summarises key dates in GMCA's plans for decarbonisation to meet it's 2038 net zero target.

Figure 3: GMCA Decarbonisation Milestones



2.3) Delivering Heat Networks in GMCA

There are over 800 existing heat networks across Greater Manchester, although most of these are smaller communal systems. Two of these heat networks are district level in that they include a range of different building types and ownership levels and have the potential for significant expansion; these are Media City and Manchester Energy Network .

The Media City heat network and Manchester Energy Network are both located in the Central Greater Manchester zone. Manchester City Council are working in partnership with Vital Energi for the existing Manchester Energy Network. The Media City network is owned and operated by Leep Utilities working with the Media City UK developers Peel L&P and Landsec to provide heat, cooling and power to the area. There are a further four district heat network projects in this zone: the Octagon Project Energy Network (OPEN) along the A34 corridor; the Trafford Civic Quarter focused around the Trafford town hall; the Trafford Waters heat network in Trafford City; and the Stockport Town Centre scheme.

There are a further six district heat network projects at different stages of development across the Strategic HNZs identified for Greater Manchester: Ashton, Bolton Town Centre, Bury, Oldham Town Centre, Rochdale Town Centre and Wigan. Further detail on all these heat network schemes under development and existing heat networks can be found in Section 3 within the relevant Strategic HNZ discussion.

Local planning policies across the local authorities in GMCA are generally supportive of heat network development. Local core strategies include policies such as requirements for new developments to connect to heat networks where appropriate.

At a GMCA level, there is a wealth of support for businesses to reduce their carbon emissions, which includes connecting to heat networks. Support covers education, collaboration, and more, through initiatives such as MIDAS, and GM Business Growth Hub[7].

GMCA and the local authorities have been active participants in multiple DESNZ decarbonisation programmes, including the City Decarbonisation Delivery Plan, Heat Network Zoning Pilot Programme and Advanced Zoning Programme. Through this work, a broad range of stakeholders have been engaged such as large industrial, education and healthcare potential heat off takers. The work presented in this report is in alignment with the Advanced Zoning Programme (AZP), where relevant, within GMCA.

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

2.4) GMCA Heat Network Zones

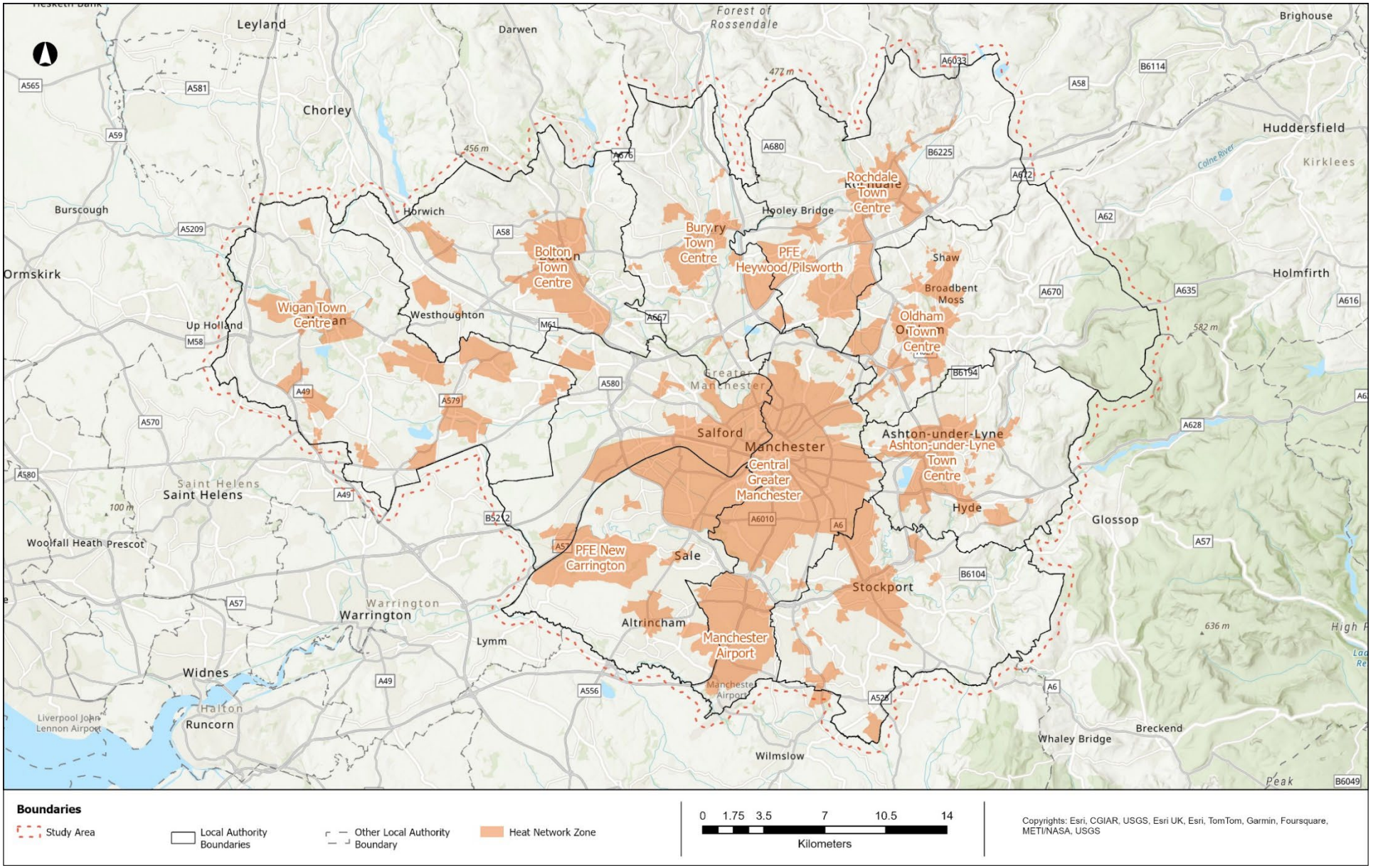
A total of 80 potential HNZs have been identified across GMCA, with ten considered Strategic HNZs. Figure 4 below shows the study area boundary as well as the boundaries of all HNZs identified within GMCA. Strategic HNZs have been allocated a meaningful name agreed as relevant from a local perspective, which 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 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 HNs and planned extensions to them as well as any planned HNs in advanced stages of development.
- E: Key Constraints Map – Shows key topographical constraints identified.
- F: Off Gas Grid – presents areas with differing levels of properties off the gas grid within the study area.
- G: Coal Mine Water Map – shows area where coal mine water may be a possible heat source.

[7] Sites available at: Energy Innovation Agency: https://www.energyinnovationagency.co.uk/ Bee Net Zero: https://www.beenetzero.co.uk/ MIDAS: https://www.investinmanchester.com/ GM Business Growth Hub: https://www.businessgrowthhub.com/

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



3) Strategic Heat Network Zones

Strategic HNZs in GMCA

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 GMCA. 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[8]	4,650
All buildings required to connect in strategic zones	3,400
All buildings connected to the IZOs	2,000

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 ten 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.

Ashton-under-Lyne Town Centre is the largest zone in Tameside in terms of heat demand and area, including Ashton town centre and Tameside General Hospital. One IZO has been identified with an estimated CapEx of £225m, which would connect to circa 200GWh/yr of heat demand, saving around 25ktCO_{2e}/yr. For more information, please see Section 3.1.

[8] 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. Figures are generally rounded up to the nearest 25 or 50GWh/yr.

Bolton Town Centre is the largest zone identified in Bolton in terms of heat demand and area, covering Bolton and Farnworth town centres and including Royal Bolton Hospital. One IZO has been identified with an estimated CapEx of £175m, which would connect to over 150GWh/yr of heat demand, saving around 25ktCO_{2e}/yr. For more information, please see Section 3.2.

Bury Town Centre is the largest zone identified in Bury local authority in terms of heat demand and area, including Bury town centre and redevelopment area. One IZO has been identified with an estimated CapEx of £125m and would connect to approximately 100GWh/yr of heat demand, saving around 15ktCO_{2e}/yr. For more information, please see Section 3.3.

Central Greater Manchester is the largest zone identified across GMCA by heat demand and area, covering Manchester City Centre, Trafford Park, Stockport Town Centre and areas of Salford. Five IZOs have been identified within this zone, these are Manchester City Centre, Manchester OPEN, Salford Eccles, Stockport Town Centre and Trafford. The combined IZOs have an estimated CapEx of £1,100m and would connect to approximately 1,150GWh/yr of heat demand, saving around 165ktCO_{2e}/yr. For more information, please see Section 3.4.

Manchester Airport zone includes Manchester Airport, Wythenshawe Hospital, Wythenshawe town centre and a future development allocation referred to as Timperley Wedge[9]. One IZO has been identified within this zone. This IZO has an estimated CapEx of £175m and would connect to approximately 150GWh/yr of heat demand, saving around 20ktCO_{2e}/yr. For more information, please see Section 3.5.

Oldham Town Centre is the largest zone identified in Oldham local authority in terms of heat demand and area, covering Oldham town centre and Royal Oldham Hospital. One IZO has been identified with an estimated CapEx of £125m and would connect to approximately 100GWh/yr of heat demand, saving around 15ktCO_{2e}/yr. For more information, please see Section 3.6.

PFE Heywood/Pilsworth zone covers the strategic employment-led future development allocation called 'Heywood Pilsworth (Northern Gateway)'. One IZO has been identified with an estimated CapEx of £50m and would connect to approximately 50GWh/yr of heat demand, saving over 5ktCO_{2e}/yr. For more information, please see Section 3.7.

PFE New Carrington zone covers the residential-led future development allocation for 'New Carrington' and waste heat sources Carrington Power Station and Saica Paper Mill. One IZO has been identified with an estimated CapEx of £75m and would connect to approximately 50GWh/yr of heat demand, saving over 5ktCO_{2e}/yr. For more information, please see Section 3.8.

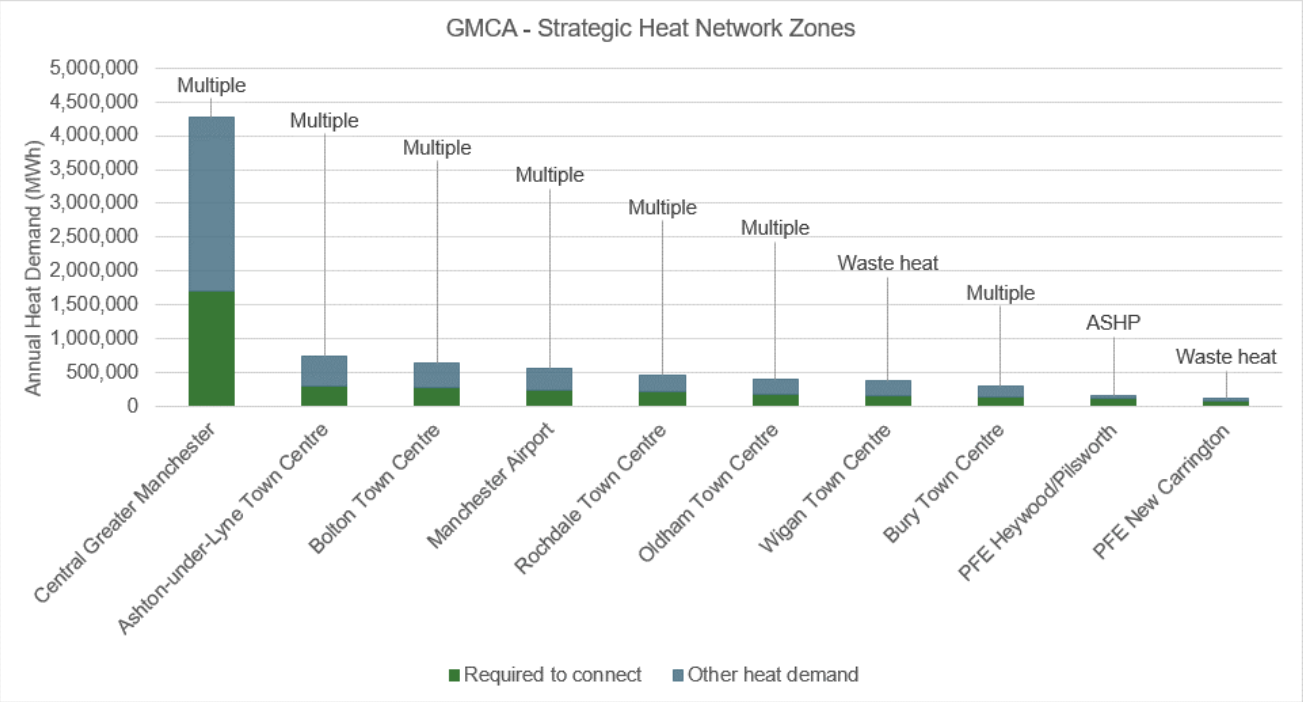
Rochdale Town Centre is the largest zone identified in Rochdale in terms of heat demand and area, covering Rochdale town centre and Rochdale Infirmary. One IZO has been identified

[9] Greater Manchester Combined Authority, (2021) Places for Everyone Joint Development Plan Document. https://www.greatermanchester-ca.gov.uk/what-we-do/planning-and-housing/places-for-everyone/previous-stages/places-for-everyone-submission-documents-2022/ see allocations JPA3.2, JPA1.1 and JPA33.

with an estimated CapEx of £75m and would connect to approximately 50GWh/yr of heat demand saving over 5ktCO_{2e}/yr. For more information, please see Section 3.9.

Wigan Town Centre is the largest zone identified in Wigan in terms of heat demand and area, including Wigan town centre and Royal Albert Edward Infirmary. One IZO has been identified with an estimated CapEx of £175m and would connect to approximately 150GWh/yr of heat demand saving over 20ktCO_{2e}/yr. For more information, please see Section 3.10.

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



3.1) Ashton-under-Lyne Town Centre

3.1.1) Ashton-under-Lyne Town Centre – HNZ Summary

Ashton-under-Lyne Town Centre is the largest HNZ in Tameside in terms of heat demand and area, covering Ashton-under-Lyne, Dukinfield and Stalybridge town centres as shown in Figure 6. The zone includes 715 existing buildings that could potentially be required to connect to a heat network, including a large proportion of non-domestic private sector buildings such as offices and retail buildings, public sector buildings and multiple new developments. Tameside General Hospital, Copley Leisure Centre, and several future development sites, including Ashton Moss West future allocation site are among anchor loads. Key low carbon heat sources identified include the potential for WSHPs and SSHPs. There is currently one heat network under early development.

3.1.2) Ashton-under-Lyne Town Centre - Existing Heat Networks

There are five operational communal heat networks and one early stage proposed district heat network (DHN) in development in Ashton-under-Lyne, as described below.

Operational Heat Networks and Planned Expansions

There are no existing heat networks that have been identified within Ashton-under-Lyne HNZ other than communal systems. According to data from the Heat Networks Metering and Billing Regulations, there are five existing communal systems. These communal heat networks serve a total of 135 residential customers.

Proposed Heat Networks – Early stage

Concept Study Ashton

In 2022, a concept study was completed in Ashton-under-Lyne to determine the viability of a heat network. The study identified a 1.2MW ground source heat pump as the preferred primary low carbon heat source supplying a 2.2km district heat network in the town centre. Mine-water heat, the River Tame, waste-water treatment works and large sewers in the area have been identified as alternative options. Key connections to the network include Clarendon Sixth Form College, Tameside One, and St Peter's Field Development with a total demand of 8GWh/yr.

3.1.3) Ashton-under-Lyne Town Centre - Initial Zone Opportunities

A single IZO was identified. Potential routing[10] for the IZO is shown in Figure 6 and summary statistics provided in Table 2.

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

Table 2: Ashton-under-Lyne Town Centre - Summary Statistics for Initial Zone Opportunities[11]

CapEx	Heat	Network	CO_2e savings	Linear Heat Density	Heat Sources
~£225m	>150GWh/yr	>45km	~25ktCO_{2e}/yr	4.0MWh/m	Sewer, water and air source heat pumps

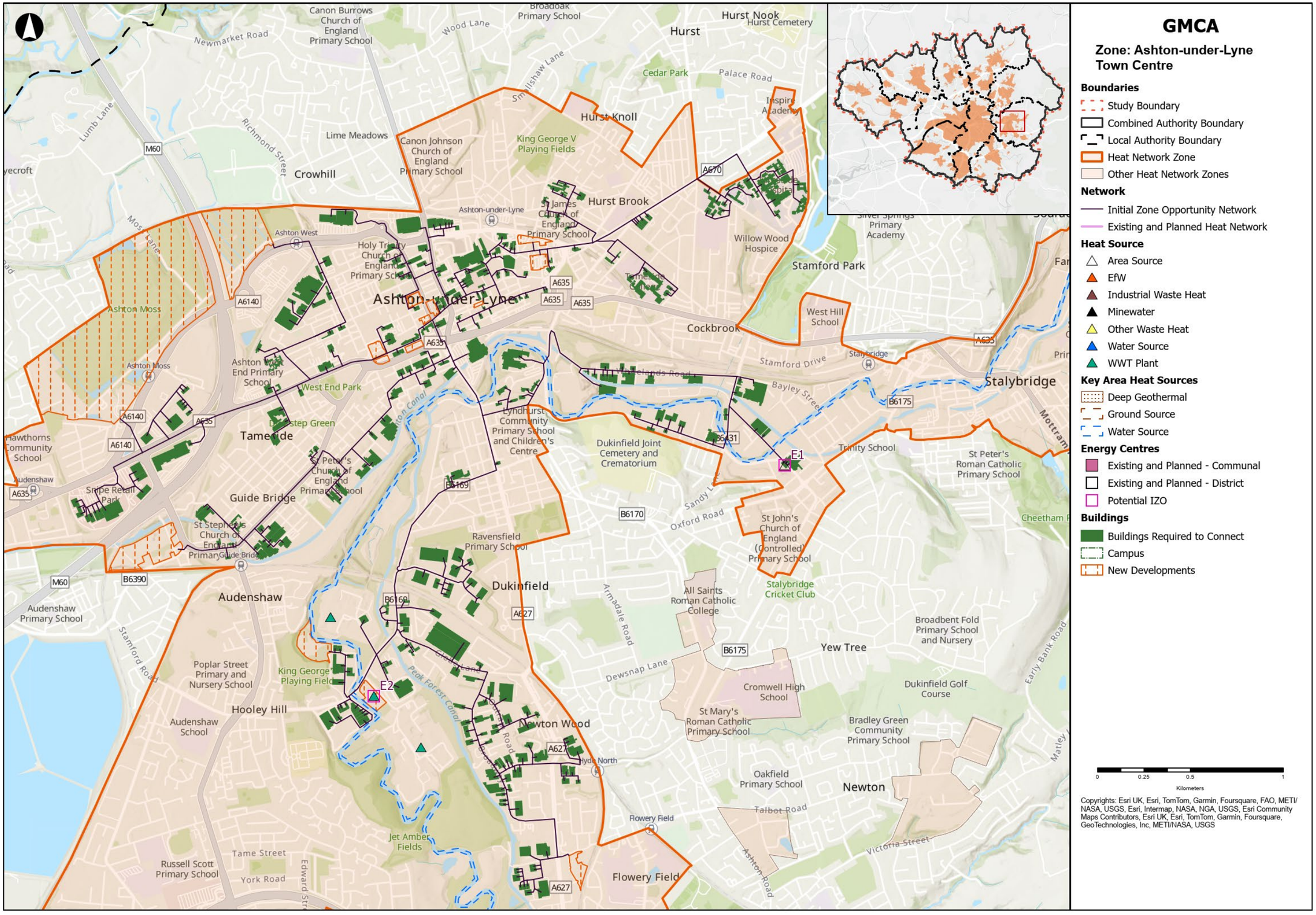
The IZO was chosen based on the high heat demand of Ashton-under-Lyne town centre, including key anchor loads such as Tameside General Hospital, and the opportunity to recover heat from wastewater treatment sites to supply low carbon heat to a network. The identified IZO has a network length of around 45km.

The IZO aligns well with previous studies which have identified the potential for a heat network in the town centre including the concept study (described in Section 3.1.2) and Tameside LAEP[12], both proposing connection to many of the same council owned buildings.

Key constraints to the development of the IZO are the need to cross several physical barriers, including canals, a river, the M60 and a railway line. This does not prohibit the development of the IZO and actions to address these constraints are outlined in Section 3.1.7.

[11] Please see Appendix 3 – Glossary, "Specific definitions" of the main report for definitions related to this table.
[12] Greater Manchester Combined Authority. (2022) Local Area Energy Plan Tameside. Available at: https://gmgreencity.com/projects-and-campaigns/local-energy-market/

Figure 6: Initial Zone Opportunities in Ashton-under-Lyne Town Centre HNZ



3.1.4) Ashton-under-Lyne Town 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 IZO presented here connects to 324 existing buildings and 15 new developments which could potentially be required to connect to the network, with an overall heat demand of circa 150GWh/yr. Key loads include Tameside General Hospital and Ashton Moss West office development. Figure 7 shows the breakdown of heat demand based on building type.

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

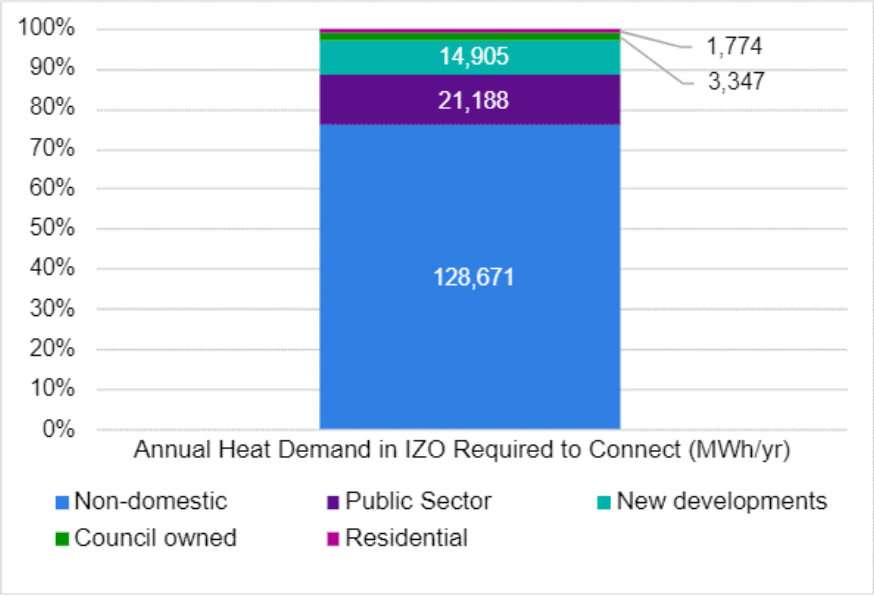


Figure 7 shows that most heat demand connected to Ashton-under-Lyne Town Centre IZO is from non-domestic private sector buildings, making up 76% of the heat demand. Public sector buildings represent 12% of building demand, and a mixture of new developments make up 9%.

Further details of the key heat demands for buildings potentially required to connect in the IZO are provided in Table 3. The largest load within Ashton-under-Lyne Town Centre IZO is Tameside General Hospital which has an all-wet system. The second largest demand is Ashton Moss West, which is a future commercial development, located to the west of the IZO. It has been assumed to have one connection point for the purposes of this analysis. Seven of

the top ten heat demands are non-domestic private sector loads, this includes an IKEA retail unit and The Arcades which is a retail centre.

Table 3: Ashton-under-Lyne Town Centre - Key Heat Demands Required to Connect in the IZO[13]

Building name	Building category	Number of connections	Annual Heat Demand (MWh)	Data Source
Tameside General Hospital	Public Sector	Unknown	19,800	ERIC
Ashton Moss West	New developments	1	8,800	Pilot methodology
IKEA	Non-domestic	1	4,800	Benchmark (NZM)
Globe Works Unit	Non-domestic	1	4,450	Benchmark (NZM)
Kayley Industrial Estate Unit	Non-domestic	1	3,850	Benchmark (NZM)
The Arcades	Non-domestic	1	3,250	Benchmark (NZM)
Scapa UK	Non-domestic	1	3,200	Benchmark (NZM)
Tameside College	Public Sector	Unknown	2,750	DEC
Stamford Mill	Non-domestic	1	2,600	Benchmark (NZM)
Tameside Park Unit	Non-domestic	1	2,500	Benchmark (NZM)

3.1.5) Ashton-under-Lyne Town Centre – IZO Heat Sources

Several low carbon heat sources have been identified. A mixture of these sources would be suitable to supply the heat demand of the IZO, with a total capacity of 44.5MW. Table 4 and Table 5 in this section summarise the key heat sources and potential energy centre locations identified for this IZO. These are also shown in Figure 6 in Section 3.1.3 above and on Map C in Appendix 1.

Potential heat sources include sewer source heat pumps (SSHPs) recovering heat from Ashton Wastewater Treatment Works (WWTW) and Dukinfield WWTW, and water source heat pumps (WSHPs) recovering heat from the River Tame. There is also opportunity for air source

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

heat pumps (ASHPs) or ground source heat pumps (GSHPs). These type of heat sources are location agnostic so could be situated in smaller energy centres located across the IZO.

Two potential energy centre locations have been identified, E1 is land adjacent to the B6431 and the River Tame, and E2 is land adjacent to Shepley Road and Gate Street.

Table 4: Ashton-under-Lyne Town Centre - Key Heat Source Opportunities for the IZO

Heat source type	Supplied Capacity (kWp)[14]	Temperature (Degrees Centigrade)	Potential Energy Centre (Ref number)
WSHP - River Tame	5,400	5-15	E1
SSHP - WWTW	4,900	10-20	E2
SSHP - WWTW	7,100	10-20	E2
ASHP - Location agnostic	27,100	5-15	E1 and/or E2

Table 5: Ashton-under-Lyne Town Centre - Potential IZO Energy Centre Locations

EC Ref #	Site type	Size (m^2)	Ownership	Heat Source
E1	Land	5,000	Private	WSHP and ASHP
E2	Land	7,000	Private	SSHP and ASHP

3.1.6) Ashton-under-Lyne 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 IZO 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 below, shows the network

[14] The supplied capacity in this table represents the output of plant that is envisaged to be suitable to meet the needs of the IZO.

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

At this stage a possible energy centre located on land adjacent to Gate Street and Shepley Road beside the River Tame (E2) has been identified to serve the IZO. Heat will be distributed north, crossing the River Tame to Ashton-under-Lyne town centre, and future development sites such as Ashton Moss on Lord Sheldon Way. Heat will also be distributed south again across the river to Dukinfield parallel to the Peak Forest Canal.

Table 6: Ashton-under-Lyne Town Centre - Indicative Heat Network Statistics for the IZO

IZO Heat Network description	Network length (km)	Network cost (£m)
Ashton-under-Lyne Town Centre	45	100

3.1.7) Ashton-under-Lyne Town Centre – IZO Key Constraints and Mitigations

[C1] River crossing: The River Tame runs through the IZO, with the network crossing the river at various points ranging from 20 to 35m wide. Existing bridges have been identified at five locations which provide potential opportunities for crossing (Cavendish Street, Whitelands, Clarence Street, Tame Street and Shepley Road). A feasibility assessment would be required to check the suitability of these bridges to accommodate the heat network pipework (size and weight) and would likely require engagement with the Canal and River Trust and the relevant highways authority.

[C2] Canal crossing: The Huddersfield Narrow Canal runs through the IZO, with the network crossing the canal at various points ranging from 10 to 15m wide. Bridges have been identified at three locations which provide potential opportunities for crossing (Whitelands, Clarence Street, Whitelands Road). A feasibility assessment would be required to check suitability of the bridges to accommodate the heat network pipework (size and weight) and would likely require engagement with the Canal and River Trust and the relevant highways authority.

[C3] Canal crossing: The Ashton Canal also runs through the IZO, with the network crossing the canal at various points ranging from 15 to 20m wide. Bridges have been identified at two locations which provide potential opportunities for crossing (Cavendish Street, Stockport Road). A feasibility assessment would be required to check suitability of the bridges to accommodate the heat network pipework (size and weight) and would likely require engagement with the Canal and River Trust and the relevant highways authority.

[C4] Canal crossing: The Peak Forest Canal also runs through the IZO, with the network crossing the canal at a width of 15m. The Ashton Street bridge has been identified as a potential crossing opportunity. A feasibility assessment would be required to check suitability of the bridge to accommodate the heat network pipework (size and weight) and would likely require engagement with the Canal and River Trust and the relevant highways authority.

[C5] Road crossing: The A6140 is a four-lane dual carriageway separated by two tram lines, with the network crossing at various points across the IZO (Lord Sheldon Way, Richmond Street, Cavendish Street, and Oldham Road). A feasibility assessment would be required to check the suitability of this crossing point and would likely require engagement with the relevant highways authority and Metrolink.

[C6] Road crossing: The M60 motorway is a six-lane dual carriageway running through the IZO. The existing A635 bridge has been identified as a potential point of crossing. A feasibility assessment would be required to check suitability of the bridge to accommodate the heat network pipework (size and weight) and would likely require engagement with the relevant highways authorities.

[C7] Railway crossing: At two locations along the IZO the regional railway line that runs through Ashton is crossed. Two existing bridges have been identified as potential opportunities for crossing the railway line (Penny Meadow, Astley Street). A feasibility assessment would be required to check suitability of the bridges to accommodate the heat network pipework (size and weight) and would require engagement with Network Rail and the relevant highways authority.

3.2) Bolton Town Centre

3.2.1) Bolton Town Centre – HNZ Summary

Bolton Town Centre is the largest HNZ in Bolton covering the town centre as shown in Figure 8.The zone includes 694 existing buildings that could potentially be required to connect to a heat network, including a large proportion of non-domestic private sector buildings such as offices and retail buildings, public sector buildings and multiple new developments. Key anchor loads include Royal Bolton Hospital and the University of Bolton. Key low carbon heat sources include the potential for WSHPs and SSHPs. There is currently one heat network under development.

3.2.2) Bolton Town Centre - Existing Heat Networks

There are 45 operational communal heat networks and one planned district heat network in Bolton Town Centre, as described below.

Operational Heat Networks and Planned Expansions

There are no existing heat networks that have been identified within Bolton Town Centre HNZ other than communal systems. According to data from the Heat Networks Metering and Billing Regulations, there are 81 existing communal systems. These communal heat networks serve a total of 1,238 residential customers and 34 non-residential customers.

Planned Heat Networks – Late stage

Advanced Zoning Programme

A £50m heat network project is proposed in Bolton, the **Bolton Town Centre Heat Network**, which has received £11m from the Green Heat Network Fund for the commercialisation and construction of the network. The heat network plans to connect 42 buildings delivering ~30GWh of heat per year once completed. The project proposes to utilise heat from a SSHP, thermal storage and gas boilers to meet peak demand.

A wider zone network opportunity across Central Bolton is aiming to be procured through the Advanced Zoning Programme, with a CapEx of around £300m, delivering 250GWh/yr of heat to over 400 connections.

3.2.3) Bolton Town Centre – Initial Zone Opportunities

A single IZO was identified. Potential routing[15] for the IZO is shown in Figure 8 and summary statistics provided in Table 7.

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

Table 7: Bolton Town Centre - Summary Statistics for Initial Zone Opportunities[16]

CapEx	Heat	Network	CO_2e savings	Linear Heat Density	Heat Sources
~£175m	>150GWh/yr	~40km	~25ktCO_{2e}/yr	4.8MWh/m	WSHPs, SSHPs and ASHPs

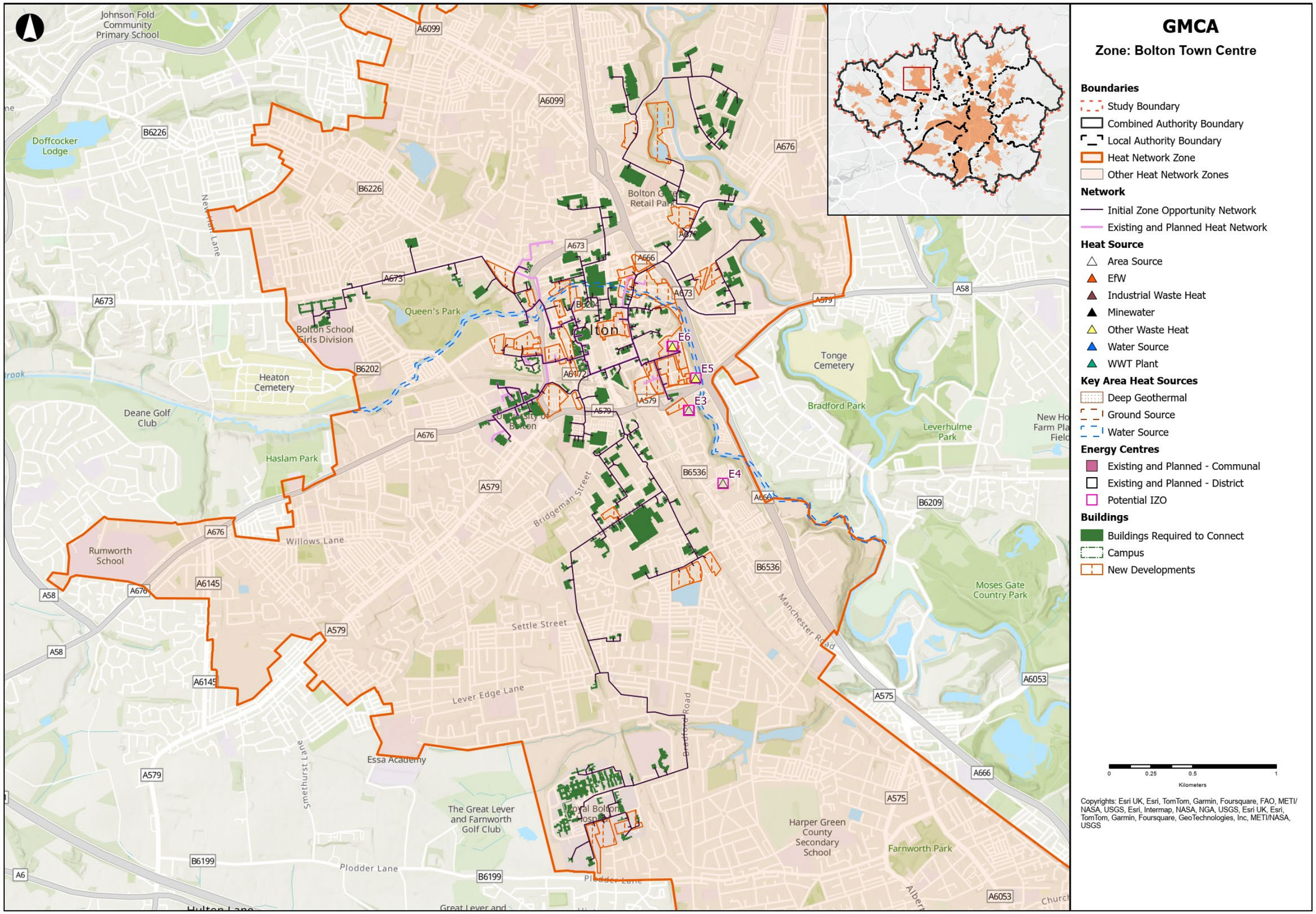
The IZO was chosen based on the high heat demand density within Bolton town centre, including key anchor loads such as the Royal Bolton Hospital and the University of Bolton, and its proximity to both the River Croal and the large sewers which present an opportunity to access low carbon heat technologies for the network. The identified IZO has an approximate length of 40km. Key constraints to the development of the IZO are a river and a railway line which run through the zone. These constraints do not prohibit the development of the IZO and actions to address these are outlined in Section 3.2.7.

The IZO aligns well with previous studies which have identified the potential for a heat network in the town centre including the planned Bolton District Heat Network which has been awarded GHNF funding, and the Bolton LAEP[17].

Whilst the information presented in this Zone Opportunity Report is dated June 2025, much of the work was undertaken in 2023/24 but not published until this date due to changing of governments and an evolving policy landscape. Bolton Council have since undertaken much more detailed work as part of the Advanced Zoning Programme and have further developed the zone opportunity and the scale and nature of the heat network scheme that is proposed to be brought to market in Summer 2025. The information contained within this document will therefore soon be superseded by more accurate information published under the Advanced Zoning Programme.

[16] Please see Appendix 3 – Glossary, “Specific definitions” of the main report for definitions related to this table.
[17]Greater Manchester Combined Authority. (2022) Local Area Energy Plan Bolton. Available at: https://gmgreencity.com/projects-and-campaigns/local-energy-market/

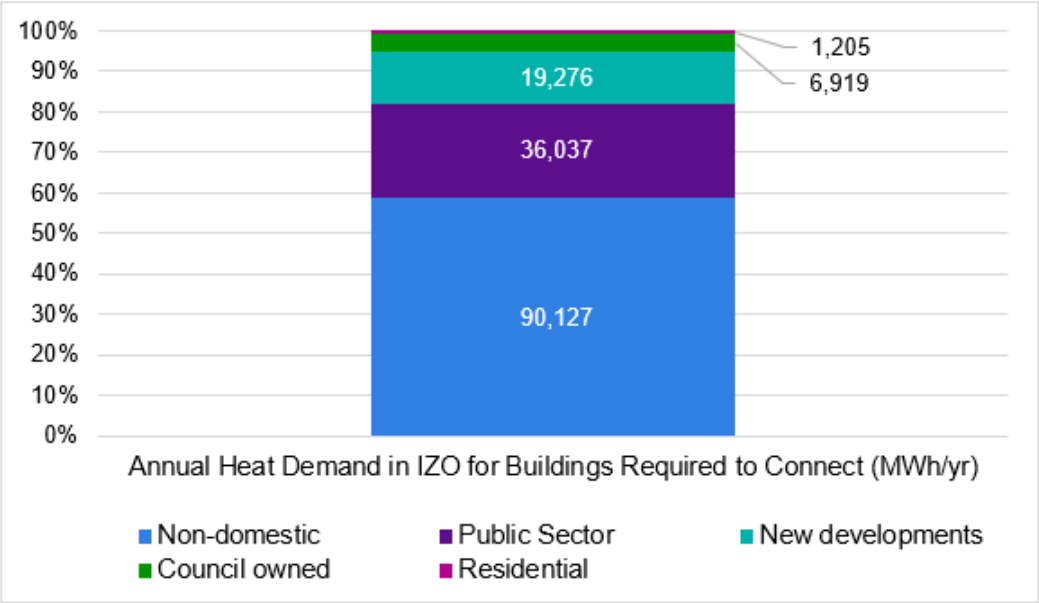
Figure 8: Initial Zone Opportunity in Bolton Town Centre HNZ



3.2.4) Bolton Town Centre – IZO Heat Demands

The IZO which has been presented connects to 211 existing buildings and 38 new developments which could potentially be required to connect to a heat network, with a total heat demand of circa 150GWh/yr. Figure 9 shows the breakdown of heat demand in the IZO based on building type.

Figure 9: Bolton Town Centre - Categorisation of Heat Demand for Buildings Potentially Required to Connect in the IZO



Non-domestic private sector buildings make up the largest proportion of building types connected to the IZO, accounting for ~60% of the total heat demand. This includes a mixture of buildings such as industrial, office and retail buildings. The second largest demand is made up by public sector buildings, making up ~25% of the total heat demand. This includes Royal Bolton Hospital, educational and other public sector buildings. The rest of the heat demand is made up by a mixture of new developments, council owned and residential buildings.

Further details of the key heat demands potentially required to connect in the IZO are provided in Table 8. The largest heat demand is the Royal Bolton Hospital, which has both a wet and a steam system. The second largest heat demand is the University of Bolton which has a campus to the west of the town centre. Six of the remaining top ten heat demands are non-domestic private sector buildings. Edward House is a commercial office space, whilst Sherwin Williams and Warburtons are industrial buildings, and Market Place Shopping Centre, Bath Street Retail Centre and B&Q are commercial retail buildings. The Former BMW Bradshawgate site is a new residential development, which is planned to be brought forward for redevelopment in 2025.

Table 8: Bolton Town Centre - Key Heat Demands Required to Connect in the IZO[18]

Building name	Building category	Number of connections	Annual Heat Demand (MWh)	Data Source
Royal Bolton Hospital	Public Sector	Unknown	20,000	ERIC
The University of Bolton	Public Sector	Unknown	10,100	DEC
Edward House	Non-domestic	1	6,750	Benchmark (NZM)
Market Place Shopping Centre	Non-domestic	1	6,400	Benchmark (NZM)
Sherwin Williams	Non-domestic	1	3,050	Benchmark (NZM)
Warburtons	Non-domestic	1	3,000	Benchmark (NZM)
Total Fitness	Non-domestic	1	2,650	DEC
B&Q	Non-domestic	1	2,500	Benchmark (NZM)
Bath Street Retail Centre	Non-domestic	1	2,150	Benchmark (NZM)
Former BMW Bradshawgate	New development	600	2,100	Pilot methodology

3.2.5) Bolton Town Centre – IZO Heat Sources

Several low carbon heat sources have been identified which could be suitable to supply the required heat demand of the IZO. Table 9 and Table 10 summarise the key heat sources and potential energy centre locations identified for this IZO. These are also shown in Figure 8 in Section 3.2.3 above and on Map C in Appendix 1.

Potential heat sources in the area include a SSHP recovering heat from a combined sewer running through the centre of Bolton with an estimated capacity of 3.4MW. Sewer monitoring is currently being undertaken to provide information on the temperature and flow rates in the sewer over a 12-month period. The River Croal also runs through the centre of Bolton and the

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

River Tonge towards the east, providing opportunity for WSHPs. Furthermore, there is the potential for ASHPs or GSHPs to provide heat. These heat sources are location agnostic so could be situated in smaller energy centres located across the IZO.

Four potential energy centre locations have been identified. E3 is located off Westbrook Street, E4 is on land at the police station, E5 is within the Travelodge car park and E6 is located on Clive Street car park.

Table 9: Bolton Town Centre - Key Heat Source Opportunities for the IZO

Heat source type	Supplied Capacity (kWp)[19]	Temperature (Degrees Centigrade)	Potential Energy Centre (Ref number)
SSHP - Sewer	3,400	10-20	E3, 4, 5 and/or 6
WSHP - River Croal	6,400	5-15	E3, 4, 5 and/or 6
ASHP - Location agnostic	28,700	5-15	E3, 4, 5 and/or 6

Table 10: Bolton Town Centre - Potential IZO Energy Centre Locations

EC Ref #	Site type	Size (m^2)	Ownership	Heat Source
E3	Land	2,800	Unknown	SSHP, WSHP and ASHP
E4	Land	5,600	Council	SSHP, WSHP and ASHP
E5	Land	3,500	Council	SSHP, WSHP and ASHP
E6	Land	1,650	Council	SSHP, WSHP and ASHP

3.2.6) Bolton Town Centre – IZO Heat Distribution

Table 11 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.

At this stage, a route has been identified which distributes heat from a potential energy centre located on Clive Street car park (E6). The route will distribute heat to the north travelling up to the A676 to Bolton Retail Park and Warburtons. To the south, the route will run along the A575 and split, with one branch running toward the town centre, and the other branch travelling further south to key buildings such as the University of Bolton, and Royal Bolton Hospital.

[19] The supplied capacity in this table represents the output of plant that is envisaged to be suitable to meet the needs of the IZO.

Table 11: Bolton Town Centre - Indicative Heat Network Statistics for the IZO

IZO Heat Network description	Network length (km)	Network cost (£m)
Bolton Town Centre	40	100

3.2.7) Bolton Town Centre – IZO Key Constraints and Mitigations

[C8] River crossing: The River Tonge runs from north to south towards the east of the zone. The IZO presented here would need to cross the river towards the north of the network. An existing bridge on Britannia Way has been identified as a potential crossing point. A feasibility assessment would be required to check the suitability of the bridge to accommodate the pipework. This assessment would likely require engagement with the Canals and River Trust and the relevant highways authority.

[C9] Railway crossing: A regional railway line runs through this zone to the east and south of the town centre. The proposed IZO would need to cross the railway line at two locations. Two existing bridges have been identified as potential crossing points: the Bradshawgate bridge, and the Great Moor Street bridge. A feasibility assessment would be required to check the suitability of the bridges to accommodate the pipework and provide confirmation that these are the best options for crossing the railway line in collaboration with Network Rail and the relevant highways authority.

3.3) Bury Town Centre

3.3.1) Bury Town Centre – HNZ Summary

Bury Town Centre is the largest zone in Bury, covering the town centre and large areas of future development to the south and north-west as shown in Figure 10. The zone includes 276 existing buildings that could potentially be required to connect to a heat network, including a large proportion of non-domestic private sector buildings, public sector buildings and multiple new developments. The Walshaw residential new development, the Rock Shopping Centre, and Castle Leisure Centre are among some of the key anchor demands. The main heat sources identified are WSHP and SSHPs. There is currently one heat network under early development.

3.3.2) Bury Town Centre - Existing Heat Networks

There is one operational communal heat network, and one early stage proposed district heat network in development in Bury Town Centre HNZ, as described below.

Operational Heat Networks and Planned Expansions

There are no existing heat networks that have been identified within Bury Town Centre HNZ other than communal systems. According to data from the Heat Networks Metering and Billing Regulations, there is one existing communal system. This communal heat network serves seven non-residential customers.

Proposed Heat Networks – Early stage

Bury Town Centre District Heat Network

In 2023 a concept study was completed, focusing on a smaller 2.3km district heat network within Bury Town Centre, with the possibility for the network to grow over time in alignment with the Bury Town Centre Masterplan that was published in March 2022[20]. This study identified that the River Irwell and larger sewers could offer opportunities for low carbon technologies such as WSHP or SSHPs to supply the network. This study recommended an application to the Heat Network Delivery Unit (HNDU) for funding to move forward with a feasibility study.

3.3.3) Bury Town Centre – Initial Zone Opportunities

A single IZO was identified. Potential routing[21] for the IZO is shown in Figure 10 and summary statistics provided in Table 12.

[20] Bury Council (2022) Bury Town Centre Masterplan Available at: https://www.bury.gov.uk/planning-building-control/regeneration/bury-town-centre/

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

Table 12: Bury Town Centre - Summary Statistics for Initial Zone Opportunities[22]

CapEx	Heat	Network	CO_{2e} savings	Linear Heat Density	Heat Sources
~£125m	~100GWh/yr	>24km	~15ktCO_{2e}/yr	4.0MWh/m	WSHPs, SSHPs and ASHPs

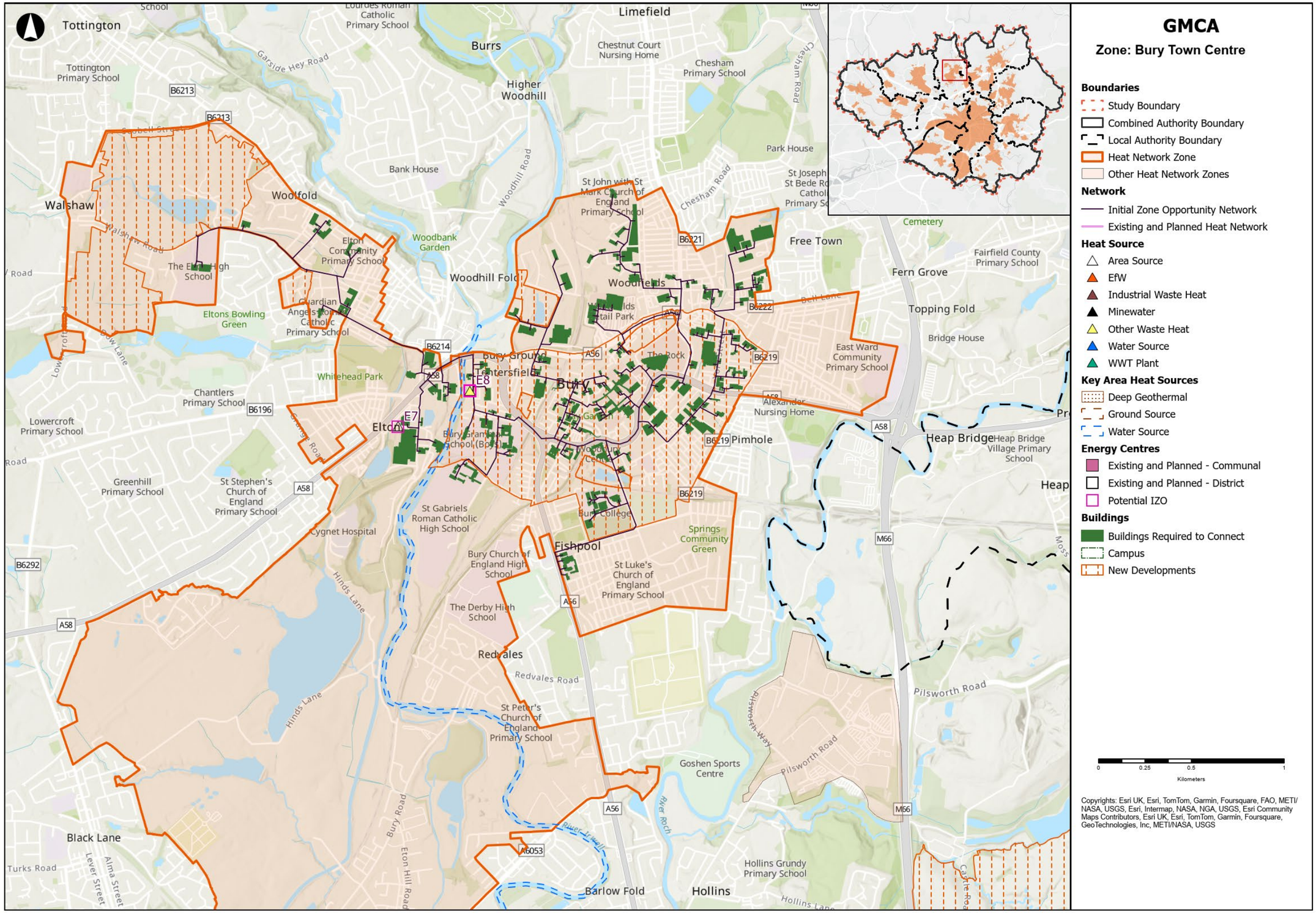
This IZO was chosen based on the high heat demand density, key anchor loads including the Walshaw residential development, and the proximity to both the River Irwell and large sewers both of which present opportunities to access low carbon heat technologies for the network. The identified IZO has a network length of around 24km.

This IZO aligns well with previous studies which have identified the potential for a heat network in Bury town centre. The Bury LAEP[23] identifies the town centre as a priority area for heat networks, highlighting that high concentrations of tightly packed pre-1945 terraced dwellings to the east of the town centre and future residential developments provide good opportunities for heat networks. The IZO aligns with the concept study discussed above, finding similar heat demands and sources as good opportunities for a heat network in Bury town centre.

Key constraints to the development of the IZO are a river and a railway line. These constraints do not prohibit the development of the IZO and actions to address these are outlined in Section 3.3.7.

[22] Please see Appendix 3 – Glossary, “Specific definitions” of the main report for definitions related to this table.
[23] Greater Manchester (2022) Local Area Energy Plan Bury. Available at: https://gmgreencity.com/projects-and-campaigns/local-energy-market/

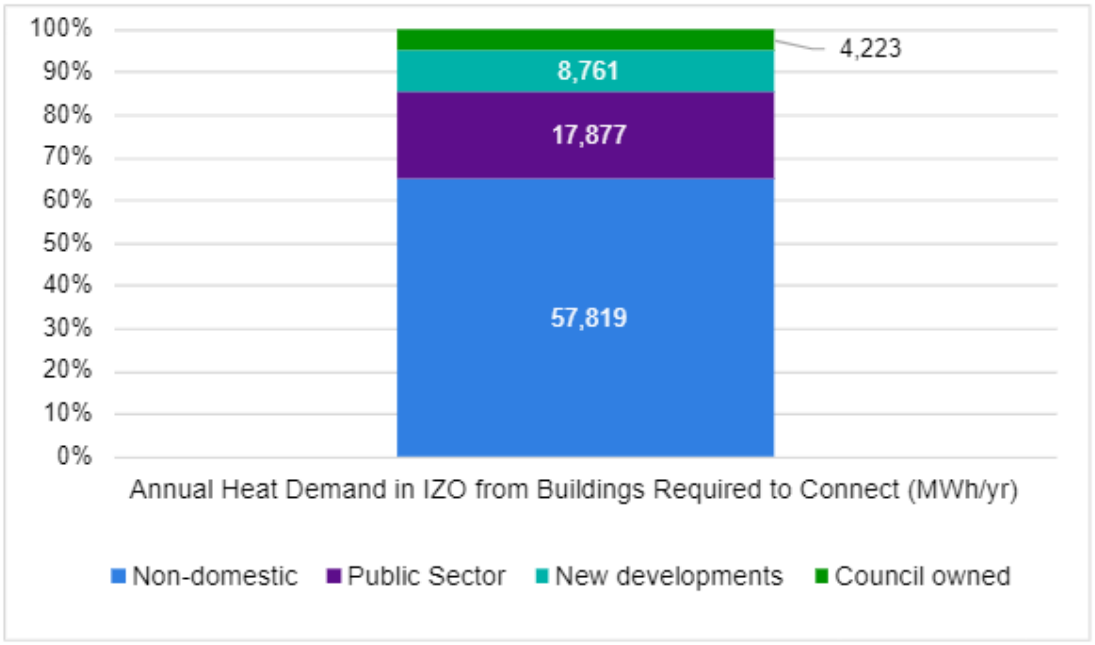
Figure 10: Initial Zone Opportunity in Bury Town Centre HNZ



3.3.4) Bury Town Centre – IZO Heat Demands

The IZO presented connects to 186 existing buildings and 9 new developments which could potentially be required to connect to a heat network, with an overall heat demand of circa 100GWh/yr. Figure 11 shows the breakdown of heat demand based on building types.

Figure 11: Bury Town Centre - Categorisation of Heat Demand for Buildings Potentially Required to Connect in the IZO



Non-domestic private sector buildings make up a large proportion of the heat demand connected to the IZO, accounting for ~65% of the heat demand. This includes buildings such as retail spaces, offices and industrial buildings. Public sector buildings make up the second largest proportion, accounting for 20% of the heat demand. New developments, and council owned buildings make up the remainder of the heat demand connected, accounting for 10% and 5% of the demand respectively.

Further details of the key heat demands for buildings potentially required to connect in the IZO are provided in Table 13. The largest heat demand is the Walshaw new development which is primarily made up of domestic buildings and is located to the west of the IZO. Another new development within the key loads is the Bury Town Centre redevelopment. Again, this is a primarily domestic development expected to begin construction in 2029/2030. The remaining demands include five non-domestic private sector buildings such as the Rock Shopping Centre and Wellington Mill, which houses a manufacturing company. Castle Leisure Centre, Bury College and Bury Grammar Girls School are council owned buildings which are amongst the top ten heat demands.

Table 13: Bury Town Centre - Key Heat Demands Required to Connect in the IZO[24]

Building name	Building category	Number of connections	Annual Heat Demand (MWh)	Data Source
Walshaw	New developments	1,250	4,400	Pilot methodology
The Rock Shopping Centre	Non-domestic	1	3,550	Benchmark (NZM)
Wellington Mill	Non-domestic	1	3,300	Benchmark (NZM)
Castle Leisure Centre	Council owned	1	2,950	DEC
William Hare Ltd	Non-domestic	1	2,350	Benchmark (NZM)
Fernhill Mill	Non-domestic	1	1,800	Benchmark (NZM)
The Car Group	Non-domestic	1	1,750	Benchmark (NZM)
Bury College	Public sector	Unknown	1,600	DEC
Bury Grammar Girls School	Public sector	Unknown	1,450	Benchmark (NZM)
Bury Town Centre Development	New developments	400	1,400	Pilot methodology

3.3.5) Bury Town Centre – IZO Heat Sources

Several low carbon heat sources have been identified. A mixture of these sources would be suitable to supply the required heat demand of the IZO. Table 14 and Table 15 in this section summarise the key heat sources and potential energy centre locations identified for this IZO. These are also shown in Figure 10 in Section 3.3.3 above and on Map C in Appendix 1.

Potential heat sources in the area include a WSHP recovering heat from the River Irwell and a SSHP recovering heat from a large sewer which both run to the west of the IZO. Two potential energy centre location have been identified, E7 located on land near Buxton Street and E8 which is located on land near Millett Street.

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

Furthermore, there is the opportunity for ASHPs or GSHPs to provide heat. These sources are location agnostic so could be situated in smaller energy centres located across the IZO.

Table 14: Bury Town Centre - Key Heat Source Opportunities for the IZO

Heat source type	Supplied Capacity (kWp)[25]	Temperature (Degrees Centigrade)	Potential Energy Centre (Ref number)
WSHP – River Irwell	13,000	5-15	E7 and/or E8
SSHP – Sewer	4,000	10-20	E8
ASHP – Location agnostic	5,700	5-15	E7 and/or E8

Table 15: Bury Town Centre - Potential IZO Energy Centre Locations

EC Ref #	Site type	Size (m^2)	Ownership	Heat Source
E7	Land	1,000	Unknown	WSHP and ASHP
E8	Land	550	Unknown	WSHP, SSHP and ASHP

3.3.6) Bury Town Centre – IZO Heat Distribution

Table 16 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.

At this stage a potential energy centre located on land near Buxton Street (E7) could distribute heat up Bridge Road, and east along the A58 to the town centre, where it would go north to the shopping district and south to Bury College.

Table 16: Bury Town Centre - Indicative Heat Network Statistics for the IZO

IZO Heat Network description	Network length (km)	Network cost (£m)
Bury Town Centre	24	75

3.3.7) Bury Town Centre – IZO Key Constraints and Mitigations

[C10] River crossing: The River Irwell runs through this zone from north to south. The IZO presented here would therefore need to cross the river. An existing bridge on Bolton Street has been identified as a potential crossing point. A feasibility assessment would be required to check the suitability of the bridge to accommodate the pipework. This feasibility assessment

[25] The supplied capacity in this table represents the output of plant that is envisaged to be suitable to meet the needs of the IZO.

would likely require engagement with the Canals and River Trust and the relevant highways authority.

[C11] Railway crossing: A regional railway line runs through this zone from north to south. The proposed IZO would need to cross the railway line at two locations. Two existing bridges have been identified as potential crossing points, Bolton Street bridge, and the Jubilee Way bridge. A feasibility assessment would be required to check the suitability of the bridges to accommodate the pipework and provide confirmation that these are the best options for crossing the railway line in collaboration with Network Rail and the relevant highways authority.

3.4) Central Greater Manchester

3.4.1) Central Greater Manchester – HNZ Summary

Central Greater Manchester is the largest zone in the entirety of the GMCA in terms of heat demand and area, covering Manchester City Centre and key areas of Salford, Stockport and Trafford as shown in Figure 12, Figure 13 and Figure 14. The zone includes 3,548 existing buildings that could potentially be required to connect to a heat network, including a mixture of dense city centre, city centre fringe and mixed-use districts. Key heat loads include Manchester Royal Infirmary, Salford Royal Hospital, Stepping Hill Hospital, the University of Manchester, and shopping centres such as the Arndale Centre, and Trafford Centre. Numerous low carbon heat sources could supply heat, including waste heat sources, WWTW, deep geothermal and opportunities for WSHPs, SSHPs and ASHPs.

3.4.2) Central Greater Manchester - Existing Heat Networks

There are two operational district heat networks, 280 communal heat networks, and four planned district heat network developments in the HNZ. Please refer to Appendix 1, Map D, to see where all the operational DHNs and planned expansions are.

Operational Heat Networks and Planned Expansions

The following operational district heat networks and planned expansions to them have been identified. As well as the following DHNs, there are 280 communal heat networks located within Central Greater Manchester, according to data from the Heat Networks Metering and Billing Regulations. These networks serve a total of 8,091 residential customers and 515 non-residential customers.

Manchester Energy Network

There is an existing heat network in the Civic Quarter of the city centre, which is currently supplied by a combined heat and power (CHP) unit providing heat and electricity for some of Manchester City Council’s largest buildings, such as the Town Hall Extension, Central Library and Art Gallery, with the Town Hall due to connect once refurbishment is complete. The energy centre, including iconic Tower of Light, is located adjacent to the Manchester Central Convention Centre. The network was completed in 2021 and was designed with the ability to connect to additional buildings in the future.

Media City

There is an existing heat network in Media City, a commercial district in the Salford Quays area of the city. Within this network, a 40MW trigeneration system produces heat, cooling, and power. This is done with a CHP engine that generates electricity, whilst also capturing waste heat for heating and using absorption chillers to convert some of the heat into cooling energy. This is a smaller network, focussed around the commercial buildings in Media City including BBC Dock House and 2SixtyMedia. The energy centre is in a carpark opposite Dock10 Studios. The network was completed in 2010 and was designed with the ability to grow with the development of the surrounding area.

Planned Heat Networks – Late stage

Stockport Town Centre District Heat Network

Advanced Zoning Programme

A £70m heat network project is proposed in Stockport, the Stockport Town Centre District Heat Network, which is proposed to connect to 33 buildings delivering ~60GWh of heat per year once completed. The project is proposed to utilise heat from a SSHP, with gas boilers to meet peak demand.

A wider zone network opportunity across Stockport Town Centre is aiming to be procured through the Advanced Zoning Programme, with a CapEx of around £250m, delivering 150GWh/yr of heat to over 350 connections.

Trafford Civic Quarter District Heat Network

Advanced Zoning Programme

The Trafford Civic Quarter District Heat Network is proposed to connect to a total of 18 heat off-takers, to deliver over 29GWh of heat per year at full build out. The project is proposed to utilise one of two main sewers in the east of Trafford, potentially alongside electric boilers to provide top up and resilience for colder months.

The wider zone opportunity in the town may be procured through the Advanced Zoning Programme. This opportunity could deliver 500GWh/yr of heat to over 400 customers at a total CapEx of £500m. This scheme would capture substantial levels of waste heat from Davyhulme WWTW in the west.

OPEN District Heat Network

The Octagon Project Energy Network (OPEN)[26] is being undertaken by Manchester Energy Partnership Limited. Initially the network has been designed using CHP as the primary heat source, however the project is now being redeveloped with a low carbon heat source. The project area covers over 5 km^2 along Oxford Road and includes the Manchester University Foundation Trust, University buildings, Plymouth Grove Village and the Octagon Project itself.

Trafford Waters District Heat Network

Trafford Waters district heat network is a privately led heat network concept that is being investigated by Ener-Vate on behalf of Peel. This network is being designed based around the Trafford Waters development[27], with the potential to expand and connect to neighbouring buildings.

[26] Octagon Project Energy Network Available at: https://octagonproject.co.uk/
[27] Trafford Water Available at: https://www.peelwaters.co.uk/portfolio/trafford-waters/

3.4.3) Central Greater Manchester – Initial Zone Opportunities

Five discrete IZOs were identified in the Central Greater Manchester zone. The IZOs identified are Manchester City Centre, Manchester OPEN, Salford Eccles, Stockport Town Centre and Trafford. Potential routing[28] for the IZOs is shown in Figure 12, Figure 13 and Figure 14. Summary statistics provided in Table 17.

Table 17: Central Greater Manchester - Summary Statistics for Initial Zone Opportunities[29]

CapEx	Heat	Network	CO_{2e} savings	Linear Heat Density	Heat Sources
~£1,100m	~1,150GWh/yr	~180km	~165ktCO_{2e}/yr	7.3MWh/m	Waste heat, deep geothermal, WSHPs, SSHPs and ASHPs

The **Manchester City Centre IZO** was chosen based on the high heat demand within the dense city centre region, including multi-storey non-domestic buildings. The IZO aligns with the Manchester LAEP[30] which identifies the city centre as a priority area for heat networks to achieve GMCA's net zero ambitions, and as the area of lowest regret for district heat networks in the local authority. The LAEP highlights that the existing Manchester Energy Network and high concentrations of dwellings to the south of the city centre provide a good opportunity for heat network expansion.

The IZO connects to a total heat demand of 350GWh/yr, with a linear heat density of 10.3MWh/m (excluding the impact of new developments) and an estimated CapEx of £325m.

The **Manchester OPEN IZO** was chosen based on the high heat demand along the A34 university corridor, including public sector and other non-domestic buildings such as Manchester Metropolitan University. Discussions with geothermal specialists have suggested that the area is a good location for deep geothermal heat supply subject to further feasibility work. The IZO aligns well with the Manchester OPEN network described further in Section 3.4.2.

The IZO connects to a total heat demand of 200GWh/yr, with a linear heat density of 9.0MWh/m (excluding the impact of new developments).and an estimated CapEx of £175m.

The **Salford Eccles IZO** was chosen based on the high heat demand in this area of Salford, including Salford Royal Hospital and a mixture of multi-story commercial and residential buildings, such as at Media City. Furthermore, proximity to large sewers provide an opportunity for low carbon heat supply. The IZO aligns well with the Salford LAEP which identifies part of

[28] Routes can be expected to change as a better understanding of local constraints is developed through design.
[29] Please see Appendix 3 – Glossary, "Specific definitions" of the main report for definitions related to this table.
[30] Greater Manchester Combined Authority. (2022) Local Area Energy Plan Manchester. Available at: https://gmgreencity.com/projects-and-campaigns/local-energy-market/

central Salford as a high priority heat network area due to the high concentrations of tightly packed flats and houses and the future developments expected to be built in the area.

The IZO connects to a total heat demand of 100GWh/yr, with a linear heat density of 4.1MWh/m (excluding the impact of new developments) and an estimated CapEx of £125m.

The **Stockport Town Centre IZO** was chosen based on the high heat demand, including public sector and other non-domestic buildings, such as Stepping Hill Hospital, as well as the proximity to large sewers and the River Mersey which provide an opportunity for low carbon heat supply. Furthermore, Stockport has a Mayoral Development Corporation (MDC) which provides additional powers to accelerate regeneration in the town centre through being able to develop and facilitate infrastructure projects[31]. The IZO aligns well with previous studies detailed in Section 3.4.2 and the Stockport LAEP. The LAEP identifies central Stockport as a priority area for heat networks to achieve GMCA's net zero ambitions.

The IZO connects to a total heat demand of 100GWh/yr, with a linear heat density of 4.6MWh/m (excluding the impact of new developments) and an estimated CapEx of £125m.

The **Trafford IZO** was chosen based on the high heat demand density from non-domestic buildings and new developments proposed between the Trafford Centre in the west to the Old Trafford Football Ground and Civic Quarter area to the east. The proximity of the IZO to Davyhulme WWTW and potential waste heat sources in Trafford Park present an opportunity for low carbon heat. The IZO aligns with previous studies detailed in Section 3.4.2 and the Trafford LAEP, which found that the area around Old Trafford presents a priority opportunity for heat networks due to the high density of non-domestic buildings.

The IZO connects to a total heat demand of 400GWh/yr, with a linear heat density of 7.3MWh/m (excluding the impact of new developments) and an estimated CapEx of £400m.

Whilst the information presented in this Zone Opportunity Report is dated June 2025, much of the work was undertaken in 2023/24 but not published until this date due to changing of governments and an evolving policy landscape. Stockport Council and Trafford Council have since undertaken much more detailed work as part of the Advanced Zoning Programme and have further developed the zone opportunity and the scale and nature of the heat network scheme that is proposed to be brought to market in Summer 2025. The information contained within this document will therefore soon be superseded by more accurate information published under the Advanced Zoning Programme.

[31] Stockport Mayoral Development Corporation. Available at: https://www.stockportmdc.co.uk/

Figure 12: City Centre and OPEN Initial Zone Opportunity in Central Greater Manchester HNZ

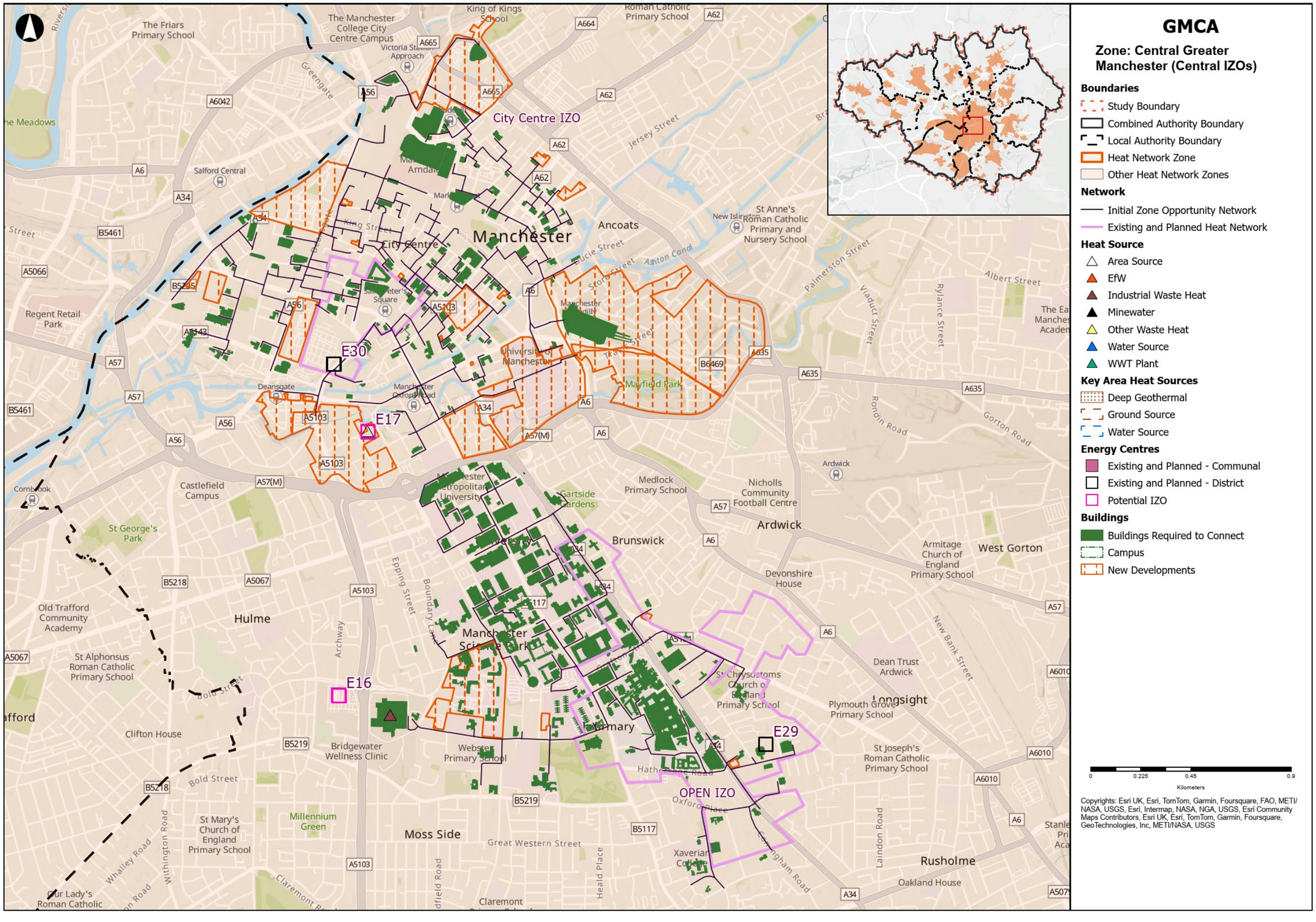


Figure 13: Salford and Trafford Initial Zone Opportunity in Central Greater Manchester HNZ

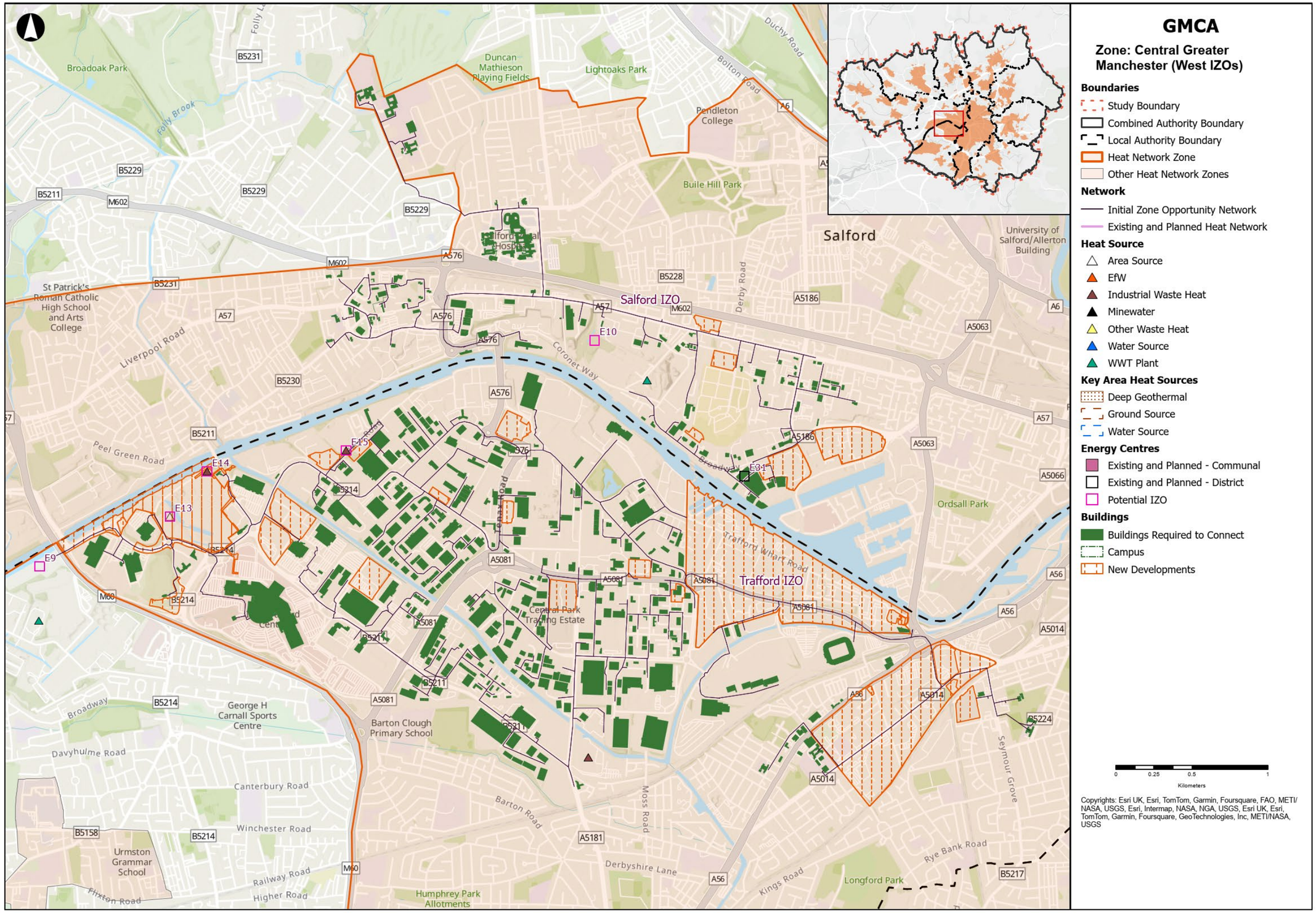
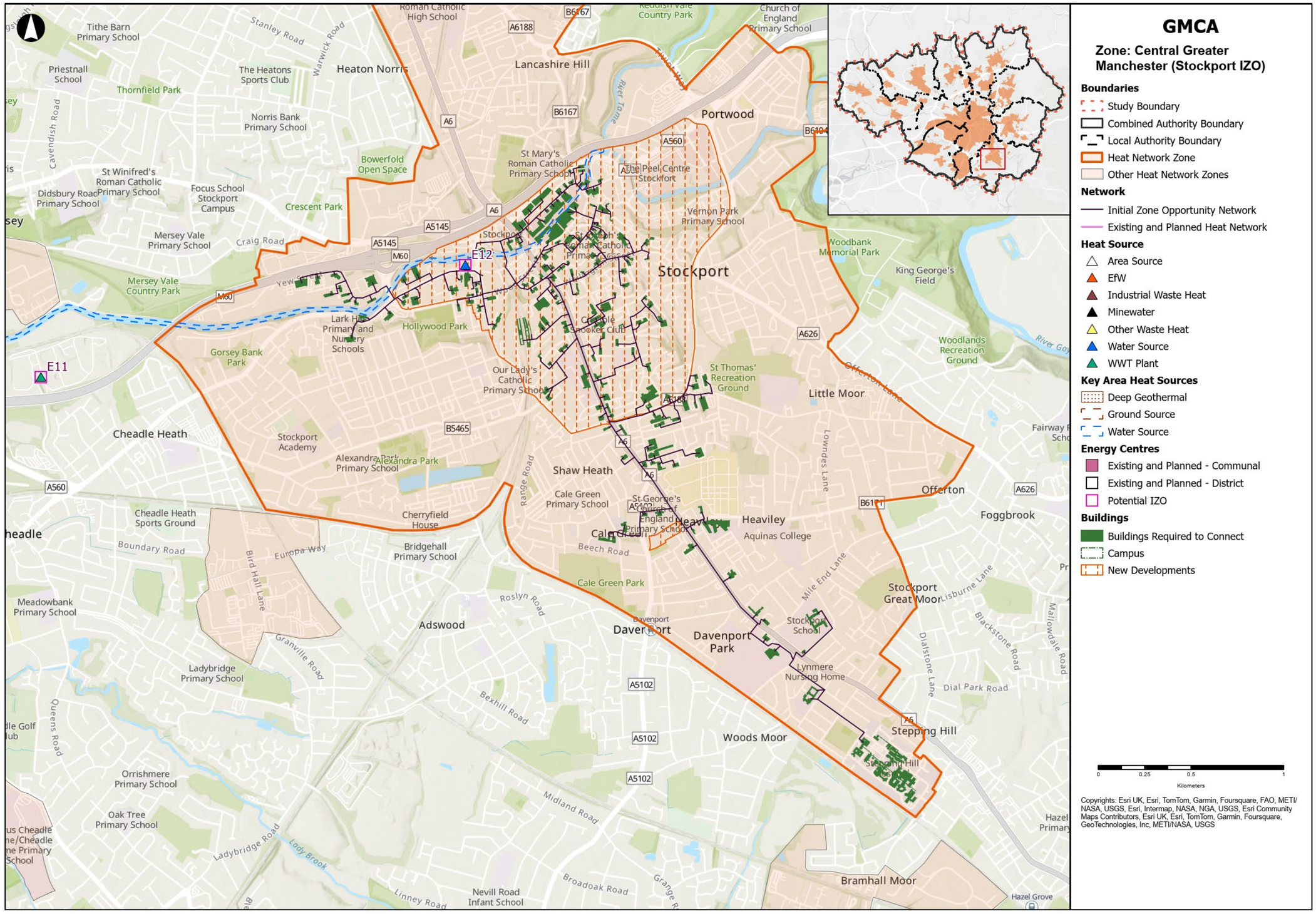


Figure 14: Stockport Initial Zone Opportunity in Central Greater Manchester HNZ



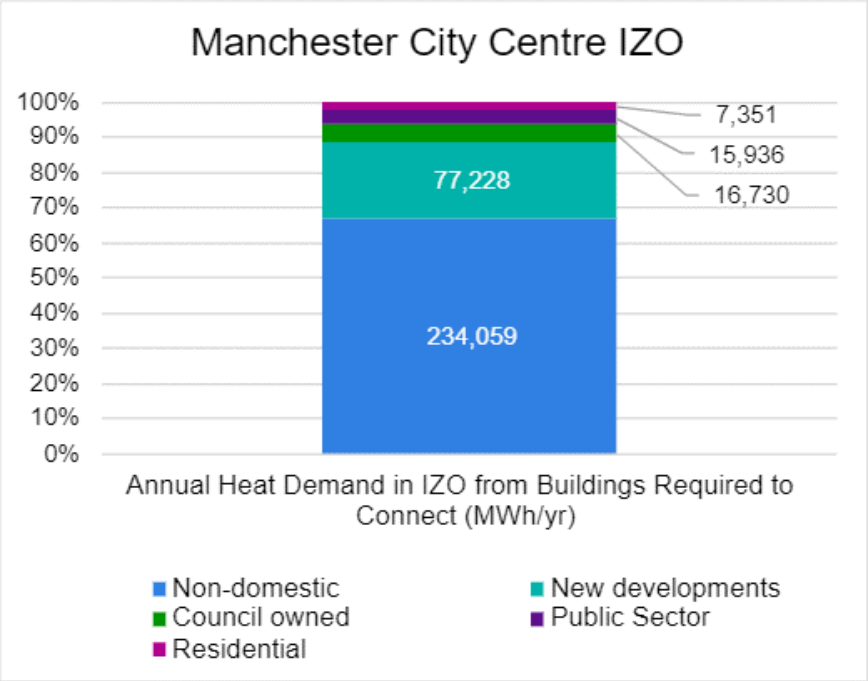
3.4.4) Central Greater Manchester – IZO Heat Demands

Within Central Greater Manchester, five IZOs have been identified which could connect to a total of 1,373 existing buildings and 71 new developments, with a total heat demand of 1,100MWh/yr. This section presents the breakdown of heat demand and key heat loads within the individual IZOs.

Manchester City Centre IZO

The **Manchester City Centre IZO** connects to 454 existing buildings and 26 new developments which could potentially be required to connect to a heat network, with an overall heat demand of circa 350GWh/yr. Figure 15 shows the breakdown of heat demand based on building types for the IZO.

Figure 15: Central Greater Manchester - Categorisation of Heat Demand for Buildings Potentially Required to Connect in the Manchester City Centre IZO



Non-domestic private sector buildings make up the largest proportion of heat demand connecting to the **Manchester City Centre IZO**, accounting for nearly 70% of the total demand. This includes industrial, office and retail spaces. The second largest proportion of heat demand is from residential and office new developments located across Manchester City Centre, making up ~20% of the total heat demand. The remainder of the demand is made up of council owned and public sector buildings, accounting for 5% of the total heat demand each, while residential buildings account for 2% of the total heat demand. Further details of the key heat demands for buildings potentially required to connect in the IZO are provided in Table 18.

The ten largest heat demands identified in the **Manchester City Centre IZO** are made up of four non-domestic private sector buildings and six new developments. The largest demand is the Arndale Shopping Centre. The Piccadilly Central, Mayfield, First Street and St. Marys Parsonage development sites are predominantly commercial, whilst the Oldham Street, and

Echo Street developments are residential. The Printworks is a leisure and entertainment centre, and One Angel Square is a large office building in the centre of Manchester.

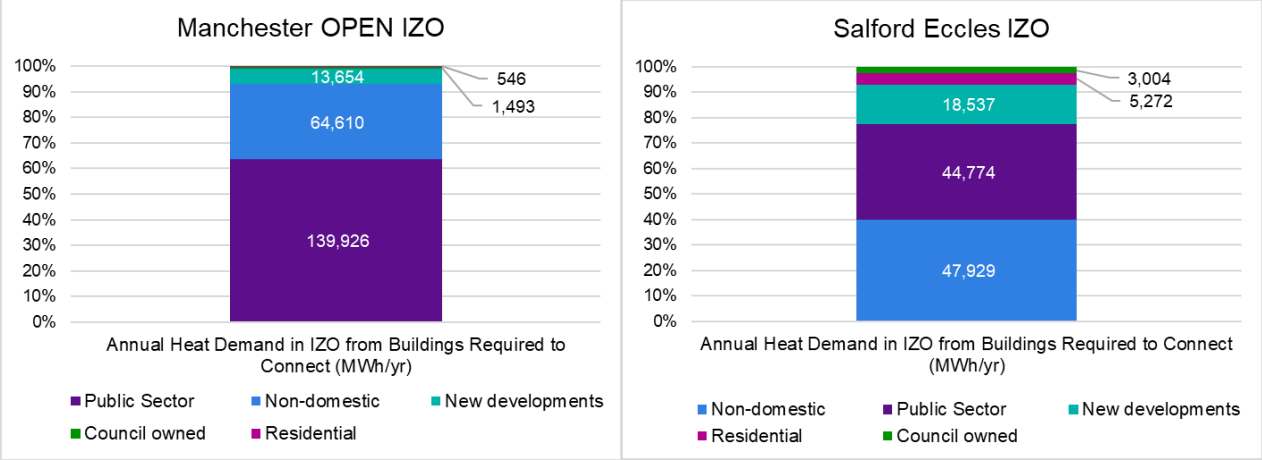
Table 18: Central Greater Manchester - Key Heat Demands Required to Connect in the Manchester City Centre IZO

Building name	Building category	Number of connections	Annual Heat Demand (MWh)	Data Source
Manchester City Centre IZO				
Arndale Centre	Non-domestic	2	23,300	Benchmark (NZM)
Piccadilly Central development site	New development	Unknown	14,700	Pilot methodology
The Corridor: North Campus	Non-domestic	1	12,050	Benchmark (NZM)
Oldham Street Housing Development	New development	2,650	9,300	Pilot methodology
First Street Office Development	New development	Unknown	9,250	Pilot methodology
The Printworks	Non-domestic	1	8,100	Benchmark (NZM)
St. Marys Parsonage Office Development	New development	Unknown	5,800	Pilot methodology
Mayfield development site	New development	Unknown	5,500	Pilot methodology
One Angel Square Offices	Non-domestic	1	4,850	Benchmark (NZM)
Echo Street Co-Living development	New development	1,285	4,500	Pilot methodology

Manchester OPEN and Salford Eccles IZOs

The **Manchester OPEN IZO** connects to 163 existing buildings and 6 new developments which could potentially be required to connect to a heat network, with an overall heat demand of circa 200GWh/yr. The **Salford Eccles IZO** connects to 124 existing buildings and 9 new developments which could potentially be required to connect to a heat network, with a total heat demand of over 100GWh/yr. Figure 16 shows the breakdown of heat demand based on building types for the Manchester OPEN and Salford Eccles IZOs.

Figure 16: Central Greater Manchester – Categorisation of Heat Demand for Buildings Potentially Required to Connect in the Manchester OPEN IZO and Salford Eccles IZO



Public sector buildings make up the largest proportion of heat demand connecting to the **Manchester OPEN IZO**, accounting for over 60% of the total demand. The second largest proportion of buildings connected to the IZO are non-domestic buildings, such as industrial, office and retail buildings, making up ~30% of the heat demand. The remainder of the demand is made up of new developments and council owned buildings.

Non-domestic private sector buildings make up the largest proportion of heat demand connecting to the **Salford Eccles IZO**, accounting for ~40% of the total demand. This includes industrial, office and retail spaces. The second largest proportion of buildings connected are public sector buildings, accounting for 37% of the demand. Residential and office new developments make up 16% of the demand, and the remainder of the demand is made up of residential buildings and council owned buildings each accounting for ~4%.

Further details of the key heat demands for buildings potentially required to connect to the IZOs are provided in Table 19. The key demands on the **Manchester OPEN IZO** include the Manchester Royal Infirmary and University of Manchester buildings. Other demands include the new developments: Plymouth Grove and Acomb Street which are residential developments and the Manchester Science Park development, a science-focussed workspace development. The key heat demands on the **Salford Eccles IZO** include buildings within Media City, such as the Blue and White Towers, The Garage and BBC Sport. The largest demand is the Salford Royal Hospital, which is understood to have a wet heating system according to the ERIC

dataset. The Broadway Residential and Quay Point developments are both residential, whilst the Broadway Office and Quay Point are both new office developments.

Table 19: Central Greater Manchester – Key Heat Demands Required to Connect in the Manchester OPEN IZO & Salford Eccles IZO[32]

Building name	Building category	Number of connections	Annual Heat Demand (MWh)	Data Source
Manchester OPEN IZO				
Manchester Royal Infirmary	Public sector	Unknown	71,550	ERIC
University of Manchester Stopford Building	Public sector	Unknown	31,300	DEC
University of Manchester Engineering Building A&B	Public sector	Unknown	12,750	DEC
University of Manchester Chemistry Building	Public sector	Unknown	5,600	DEC
Plymouth Grove Housing Development	New development	1,390	4,850	Pilot methodology
Acomb Street Housing Development	New development	1,350	4,750	Pilot methodology
Denmark Road Brewery	Non-domestic	1	4,650	Benchmark (NZM)
University of Manchester Michael Smith Building	Public sector	Unknown	3,900	DEC

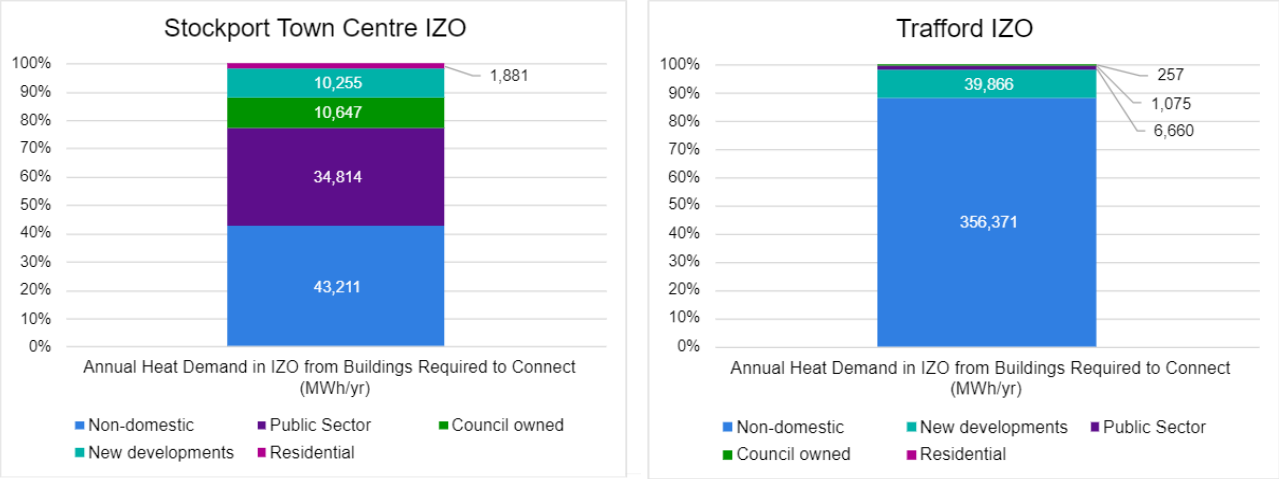
[32] Please refer to Appendix 3 for definitions related to building categories in this table.

Building name	Building category	Number of connections	Annual Heat Demand (MWh)	Data Source
University of Manchester University Place	Public sector	Unknown	3,800	DEC
University of Manchester Business School	Public sector	Unknown	3,450	DEC
Salford Eccles IZO				
Salford Royal Hospital	Public Sector	Unknown	40,250	ERIC
Blue & White Tower, Media City	Non-domestic	1	8,150	Benchmark (NZM)
Broadway Housing Development	New development	2,000	7,000	Pilot methodology
The Garage, Media City	Non-domestic	1	4,650	Benchmark (NZM)
Broadway Office Development	New development	1	4,150	Pilot methodology
Quay Point Housing Development	New development	1,115	3,900	Pilot methodology
Orange Tower & Green, Media City	Non-domestic	1	3,100	Benchmark (NZM)
Quay Point Office Development	New development	1	2,850	Pilot methodology
Allied Mills	Non-domestic	1	2,650	Benchmark (NZM)
BBC Sport, Media City	Non-domestic	1	1,950	Benchmark (NZM)

Stockport Town Centre and Trafford IZOs

The **Stockport Town Centre IZO** connects to 183 existing buildings and one new development which could potentially be required to connect to a heat network, with an overall heat demand of circa 100GWh/yr. The **Trafford IZO** connects to 449 existing buildings and 29 new developments which could potentially be required to connect to a heat network, with an overall heat demand of over 400GWh/yr. Figure 17 shows the breakdown of heat demand based on building types for the Stockport and Trafford IZOs.

Figure 17: Central Greater Manchester – Categorisation of Heat Demand for Buildings Potentially Required to Connect in the Stockport Town Centre IZO and Trafford IZO



Non-domestic private sector buildings make up the largest proportion of heat demand connecting to the **Stockport Town Centre IZO**, accounting for ~40% of the total demand. The second largest proportion are public sector buildings, making up 35% of the total heat demand. The remainder of the demand is made up of council owned buildings and new developments, which account for circa 10% of the total heat demand each, while residential buildings account for 2%.

Non-domestic private sector buildings also make up the largest proportion of heat demand connecting to the **Trafford IZO**, accounting for 88% of the total demand. The second largest proportion are new developments making up 10% of the total heat demand. The remainder of the demand is made up of public sector buildings accounting for 2% of the total heat demand.

Further details of the key heat demand for buildings potentially required to connect in the Stockport Town Centre and Trafford IZOs are provided in Table 20.

The largest demand on the **Stockport Town Centre IZO** is Stepping Hill Hospital which is understood to have both a wet and steam system. Council owned buildings include Grand Centre Life Leisure, Stockport School and Stopford House. The second largest demand is the Town Centre Living Area, which is primarily a residential development. However, the heat demand presented for the Stockport Town Centre IZO cannot fully communicate the entirety of the expected heat demand in Stockport. This is due to the anticipation of large-scale redevelopment in the centre because of the MDC. Some of the large development projects being developed through the MDC have not been accounted for in this report.

The top heat demands connected to the **Trafford IZO** are predominately made up of non-domestic private sector buildings, which is reflective of the large proportion of retail and industrial sites located within Trafford. The largest demand connected to the IZO is the Trafford Centre, a retail centre. The other demands are largely industrial and retail distribution buildings and a new residential development located between the Manchester Ship Canal and Trafford Boulevard, due to begin development in 2025/26.

Table 20: Central Greater Manchester – Key Heat Demands Required to Connect in the Stockport Town Centre and Trafford IZO[33]

Building name	Building category	Number of connections	Annual Heat Demand (MWh)	Data Source
Stockport Town Centre IZO				
Stepping Hill Hospital	Public Sector	Unknown	25,800	ERIC
Town Centre Living Area	New development	2,930	10,250	Pilot methodology
Merseyway Shopping Centre	Non-domestic	1	4,950	Benchmark (NZM)[34]
Grand Centre Life Leisure	Council owned	1	3,000	DEC
Stockport College	Public Sector	Unknown	1,750	Benchmark (NZM)
Stopford House	Council owned	1	1,750	DEC
Pyramid Stockport	Non-domestic	1	1,400	Benchmark (NZM)
Stockport Grammar School	Public sector	Unknown	1,300	Benchmark (NZM)
Travelodge Regent House	Non-domestic	1	1,150	Benchmark (NZM)
Stockport School	Council owned	Unknown	950	DEC
Trafford IZO				

[33] Please refer to Appendix 3 for definitions related to building categories in this table.
[34] National zoning model

Building name	Building category	Number of connections	Annual Heat Demand (MWh)	Data Source
The Trafford Centre	Non-domestic	1	35,800	Benchmark (NZM)
Adidas Group	Non-domestic	1	15,600	Benchmark (NZM)
Unit 100, Barton Dock Road	Non-domestic	1	12,200	Benchmark (NZM)
AKW Global Warehousing	Non-domestic	1	12,000	Benchmark (NZM)
Essity Operations Manchester LTD.	Non-domestic	1	9,250	Benchmark (NZM)
21 Commerce Way	Non-domestic	1	7,750	Benchmark (NZM)
SCA Hygiene Products Manchester	Non-domestic	1	7,300	Benchmark (NZM)
Event City	Non-domestic	1	7,250	Benchmark (NZM)
L'Oreal	Non-domestic	1	6,950	Benchmark (NZM)
Trafford Waters Housing Development	New developments	1,920	6,700	Pilot methodology

3.4.5) Central Greater Manchester – IZO Heat Sources

Several heat sources have been identified. A mixture of these sources would be suitable to supply the required heat demand of the IZOs. Table 21 and Table 22 in this section summarise the key heat sources and potential energy centre locations identified for the IZOs. These are also shown in Figure 12, Figure 13 and Figure 14 in Section 3.4.3 and on Map C in Appendix 1.

The following large WWTWs are in the HNZ: Davyhulme, Salford and Eccles. There are also several large sewers in the centre of Greater Manchester. In Trafford Civic Quarter area and Stockport town centre, there are proposed heat networks which are investigating the potential to utilise waste heat from the sewers and are currently undergoing monitoring to provide information on the temperature and flow rates over a 12-month period.

Several potential waste heat sources have been identified. This includes Carrington Power Station and Saica Paper Mill, both located in North Trafford. The Heineken factory in the Manchester OPEN area and Pladis factory in Stockport also present potential waste heat opportunities.

Several large waterways pass through the zone, including the Manchester Ship Canal, the River Irwell, and the River Medlock. There is opportunity to recover heat using WSHPs.

Engagement with GT Energy, a specialist in deep geothermal technologies, has uncovered an opportunity for deep geothermal heat in the southern half of the zone. This would require significant space to drill and further investigations to determine the heat available.

Furthermore, there is an opportunity for ASHPs or GSHPs to provide heat. These heat sources are location agnostic so could be situated in smaller energy centres located across the IZOs to meet the peak heat demand.

Table 21: Central Greater Manchester - Key Heat Source Opportunities for the IZOs

Heat source type	Supplied Capacity (kWp)[35]	Temperature (Degrees Centigrade)	Potential Energy Centre (Ref number)
SSHP - Davyhulme WWTW	87,000	10-20	E9
SSHP - Salford WWTW	13,000	10-20	E10
SSHP - Sewer	5,000	10-20	E11, 12 & 13
WSHP - River Mersey	10,000	5-15	E12 & 13
Waste Heat	17,000	Average 32	E14 & 15
Deep Geothermal	35,500	70-80	E16
ASHP - location agnostic	89,300 9,400 8,200	5-15	E17 E10 E11, 12 or 13

Several potential energy centre locations have been identified. E9 is in a field between Davyhulme WWTW and the river and E10 is located on land near Salford WWTW, both of which are near their respective identified heat sources, whilst not co-located. E11 is located on land at Stockport WWTW. Energy centre locations E12 to E17 have been identified as future development land allocations. E16 is located on land near the identified waste heat source, whilst not co-located.

[35] The supplied capacity in this table represents the output of plant that is envisaged to be suitable to meet the needs of the IZOs.

Table 22: Central Greater Manchester - Potential IZO Energy Centre Locations

EC Ref #	Type	Size (m^2)	Ownership	Heat Source
E9	Land	40,000	Private	Davyhulme WWTW
E10	Land	15,000	Private	Salford WWTW
E11	Land	14,000	United Utilities	Stockport WWTW
E12	Land	4,500	Council owned (future development allocation)	Sewers, River Mersey and / or ASHPs
E13	Land	1,900	Council owned (future development allocation)	Sewers, River Mersey and / or ASHPs
E14	Land	114,000	Private (future development allocation)	Industrial Waste heat
E15	Land	9,400	Private (future development allocation)	Industrial Waste heat
E16	Land	91,000	Private (future development allocation)	Deep geothermal
E17	Land	100,000	Private (future development area)	ASHP
E29	Existing Energy Centre	700	MEPL	ASHP
E30	Existing Energy Centre	1,000	Manchester City Council	CHP
E31	Existing Energy Centre	500	Peel Media	Trigeneration System

3.4.6) Central Greater Manchester – IZO Heat Distribution

Table 23 shows the network statistics for the IZOs including the total network length and associated costs. Please refer to Section 3.1.6 and Appendix 5 for the assumptions used.

Manchester City Centre IZO: A possible energy centre location has been identified on land near First Street (E17) from which heat could be distributed up Lower Mosley Street, splitting to distribute heat to both Oxford and Piccadilly train stations to the south and the Arndale Shopping Centre, central council buildings and Victoria train station to the north.

Manchester OPEN IZO: A potential energy centre location has been identified on land near Greenheys Lane (E16) from which heat could be distributed up Denmark Road, supplying heat to the Manchester Science Park and Manchester Royal Infirmary, then directing heat south towards the University of Manchester.

Salford Eccles IZO: A possible energy centre location has been identified on land near the Salford WWTW off Coronet Way (E10), which could direct heat east along the Broadway supplying loads around Media City. The heat could then be distributed north-east along the A57 towards buildings located in Eccles Centre including the Salford Royal Hospital.

Stockport Town Centre IZO: Heat could be distributed from a possible energy centre located on land near Stockport WWTW (E11), up Brinksway, and east to the town centre supplying key demands such as the Merseyway Shopping Centre. The route could also go south along the A6, supplying heat to buildings such as Stockport College and Stepping Hill Hospital.

Trafford IZO: A potential energy centre located on land near Davyhulme WWTW (E9), could provide heat to key heat loads such as the Trafford Centre, then distribute heat north and supply buildings through Trafford Park.

Table 23: Central Greater Manchester - Indicative Heat Network Statistics for the IZOs

Heat Network description	Network length (km)	Network cost (£m)
Central Greater Manchester	180	400

3.4.7) Central Greater Manchester – IZO Key Constraints and Mitigations

Manchester City Centre IZO:

[C12] Tramline crossing: Several tramlines run through this zone from north-east to south-west. The proposed IZO would need to cross the tramline at 5 locations. The 5 potential crossing points have been identified, on Corporation Street, Market Street, Portland Street, Nicholas Street and Princess Street. A feasibility assessment would be required to check the suitability of these crossing points and provide confirmation that these are the best options for crossing the tramline in collaboration with Transport for Greater Manchester and the relevant highways authority.

[C13] Canal crossing: The Rochdale canal runs within this zone and the IZO presented here would need to cross the canal once. The Oxford Street bridge has been identified as a potential crossing point. A feasibility assessment would be required to check the suitability of the bridge to accommodate the pipework. This feasibility assessment would likely require engagement with the Canals and River Trust and the relevant highways authority.

[C14] Road crossing: The A5103 is a dual carriageway running north to south through this zone. The IZO pipework route presented here would run parallel to the dual carriageway then cross at Great Bridgewater Street. A feasibility assessment would be required to check the suitability of this crossing point and would likely require engagement with the relevant highways team.

Manchester OPEN IZO:

No significant, definite constraints have been identified for the Manchester OPEN IZO.

Salford Eccles IZO:

C15 Tramline crossing: A tramline runs through this zone from the south to the north-west. The proposed IZO would need to cross the tramline at one location. The potential crossing point which has been identified is on Broadway. A feasibility assessment would be required to check the suitability of this crossing point and provide confirmation that this is the best option for crossing the tramline in collaboration with Transport for Greater Manchester and the relevant highways authority.

[C16] Road crossing: The M602 is a four-lane dual carriageway running east to west through this zone. The IZO pipework route presented here would cross over the dual carriageway by running of the Stott Lane Bridge. A feasibility assessment would be required to check the suitability of this crossing point and would likely require engagement with the relevant highways authorities.

[C17] Railway crossing: A local railway line runs through this zone from east to west. The proposed IZO would need to cross the railway line at one location. The Stott Lane Bridge has been identified as a crossing point. A feasibility assessment would be required to check the suitability of the bridge to accommodate the pipework and provide confirmation that this is the best option for crossing the railway line in collaboration with Network Rail and the relevant highways authority.

Stockport Town Centre IZO:

[C18] River Crossing: The River Mersey runs through this zone from east to west. The IZO presented here would need to cross the river at two locations. Two existing bridges have been identified for crossing, these are the Hollywood Way bridge and Astley Street bridge. A feasibility assessment would be required to check the suitability of the bridges to accommodate the pipework. This feasibility assessment would likely require engagement with the Canals and River Trust and the relevant highways authority.

Trafford IZO:

[C19] Canal crossing: The Bridgewater canal runs within the east of this zone and the IZO presented here would need to cross the canal at four points. The Trafford Road bridge, Loverose Lane bridge, Mosley Road bridge and Ashburton Road West bridge have been identified as a potential crossing points. A feasibility assessment would be required to check the suitability of the bridges to accommodate the pipework. This feasibility assessment would likely require engagement with the Canals and River Trust and the relevant highways authority.

[C20] Tramline crossing: A tramline runs through this zone from east to west. The proposed IZO would need to cross the tramline at two locations. The two potential crossing points have been identified, on Mosley Road and the Village Circle. A feasibility assessment would be required to check the suitability of these crossing points and provide confirmation that these are the best options for crossing the tramline in collaboration with Transport for Greater Manchester and the relevant highways authority.

3.5) Manchester Airport

3.5.1) Manchester Airport – HNZ Summary

Manchester Airport has been identified as a Strategic HNZ, located to the south of Manchester local authority as shown in Figure 18. The zone includes 328 existing buildings which could potentially be required to connect to a heat network, including a large proportion of non-domestic private sector buildings, public sector buildings and new developments due to be built out post-2025. Key opportunities include Manchester Airport, Wythenshawe Hospital, Wythenshawe town centre, large areas of social housing, as well several future development sites, notably the large residential Timperley Wedge future allocation site. Key low carbon heat sources identified include the potential for deep geothermal heat and SSHPs as discussed further in Section 3.5.5.

3.5.2) Manchester Airport - Existing Heat Networks

There are 18 operational communal heat networks, and one early stage proposed district heat network in development in the Manchester Airport HNZ, as described below.

Operational Heat Networks and Planned Expansions

There are no existing district heat networks within the Manchester Airport HNZ, however, there are 18 communal heat networks according to data from the Heat Networks Metering and Billing Regulations. These networks serve a total of 807 residential customers and 140 non-residential customers.

Proposed Heat Networks – Early stage

Manchester Airport Concept Study

A concept study is currently being carried out in the Manchester Airport area and includes connection to key loads including Wythenshawe Hospital, Manchester Airport, and smaller loads in Wythenshawe Town Centre. Several potential low carbon heat sources were identified that could serve the network. Deep geothermal heat was identified as the preferred heat source, subject to a feasibility assessment, with heat recovery from large sewers near Wythenshawe town centre as a secondary option.

3.5.3) Manchester Airport – Initial Zone Opportunities

A single IZO was identified. Potential routing[36] for the IZO is shown in Figure 18 and summary statistics provided in Table 24.

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

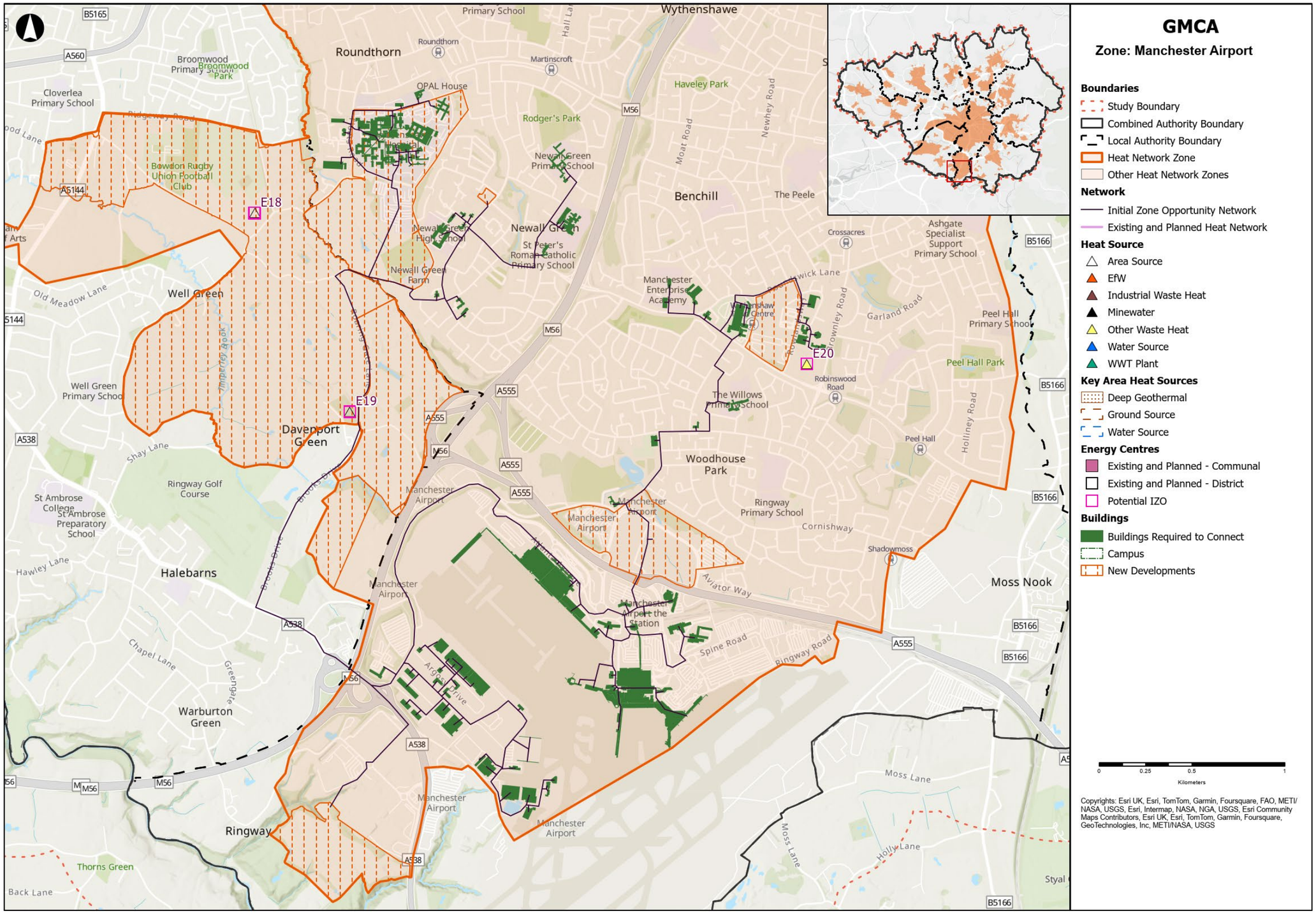
Table 24: Manchester Airport - Summary Statistics for Initial Zone Opportunities[37]

CapEx	Heat	Network	CO_{2e} savings	Linear Heat Density	Heat Sources
~ £175m	~150GWh/yr	~35km	~20ktCO_{2e}/yr	4.4MWh/m	Deep Geothermal, SSHPs and ASHPs

The IZO was chosen firstly based on the high heat demand density due to the proximity of Manchester Airport, Wythenshawe Hospital, and loads within Wythenshawe town centre and surrounding area, and secondly, due to discussions with geothermal specialists which has suggested the area is a good location for deep geothermal heat supply subject to further feasibility work. The identified IZO has a network length of around 35km.

[37] Please see Appendix 3 – Glossary, “Specific definitions” of the main report for definitions related to this table.

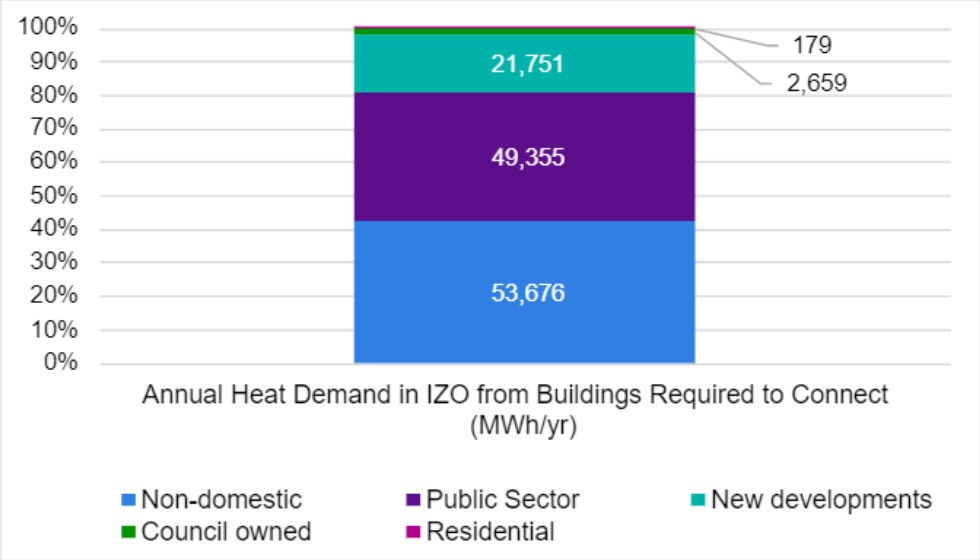
Figure 18: Initial Zone Opportunity in Manchester Airport HNZ



3.5.4) Manchester Airport – IZO Heat Demands

The IZO presented here connects to 121 existing buildings and 8 new developments which could potentially be required to connect to the network, with an overall heat demand of circa 150GWh/yr. Key loads include Manchester Airport and Wythenshawe Hospital. Figure 19 shows the breakdown of heat demand based on building types.

Figure 19: Manchester Airport - Categorisation of Heat Demand for Buildings Potentially Required to Connect in the IZO



Most heat demand connected to Manchester Airport IZO is from non-domestic private sector buildings and public sector buildings, each making up circa 40% of the heat demand. New developments, which include industrial, office and residential developments, make up much of the remaining demand.

Further details of the key heat demands for buildings potentially required to connect in the IZO are provided in Table 25. The largest load connected is Manchester Airport. It is a complex site with several different buildings and terminals, so the number of connections required is currently unknown. Wythenshawe Hospital has the second largest heat demand, and is understood to have a completely wet heating system according to the ERIC dataset. Several new developments are expected to be built out between Manchester Airport and Wythenshawe Hospital, with MediPark, Davenport Green and Airport City North all being office and employment developments and Timperley Wedge being a residential development. The Forum Centre is a council owned building which serves the community in Wythenshawe.

Table 25: Manchester Airport - Key Heat Demands Required to Connect in the IZO[38]

Building name	Building category	Number of connections	Annual Heat Demand (MWh)	Data Source
Manchester Airport	Non-domestic	Unknown	47,000	Benchmark (NZM)
Wythenshawe Hospital	Public sector	Unknown	29,700	ERIC
MediPark	New developments	Unknown	8,000	Pilot methodology
Timperley Wedge	New developments	1,700	6,000	Pilot methodology
Davenport Green	New developments	Unknown	3,000	Pilot methodology
Airport City North	New developments	Unknown	3,000	Pilot methodology
The Forum Centre	Council owned	1	2,250	DEC
Radisson Blu	Non-domestic	1	2,000	Benchmark (NZM)
St. Pauls & Piper Hill Schools	Public sector	Unknown	1,300	DEC
Clayton Hotel	Non-domestic	1	1,000	Benchmark (NZM)

3.5.5) Manchester Airport – IZO Heat Sources

Several low carbon heat sources have been identified. A mixture of these sources could be suitable to supply the required heat demand of the IZO, with a total capacity of 31.5MW. Table 26 and Table 27 in this section summarise the key heat sources and potential energy centre locations identified for this IZO. These are also shown in Figure 18 in Section 3.5.3 above and on Map C in Appendix 1.

The preferred low carbon heat source identified is deep geothermal heat. It is estimated that a capacity of 20MW may be feasible, with land on the future development allocation to the west of the zone providing a good opportunity for drilling. A large sewer has also been identified nearby to Wythenshawe town centre, providing a good opportunity for a SSHP to supply the IZO in the shorter term. Modelled dry weather flow data from United Utilities has been used to estimate a capacity of 1.5MW.

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

Furthermore, there is the opportunity for ASHPs or GSHPs to provide heat. These heat sources are location agnostic so could be located at an energy centre near to the SSHP, and/or deep geothermal operation site.

Three energy centre locations have been identified. E18 is located on land near Clay Lane and Dobbinetts Lane junction, E19 is land near Roaring Gate Lane and Shay Lane junction and E20 disused land between Brownley Road, Simonsway and Rowlandsway.

Table 26: Manchester Airport - Key Heat Source Opportunities for the IZO

Heat source type	Supplied Capacity (kWp)[39]	Temperature (Degrees Centigrade)	Potential Energy Centre (Ref number)
Deep Geothermal	20,000	70-80	E18 or 19
SSHP – Sewer	1,500	10-15	E20
ASHP – Location agnostic	10,000	5-15	E18, 19 or 20

Table 27: Manchester Airport - Potential IZO Energy Centre Locations

EC Ref #	Site type	Size (m^2)	Ownership	Heat Source
E18	Land	20,000	Private	Geothermal and ASHP
E19	Land	10,000	Private	Geothermal and ASHP
E20	Land	20,000	Private	SSHP and ASHP

3.5.6) Manchester Airport – IZO Heat Distribution

Table 28 shows the network statistics for the IZO including the total network length and associated costs. Please refer to Section 3.1.6 and Appendix 5 for the assumptions used.

At this stage a possible energy centre location has been identified on land adjacent to Simonsway and Rowlandway (E20) in Wythenshawe town centre. Heat could be distributed to loads in the town centre before being distributed south to Manchester Airport and the surrounding hotels and offices. It could then be distributed north-west to Wythenshawe Hospital and the surrounding future development areas including Timperley Wedge, crossing the M56.

[39] The supplied capacity in this table represents the output of plant that is envisaged to be suitable to meet the needs of the IZO.

Table 28: Manchester Airport - Indicative Heat Network Statistics for the IZO

IZO Heat Network description	Network length (km)	Network cost (£m)
Manchester Airport	35	50

3.5.7) Manchester Airport – IZO Key Constraints and Mitigations

[C21] Road crossing: The M56 is a six-lane dual carriageway running north to south through this zone. The IZO pipework route presented here would cross under the dual carriageway by running parallel to the A538, a four-lane dual carriageway which joins the M56. The M56 is elevated around this junction. A feasibility assessment would be required to check the suitability of this crossing point and would likely require engagement with the relevant highways authority.

3.6) Oldham Town Centre

3.6.1) Oldham Town Centre – HNZ Summary

Oldham Town Centre has been identified as a Strategic HNZ, located to the west of the local authority, as seen in Figure 20. The zone is the largest in the Oldham in terms of heat demand and area, covering the town centre and includes 434 existing buildings that could potentially be required to connect to a heat network, and several future development sites. Key opportunities include Oldham Royal Hospital, Tesco Extra, Earl Mill Business Centre, Oldham Sixth Form College and several residential new developments due to be built out post 2025. Several low carbon heat source opportunities have been identified in the zone including recovering heat from mine water, WWTW and existing biomass boilers. There is currently one operational heat network and another heat network in development.

3.6.2) Oldham Town Centre - Existing Heat Networks

There are eight operational communal heat networks, and one planned district heat network in in Oldham Town Centre, as described below.

Operational Heat Networks and Planned Expansions

St Marys Heat Network

There is an operational heat network in the St Mary's estate, located north of Oldham town centre that provides heat and hot water to approximately 1,400 homes, owned by First Choice Home Oldham. This heat network is currently supplied by a 5.5MW gas boilers. A 3.5MW biomass boiler exists which is understood not to be currently used as it is oversized for the network load requirement. There are a further seven existing communal heating systems within the proposed zone, according to data from the Heat Networks Metering and Billing Regulations. These communal heating systems serve 213 residential customers in total.

Planned Heat Networks – Late stage

Advanced Zoning Programme

A £25m heat network project is proposed in Oldham, the **Oldham Low Carbon Heat Network**, which will deliver around 30GWh of heat per year once built out. The heat network plans to connect to the existing residential St Mary's Heat Network and 25 existing buildings, including several council buildings and educational buildings across Oldham Town Centre. The project proposes to utilise heat from a biomass boiler plant at St Mary's DHN energy centre, later switching to air source heat pumps at end of life.

A wider zone network opportunity across Oldham Town Centre is aiming to be procured through the Advanced Zoning Programme, with a CapEx of around £250m, delivering over 170GWh/yr of heat to over 250 connections.

3.6.3) Oldham Town Centre – Initial Zone Opportunities

A single IZO was identified. Potential routing[40] for the IZO is shown in Figure 20 and summary statistics provided in Table 29.

Table 29: Oldham Town Centre - Summary Statistics for Initial Zone Opportunities[41]

CapEx	Heat	Network	CO_2e savings	Linear Heat Density	Heat Sources
~£125m	~100GWh/yr	~27km	~15ktCO_{2e}/yr	4.0MWh/m	WSHP, SSHPs ASHPs, and biomass boilers

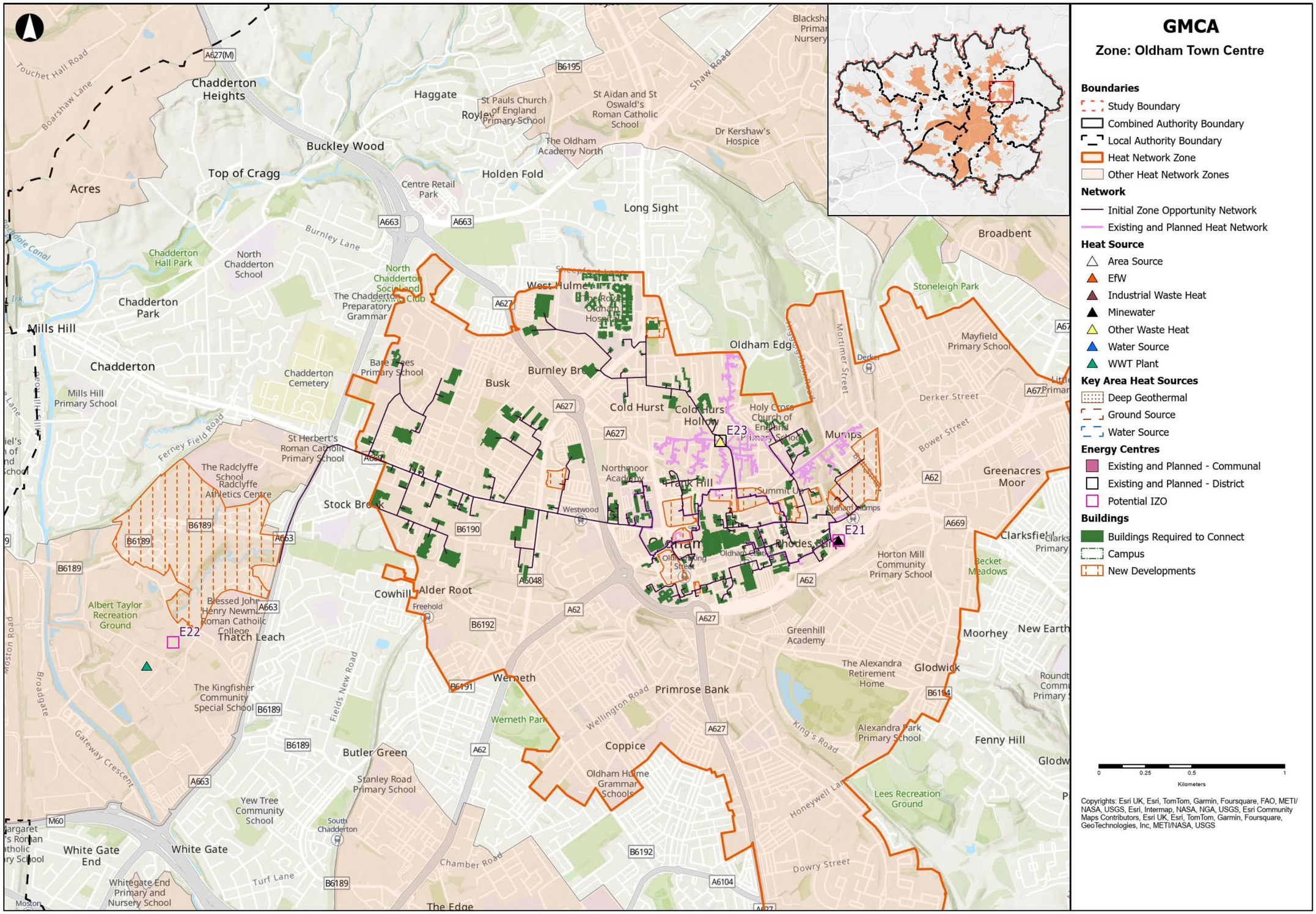
The IZO was chosen based on the inclusion of the existing St Mary's network and proposed expansion and the high heat demand density, including key anchor loads such as the Royal Oldham Hospital. This area also presents an opportunity to access low carbon heat, due to the proximity to the large sewer and mines in the area. The identified IZO has a network length of approximately 27km. Key constraints to the development of the IZO are tramlines. They do not prohibit the development of the IZO and actions to address these are outlined in Section 3.6.7.

The IZO aligns well with the LAEP[42] for Oldham which identifies the town centre as a priority area for heat networks to achieve GMCA's net zero ambitions, and as the area of lowest regret for heat networks in the local authority.

Whilst the information presented in this Zone Opportunity Report is dated June 2025, much of the work was undertaken in 2023/24 but not published until this date due to changing of governments and an evolving policy landscape. Oldham Council have since undertaken much more detailed work as part of the Advanced Zoning Programme and have further developed the zone opportunity and the scale and nature of the heat network scheme that is proposed to be brought to market in Summer 2025. The information contained within this document will therefore soon be superseded by more accurate information published under the Advanced Zoning Programme.

[40] Routes can be expected to change as a better understanding of local constraints is developed through design.
[41] Please see Appendix 3 – Glossary, "Specific definitions" of the main report for definitions related to this table.
[42] Greater Manchester Combined Authority (2022) Local Area Energy Plan Oldham. Available at: https://gmgreencity.com/projects-and-campaigns/local-energy-market/

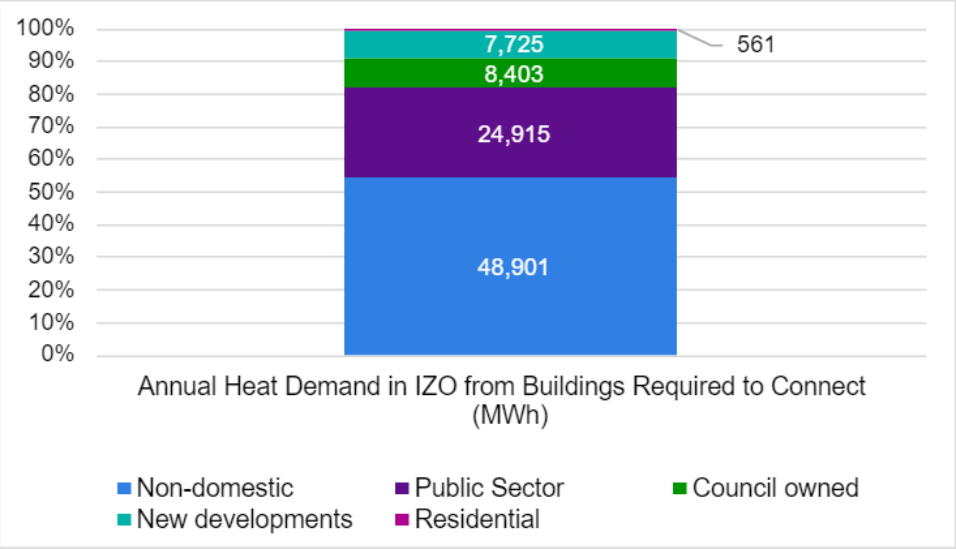
Figure 20: Initial Zone Opportunity in Oldham Town Centre HNZ



3.6.4) Oldham Town Centre – IZO Heat Demands

The IZO presented here connects to 185 existing buildings and 13 new developments which could potentially be required to connect to a heat network, with an overall heat demand of circa 100GWh/yr. Figure 21 shows the breakdown of heat demand based on building types.

Figure 21: Oldham Town Centre - Categorisation of Heat Demand for Buildings Potentially Required to Connect in the IZO



Non-domestic private sector buildings make up the largest proportion of heat demand, accounting for 49GWh/yr or 54% of the total demand. This includes industrial, office and retail spaces. The second largest proportion of buildings are public sector, such as hospitals and educational buildings, making up 25GWh/yr or 28% of the total heat demand. The remainder of the demand is made up of council owned buildings and new developments, which are residential developments located across the IZO, accounting for 9% of the total heat demand each, while existing residential buildings account for 1% of the total heat demand.

Further details of the key heat demands for buildings potentially required to connect in the IZO are provided in Table 30. The top ten heat demands are largely made up of non-domestic private sector buildings, accounting for eight out of the top ten heat loads. Zetex Technology Park and Osborne Mil are both industrial buildings, Wernet Ring Mill is a commercial distribution building, whilst Manor Mill is a mixture of office and distribution space. The Stockfield Mill is a mixed-use building, housing multiple retail, leisure and entertainment spaces. The B&Q is a large retail unit. The largest demand which could potentially be required to connect to the IZO is the Royal Oldham Hospital, part of the heating system within this hospital is currently supplied by steam. Oldham Sixth Form College is also within the top five demands.

Table 30: Oldham Town Centre - Key Heat Demands for Buildings Potentially Required to Connect in the IZO[43]

Building name	Building category	Number of connections	Annual Heat Demand (MWh)	Data Source
Royal Oldham Hospital	Public Sector	Unknown	14,600	ERIC
Osborne Mill	Non-domestic	1	2,850	Benchmark (NZM)
Oldham Leisure Centre	Public Sector	1	2,400	DEC
B&Q	Non-domestic	1	2,350	Benchmark (NZM)
Manor Mill	Non-domestic	1	2,200	Benchmark (NZM)
Zetex Technology Park	Non-domestic	1	2,100	Benchmark (NZM)
Stockfield Mill	Non-domestic	1	1,850	Benchmark (NZM)
Union Street Retail	Non-domestic	1	1,800	Benchmark (NZM)
Werneth Ring Mills	Non-domestic	1	1,750	Benchmark (NZM)
Oldham Sixth Form College	Public Sector	Unknown	1,350	DEC

3.6.5) Oldham Town Centre – IZO Heat Sources

Several low carbon heat sources have been identified. A mixture of these sources would be suitable to supply the required heat demand of the IZO. Table 31 and Table 32 in this section summarise the key heat sources and potential energy centre locations identified for this IZO. These are also shown in Figure 20 in Section 3.6.3 above and on Maps C and G in Appendix 1.

Potential heat sources in the area include the existing energy centre and biomass boilers which supply the St Mary's heat network on Henshaw Street. A SSHP recovering heat from a large sewer running along King's Road could also be used to provide low carbon heat. Sewer monitoring is currently being undertaken to provide information on the temperature and flow rates in the sewer over a 12-month period. Alternatively, heat could be recovered from United

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

Utilities WWTW to the west of the town. Furthermore, mines in the area have been found to be potentially suitable for heat extraction using a WSHP.

There is also the opportunity for ASHPs or GSHPs to provide heat. These heat sources are location agnostic so could be situated in smaller energy centres located across the IZO.

Three potential energy centre sites have been identified. E21 is located on Rhodes Bank, E22 on the Foxdenton Lane development site and E23 is the existing St Mary's energy centre.

Table 31: Oldham Town Centre - Key Heat Source Opportunities for the IZO

Heat source type	Supplied Capacity (kWp)[44]	Temperature (Degrees Centigrade)	Potential Energy Centre (Ref number)
WSHP - Mine water	1,700	75[45]	E21
SSHP - Sewer	10,000	10-20	E22
ASHP - Location agnostic	6,500	10-15	E21 or E22
Biomass boilers - St Mary's	3,500	80[46]	E23

Table 32: Oldham Town Centre - Potential IZO Energy Centre Locations

EC Ref #	Site type	Size (m^2)	Ownership	Heat Source
E21	Land	2,200	Council	WSHP and ASHP
E22	Land	1,000-5,000	Private	SSHP and ASHP
E23	Existing Energy Centre	Unknown	Council	Biomass Boilers

3.6.6) Oldham Town Centre – IZO Heat Distribution

Table 33 shows the network statistics for the IZO including the total network length and associated costs. Please refer to Section 3.1.6 and Appendix 5 for the assumptions used.

At this stage, it is suggested that heat could be distributed from an energy centre located on Rhodes Bank (E21). From here heat could be distributed north-west towards the town centre, to buildings such as Oldham College. The route could then split, travelling north along Lord Street, potentially connecting to the existing energy centre on Henshaw Street (E23) and

[44] The supplied capacity in this table represents the output of plant that is envisaged to be suitable to meet the needs of the IZO.
[45] The temperature at which heat will be distributed to heat off-takers, after upgrade processes.
[46] The temperature at which existing energy centre plant supplies heat to heat offtakers.

continuing to distribute heat northwards up to the Royal Oldham Hospital. Another branch could travel west along the A669, providing heat to schools and new developments.

Table 33: Oldham Town Centre - Indicative Heat Network Statistics for the IZO

IZO Heat Network description	Network length (km)	Network cost (£m)
Oldham Town Centre	27	75

3.6.7) Oldham Town Centre – IZO Key Constraints and Mitigations

[C22] Tramline crossing: A tramline runs through this zone from east to west. The proposed IZO would need to cross the tramline at two locations. Two potential crossing points have been identified, on Union Street and Greaves Street. A feasibility assessment would be required to check the suitability of these crossing points and provide confirmation that these are the best options for crossing the tramline in collaboration with Transport for Greater Manchester and the relevant highways authority.

3.7) PFE Heywood/Pilsworth

3.7.1) PFE Heywood/Pilsworth – HNZ Summary

Heywood/Pilsworth has been identified as a Strategic HNZ spanning between Bury and Rochdale local authorities as shown in Figure 22. The key opportunity in the zone is connection to the extensive future development within the zone which is of strategic importance to GMCA. The future development plans within this zone are outlined in the Places for Everyone (PFE) allocation document[47] published in 2021 for Heywood/Pilsworth (JPA1.1) by the GMCA.

3.7.2) PFE Heywood/Pilsworth - Existing Heat Networks

There are no existing, planned or proposed heat networks in the PFE Heywood/ Pilsworth HNZ.

3.7.3) PFE Heywood/Pilsworth – Initial Zone Opportunities

A single IZO was identified, the summary statistics for which is provided in Table 34.

Table 34: PFE Heywood/Pilsworth - Summary Statistics for Initial Zone Opportunities[48]

CapEx	Heat	Network	CO_{2e} savings	Linear Heat Density	Heat Sources
~£50m	~50GWh/yr	~21km	>5ktCO_{2e}/yr	1.9MWh/m	ASHPs

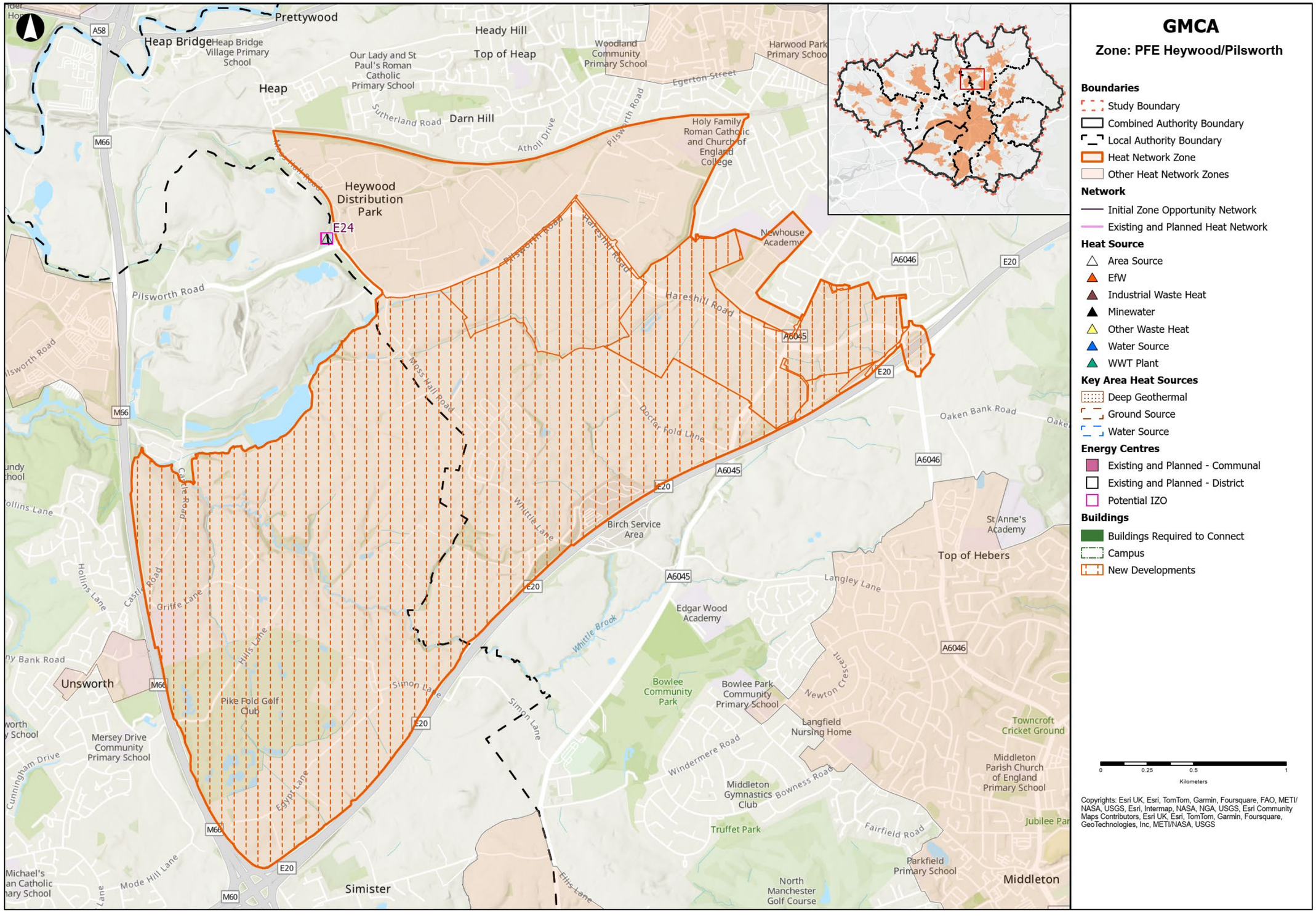
The IZO is based around the 2021 Heywood/Pilsworth PFE allocation which is located to the east of Bury and west of Rochdale and is proposed to include 1,200 new dwellings and 1,200,000m^2 of industrial and warehouse space. This development is strategically important for GMCA and therefore has been the basis of the IZO. The identified IZO is estimated to have a network length of around 21km, however, potential routing has not been considered as it will be dependent on the build out of the new development.

The LAEP for Rochdale[49], deemed the Heywood area to be a prospective location for a future heat network. This aligns with the placement of the IZO.

No significant constraints have been identified for this zone that could not be mitigated as part of the build out of the new development.

[47] GMCA (2021) Places for Everyone JPA1.1 Heyworth/Pilsworth Allocation Topic Paper. Available at: https://www.greatermanchester-ca.gov.uk/GMCAFiles/PFE/
[48] Please see Appendix 3 – Glossary, “Specific definitions” of the main report for definitions related to this table.
[49] Greater Manchester Combined Authority. (2022) Local Area Energy Plan Rochdale. Available at: https://gmgreencity.com/projects-and-campaigns/local-energy-market/

Figure 22: Initial Zone Opportunity in PFE Heywood/Pilsworth HNZ



3.7.4) PFE Heywood/Pilsworth – IZO Heat Demands

The IZO that is presented here for PFE Heywood/Pilsworth solely connects to new developments, with a total heat demand of circa 50GWh/yr, as shown in Figure 23. Details of the new development are provided in Table 35 and discussed below.

Within Heywood/Pilsworth five phases of new development have been identified, three of which could potentially be required to connect to heat networks after 2025. Phases 2 to 4, in the centre of the zone, are proposed for industrial and residential development. In total, approximately 700,000m^2 of industrial space and 200 residential dwellings are anticipated to be built out.

Figure 23: PFE Heywood/Pilsworth - Categorisation of Heat Demand for Buildings Potentially Required to Connect in the IZO

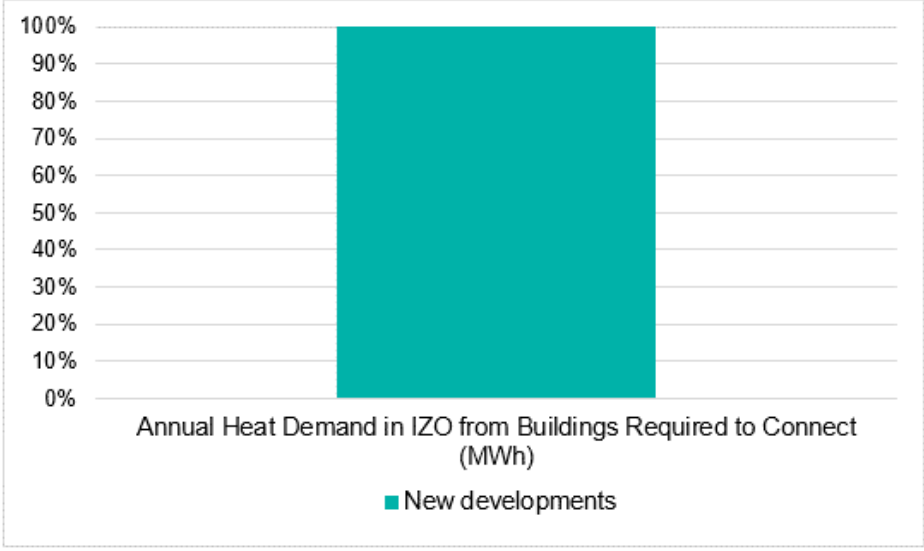


Table 35: PFE Heywood/Pilsworth - Key Heat Demands Required to Connect in the IZO[50]

Building name	Building category	Number of connections	Annual Heat Demand (MWh)	Data Source
Heywood/Pilsworth Phase 2	New development (residential and employment)	Unknown	14,750	Pilot methodology
Heywood/Pilsworth Phase 4	New development (employment)	Unknown	14,350	Pilot methodology
Heywood/Pilsworth Phase 3	New development (employment)	Unknown	10,100	Pilot methodology

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

3.7.5) PFE Heywood/Pilsworth – IZO Heat Sources

ASHPs have been identified as the preferred low carbon heat source for the IZO which could be situated in an energy centre on the new development site or surrounding area. One potential location has been identified on land at the junction between Moss Hall Road and Pilsworth Road which is situated north of the IZO.

Table 36 and Table 37 in this section summarise the key heat sources and potential energy centre locations identified for this IZO. These are also shown in Figure 22 in Section 3.7.3 above and on Map C in Appendix 1.

Table 36: PFE Heywood/Pilsworth - Key Heat Source Opportunities for the IZO

Heat source type	Supplied Capacity (kWp)[51]	Temperature (Degrees Centigrade)	Potential Energy Centre Location (Ref number)
ASHP – Location agnostic	10,400	5-15	E24

Table 37: PFE Heywood/Pilsworth - Potential IZO Energy Centre Locations

EC Ref #	Site type	Size (m^2)	Ownership	Heat Source
E24	Land	650	Unknown	ASHP

3.7.6) PFE Heywood/Pilsworth – IZO Heat Distribution

Table 38 shows the network statistics for the IZO including the total network length and associated costs. Please refer to Section 3.1.6 and Appendix 5 for the assumptions used.

The PFE Heywood/Pilsworth IZO has been benchmarked as requiring 21km of heat network trench following a standardised approach which is explained further in Appendix 5.

Table 38: PFE Heywood/Pilsworth - Indicative Heat Network Statistics for the IZO

IZO Heat Network description	Network length (km)	Network cost (£m)
PFE Heywood/Pilsworth	21	25

3.7.7) PFE Heywood/Pilsworth – IZO Key Constraints and Mitigations

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

[51] The supplied capacity in this table represents the output of plant that is envisaged to be suitable to meet the needs of the IZO.

3.8) PFE New Carrington

3.8.1) PFE New Carrington – HNZ Summary

New Carrington has been identified as a Strategic HNZ to the west of Trafford as shown in Figure 24. Key opportunities in the zone include the extensive future development plans and proximity to two strategic waste heat sources Carrington Power Station and Saica Paper Mill, which both have the potential to supply this zone and/or the larger Central Greater Manchester zone as per Section 3.4.The future development plans within this zone are outlined in the PFE allocation document published in 2021 for New Carrington (JPA33) by the GMCA[52].

3.8.2) PFE New Carrington - Existing Heat Networks

Operational Heat Networks and Planned Expansions

According to data from the Heat Networks Metering and Billing Regulations, there are two existing communal systems which serve a total of 75 residential customers and one non-residential customer.

3.8.3) PFE New Carrington – Initial Zone Opportunities

A single IZO was identified, the summary statistics for which is provided in Table 39.

Table 39: PFE New Carrington - Summary statistics for Initial Zone Opportunities[53]

CapEx	Heat	Network	CO_2e savings	Linear Heat Density	Heat Sources
~£75m	~50GWh/yr	> 35km	>5ktCO_{2e}/yr	0.9MWh/m	Waste heat

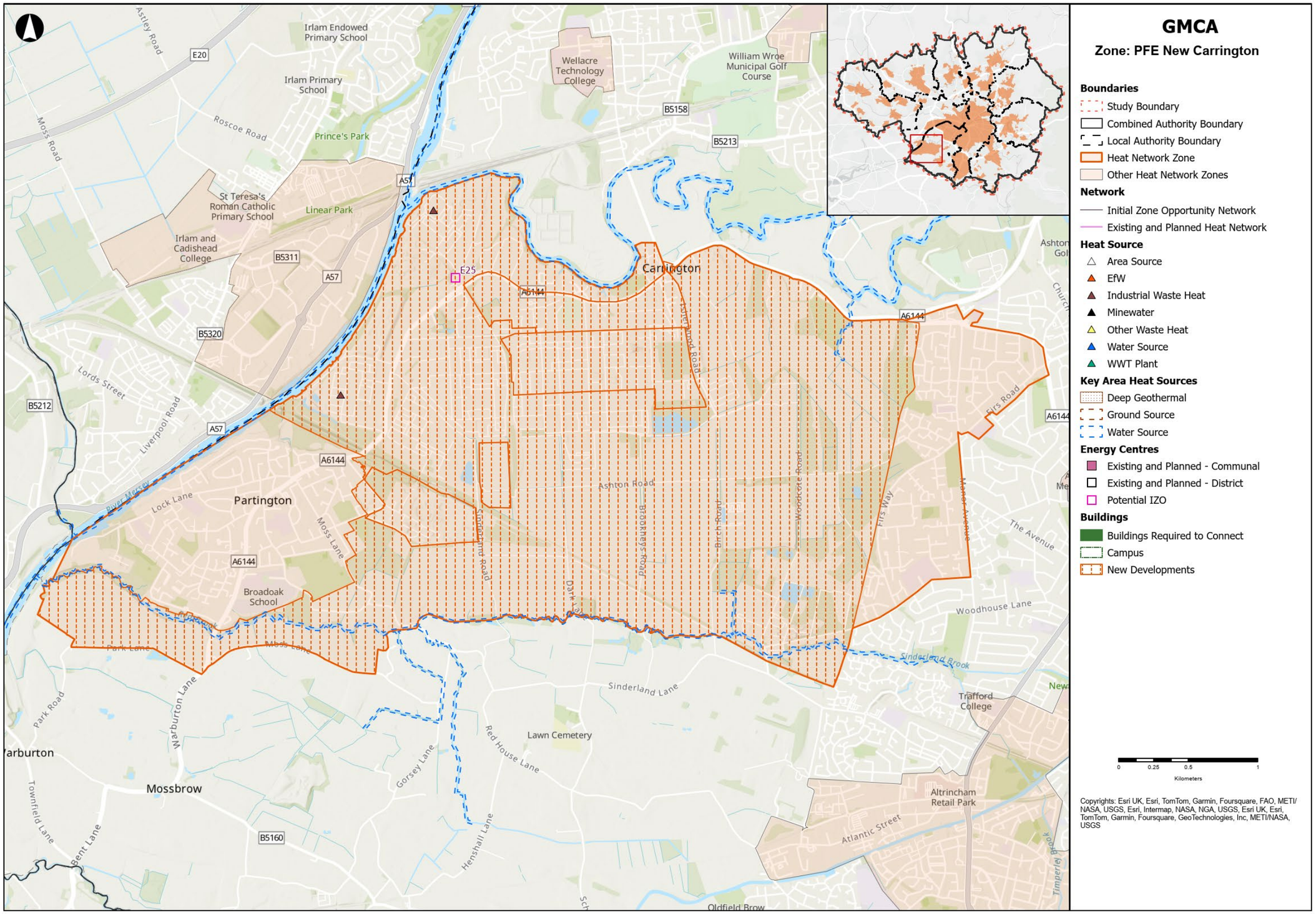
The IZO is based around the 2021 New Carrington PFE allocation in west Trafford which is proposed to include 5,000 new dwellings and 367,000m^2 of new employment space. This masterplan has been the basis of the IZO alongside the proximity to two strategic waste heat sources Carrington Power Station and Saica Paper Mill. The identified IZO is estimated to have a network length of around 35km, however, potential routing has not been considered as it will be dependent on the build out of the new development

The LAEP for Trafford[54] proposes that a heat network in Trafford could offer opportunities for connection to residential developments. These findings are in line with the IZO identified.

No significant constraints have been identified for this zone that could not be mitigated as part of the build out of the new development.

[52] GMCA (2021) Places for Everyone JPA33 New Carrington Allocation Topic Paper. Available at: https://www.greatermanchester-ca.gov.uk/GMCAFiles/PFE/
[53] Please see Appendix 3 – Glossary, “Specific definitions” of the main report for definitions related to this table.
[54] Greater Manchester Combined Authority. (2022) Local Area Energy Plan Trafford. Available at: https://gmgreencity.com/projects-and-campaigns/local-energy-market/

Figure 24: Initial Zone Opportunity PFE New Carrington HNZ



3.8.4) PFE New Carrington – IZO Heat Demands

The IZO that is presented here for PFE New Carrington solely connects to new developments, with a total heat demand of approximately 50GWh/yr, as shown in Figure 25. Further detail of the new development are provided in Table 40 and discussed below.

Figure 25: PFE New Carrington - Categorisation of Heat Demand for Buildings Potentially Required to Connect in the IZO

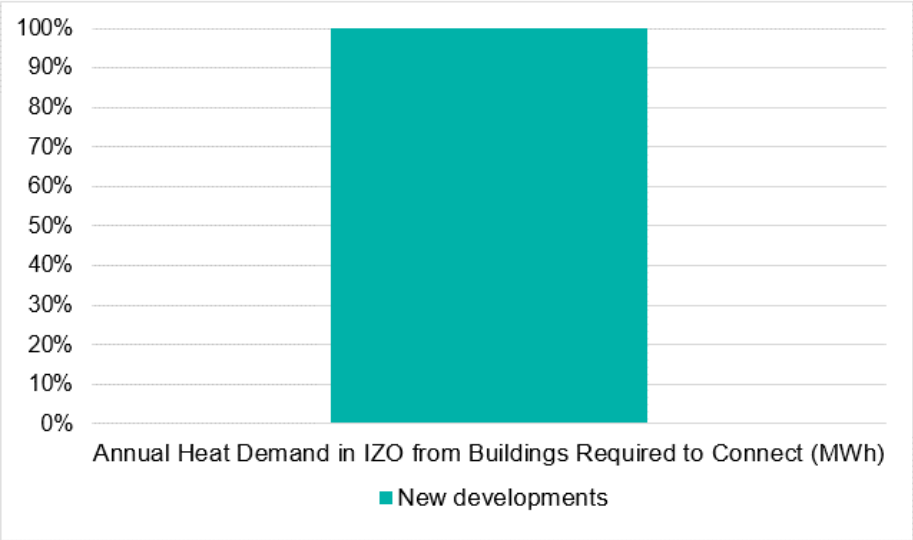


Table 40: PFE New Carrington - Key Heat Demands Required to Connect in the IZO[55]

Building name	Building category	Number of connections	Annual Heat Demand (MWh)	Data Source
Carrington Employment Area	New development	Unknown	19,300	Pilot methodology
Partington East	New development	Unknown	5,100	Pilot methodology
Sale West	New development	Unknown	4,900	Pilot methodology
Carrington Village	New development	Unknown	2,050	Pilot methodology
Warburton Lane	New development	Unknown	1,400	Pilot methodology

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

Within New Carrington five areas of new development have been identified which could potentially be required to connect to heat networks after 2025:

- To the north, the Carrington Village area is proposed for medium density family homes, with an average 35 dwellings per hectare (dph).
- To the east, the Sale West area has been designated for residential units at a higher density, with an average 40 dph.
- To the south, the Partington East area is designated for residential units with an average 35 dph, increasing to 40 dph nearby to the existing Partington urban area, and 55 dph close to a new local centre consisting of 2,500m2 of commercial development.
- To the south-west, the Warburton Lane area is designated for lower density family residential development with an average 25 dph.
- A central Carrington employment area will include approximately 350,000m^2 of industrial development.

In total, approximately 3,800 residential dwellings and 354,000m^2 of industrial and commercial space will be built out that could potentially be required to connect to heat networks after 2025.These new developments were benchmarked as having a combined heat demand of around 50GWh/yr, following a standardised approach which is explained further in Appendix 4.

3.8.5) PFE New Carrington – IZO Heat Sources

The IZO benefits from its proximity to the Carrington Power Station and Saica Paper Mill which have both been identified as potential sources of waste heat. Carrington Power Station is located 750m north-west of the IZO and Saica Paper Mill is located 200m south-west of the IZO. Data provided from ESB Energy for Carrington Power Station over a three-week period indicates that a heat pump would be required to upgrade the temperature of the heat available. It is assumed that this heat source can provide much more heat than is reported here. It is also assumed that the Saica Paper Mill would be capable of solely supplying the heat demand for this IZO.

A potential energy centre location has been identified off Manchester Road on the Carrington Power Station site. This is at the edge of the Power Station site, therefore the heat source and energy centre are not co-located.

Table 41 and Table 42 in this section summarise the key heat sources and potential energy centre locations identified for this IZO. These are also shown in Figure 24 in Section 3.8.3 above and on Map C in Appendix 1.

Table 41: PFE New Carrington - Key Heat Source Opportunities for the IZO

Heat source type	Supplied Capacity (kWp)[56]	Temperature (Degrees Centigrade)	Potential Energy Centre (Ref number)
Waste Heat – Carrington Power Station	7,900	Average 32	E25

Table 42: PFE New Carrington - Potential IZO Energy Centre Locations

EC Ref #	Site type	Size (m^2)	Ownership	Heat Source
E25	Land	6,500	Private, likely ESB	Carrington Power Station

3.8.6) PFE New Carrington – IZO Heat Distribution

Table 43 shows the network statistics for the IZO including the total network length and associated costs. Please refer to Section 3.1.6 and Appendix 5 for the assumptions used.

The IZO has been benchmarked as requiring 35km of heat network trench following a standardised approach which is explained further in Appendix 5. A further 750m is potentially required to connect the heat network to Carrington Power Station to the north-west of the development.

Table 43: PFE New Carrington - Indicative Heat Network statistics for the IZO

IZO Heat Network description	Network length (km)	Network cost (£m)
PFE New Carrington	35	50

3.8.7) PFE New Carrington – IZO Key Constraints and Mitigations

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

[56] The supplied capacity in this table represents the output of plant that is envisaged to be suitable to meet the needs of the IZO.

3.9) Rochdale Town Centre

3.9.1) Rochdale Town Centre – HNZ Summary

Rochdale Town Centre is the largest zone in Rochdale, covering the town centre as shown in Figure 26. The zone includes 456 existing buildings that could potentially be required to connect to a heat network, a large proportion are non-domestic private sector buildings such as industrial and retail buildings. Key anchor loads include Rochdale Infirmary, Rochdale Exchange and Rochdale Riverside shopping centres, as well as multiple new developments to be built out post 2025. The main heat sources identified for this zone are WSHPs, SSHPs and ASHPs.

3.9.2) Rochdale Town Centre - Existing Heat Networks

There are eight operational communal heat networks, and one early stage proposed district heat network in development in Rochdale Town Centre HNZ, as described below.

Operational Heat Networks and Planned Expansions

There are no existing heat networks that have been identified within Rochdale Town Centre HNZ other than communal systems. According to data from the Heat Networks Metering and Billing Regulations, there are eight existing communal systems within the zone which serve 177 residential customers and 13 non-residential customers.

Proposed Heat Networks – Early stage

Rochdale Town Centre DHN

As part of work on the Greater Manchester City Heat Decarbonisation Delivery Plan in 2021, a strong potential to develop a low carbon heat network in Rochdale town centre was identified. The findings were used by Rochdale Council to apply for HNDU funding and to commission a feasibility study in 2023. This study provides a robust evidence base for the development of a low carbon heat network in the town centre, connecting to buildings such as Rochdale Leisure Centre and the Town Hall, with heat supplied from a SSHP.

3.9.3) Rochdale Town Centre – Initial Zone Opportunities

A single IZO was identified. Potential routing[57] for the IZO is shown in Figure 26 and summary statistics provided in Table 44.

Table 44: Rochdale Town Centre - Summary Statistics for Initial Zone Opportunities[58]

CapEx	Heat	Network	CO_{2e} savings	Linear Heat Density	Heat Sources
~£75m	~50GWh/yr	~13km	>5ktCO_{2e}/yr	4.2MWh/m	WSHPs and SSHPs

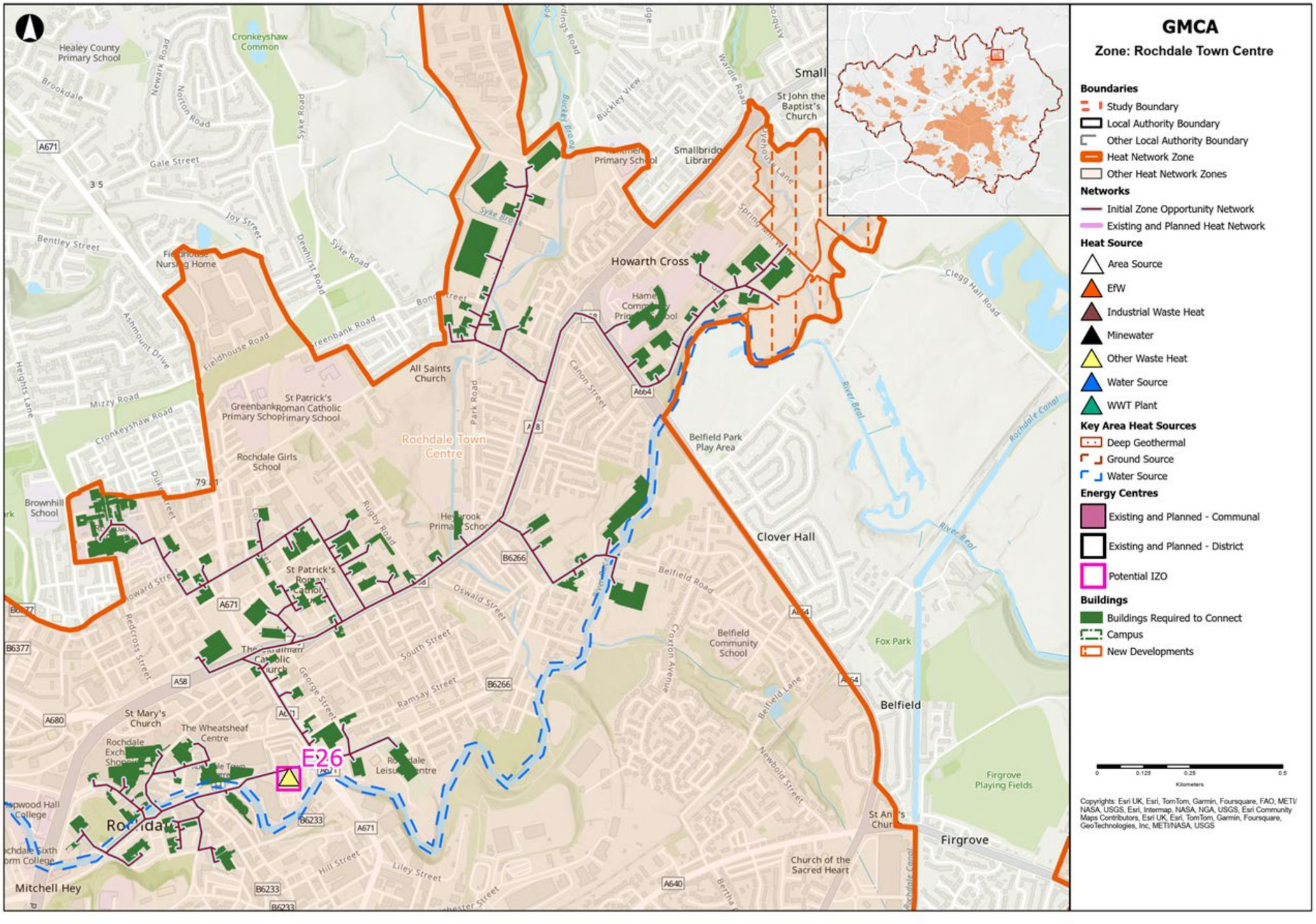
[57] Routes can be expected to change as a better understanding of local constraints is developed through design.
[58] Please see Appendix 3 – Glossary, “Specific definitions” of the main report for definitions related to this table.

The IZO was chosen based on the high heat demand of Rochdale town centre, including key anchor loads such as Rochdale Infirmary and Rochdale leisure centre, and the opportunity to recover heat from a large sewer and the River Roch. The identified IZO has a network length of around 13km.

The IZO aligns well with previous studies which have identified the potential for a heat network in the town centre including the proposed Rochdale Town Centre scheme described further in Section 3.9.2.

A key constraint to the development of the IZO is the river which runs through the HNZ. This does not prohibit the development of the IZO and potential mitigations are outlined in Section 3.9.7.

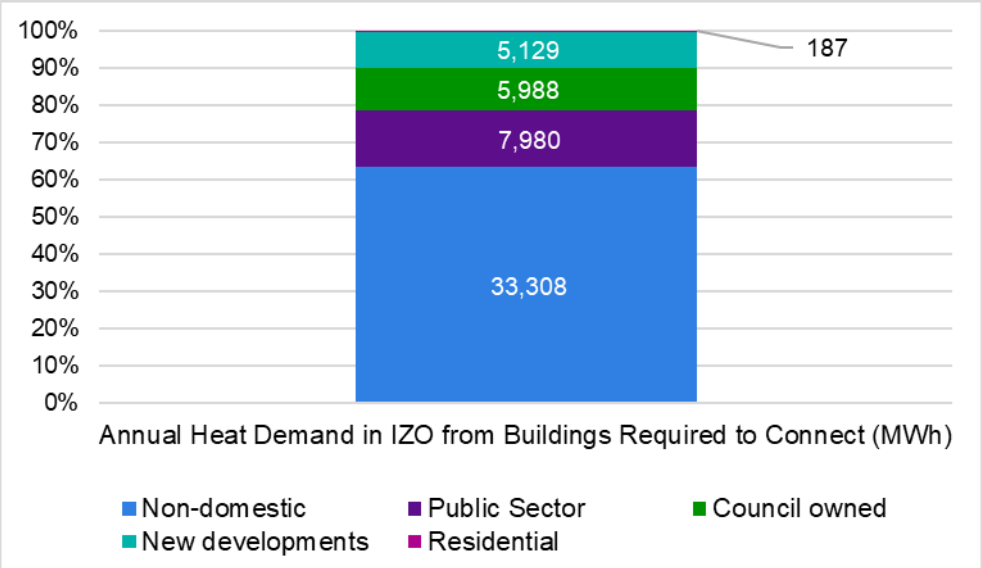
Figure 26: Initial Zone Opportunity in Rochdale HNZ



3.9.4) Rochdale Town Centre – IZO Heat Demands

The IZO presented here connects to 98 existing buildings and 10 new developments which could potentially be required to connect to a heat network, with an overall heat demand of approximately 50GWh/yr. Figure 27 shows the breakdown of heat demand based on building types.

Figure 27: Rochdale Town Centre - Categorisation of Heat Demand for Buildings Potentially Required to Connect in the IZO



The heat demand connected to the IZO is largely made up of non-domestic private sector buildings, with ~60% of the heat demand being from non-domestic buildings including industrial, office and retail spaces. Public sector buildings make up the second largest heat demand connected to the IZO, making up ~15% of the demand. The remaining demand is largely made up of council owned buildings and new developments, each accounting for ~10% of the total heat demand.

Further details of the key heat demands for buildings potentially required to connect in the IZO are provided in Table 45. The key heat demands reflect the overall trend seen in Figure 27, with 6 out of 10 buildings being non-domestic private sector buildings. This includes the Eclipse Centre, Mayfield Centre, Makin Metal Powders Ltd. and Vale Mill which are industrial buildings, and the Rochdale Exchange and the Rochdale Riverside Shopping Centres. The largest load within the IZO is Rochdale Infirmary which has an all-wet system, according to data from the ERIC database. The remaining three heat demands are council owned buildings, these are the Rochdale Leisure Centre, Rochdale Town Hall and Number One Riverside, which is an office and customer services centre.

Table 45: Rochdale Town Centre - Key Heat Demands Required to Connect in the IZO[59]

Building name	Building category	Number of connections	Annual Heat Demand (MWh)	Data Source
Rochdale Infirmary	Public sector	Unknown	6,250	ERIC
Eclipse Centre	Non-domestic	1	3,500	Benchmark (NZM)
Rochdale Exchange Shopping Centre	Non-domestic	1	2,900	Benchmark (NZM)
Mayfield Centre	Non-domestic	1	1,800	Benchmark (NZM)
Rochdale Riverside Retail and Leisure Shopping Centre	Non-domestic	1	1,700	Benchmark (NZM)
Rochdale Leisure Centre	Council owned	1	1,650	DEC
Makin Metal Powders	Non-domestic	1	1,600	Benchmark (NZM)
Number One Riverside	Council owned	1	1,200	DEC
Vale Mill	Non-domestic	1	1,000	Benchmark (NZM)
Rochdale Town Hall	Council owned	1	900	DEC

3.9.5) Rochdale Town Centre – IZO Heat Sources

Several low carbon heat sources have been identified. A mixture of these sources could be suitable to supply the required heat demand of the IZO. Table 46 and Table 47 in this section summarise the key heat sources and potential energy centre locations identified for this IZO. These are also shown in Figure 26 in Section 3.9.3 above and on Map C in Appendix 1.

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

Firstly, there is a large sewer running along Dane Street, which turns into The Esplanade as it runs into the town centre. A SSHP recovering heat from this sewer is estimated to have a capacity of circa 5MW, and sewer monitoring is currently being undertaken to provide more accurate figures on the heat capacity of the sewer. Alternatively, heat could be recovered from the United Utilities WWTW to the south-west of the town. The River Roch also runs through the centre of Rochdale, passing some of the key heat demands identified for connection. It is estimated that a WSHP recovering from the river would have a capacity of circa 7MW.

Furthermore, there is the opportunity for ASHPs or GSHPs to supply heat. These heat sources are location agnostic so could be situated in smaller energy centres located across the IZO.

Two potential energy centre locations have been identified. E26 is a development site on Smith Street (previously Mecca Bingo) and E27 is land located on Mandale Park.

Table 46: Rochdale Town Centre - Key Heat Source Opportunities for the IZO

Heat source type	Supplied Capacity (kWp)[60]	Temperature (Degrees Centigrade)	Potential Energy Centre (Ref number)
WSHP - River Roch	7,000	5-15	E26 and/or E27
SSHP - Sewer	4,900	10-20	E26 and/or E27

Table 47: Rochdale Town Centre - Potential IZO Energy Centre Locations

EC Ref #	Site type	Size (m^2)	Ownership	Heat Source
E26	Land	7,500	Council	WSHP and SSHP
E27	Land	14,000	Unknown	WSHP and SSHP

3.9.6) Rochdale Town Centre – IZO Heat Distribution

Table 48 shows the network statistics for the IZO including the total network length and associated costs. Please refer to Section 3.1.6 and Appendix 5 for the assumptions used.

The proposed network route for the IZO begins with heat being distributed from a potential energy centre located on Smith Street (E26). Heat could be distributed along the B6266 to the buildings in the centre of Rochdale including Rochdale Exchange Shopping Centre and council owned buildings such as Rochdale Leisure Centre. From here the route could then run north to the A58, splitting to distribute heat to Rochdale Infirmary to the west, and to a business park on Buckley Road and future developments located off the A664 to the east.

[60] The supplied capacity in this table represents the output of plant that is envisaged to be suitable to meet the needs of the IZO.

Table 48: Rochdale Town Centre - Indicative Heat Network Statistics for the IZO

IZO Heat Network description	Network length (km)	Network cost (£m)
Rochdale Town Centre	13	50

3.9.7) Rochdale Town Centre – IZO Key Constraints and Mitigations

[C23] River crossing: The River Roch runs through the zone from east to west. The IZO presented here would therefore need to cross the river. An existing bridge, on Belfield Road has been identified as a potential crossing point. A feasibility assessment would be required to check the suitability of the bridge to accommodate the pipework. This feasibility assessment would likely require engagement with the Canals and River Trust and the relevant highways authority.

3.10) Wigan Town Centre

3.10.1) Wigan Town Centre – HNZ Summary

Wigan Town Centre has been identified as the largest zone in Wigan, covering the town centre and areas of future development surrounding the centre, as can be seen in Figure 28. The zone includes 359 existing buildings that could potentially be required to connect, such as the Royal Albert Edward Infirmary, the Grand Arcade Shopping Centre, the Wigan Life Centre, as well as several new developments which are due to be built post 2025. The Heinz Factory has been identified as a key potential low carbon heat source, as well as the potential for WSHPs and SSHPs. There is currently one proposed heat network in the early stages of development.

3.10.2) Wigan Town Centre - Existing Heat Networks

There are five operational communal heat networks, and one early stage proposed district heat network in development in Wigan Town Centre HNZ, as described below.

Operational Heat Networks and Planned Expansions

There are no existing heat networks that have been identified within Wigan Town Centre HNZ other than communal systems. According to data from the Heat Networks Metering and Billing Regulations, there are five existing communal systems which serve a total of 190 residential customers.

Proposed Heat Networks – Early stage

Wigan Town Centre DHN

In 2020, Wigan Council commissioned a heat network feasibility study. The study focused on two small clusters in Wigan town centre, the first was centred around local authority buildings and the second connected several technical colleges and schools. This feasibility study was not progressed further at the time by the local authority. However, in 2023, a new concept study, looking at taking waste heat from the Heinz factory was carried out. Key potential off-takers included the Royal Albert Edward Infirmary, Wigan Life Centre and The Galleries. In total there were 32 proposed connections to the network, with a total heat demand of 40GWh/yr. This work has been used to apply for HNDU funding for a feasibility study.

3.10.3) Wigan Town Centre – Initial Zone Opportunities

A single IZO was identified. Potential routing[61] for the IZO is shown in Figure 28 and summary statistics provided in Table 49.

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

Table 49: Wigan Town Centre - Summary Statistics for Initial Zone Opportunities[62]

CapEx	Heat	Network	CO_{2e} savings	Linear Heat Density	Heat Sources
~£175m	~150GWh	~35km	>20ktCO_{2e}/yr	5.2MWh/m	Waste Heat

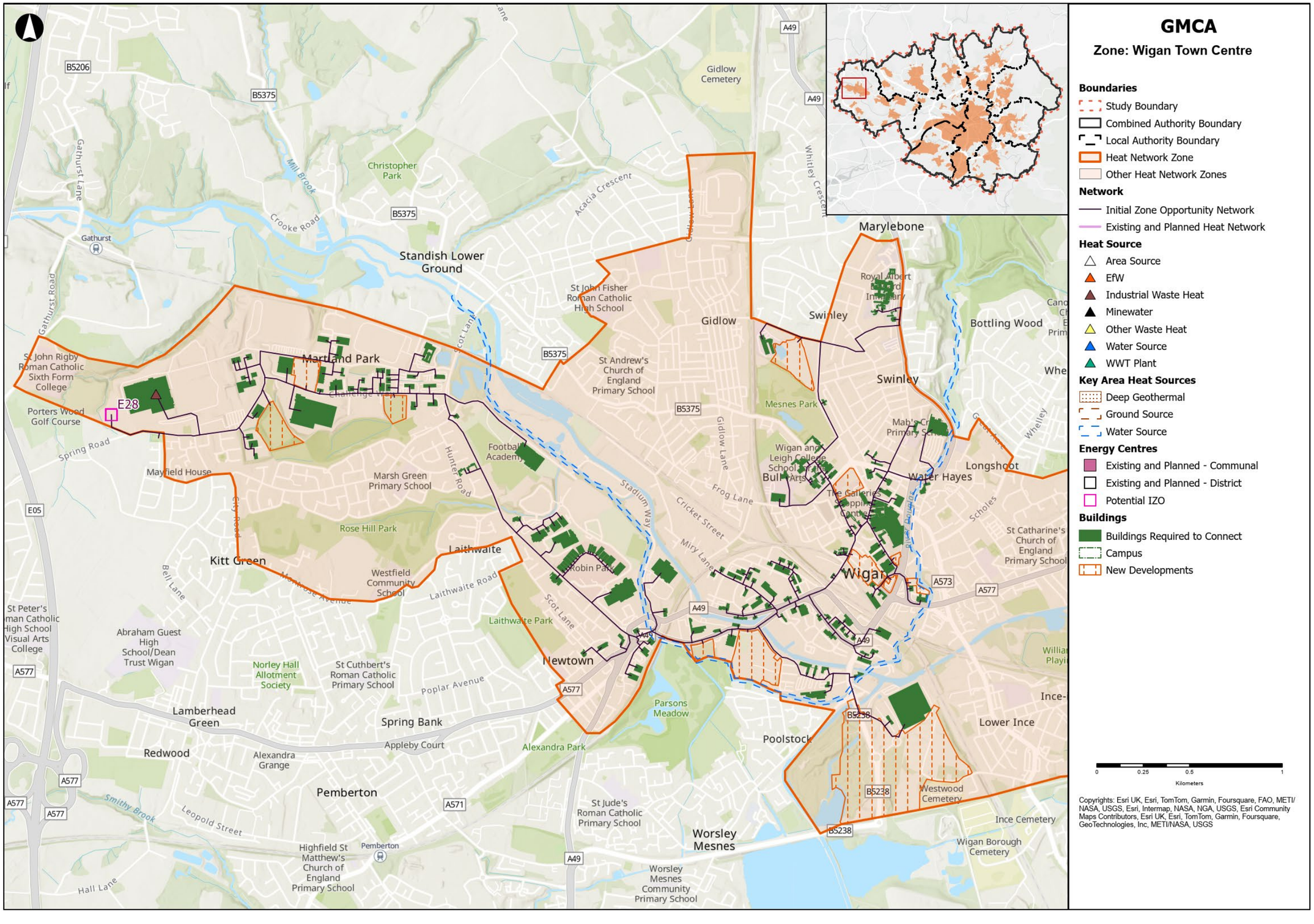
This IZO was chosen based on the high heat demand density in Wigan town centre, including key anchor loads such as the Royal Albert Edward Infirmary and Grand Arcade Shopping Centre. Furthermore, there is an opportunity to utilise waste heat from the Heinz Factory to the north-west of the zone. The identified IZO has a network length of approximately 35km.

The IZO aligns well with the district heating concept study completed in 2023 which identified similar low-carbon heat source and heat demand options in the Wigan town centre.

Key constraints to the development of the IZO are a river and a canal which run through the zone. These constraints do not prohibit the development of the IZO and actions to address these are outlined in Section 3.10.7.

[62] Please see Appendix 3 – Glossary, “Specific definitions” of the main report for definitions related to this table.

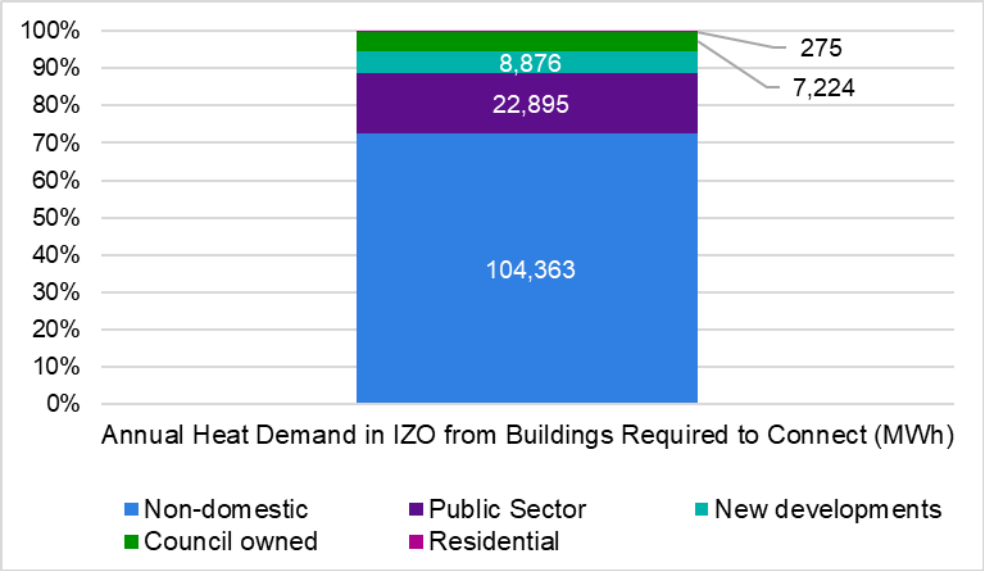
Figure 28: Initial Zone Opportunity in Wigan Town Centre HNZ



3.10.4) Wigan Town Centre – IZO Heat Demands

The IZO presented here connects to 190 existing buildings and 13 new developments which could potentially be required to connect to a heat network, with an overall heat demand of approximately 150GWh/yr. Figure 29 shows the breakdown of heat demand based on building types.

Figure 29: Wigan Town Centre - Categorisation of Heat Demand for Buildings Potentially Required to Connect in the IZO



Non-domestic private sector buildings make up the largest proportion of the heat demand, accounting for over 70% of the heat demand. This includes buildings such as retail spaces, offices and industrial buildings. Public sector buildings make up the second largest proportion of heat demands connected to the IZO, making up ~15% of the heat demand. This includes Royal Albert Edward Infirmary, several schools and other public sector buildings. New developments including office and residential developments located across the IZO, and council owned buildings make up the remainder of the heat demand connected, each accounting for ~5% of the demand.

Further details of the key heat demands for buildings potentially required to connect in the IZO are provided in Table 50. Similarly, to the overall split of heat demand, non-domestic private sector buildings make up the 7 of the top 10 loads connected to the IZO. The largest heat demand in the IZO is the Nice Pak International Ltd. Industrial building which is on Westwood Park Drive to the south of the town centre. Royal Albert Edward Infirmary is the second largest heat demand and has an all-wet system according to data from the ERIC database. The Wigan Life Centre is a large leisure centre.

Table 50: Wigan Town Centre - Key Heat Demands Required to Connect in the IZO[63]

Building name	Building category	Number of connections	Annual Heat Demand (MWh)	Data Source
Nice Pak International Ltd.	Non-domestic	1	18,650	Benchmark (NZM)
Royal Albert Edward Infirmary	Public sector	Unknown	15,750	ERIC
The Grand Arcade	Non-domestic	1	10,300	Benchmark (NZM)
Brands Holdings	Non-domestic	1	10,100	Benchmark (NZM)
HJ Heinz	Non-domestic	1	9,750	Benchmark (NZM)
Asda Wigan Supercentre	Non-domestic	1	3,700	Benchmark (NZM)
Wigan Life Centre	Council Owned	1	2,750	DEC
B&Q	Non-domestic	1	2,300	Benchmark (NZM)
Wigan Athletic Academy, Stadium Way	Non-domestic	1	2,200	Benchmark (NZM)
Wigan & Leigh Technical College	Public sector	Unknown	1,650	DEC

3.10.5) Wigan Town Centre – IZO Heat Sources

The preferred low carbon heat source identified for the IZO is the recovery of waste heat from a food processing factory to the north-west of the zone. Within this study, it has been estimated that the factory could have a peak heat output of over 15,000MW, subject to further assessment. A potential energy centre location has been identified for Wigan Town Centre, on land located near the food processing factory (E28). This location is nearby to the identified heat source, but they are not co-located, as can be seen in Figure 28.

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

Alternative heat sources include a SSHP with an estimated capacity of 10MW, recovering heat from the large sewer which follows the Leeds Liverpool Canal into the centre of Wigan, and the potential to use a WSHP, recovering heat from the River Douglas with a capacity of 1.6MW. The river runs from north to south on the eastern side of the zone. There is also the opportunity for ASHPs or GSHPs to provide heat to the Wigan Town Centre IZO. These types of heat source are location agnostic so could be situated in a variety of places throughout the zone.

Table 51 and Table 52 in this section summarise the preferred heat source and potential energy centre location identified for this IZO. These are also shown in Figure 28 in Section 3.10.3 above and on Map C in Appendix 1.

Table 51: Wigan Town Centre - Key Heat Source Opportunities for the IZO

Heat source type	Supplied Capacity (kWp)[64]	Temperature (Degrees Centigrade)	Potential Energy Centre (Ref number)
Waste Heat - Food manufacturing plant	33,400	20-50	E28

Table 52: Wigan Town Centre - Potential IZO Energy Centre Locations

EC Ref #	Site type	Size (m^2)	Ownership	Heat Source
E28	Land	2,500	Private	Waste Heat

3.10.6) Wigan Town Centre – IZO Heat Distribution

Table 53 shows the network statistics for the IZO including the total network length and associated costs. Please refer to Section 3.1.6 and Appendix 5 for the assumptions used.

At this stage a potential energy centre location has been identified nearby to the Heinz Factory, off Spring Road (E28). From here heat could be distributed east along Challenge Way supplying heat to three future developments and several industrial buildings, before travelling south along Scot Lane then east towards the town centre and key heat demands such as Grand Arcade Shopping Centre and Wigan and Leigh College. From here the network could expand northwards to Royal Albert Edward Infirmary.

Table 53: Wigan Town Centre - Indicative Heat Network Statistics for the IZO

IZO Heat Network description	Network length (km)	Network cost (£m)
Wigan Town Centre	35	75

[64] The supplied capacity in this table represents the output of plant that is envisaged to be suitable to meet the needs of the IZO.

3.10.7) Wigan Town Centre – IZO Key Constraints and Mitigations

[C24] Canal crossing: The Leeds and Liverpool canal runs within this zone and the IZO presented here would need to cross the canal twice. Two existing bridges, Pottery Bridge and one on Westwood Way have been identified as potential crossing points. A feasibility assessment would be required to check the suitability of the bridge to accommodate the pipework. This feasibility assessment would likely require engagement with the Canals and River Trust and the relevant highways authority.

[C25] River crossing: The IZO presented here would need to cross the River Douglas which runs through the east of this zone from north to south. An existing bridge at Saddle Junction has been identified as a potential crossing point. A feasibility assessment would be needed to check the suitability of this bridge to accommodate the necessary pipework. This feasibility assessment would likely require engagement with the Canals and River Trust and the relevant highways authority.

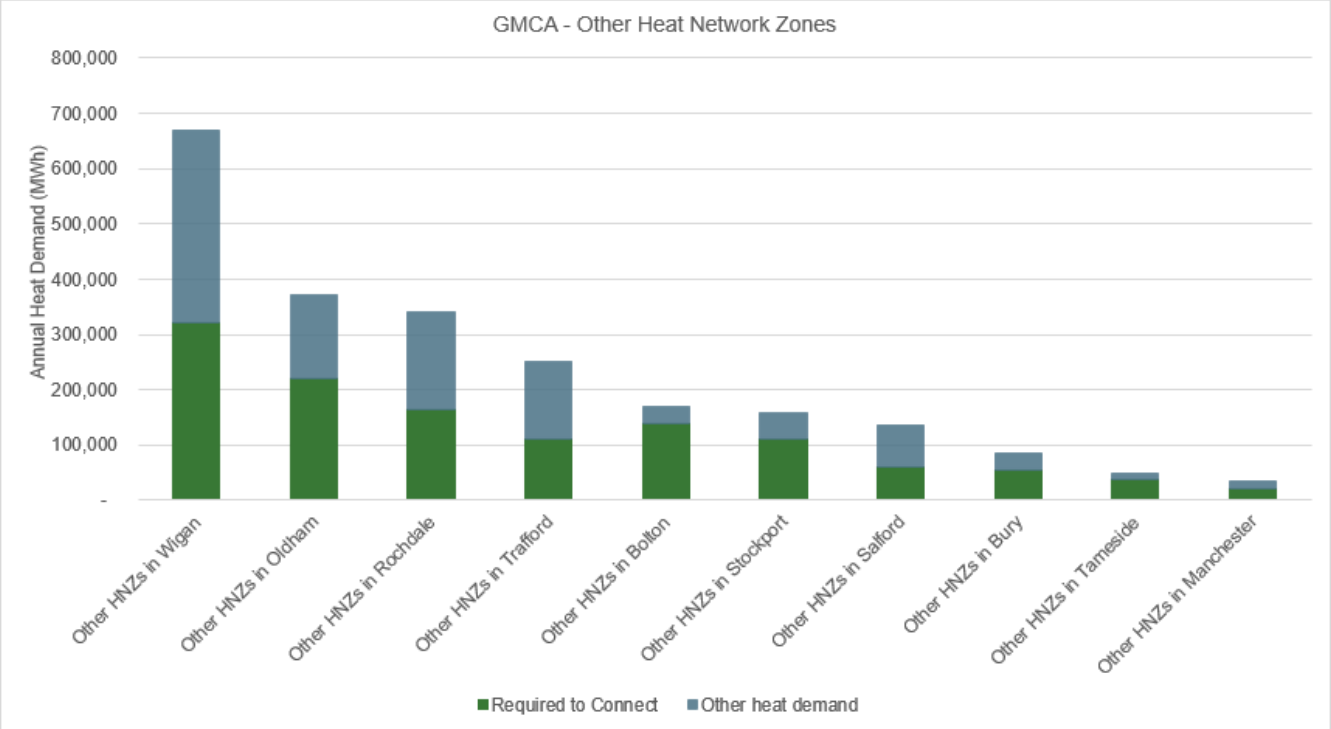
[C26] River crossing: A local railway line runs through this zone from east to west. The proposed IZO would need to cross the railway line. An existing bridge has been identified as a potential crossing point; this is Wallgate Bridge. A feasibility assessment would be required to check the suitability of the bridges to accommodate the pipework and provide confirmation that these are the best options for crossing the railway line in collaboration with Network Rail and the relevant highways authority.

4) Other Heat Network Zones

This section describes the 'Other' potential heat network zones that were identified in GMCA. 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 30 illustrates the total annual heat demand, and the proportion of which is associated with buildings that may be potentially required to connect within each zone. A map of all zones can be found in Figure 4.

Figure 30: Total Heat Demand and Proportion Required to Connect in Other HNZs



Wigan Other HNZs:

There are 11 Other HNZs situated in Wigan. One is based around public sector loads, six are based around industrial and commercial loads, and four are larger in size. The first includes HMP Hindley Prison, a large residential future development and the Nippon Electric Glass Fiber manufacturing facility which has the potential to be a source of waste heat. The second is centred around Leigh town centre including Leigh Infirmary and has the potential to utilise heat from the Leigh WWTW. The third is centred around a residential future development in Mosley. The fourth is centred around a mixed-use future development in Atherton. Potential heat sources identified include waste heat, WSHPs and SSHPs.

Oldham Other HNZs:

There are 7 Other HNZs situated in Oldham. Two are based around public sector loads, four are based around industrial and commercial loads; and one is larger in size centred around Royton and Shaw town centres, industrial estates and a large area of future development (Broadbent Moss, Beal Valley and Cowlishaw). Potential heat sources identified include waste heat and WSHPs recovering heat from mine-water.

Rochdale Other HNZs:

There are 4 Other HNZs situated in Rochdale. One is based around public sector loads, one is based around industrial and commercial loads, and two are larger in size centred around Heywood and Middleton town centres respectively. Potential heat sources identified include WSHPs and SSHPs.

Trafford Other HNZs:

There are 4 Other HNZs situated in Trafford. One is based around public sector loads, three are larger in size centred around Urmston, Sale and Altrincham town centres respectively. The first includes Trafford General Hospital and is the basis of a district heating concept study completed in 2022 utilising heat from Davyhulme WWTW. Potential heat sources identified include waste heat and SSHPs.

Bolton Other HNZs:

There are 6 Other HNZs situated in Bolton. Three are based around public sector loads, two are based around industrial and commercial loads, and one is larger in size centred around Middlebrook. Potential heat sources identified include WSHPs and SSHPs.

Stockport Other HNZs:

There are 13 Other HNZs situated in Stockport. Six are based around public sector loads, four are based around industrial and commercial loads, and three are larger in size. The first is centred around the Woodford Aerodrome housing and employment future development, the second includes Cheadle Hulme school, Seashell Trust and area of future development and the third includes Cheadle Royal Business Park, North West Priory School, Astell Day Hospital, St Ann’s Hospice and David Lloyd Leisure Centre. Potential heat sources identified include deep geothermal, WSHPs and SSHPs.

Salford Other HNZs:

There are 4 Other HNZs situated in Salford. Two are based around industrial and commercial loads, and two are larger in size centred around Swinton and Walkden respectively. Potential heat sources identified include SSHPs.

Bury Other HNZs:

There are 11 Other HNZs situated in Bury. Six are based around public sector loads, two are based around industrial and commercial loads. The remaining three are larger in size, one centred around the residential future development at Tetrosyl site on Walmersley Old Road, one centred around the residential future development at Simister and Bowlee (Northern Gateway), and one centred around Prestwich Hospital. Potential heat sources identified include WSHPs and SSHPs.

Tameside Other HNZs:

There are 6 Other HNZs situated in Tameside. Three are based around public sector loads, two are based around industrial and commercial loads, and one is larger in size centred around the predominately residential future development Godley Garden Village. Potential heat sources identified include WSHPs and SSHPs.

Manchester Other HNZs:

There are 4 Other HNZs situated in Manchester, all of which are smaller HNZs based predominantly around public sector loads. Potential heat sources identified include ASHPs and waste heat.

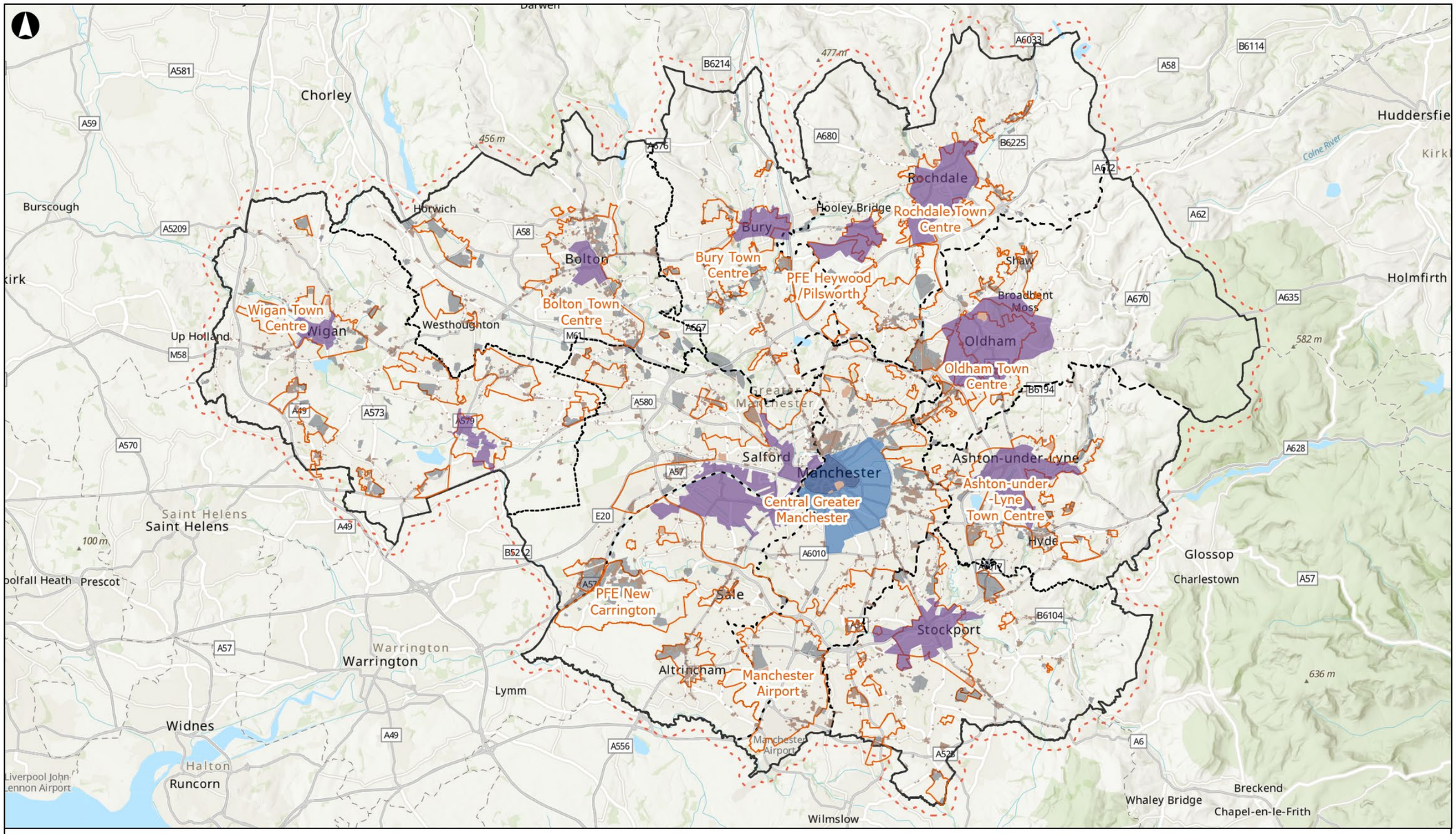
Appendix 1: Maps and Legends

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 heat network 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. GMCA Typology Map



B. Key Heat Demands

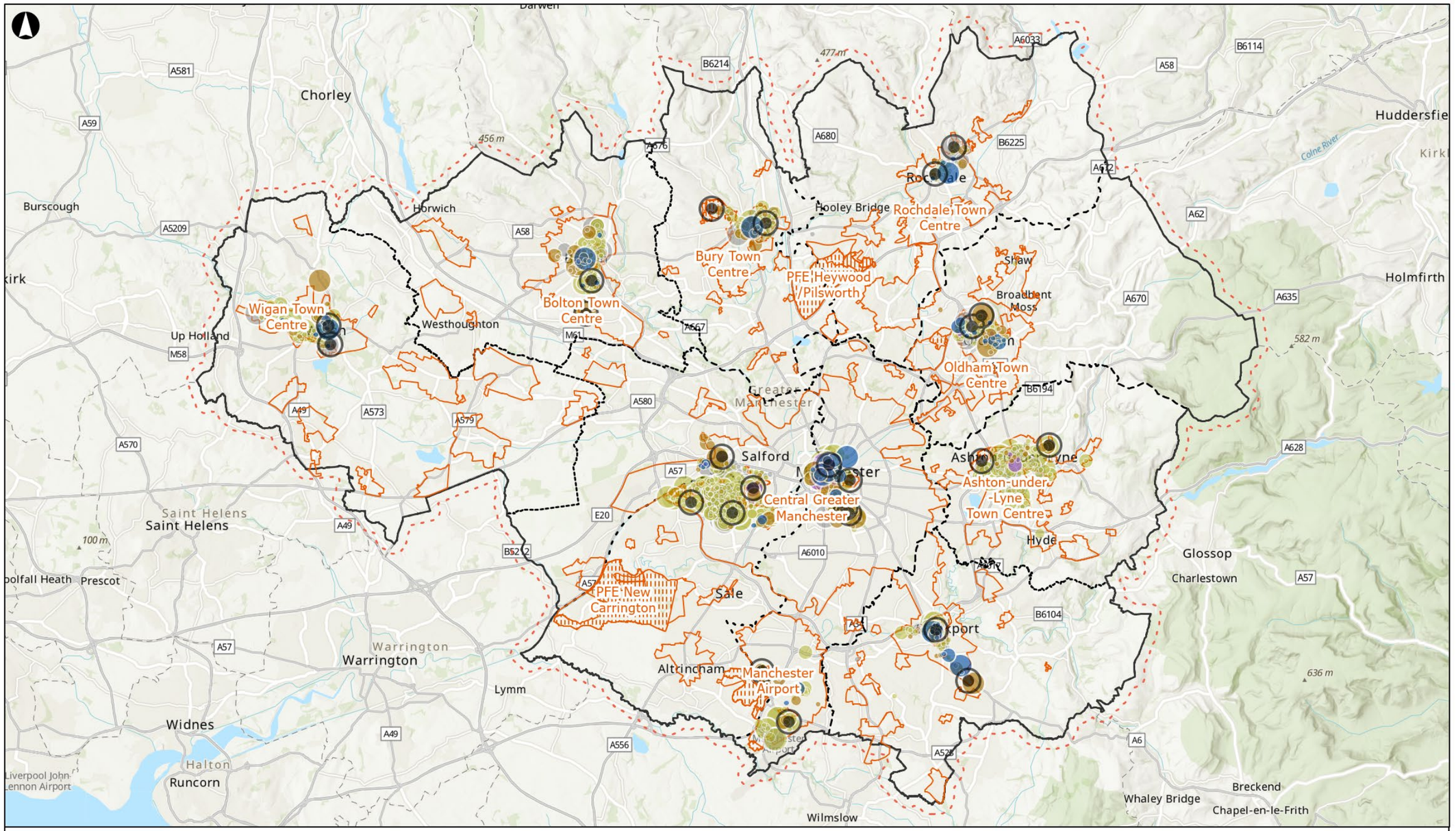
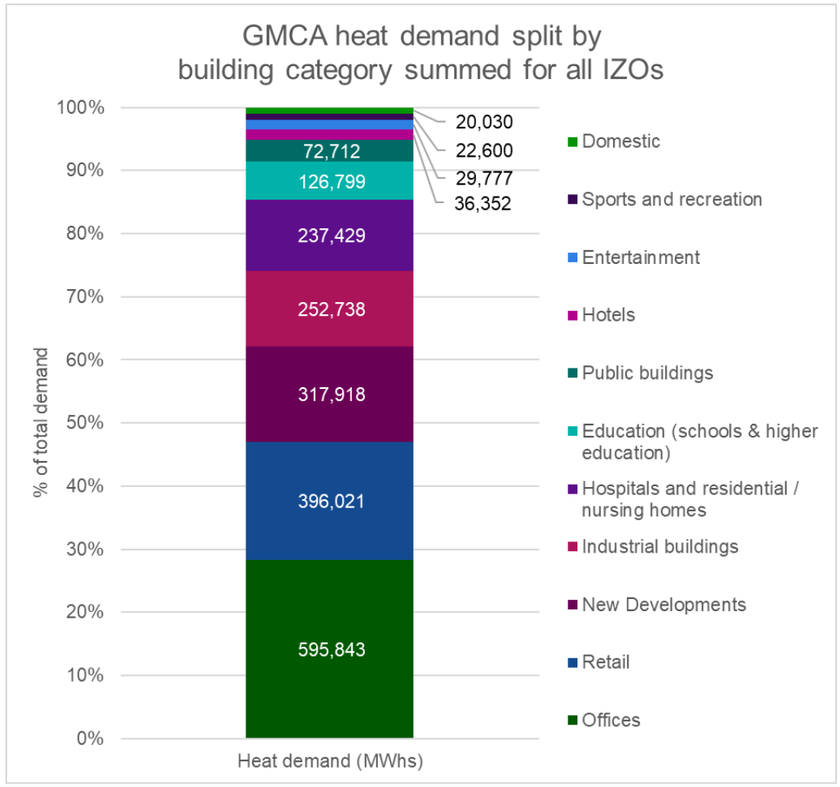


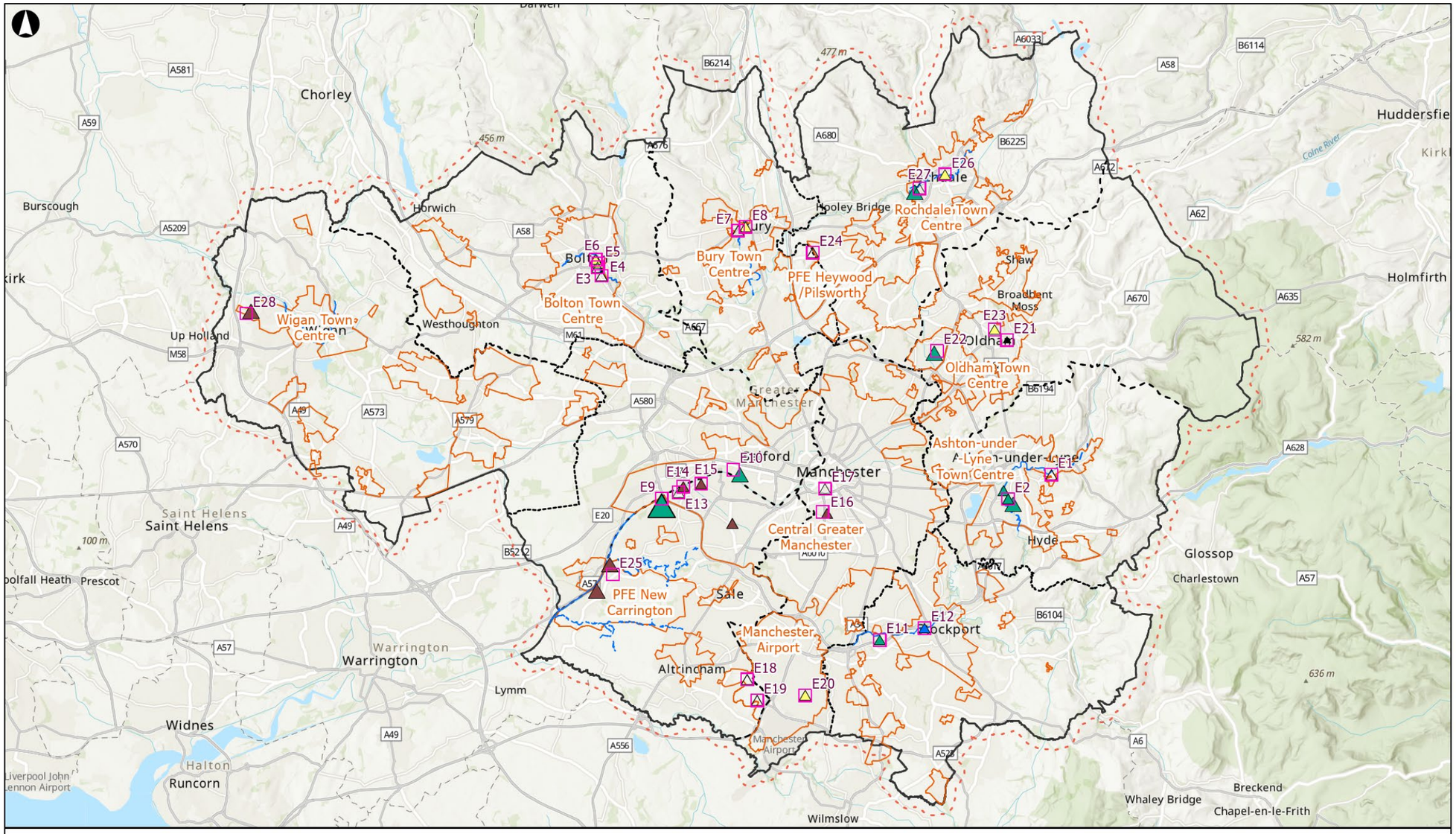
Table 54: Heat Demand split further by Building Categories across all Initial Zone Opportunities identified in Strategic HNZs in the Study Area

Building category (based on CIBSE)	Annual demand of buildings required to connect (MWhs)
Domestic	20,030
Education (schools & higher education)	126,799
Entertainment	29,777
Hospitals and residential / nursing homes	237,429
Hotels	36,352
Industrial buildings	252,738
Offices	595,843
Public buildings	72,712
Retail	396,021
Sports and recreation	22,600
New Developments	317,918
Totals	**2,108,219**

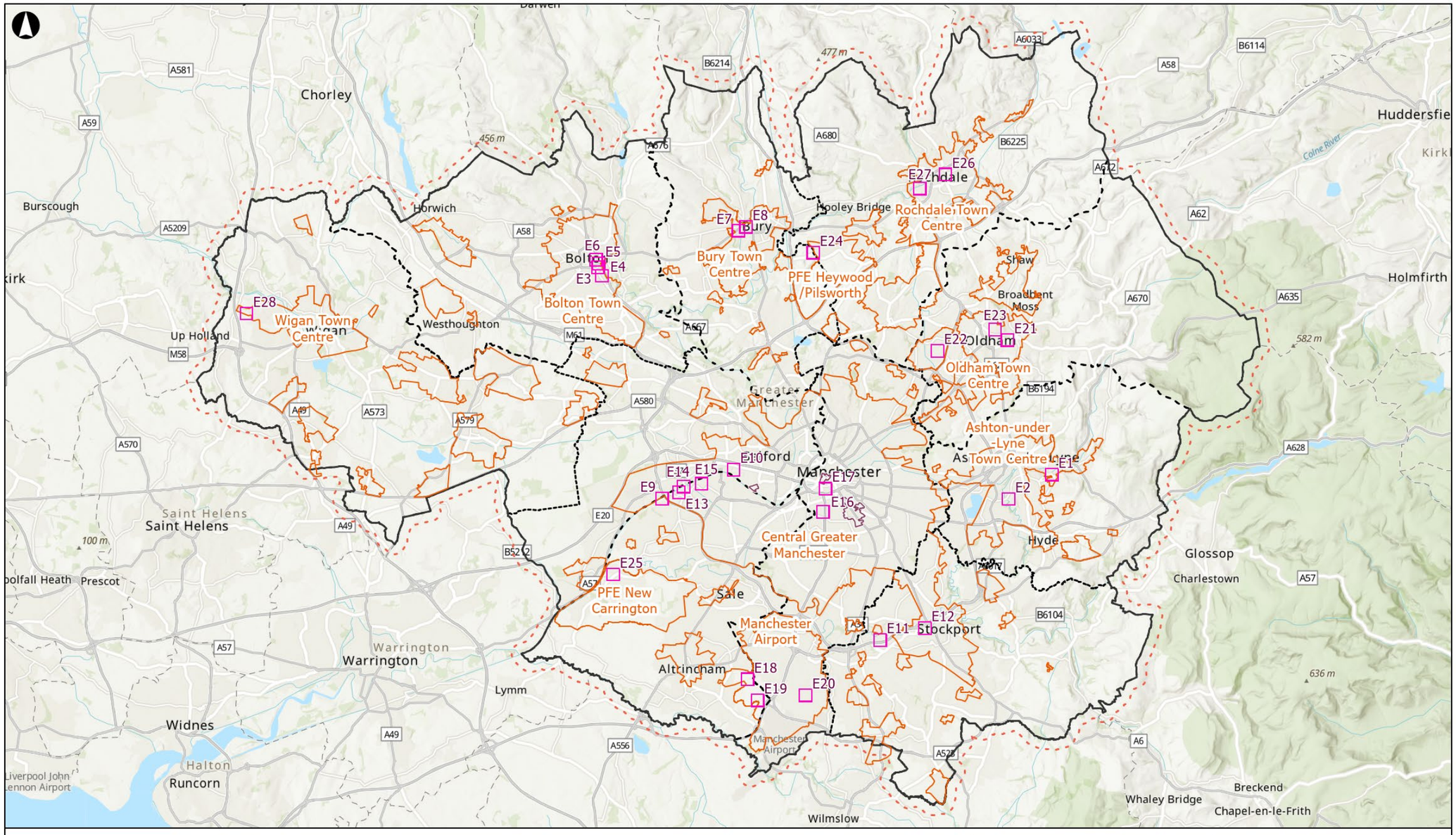


Note: In GMCA there are 10 Strategic HNZs with a total of 14 IZOs identified across them. The table and graph above summarise the heat demand for buildings potentially required to connect to these IZOs.

C. Key Heat Sources and Potential Energy Centres



D. Existing and Planned Heat Networks



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

Existing and Planned Heat Networks

Energy Centres
- Potential IZO

0 2.75 5.5 11
Kilometers

Scale: 1:190,000
Coordinate System: British National Grid

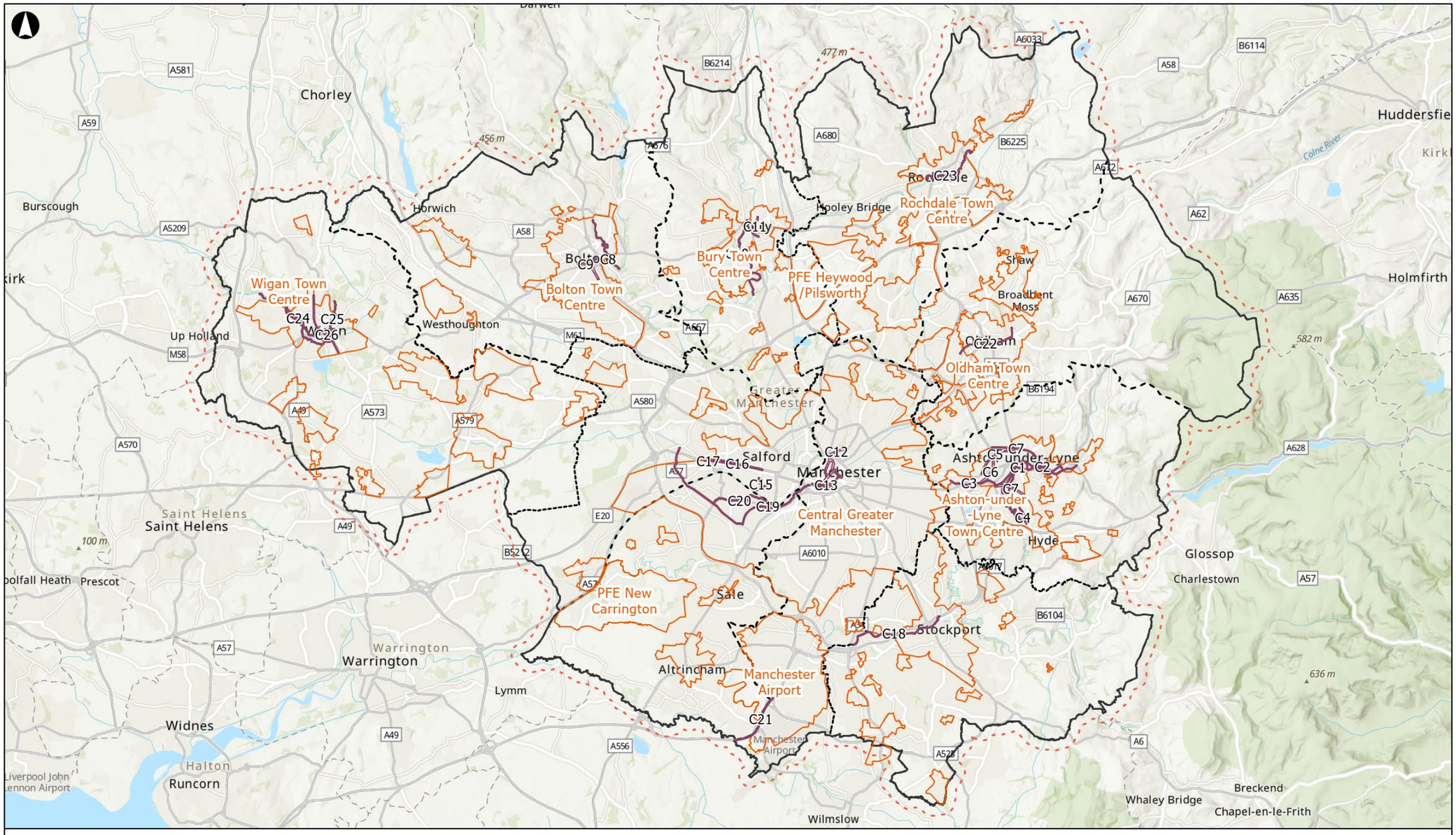
Department for Energy Security & Net Zero

GMCA

Map D

Existing Heat Networks

E. Physical Constraints



Boundaries

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

Key Constraints

0 2.75 5.5 11
Kilometers

Scale: 1:190,000
Coordinate System: British National Grid

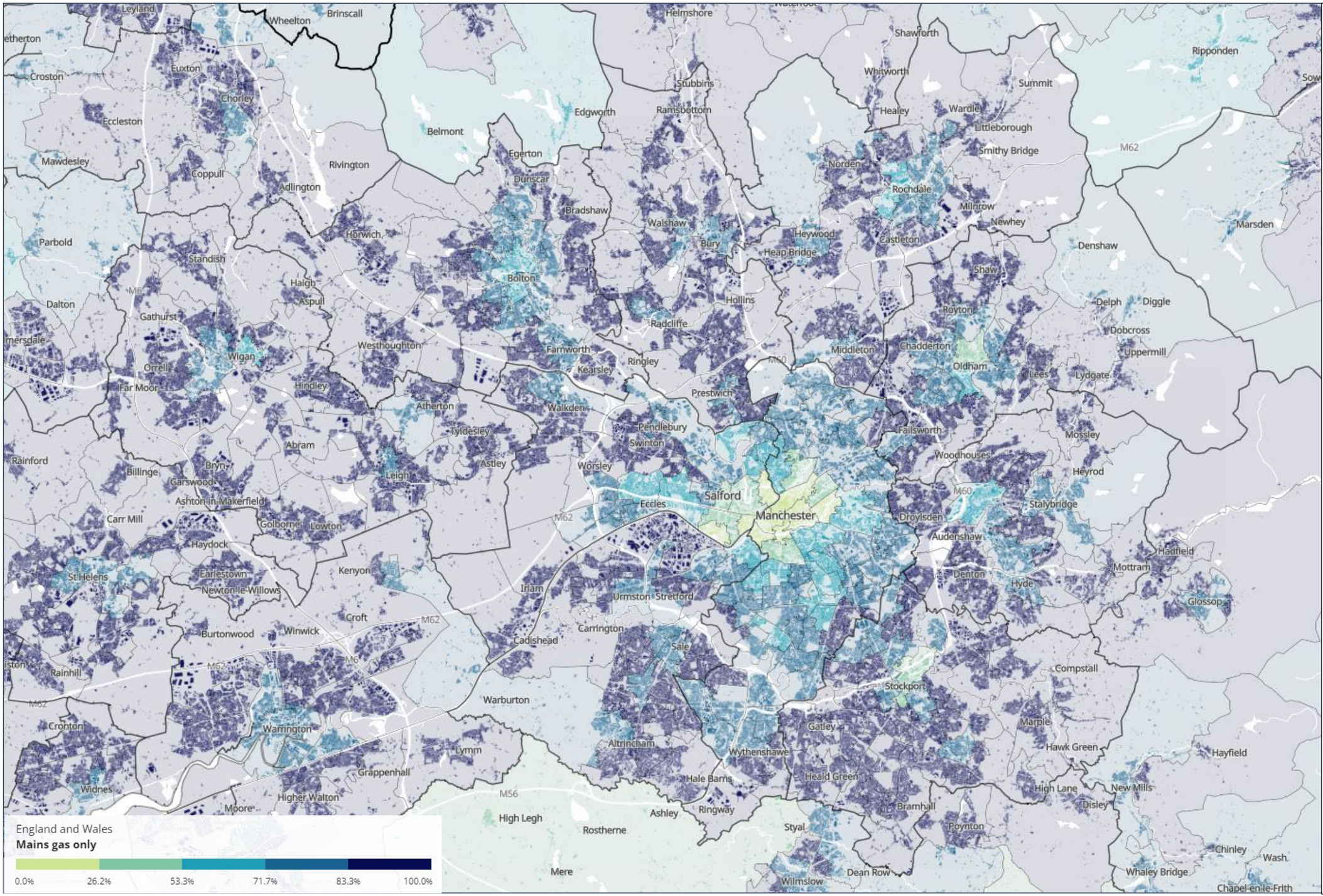
Department for Energy Security & Net Zero

GMCA

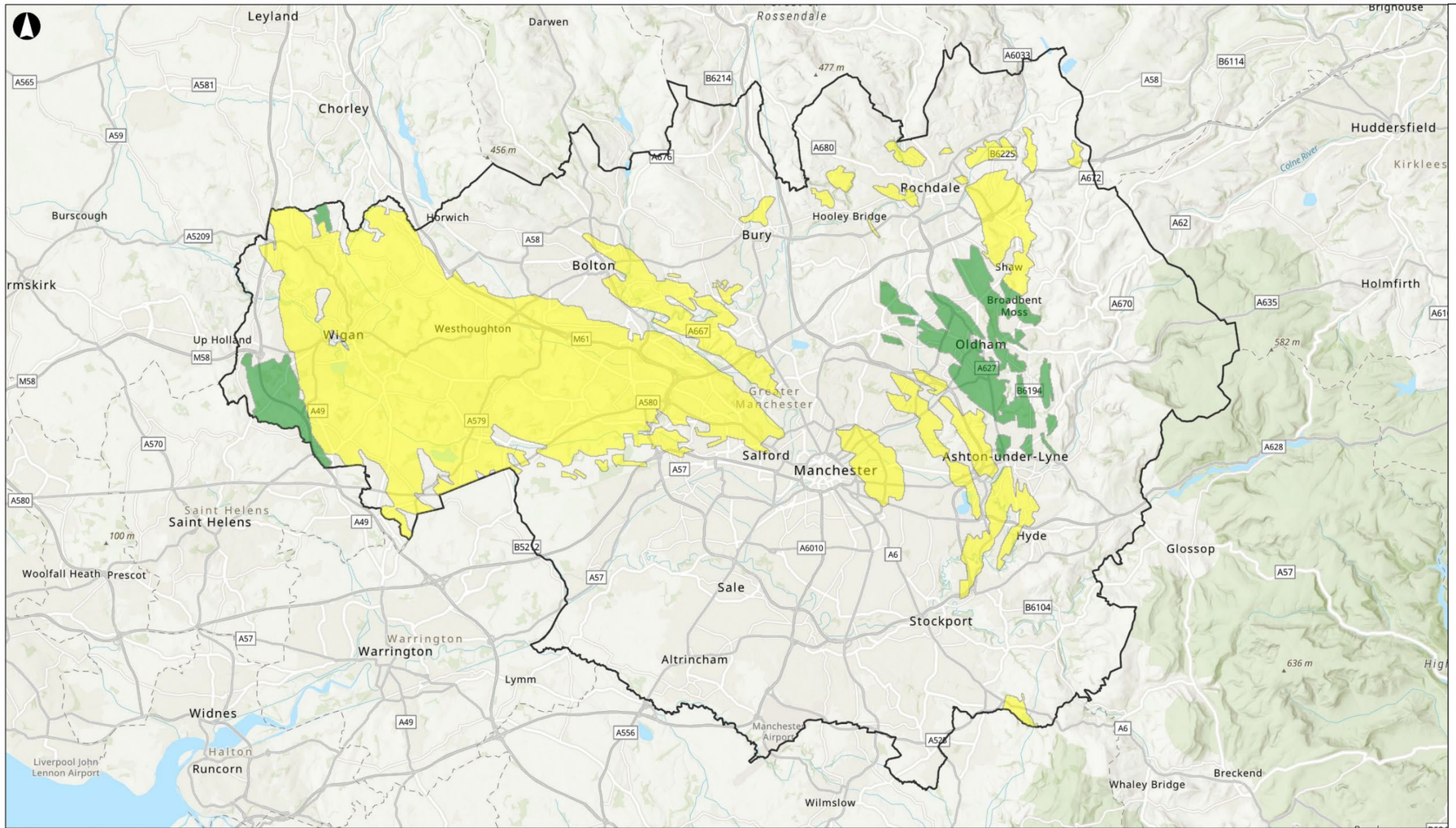
Map E

Physical Constraints

F. Off-Gas Grid Areas in GMCA



G. Coal Mine Water Areas in GMCA



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 57: 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 58: Pilot Programme Study-Area-Specific Information Resources

Information resource	Description of resource
Ashton Concept Study	Concept study for Ashton exploring a possible district heat network, completed by AECOM in 2022
Bolton OBC	Outline Business Case for a district heat network in Bolton, completed by AECOM in 2019
Bolton feasibility study,	Feasibility study for a district heat network in Bolton, completed by AECOM in 2022
Bury Concept Study	Concept study for a district heat network in Bury, completed in by AECOM in 2023
Manchester CDDP (Trafford)	As part of the GMCA City Heat Decarbonisation Delivery Plan, a concept study was completed for a district heat network in Trafford, completed by AECOM in 2020

Information resource	Description of resource
Trafford masterplanning study	Master planning study for a Trafford district heat network, completed by AECOM in 2022
Trafford feasibility study	Feasibility study for a Trafford district heat network, completed by AECOM in 2023
Manchester Airport concept study	A concept study is currently being carried out by AECOM for a district heat network in the Manchester Airport area.
Oldham DHN feasibility study	Feasibility study for a district heat network in Oldham, completed by Ramboll in 2020
Oldham DPD and OBC	Detailed project development and Outline Business Case completed for a district heat network in Oldham, completed by Buro Happold in 2023
Manchester CDDP (Rochdale)	As part of the GMCA City Heat Decarbonisation Delivery Plan, a concept study was completed for a district heat network in Rochdale, completed by AECOM in 2021.
Rochdale DHN feasibility study	Feasibility study for a district heat network in Rochdale, completed by AECOM in 2023
Stockport DHN feasibility study	Feasibility study for a district heat network in Stockport, completed by AECOM in 2023
Wigan DHN feasibility study,	Feasibility study for a district heat network in Wigan, completed by Buro Happold in 2020
Wigan DHN concept study	Concept study for a district heat network in Wigan, completed by AECOM in 2023

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.