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Birmingham Local Plan

Baseline Transport Assessment

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A	-	First draft of the Birmingham Plan – Baseline Transport Assessment report for Client Review	05-October-22	MS/MM	MS	SDB
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1 Background and Context

1.1 Introduction

Birmingham City Council (BCC) are updating the Birmingham Development Plan (BDP), which was adopted in January 2017. The new Birmingham Local Plan will extend until 2042, with this period being a transformative time for Birmingham with the city aiming to be carbon net zero by 2030. This Baseline Transport Assessment provides an evidence baseline to inform the development of the Birmingham Local Plan, identifying opportunities to encourage a shift to sustainable transport modes in support of the development proposals included in the emerging Plan so that Birmingham can meet the environmental, economic, and social targets as set out in National, West Midlands and Local policy frameworks.

This assessment of the existing transport network will identify the baseline conditions for Birmingham before the proposed or planned growth in the city.

An associated Birmingham Local Plan - Baseline Transport Assessment Opportunities and Constraints report has been produced which summarises and draws out the transport-related opportunities and constraints identified through the analysis of the data detailed in this Baseline Transport Assessment to assist with the development of the Birmingham Local Plan.

1.2 Current Challenges

Birmingham and the wider West Midlands are undergoing a period of significant change that will create new jobs, homes and opportunities. The city also looks to the future in the face of unprecedented challenges, including:

The Climate Emergency

BCC have set itself challenging decarbonisation targets to achieve net zero by 2030 (against the region's 2040 net zero target) in response to the climate emergency. The transport changes required for the city will need to be reflective of the city's carbon reduction ambition and also address the land use requirements and development proposals included in the new Birmingham Local Plan.

Increasing economic disparity

There are a number of disadvantaged communities in Birmingham, particularly in the inner areas of the city. This corresponds spatially with other social issues including poor health and poverty. Worklessness is a significant issue - the employment rate is below the national average. The current cost of living crisis will also mean that those in work will experience a dramatic decrease in living standards. There is a need to not only create local jobs for local people but also to establish higher-paying jobs. Rising fuel prices may also impact how people travel to, from and around the city.

Housing Growth Requirements

How Birmingham responds to its growth requirements (including response to the government's 35% uplift to the Standard Method for assessing housing need) whilst preserving the natural environment and promoting well designed , sustainable places to live will be a big challenge across the emerging Plan period.

Covid-19 Pandemic

Potential long-term impacts of the Covid-19 pandemic on the city centre, neighbourhoods and links; working and lifestyle changes accelerated by the pandemic in relation to the future of the city centre and changing land-use and travel requirements will all have to be taken into account when planning Birmingham's future.

Responding to these challenges affords a once in a lifetime opportunity to propel Birmingham forward, through the reimagining of the city's approach to transport and development to improve sustainability of transport

provision, enhance accessibility, support economic viability and improve health and wellbeing for Birmingham's population.

1.3 Background to the Birmingham Local Plan

The Council has commenced an update of the Birmingham Development Plan with the timetable for its preparation set out in the Local Development Scheme approved in June 2021. This Baseline Transport Assessment report has been prepared at the outset of the updated Birmingham Local Plan; the name used to refer to the next version of Birmingham's Local Plan.

The current Local Plan (2011 to 2031) demonstrated a capacity to deliver 51,100 homes, although this represented a significant shortfall on the projected 89,000 household requirement for the city for the plan period. Since then, the Council has been working with 13 other local authorities which make up the Greater Birmingham and Black Country Housing Market Area in order to accommodate this shortfall within the wider housing market area.

On the 16th of December 2020, the government updated its standard housing need methodology which applies a 35% uplift on the 20 largest cities and urban areas in the UK, including Birmingham. Evidence work will be carried out to ascertain whether there is capacity to accommodate this large increase in the housing need in a sustainable manner, but nevertheless, there is still likely to be a significant increase in the number of dwellings over the updated plan period.

This level of projected growth in Birmingham's population will require planning for the creation of a significant number of new jobs, with the increase in employment opportunities required to meet the needs of the city's growing population. It is essential that the city is able to provide opportunities for Birmingham-based companies to expand, as well as be able to compete for investment in new employment sectors. In order for the city to achieve this growth, high-quality sites need to be available across the Birmingham area. Similarly, the increased level of growth means that considerations must also be made for potential leisure and retail sites.

The Baseline Transport Assessment will be used to identify opportunities for, and constraints to, how to sustainably accommodate this significant increase in residential and employment developments in terms of the additional trips on Birmingham's transport network that the increase in population is likely to cause. The funding mechanisms regarding how these opportunities can be brought about and realised (e.g. through developer pool contributions and Section 106 agreements etc.) is covered in the wider Local Plan work and other workstreams such as the Birmingham Transport Plan Delivery Plan work.

1.4 Birmingham Local Plan Objectives

As evidence has been collated to inform the emerging new Birmingham Local Plan, a number of issues have been identified which need to be considered by the Plan. A key theme running throughout the Plan will be to ensure that future growth and development will be delivered whilst achieving the City Council's aim to achieve net-zero carbon status by 2030 following its declaration of a Climate Emergency in 2019. A set of objectives for the Birmingham Local Plan has been drafted which will help achieve this vision. The objectives will form the framework for the plan, and the policies and sites should all contribute to achieving them.

Objective 1: A net zero carbon city

- To ensure all new development achieves net-zero carbon emissions and is as energy efficient as possible.
- To have a positive and bold strategy to renewable energy.
- To make the most efficient use of our natural resources and minimise energy use.
- To minimise waste and promote a circular economy.

Objective 2: A resilient city

- To ensure development is designed to create resilient, adaptive and liveable environments that supports nature and human health and well-being.
- To manage flood risk and encourage the use of sustainable drainage systems.
- To reduce the impacts of urban overheating.
- To make building and places greener.

Objective 3: A city of growth for all

- To develop and grow the city in fair and inclusive way, meeting the needs of all of Birmingham's citizens.
- To support business growth, job creation, and inward investment by providing a range of employment and economic growth opportunities.
- To meet the housing needs of the city while protecting the things that are important to existing communities.
- To provide essential infrastructure to support development in a co-ordinated and timely manner.

Objective 4: A city of knowledge and innovation

- To build on Birmingham's competitive economic advantages and retain and attract the best talent.
- To capture the potential of Birmingham's innovation assets such as the city's universities and strengths in next generation transport, sustainable construction and medical sciences to drive economic growth.
- To promote low carbon industries and a green economy.
- To improve the education and skills of Birmingham's residents, increasing life prospects and prosperity.

Objective 5: A city of thriving neighbourhoods

- To provide for a significant increase in high-quality new homes and affordable housing in a range of, sizes, types and tenures to meet the city's housing needs.
- To create safe, attractive and sustainable neighbourhoods where there is good access to services and facilities within walking and cycling distance.
- To support Birmingham's network of urban centres as they adapt to changing trends and demands, encouraging investment and a wider range of activities to increase footfall and spend.
- To continue to enhance the city centre to make it greener, more attractive and resilient as well as spreading the success of the city centre to surrounding areas beyond the ring road through the emerging Central Area Framework.

Objective 6: A city of layers

- To raise the standard of design and place quality across the city creating enduring places popular with those who live in Birmingham and visit.
- To create safe, accessible and distinctive places which enhance local identity and pride of place.
- To protect and enhance the city's rich heritage and its cultural offer, integrating new development with respect.
- To make the city an international destination for tourists.

Objective 7: A healthy city

- To ensure development contributes to reducing health inequalities and maximising health and well-being;
- To improve access to health and social care facilities, high quality open spaces, and sports and recreation facilities to support healthy lifestyles; and
- To radically improve Birmingham's air and water quality.

Objective 8: A city of nature

- To protect and enhance Birmingham's varied natural environments and promote a connected green and blue infrastructure network;

- To deliver net gains in biodiversity and improve access to nature; and
- To expand the Birmingham Urban Forest and green the city.

Objective 9: A connected city

- To facilitate a step change in how people travel with the delivery of an integrated and sustainable transport network which prioritises walking, cycling and public transport;
- To maximise on Birmingham's position as one of the best-connected places in the UK – locally, nationally and internationally - using the catalyst of High Speed Rail (HS2) to drive growth and investment;
- To create a framework for a smart and digitally connected city; and
- To establish a digital ecosystem that brings together data, future proof connectivity and emerging technologies to the forefront.

Objective 10: An inclusive city

- To ensure physical, social and digital infrastructure meets the needs of all existing and future citizens.
- To provide local economic opportunities through skill development and job creation.
- To facilitate social interaction and the creation of inclusive and safe environments.

1.5 Status of Birmingham Local Plan (progress to date)

In line with legislative requirements, a review of the Local Plan, including the BDP has been undertaken and a decision to update the plan was agreed by Cabinet in June 2021. The Birmingham Local Plan, as it is now to be known, will be the statutory planning framework for the whole City and will guide planning decisions on all development and regeneration activity up to 2042. It will set out how, where and how many new homes, jobs, services and infrastructure will be delivered and the type of places and environment that will be created.

In order to reach a point where the new Birmingham Local Plan can be adopted, several statutory stages will need to be carried out, each with an opportunity for citizens, businesses and other stakeholders to make comments and representations to the Council to shape the Plan going forward. The Council are currently in the first stage of this process, which is the consultation on the issues facing the growth and development of Birmingham over the coming years and the potential planning options to overcome those issues.

The Birmingham Local Plan is divided into several key stages in its production. Within those key stages, there are opportunities to formally consult with local communities, businesses and key stakeholders. These stages are the 'Issues and Options' consultation, the 'Preferred Option/ Draft Plan' consultation and the 'Publication/ Pre-submission' consultation. These three consultation periods are set out as a statutory requirement of Regulations 18 and 19 of the Town and Country Planning (Local Planning) (England) Regulations 2012.

Table 1-1 below sets out the timetable for the key stages of the Birmingham Local Plan along with the minimum consultation period for each stage:

Table 1-1: Timetable for the key stages of the Birmingham Local Plan

Key Stages	Scheduled Date	Minimum Consultation Period
Issues and Options consultation (Regulation 18)	October 2022	6 weeks
Preferred Options / Draft Plan consultation (Regulation 18)	October 2023	6 weeks
Publication/Pre-submission consultation (Regulation 19)	October 2024	6 weeks
Submission to Secretary of State (Regulation 22)	June 2025	N/A
Examination by Planning Inspectorate (Regulation 24 and Regulation 25)	Autumn 2025	N/A
Adoption (Regulation 26)	Summer 2026	N/A

This Baseline Transport Assessment has been published as part of the "Issues and Options" consultation stage.

1.6 Evidence Gathering Process

In order for the Birmingham Local Plan – Baseline Transport Assessment to accurately reflect Birmingham's baseline transport conditions, including accessibility, constraints and opportunities, both within Birmingham and cross-boundary with neighbouring authorities, a comprehensive, collaborative, and structured approach to identifying and collating data was undertaken.

Figure 1-1 illustrates the evidence gathering process that was undertaken during the compilation of the Birmingham Local Plan – Baseline Transport Assessment highlighting the different steps that were followed to help ensure that a suitable and comprehensive range of data has been analysed.

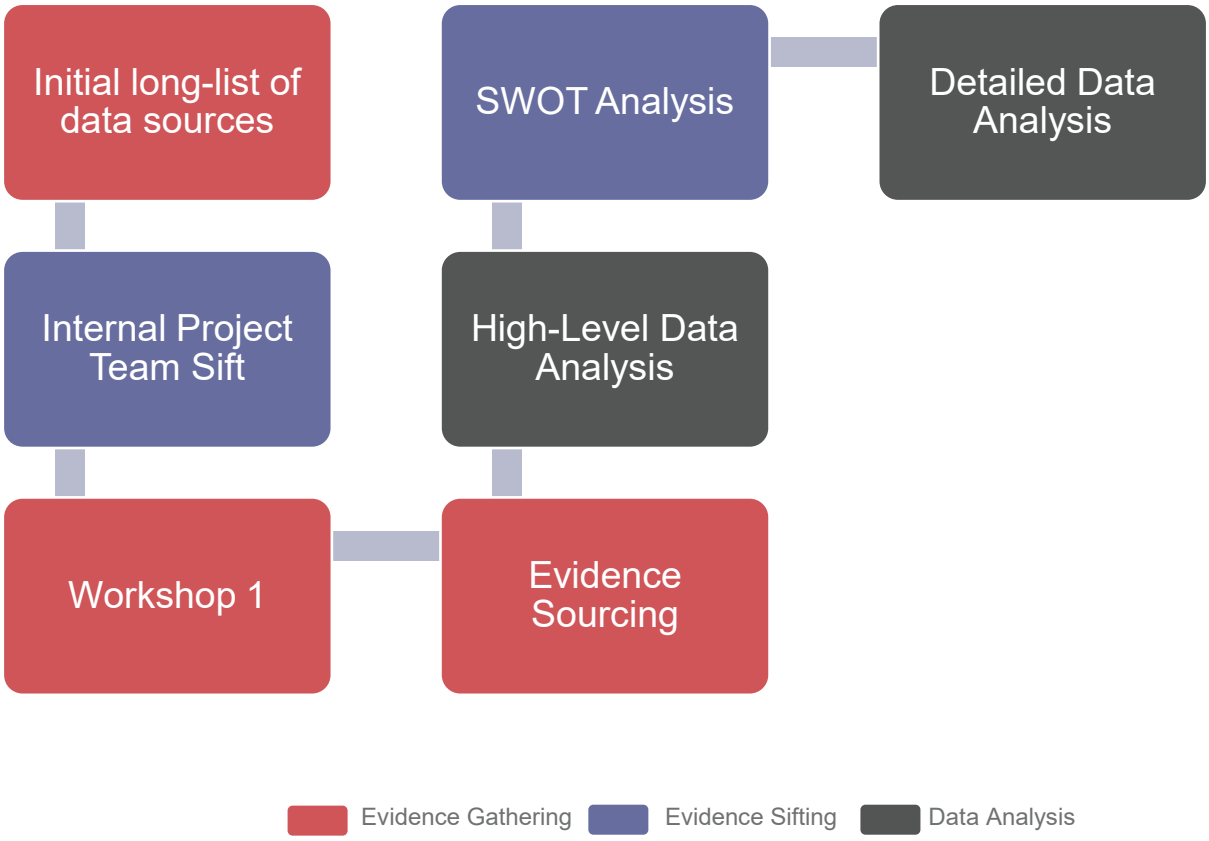

Figure 1-1: Evidence Gathering Process Flow Chart

A long-list of data sources were compiled using local knowledge, experience from other Birmingham and West Midlands-based projects and input from stakeholders. The data long-list was aligned to policy and Birmingham Local Plan objectives, then subject to a high-level assessment to identify the potential use of data sources for the Baseline Transport Assessment. This initial long-list of data was then reviewed in more detail by members of the project team (including BCC colleagues) with the aim of refining the list to ensure all datasets identified were relevant.

A workshop between the Project Team, the project's Strategic Advisors, and the project's Steering Group (which included representatives from key stakeholders) was undertaken to agree the approach and structure of the Baseline Transport Assessment as well as to confirm the suitability of identified data sources, identify any gaps, limitations, and additional potentially useful and relevant data sources. Outcomes from this workshop informed the compilation of the finalised long-list of data sources.

The process of gathering the data identified in the finalised long-list of data sources involved liaison with numerous different stakeholders to request the data sets, gain access to tools from which data could be downloaded, and to gain useful local knowledge.

Once a data source was compiled, a quick high-level analysis was undertaken to assess its suitability for use in the Baseline Transport Assessment. If this high-level analysis deemed it was suitable, then a more in-depth Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis was then undertaken to assure its appropriateness. This SWOT analysis considered how the data met expected requirements, its alignment to policy and Birmingham Local Plan objectives, benefits and potential limitations to its use, and risks to outcomes, reviewed against alternative data sources. Consideration was also given to how data outputs can be presented to maximise stakeholder understanding.

Appendix A is an Evidence Schedule detailing the evidence selection process and SWOT analysis which provides an auditable record of data selection criteria, assumptions, and stakeholder inputs.

The process shown in **Figure 1-1**, summarised in the text above, and outlined in further in **Appendix A** helps ensure that only suitable and relevant data have been presented as part of this Baseline Transport Assessment providing a clear approach to the evidence gathering, which captures information, knowledge and any assumptions in a structured and auditable manner.

1.7 Birmingham Local Plan – Baseline Transport Assessment Report Structure

This Birmingham Local Plan – Baseline Transport Assessment report has been structured to ensure that evidence pertaining to the key themes of the Birmingham Local Plan (detailed in **Section 1.4**) and the relevant national and local policy documents (detailed in **Section 2**) are captured:

- Travel Patterns, Trends and Forecasts;
- Housing and Development Growth;
- Sustainable Economy;
- Active & Healthy Communities;
- Environment, Climate Change and Decarbonisation;
- Transport Connectivity; and
- Cross-Boundary Considerations.

2 Policy Context

2.1 Introduction

This Birmingham Local Plan Baseline Transport Assessment report has been compiled to be in line with the following national and local policy documents:

- The National Planning Policy Framework (NPPF), Ministry of Housing, Communities & Local Government (MHCLG), 2021;
- Transport Decarbonisation Plan, Department for Transport (DfT), 2021;
- Route to Zero, BCC, 2019;
- Emerging Our Future City Plan, BCC;
- BCC's Healthy Living Zone concept;
- BCC's Birmingham Transport Plan 2031, 2021;
- Emerging Birmingham Transport Plan Delivery Plan, BCC;
- BCC's East Birmingham Inclusive Growth Strategy, 2021; and
- Emerging Local Transport Plan 5, TfWM.

The following sections summarise the prevailing themes in each of the policy documents identified, drawing out the key transport-related matters that should be taken into account in the preparation of the Birmingham Local Plan.

2.2 National Planning Policy Framework, MHCLG (2021)

The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how they should be applied. The NPPF provides a framework within which locally prepared plans for housing and other developments can be produced. It also seeks to promote the incorporation and development of sustainable transport both as integrated and standalone development projects.

The NPPF places strong emphasis on achieving sustainable development by meeting the needs of the present without compromising the ability of future generations to meet their own needs. The interdependent pillars of sustainable development are:

- Economic objective - "to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure";
- Social objective – "to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of the present and future generations; and by fostering a well-designed and safe built environment, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being"; and
- Environmental objective – "to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy".

In particular, the NPPF states that "…transport issues should be considered from the earliest stage of plan making" to ensure that:

- "opportunities to promote walking, cycling and public transport use are pursued"; and
- "patterns of movement, streets, parking and other transport considerations are integral to the design of schemes and contribute to making high quality places".

The evidence presented in this Baseline Transport Assessment and the opportunities and constraints outlined in the associated "Birmingham Local Plan – Baseline Transport Assessment Opportunities and Constraints"

report have been identified with consideration to the above NPPF requirements, particularly in regard to promoting the use of sustainable transport to improve Birmingham's environment and economy and to create sustainable and social neighbourhoods. It is noted that planning reforms are currently under consideration by Central Government, but the nature of these reforms are not known at the time of writing. Therefore, work undertaken as part of the Birmingham Local Plan – Baseline Transport Assessment will look to go further than what is stipulated in the NPPF and identify what is required in Birmingham for the city to meet its development, economic, environmental, and social needs.

2.3 Transport Decarbonisation Plan, DfT (2021)

The DfT's Transport Decarbonisation Plan sets out the government's commitments and the actions required to decarbonise the United Kingdom's transport system to achieve the country's planned Net Zero Carbon by 2050.

Promoting an increase in cycling and walking, the use of zero emission transport modes, and providing people with more choice and more efficient transport options are all ways in which the Government believes it can help the UK become Net Zero Carbon by 2050. These aspirations have all been considered when choosing what evidence to present in this Baseline Transport Assessment and identifying the opportunities and constraints presented in the associated "Birmingham Local Plan – Baseline Transport Assessment Opportunities and Constraints" report.

2.4 Route to Zero, BCC (2019)

BCC declared a climate emergency in June 2019 and made the commitment to take action to reduce the city's carbon emissions and limit the climate crisis. The 'route to zero' (R20) ambition was set for the council and city to become net zero carbon by 2030, or as soon as possible thereafter as a 'just transition' allows – ensuring that inequalities in the city are not increased in the transition. On the 25th of June 2019 the council's Cabinet agreed to add a new priority to the Council Plan which states that Birmingham will be "a city that takes a leading role in tackling climate change". This commitment will embed climate action in the council's decision-making process to make sure that all service areas contribute to the R20 journey.

The evidence presented in this Baseline Transport Assessment and the opportunities and constraints identified in the associated "Birmingham Local Plan – Baseline Transport Assessment Opportunities and Constraints" report have been identified to help BCC achieve its R20 target of becoming net zero carbon by 2030 whilst being cognisant of helping the city achieve its development needs.

2.5 Emerging Our Future City Plan, BCC (TBC)

2011's Big City Plan set out a vision and framework for how Birmingham city centre was going to be transformed until 2031. The emerging Our Future City Plan sets out and updates the vision for how the city centre and surrounding inner-city areas are going to be developed up until 2040.

The following six 'City Themes' have been developed to group together the potential actions that will ultimately deliver the vision of Our Future City Plan for Central Birmingham 2040:

- **City of Centres:** Establishing an integrated network of liveable 15-minute neighbourhoods, designed to put people first and reduce the dominance of cars.
- **City of Growth for All:** Facilitating the growth of population (through jobs and homes) as well as diverse industries. Then ensuring that all social, environmental and economic benefits and growth make a positive difference for all.
- **City of Nature:** Identify opportunities to transform arterial routes and remodel highway infrastructure to connect communities with new open spaces, cycleways and walkways.
- **City of Layers:** Ensure the built environment enables the exploration of the 'Layers' of culture and creativity that exist in Birmingham and allow the city to not only showcase its output commercially as a vital

part of our visitor, leisure and night-time economy, but also to celebrate and build on it for its own citizens, for their growth, employment and careers, and the enrichment and quality of life.

- **City of Connections:** Encourage walking and cycling through provision of safer streets and the remodelling of urban infrastructure. Reallocate road space away from private vehicles and identify opportunities to expand and improve Public Transport connectivity.
- **City of Knowledge and Innovation:** Create a smart city that captures the potential of technology and data to solve urban problems ensuring the equality of skills provision and supporting the development of Birmingham's world-class Universities and the development of creative, arts and media industries.

These themes touch on accessibility, equality, promoting a green and sustainable environment, culture and education, as well as ensuring the city centre is well connected internally and externally. It understood that densification of development will be promoted within the city centre as part of the Our Future City Plan as well as in the wider city as part of the new Birmingham Local Plan.

The evidence presented in this Baseline Transport Assessment and the opportunities and constraints outlined in the associated "Birmingham Local Plan – Baseline Transport Assessment Opportunities and Constraints" report have been identified to be in line with the city centre's aspirations as set out in the Our Future City Plan.

2.6 Healthy Living Zones

BCC are currently developing their Healthy Living Zones concept, a framework that will identify whether Birmingham's residents have access to a good quality green environment, and whether they reside within a short walking distance or public transport journey of all the key goods, services, and facilities they need to lead full and healthy lives.

In line with other Birmingham policies, e.g. the emerging Our Future City Plan, The City of Nature Plan, East Birmingham Growth Strategy and the Birmingham Transport Plan, the Healthy Living Zone framework adopts a hexagon approach to spatially implementing the concept. Each hexagon (or Healthy Living Zone) approximates a 15-minute walking journey from its centre to its edge (1km). Findings from the Healthy Living Zone framework will inform the shaping of future development choices in different areas across the city, to ensure that all of Birmingham's residential areas meet the requirements to be categorised as a Healthy Living Zone.

Although the Healthy Living Zones concept is still at a very early stage of development (data for a pilot area in Bordesley Green is currently being collated to gain a better understanding of how the concept can be implemented in practice) all of the evidence presented in this Baseline Transport Assessment and the opportunities and constraints outlined in the associated "Birmingham Local Plan – Baseline Transport Assessment Opportunities and Constraints" report have been identified to help promote the Healthy Living Zone concept.

2.7 Birmingham Transport Plan 2031, BCC (2021)

The Birmingham Transport Plan sets out what the city needs to do to directly meet future transport demand. The vision for the Transport Plan is:

"*The vision for Birmingham's transport is to have a sustainable, green, inclusive, go-anywhere network. Safe and healthy environments will make walking, cycling and active travel the first choice for people making short journeys. A fully integrated, high quality public transport system will be the go-to choice for longer trips. A smart, innovative, carbon neutral and low emission network will support sustainable and inclusive economic success, tackle the climate emergency, and promote the health and well-being of Birmingham's citizens*".

The following four principles will guide the delivery of the Transport Plan's vision:

- Reallocating road space
- Transforming the city centre
- Prioritising active travel in local neighbourhoods

- Managing demand through parking measures

Decarbonisation and the role that transport has to play in helping Birmingham become net zero is a key theme which permeates throughout the Birmingham Transport Plan with this theme underpinning the vision and objectives set out in the plan.

All future development in Birmingham should help BCC achieve the vision for Birmingham's transport network as set out in the Birmingham Transport Plan 2031.

2.8 Birmingham Transport Plan Delivery Plan, BCC (TBC)

The Birmingham Transport Plan Delivery Plan, which will set out how BCC are planning to achieve its aspirations for Birmingham's transport network as set out in the Birmingham Transport Plan, is currently being developed. The evidence presented in this Baseline Transport Assessment and the opportunities and constraints outlined in the associated "Birmingham Local Plan – Baseline Transport Assessment Opportunities and Constraints" report, are being developed in tandem with the team that are producing the Delivery Plan to ensure that findings are consistent across these documents.

2.9 East Birmingham Inclusive Growth Strategy, BCC (2021)

The East Birmingham Inclusive Growth Strategy sets out a clear vision for the future of East Birmingham as an excellent place of strong communities in which to live and work, to grow up and to grow old. Putting the fight against climate change at its forefront, the strategy outlines the following five Big Moves which are needed to deliver the vision:

- Improved local services
- Business, employment and skills
- Local places and green spaces
- Midland Metro East Birmingham to Solihull extension
- Heavy rail network

These Big Moves aim to improve people's health, access to employment, access to amenities and green spaces, and access to existing and new public transport infrastructure. The evidence presented in this Baseline Transport Assessment and the opportunities and constraints outlined in the associated "Birmingham Local Plan – Baseline Transport Assessment Opportunities and Constraints" report will support BCC with achieving these Big Moves.

2.10 Local Transport Plan 5: Reimagining Transport in the West Midlands, TfWM (TBC)

'Reimagining Transport in the West Midlands' is the fifth Local Transport Plan (LTP5) for the West Midlands' seven metropolitan districts/boroughs which is currently being developed by TfWM. The high-level vision of the Plan is to create an emission free transport system across the West Midlands that is fairer, safer and healthier than the current system and gets people to places without clogging up our streets or causing climate change and making pollution worse. Noting that there needs to be a level of behaviour change that has previously not been delivered to achieve the vision, the Plan sets out the following three ways in which the big social, environmental, and economic issues can be addressed:

- Improve Accessibility;
- Reduce Traffic; and
- Electrify Transport.

Key to the Plan's vision is its objective to create a well-connected 45-minute region of 15-minute neighbourhoods, where people can travel to access what they need through a mix of walk and wheel, and ride modes. The aim is that all West Midlands residents are no more than a 45 minute ride trip from three major

regional centres in peak travel times and no more than a 15 minute walk or wheel round trip from the nearest neighbourhood centre. The Plan acknowledges the need to increase modal choice by investing in better provision for alternative modes to cars and the need to manage demand and discourage car use through the "Avoid", "Shift", and "Improve Travel" approaches. The Plan also outlines TfWM's support for shared mobility services and how these could be made available at a series of connected mobility hubs located across the region.

Ultimately the Plan aims to make the West Midlands a better place for those who do not have access to a car all of the time, through the creation of good, sustainable access to opportunities which will help deliver inclusive growth and to be successful.

The evidence presented in this Baseline Transport Assessment has been collated in light of TfWM's vision for the West Midlands' transport network and their aim to achieve modal shift as well aware from private car use as well as managing demand for travel. The opportunities and constraints outlined in the associated "Birmingham Local Plan – Baseline Transport Assessment Opportunities and Constraints" report aim to assist TfWM with achieving their vision as set out in the LTP5, particularly in terms of accessibility and the objective to create a well-connected 45-minute region of 15-minute neighbourhoods.

2.11 Summary

Section 2 summarises the key national and local policy documents which have informed this Birmingham Local Plan – Baseline Transport Assessment report. Sustainability is the prominent theme which permeates throughout all of the policy documents summarised, with a particular emphasis on creating a green and healthy environment both for wider environmental and individual health reasons. Promoting the use of sustainable transport modes (such as walking, cycling, and public transport) as well as the creation of environments that enable people to live sustainably are reoccurring themes throughout all of the policy documents summarised.

The evidence in this Baseline Transport Assessment has therefore been collated and presented with the aim of identifying opportunities to promote the use of sustainable transport modes and promote a generally sustainable lifestyle through the development of Birmingham in the next 20 years.

3 Travel Patterns, Trends and Forecasts

3.1 Introduction

This section sets the scene in which this Baseline Transport Assessment has been compiled and the associated constraints and opportunities have been identified, outlining the current and future conditions in Birmingham. Data relating to Birmingham's population, employment, travel patterns and traffic is presented.

3.2 Population

3.2.1 Background

The Office for National Statistics (ONS) estimates that Birmingham's resident population was 1,140,500 in 2020, an increase of 79,500 (7.5%) since 2010 and a decrease of -1,300 (-0.1%) since 2019. The decrease from 2019 is likely due to an increase in the mortality rate in 2020 caused by an excess in winter deaths and the first wave of the COVID 19 pandemic.

Figure 3-1 shows a comparison between England's and Birmingham's age pyramids, showing that Birmingham has a youthful age profile with a greater proportion of children and younger adults than the national average.

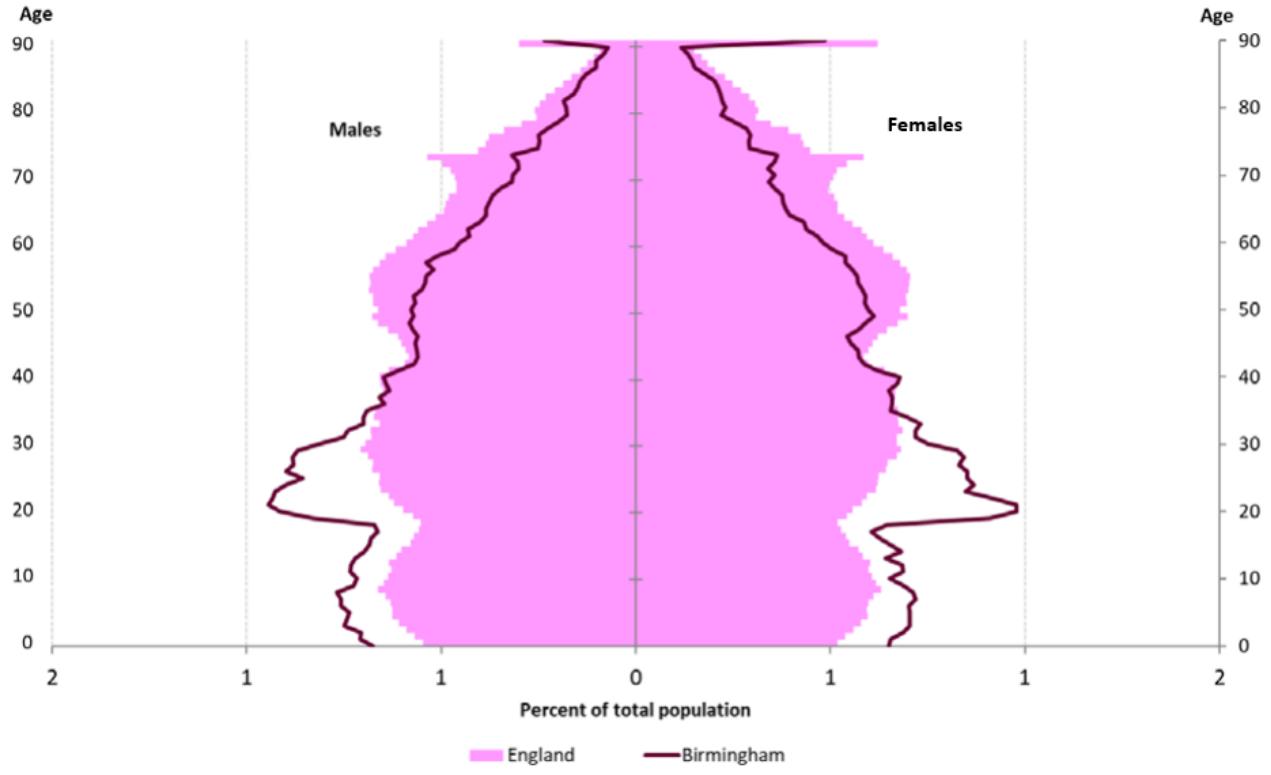

Figure 3-1: A comparison between the England and Birmingham age pyramids[1]

The higher than average early-20s age range in **Figure 3-1** is likely due to domestic and international students coming to the city's colleges and universities, whilst the narrowing at the bottom of the pyramid reflects the recent decline in fertility.

Table 3-1 compares broad age groups, child, working age and pensioners, of Birmingham's population with the equivalent national and West Midlands Region (WMR) values. This table shows that Birmingham's age profile is also younger than the region's, having a greater proportion of children, 22.5% compared with 19.6% in the

[1] Mid-2020 Population Estimates Birmingham Demographic Brief 2021/1, Birmingham City Council (BCC)

WMR and 19.2% in England. The proportion of pensioners in Birmingham (13.1%) is over 5 percentage points lower than the regional (18.7%) and England averages (18.5%).

Table 3-1: England, WMR and Birmingham Population Age Groups

	England number	England percent	WMR number	WMR percent	Birmingham number	Birmingham percent
0-15	10,852,200	19.2	1,170,600	19.6	257,100	22.5
16-64	35,233,900	62.3	3,678,300	61.7	734,000	64.4
65+	10,464,000	18.5	1,113,00	18.7	149,400	13.1
All	56,550,100	100.0	5,961,900	100.0	1,140,500	100.0

Source: ONS, mid-2020 population estimates, Crown Copyright 2021

3.2.2 Mapping

Figure 3-2 to **Figure 3-5** display the following information which provides a spatial understanding of Birmingham's population:

- Residential Dwelling Densities; and
- Local Centres.

The maps in **Appendix B** provide a spatial understanding of the age of Birmingham's population showing the areas in Birmingham where concentrations of young and old people lived in 2011. Both maps are based on 2011 Census data with the "Young People %" map showing the percentage of people aged between 16 and 24 that lived in each Lower Level Super Output Area (LSOA) within Birmingham and the "Older People %" map showing the percentage of people aged over 65 that lived in each LSOA within Birmingham.

Residential Dwelling Densities

Figure 3-2 to **Figure 3-5** show the number of dwellings in each LSOA within the Birmingham City Region Boundary with the darker colours indicating a higher number of dwellings than the lighter colours. This data was collated in the 2011 Census.

Local Centres

Figure 3-2 to **Figure 3-5** show the network of over 70 "Local Centres" across Birmingham, which were identified in the Birmingham Development Plan as being centres which are able to meet a range of shopping needs and act as a focus for local life and successful communities. It should be noted that there are many smaller shopping parades located throughout the city which have not been classified as "Local Centres".

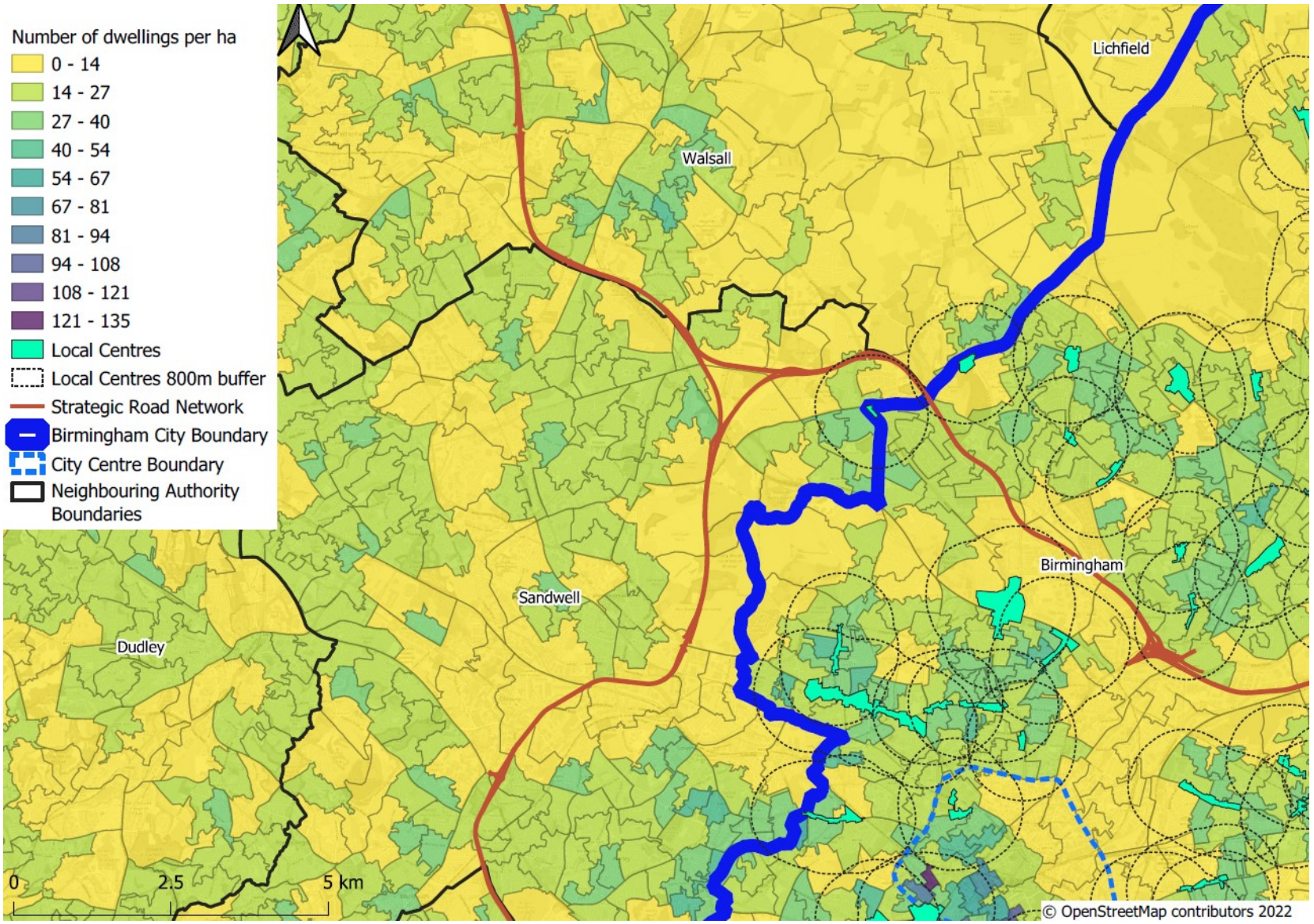

Figure 3-2: Birmingham Population (North West)

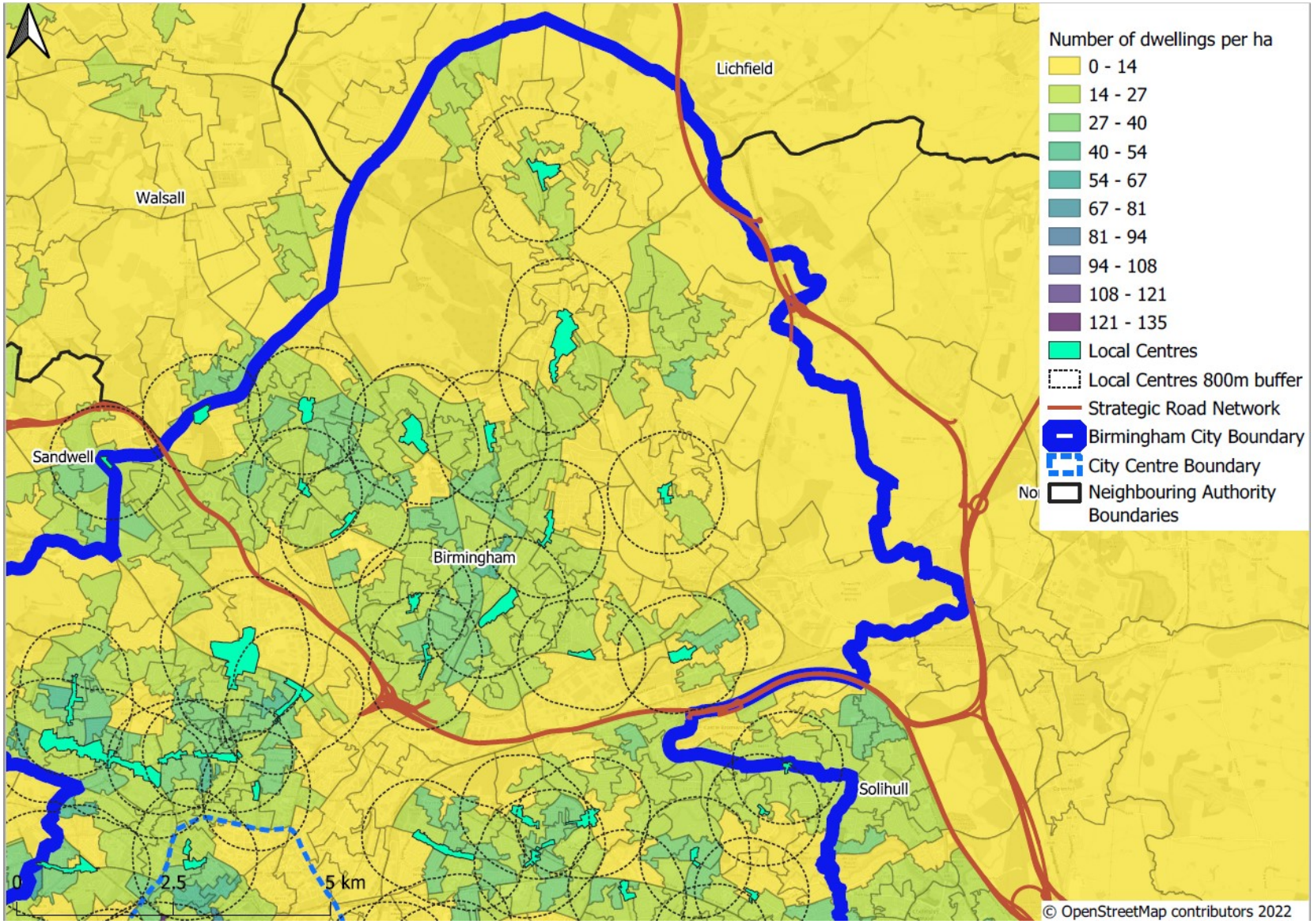

Figure 3-3: Birmingham Population (North East)

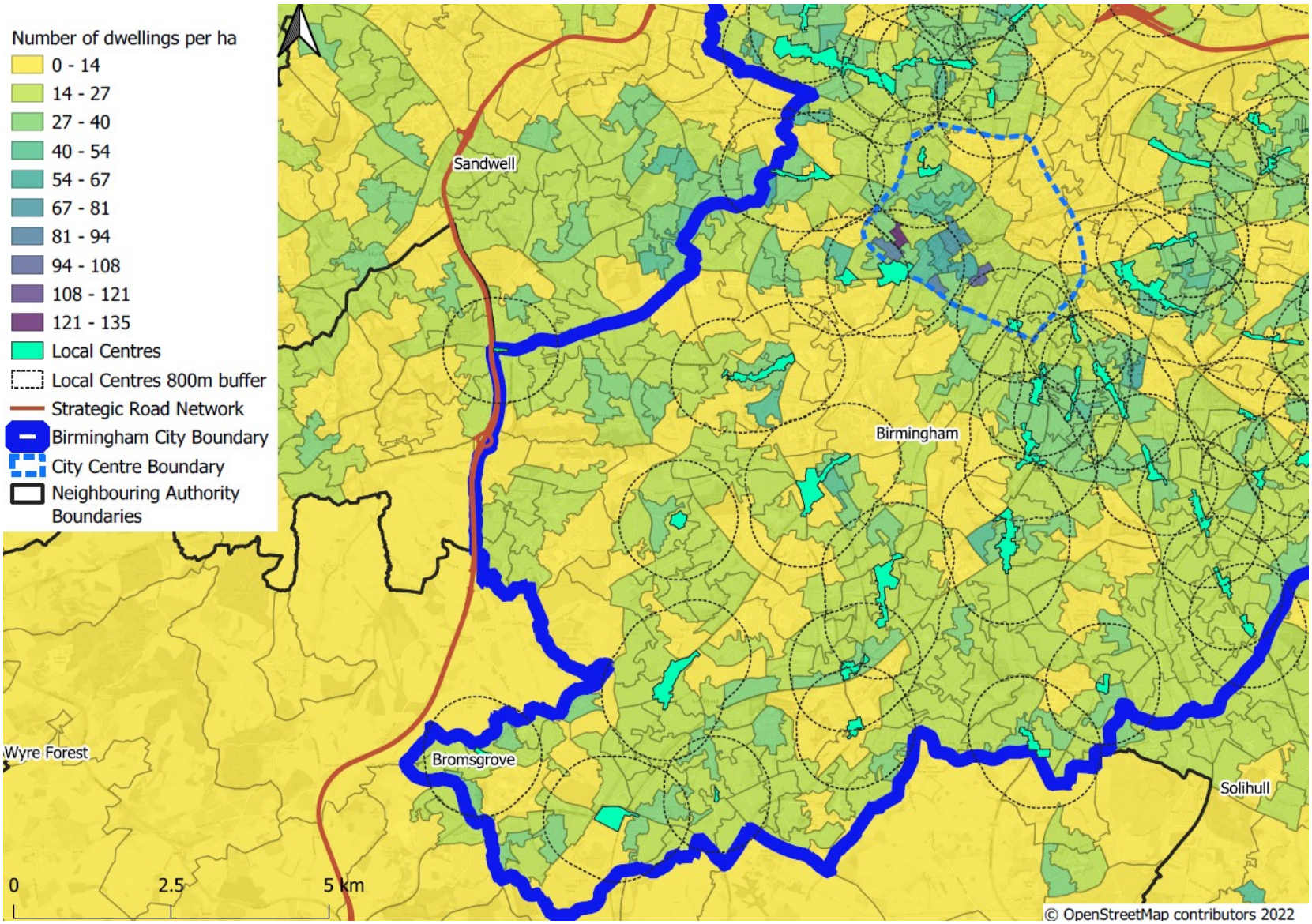

Figure 3-4: Birmingham Population (South West)

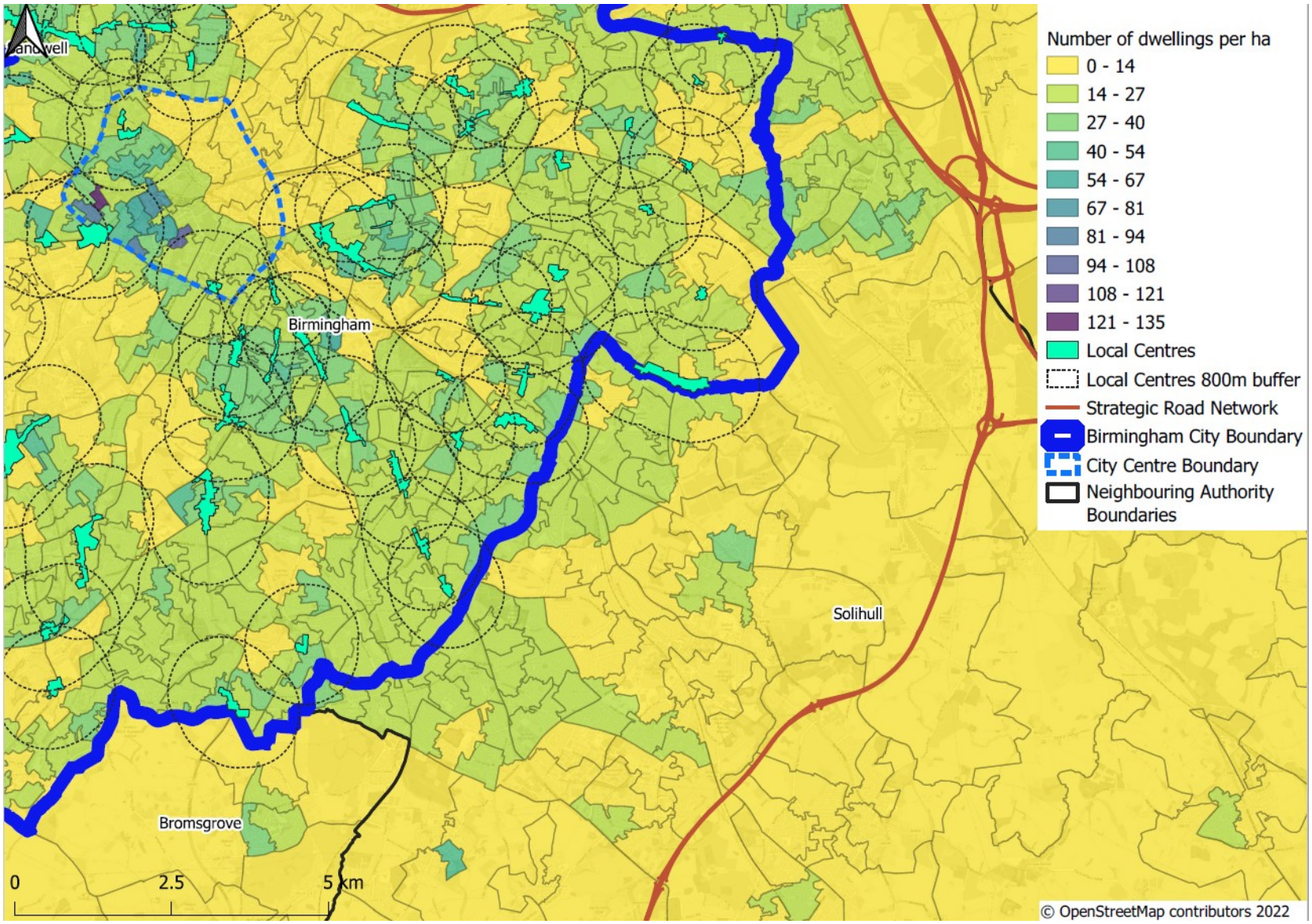

Figure 3-5: Birmingham Population (South East)

3.2.3 Analysis

The population statistics detailed in **Section 3.2** show that Birmingham has a relatively high proportion of children and younger adults living in the area, providing an excellent opportunity to promote travel modes alternative to the private car.

Research by Campaign for Better Transport[2] highlights how young people are making significantly fewer car journeys than they did in the mid-1990s (down from almost 600 trips per person each year in the mid-1990s to 377 trips in 2011). This research also shows how fewer young people now own cars or have driving licences (only 38% of 17-20 year olds now have a driving license compared to 48% in the early 1990s). Although the reasons for this trend are not fully understood, it is thought that increased costs of motoring and use of the internet and social networking are likely to be contributing factors[3] as well as young people placing less symbolic value to cars, believing public transport can meet their changing practical transport requirements[4].

Although not indicated on the "Young People %" map in **Appendix B**, It should be noted that east Birmingham has a particularly young population with the East Birmingham Inclusive Growth Strategy (BCC, February 2021) stating that east Birmingham "is a young place where a third of residents are under 16 years old - one of the highest proportions of children in the country."

New development should contribute towards establishing well-used active travel routes to and from schools and other facilities used by the younger population, to capture the opportunities this demographic offers such as capitalising on their established sustainable travel behaviours and maintaining these in the next phases of their lives (e.g. moving to the suburbs, having children, and becoming more dependent on car travel). Public transport use should be actively promoted to children and young adults so that the habit of using public transport is ingrained from a young age. Good public transport accessibility should therefore be well integrated in any new development. The integration of active travel modes and public transport within new developments strongly aligns with local and national ambitions set out in the relevant policy documents summarised in **Section 2**. This also presents an opportunity to establish high quality, affordable family housing in well-connected areas to enable people to continue travelling sustainably as they progress through their lives.

The population statistics presented in **Section 3.2** show that a relatively high proportion of Birmingham's population are in their early twenties, as students from around the country and the world come to study at one of the city's universities. The "Young Person %" map in **Appendix B** show a high percentage of people aged between 16 and 24 living in the Edgbaston and Selly Oak areas (which are close to the University of Birmingham) and the north-east of the city centre (close to Aston University and Birmingham City University). Subsequently there is an opportunity to promote micro-mobility travel modes (e.g. electric bikes and electric scooters etc.) to this segment of the population, as students often live reasonably close to where they study and have less of a need to undertake longer journeys than other population segments. Active travel infrastructure which supports micro-mobility modes should connect areas where students live to where they study and access services etc. Results of WMCA's Quarter 3- 2021/22 Brand Tracking Survey found that usage of Birmingham's e-scooter scheme and TfWM's Cycle Hire scheme was most prevalent amongst the 16-24 age group confirming the opportunity to promote micro-mobility mode usage to the younger segment of Birmingham's population.

Results of WMCA's Quarter 3- 2021/22 Brand Tracking Survey found that usage of TfWM's smart ticketing scheme "Swift" was also most prevalent amongst 16-24 age group suggesting that there is also an opportunity to promote public transport and smart ways to use public transport as well as micro-mobility options.

The "Older People %" map in **Appendix B** indicates that clusters of people aged 65 and over live in the far north of Birmingham (Sutton Coldfield and Wylde Green), as well as in the far south of Birmingham (Kings

[2] Why getting transport right matters to young people, Campaign for Better Transport, May 2013
[3] See for example National Travel Survey table NTS0203, DfT and On the Move: Making sense of car and train travel trends in Britain, Scott Le Vine and Peter Jones, RAC Foundation 2012
[4] See NTS0204 and Ruud, A and Nordbakke, S Decreasing driving license rates among young people – consequences for public transport, 2005

Norton and Bournville). Other areas of the city with a higher proportion of people aged 65 and over include Stechford, Yardley, Lyndon Green, Sheldon, Acocks Green, Fox Hollies, Harborne (South), and Edgbaston. There is an opportunity to promote bus travel at development types targeted at the older population segment as, at the time of writing, an older person's bus pass (which entitles users to travel on buses for free) is issued to people living within the WMCA area who are aged 66 and above. However, challenges around maintaining the current level of bus services in Birmingham, due to funding issues, could limit the effectiveness of bus as a feasible travel option in Birmingham.

Figure 3-2 to **Figure 3-5** show that some areas located in north-east, north-west, and south-west Birmingham do not have access to (are not located within 800 metres[5] of) Local Centres. The residential dwelling density indicator suggests that some of the areas without access to Local Centres are quite densely populated. These areas include the following:

- North-East Birmingham:
  - Bromford, Buckland End, and Hodge Hill
  - Falcon Lodge area of Sutton Coldfield
- North-West Birmingham:
  - Perry Beeches
- South-West Birmingham:
  - On the border between Harborne and Quinton
  - Bartley Green

It should be noted that being located within the 800 metres buffers around the Local Centres shown in **Figure 3-2** to **Figure 3-5** provides an indication that there is the option to walk to a Local Centre. As this analysis is quite high-level, it cannot be interpreted that all of the residents' needs can be accessed by walking to these Local Centres.

Not having access to Local Centres constrains residents of these areas from living a sustainable lifestyle in-keeping with BCC's and the UK's environmental, economic, and social aspirations (detailed in **Section 2**) increasing the likelihood of travel by a form of motorised transport to access goods and services required for day-to-day living. There is an opportunity to establish new additional centres which offer a mix of services in areas which currently do not have good accessibility to the existing Local Centres, as shown in **Figure 3-2** to **Figure 3-5**, particularly within already densely populated areas. This would help BCC achieve its Healthy Living Zones aspiration.

[5] 800 metres has been used due to the reference in CIHT's Planning for Walking document which characterises walking neighbourhoods as "*having a range of facilities within 10 minutes' walking distance (around 800 metres)*" https://www.ciht.org.uk/media/4465/planning_for_walking_-_long_-_april_2015.pdf

3.3 Persona Data

3.3.1 Introduction

Persona data has been obtained from TfWM and derived from a range of information to understand the demographic and lifestyle of the population, segmenting them into distinct personas which reflect the type of people living in the West Midlands. This includes data such as average income, age, location, employment status and typical travel modes.

All segmentation of the population, and corresponding personas were developed 'pre-COVID' and therefore may not reflect changes in characteristics or behaviour that have resulted. However, the data provides a useful social understanding of the study area to help identify the application of new services and technologies. Here, segmentation data has been used to understand the travel habits and characteristics of population groups within Birmingham.

Eight prominent personas have been identified within the West Midlands, all of which can be found within Birmingham. **Table 3-2** summarises the characteristics and travel habits of these eight personas.

Table 3-2: Persona Summaries

ID	Title	Description
1	Traditional Ways	Elderly singles with very low levels of affluence. They have the highest levels of disability and therefore, are the group most likely to require mobility services.
2	Striving to Get Ahead	Heavy users of public transport, both bus and train. They invariably work in full time employment, but salaries are generally below average.
3	Pressured Families	Typically couples or singles living with children. They generally work full or part-time in low paid jobs, are still in fulltime education or are unemployed.
4	Comfort in My Community	Generally made up of older/ elderly singles or couples. Most individuals are retired or nearing retirement just below average affluence.
5	Progressive Families	Young to middle aged couples and families. Predominantly earn mid-range salaries, they often find free time stretched by the demands of busy lives. Those who do not work full time tend to work part time or a housewife.
6	Mature Family Freedom	Single or couples whose children have now left home. This is the oldest segment with over 50% of the group being retired. Individuals in this group are quite affluent, being just above average.
7	Smart and Secure	Middle aged to older families who are likely to have children living with them. On higher incomes, and the least likely segment to have a disability. Likely to be working full time, part time or be a housewife.
8	Carefree Affluence	Most affluent groups on high incomes and tend to invest their money. They are older individuals who tend to be employed full time or retired.

Figure 3-6 presents the most prominent persona that is found in each LSOA within Birmingham.

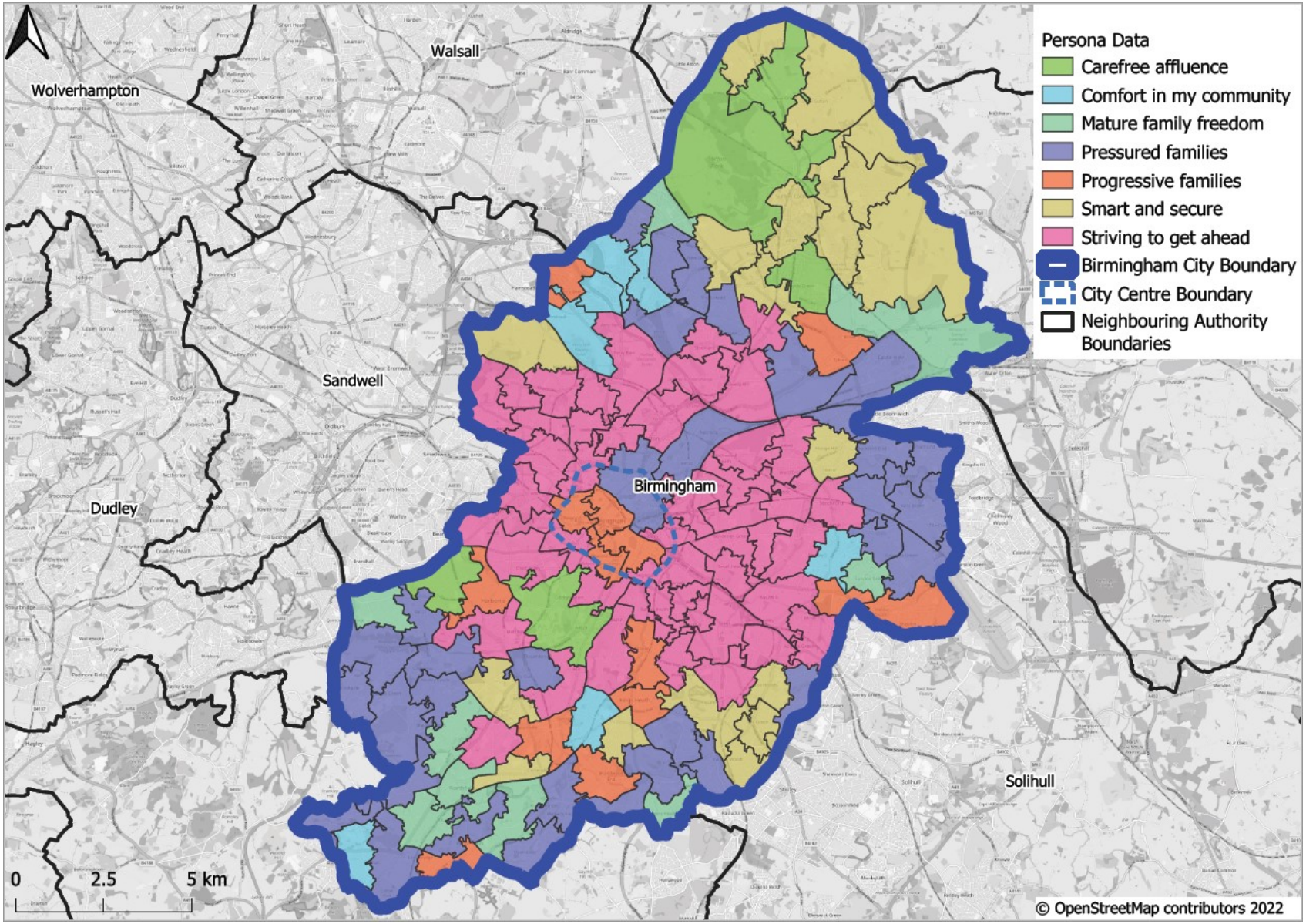

Figure 3-6: Segmentation of population in Birmingham (TfWM Experian Persona Data)

Figure 3-6 shows the following:

- Birmingham city centre is populated with 'Progressive families', 'Pressured families', and 'Striving to get ahead' population segments;
- Areas surrounding the city centre are populated by 'Pressured families' and 'Striving to get ahead' population segments;
- The majority of north-east, east, and south-east Birmingham is populated by 'Pressured families' and 'Striving to get ahead' population segments;
- The peripheral north of the city (Sutton Coldfield) is populated by 'Carefree affluence', 'Mature family freedom', and 'Smart and secure' population segments;
- 'Pressured families' live in south-western, southern, eastern, and north-eastern peripheral areas of the city as well as in Selly Oak, Nechells, Short Heath, and Kingstanding;
- 'Carefree affluence' population segment live in Edgbaston and Harborne;
- 'Comfort in my community' population segment live in Rubery, Stirchley, Yardley, Old Oscott, and Hamstead;
- 'Smart and secure' population segments live in Handsworth Wood, Hodge Hill, Hall Green, Kings Heath (south), Cotteridge, and Bournville; and
- 'Mature family freedom' population segment live in Northfield, Highters Heath, Lyndon Green, and Quinton.

3.3.2 Persona Data: Travel Behaviours

All personas in Birmingham typically own or lease at least one motor vehicle:

- Personas 1- 6 own on average one car per household; whereas,
- Personas 7 and 8 own on an average two cars per household.

Figure 3-7 shows the average distance of car commute in miles for each persona, demonstrating that most individuals in all segments of the population have an average car commute of 1- 20 miles. However, it also shows that larger proportions of the 'Carefree Affluence' and the 'Smart Digital Families' population segments commute between 21–40 miles than other persona population segments and that larger proportions of the 'Progressive Families', 'Comfortable Empty Nesters', 'Pressured Families', and 'Striving to Get Ahead' commute over 80 miles.

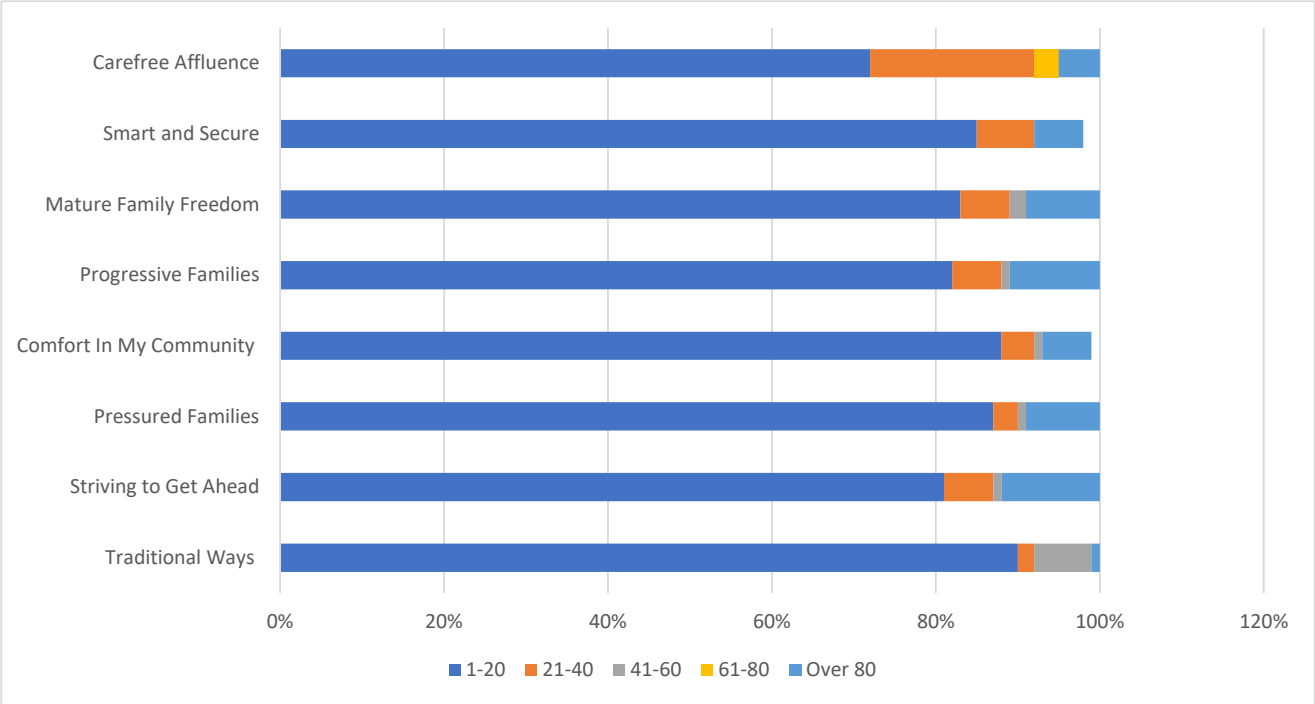

Figure 3-7: Average Distance of Car Commute per Segment Type (miles)

Typical methods of travelling to work for each population persona can be seen in **Figure 3-8**.

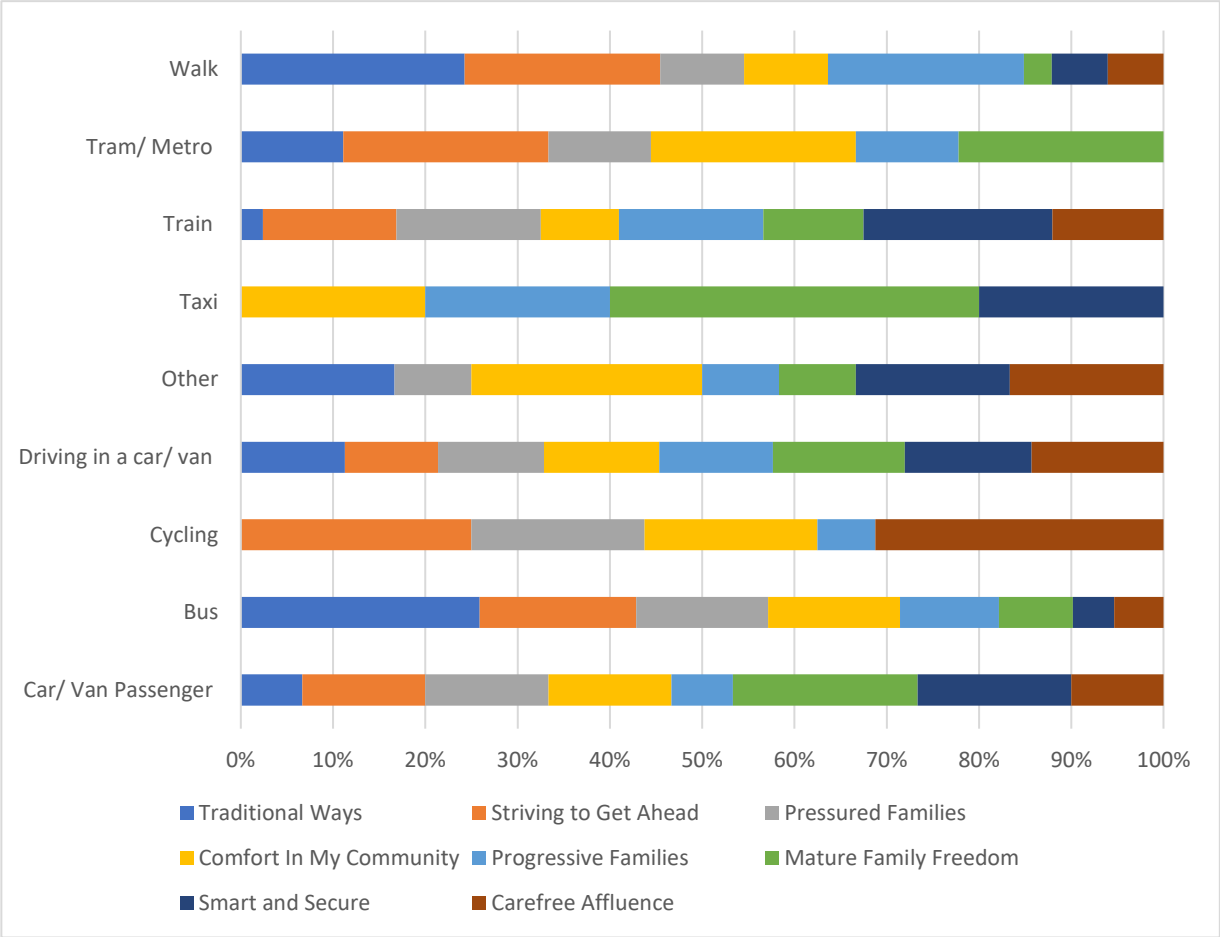

Figure 3-8: Typical Transport Mode for Commuting (sourced from TfWM's Data Insight Tableau Service)

Taking into account the information in **Figure 3-6** and **Figure 3-8**, it is demonstrated that driving in a car/ van was the most common commute method for all prominent population segments across the different segments.

Bus travel is the second most prominent mode of transport for commuting, particularly for the 'Striving to Get Ahead' and 'Pressured Families' segments of the population of which 19% and 16% of the segments respectively travel by bus to undertake their commute. This provides opportunities to promote bus travel in much of East Birmingham, areas surrounding Birmingham city centre (e.g. Handsworth, Perry Barr, Aston, Gravelly Hill, Balsall Heath, Sparkbrook, Sparkhill, and Edgbaston (North)), and in areas further afield in north-west and south-west Birmingham (e.g. Bartley Green, Kingstanding, Short Heath, Weoley Castle, and Selly Oak) as these areas have a high proportion of the 'Striving to Get Ahead' and 'Pressured Families' population segments living in them.

Train use is highest among 'Smart and Secure' population segment (17%) meaning there is an opportunity for new housing developments in areas with a high proportion 'Smart and Secure' population segment residents, e.g. Hall Green, Yardley Wood, Kings Heath (South), Hodge Hill, Walmley, and Sutton Coldfield.

The largest proportion of cycling (5%) is carried out among the 'Carefree Affluence' population segment which suggests there is an opportunity for new residential developments to integrate new and existing cycling infrastructure in areas where high numbers of this population segment live (e.g. Edgbaston, Harborne, Wylde Green, and Sutton Coldfield), although measures which encourage cycling should not exclusively be targeted at this segment of the population.

3.3.3 Persona Data: Use of Swift

Identifying the proportion of Swift card holders is an effective way to understand the use of public transport within population segments. A summary of Swift card holders by persona can be seen in **Figure 3-9**. It can be seen that the 'Striving to Get Ahead' and 'Pressured Families' personas are the most likely to hold a Swift card, which aligns with their greater use and dependence on public transport, as outlined in **Section 3.3.2** above.

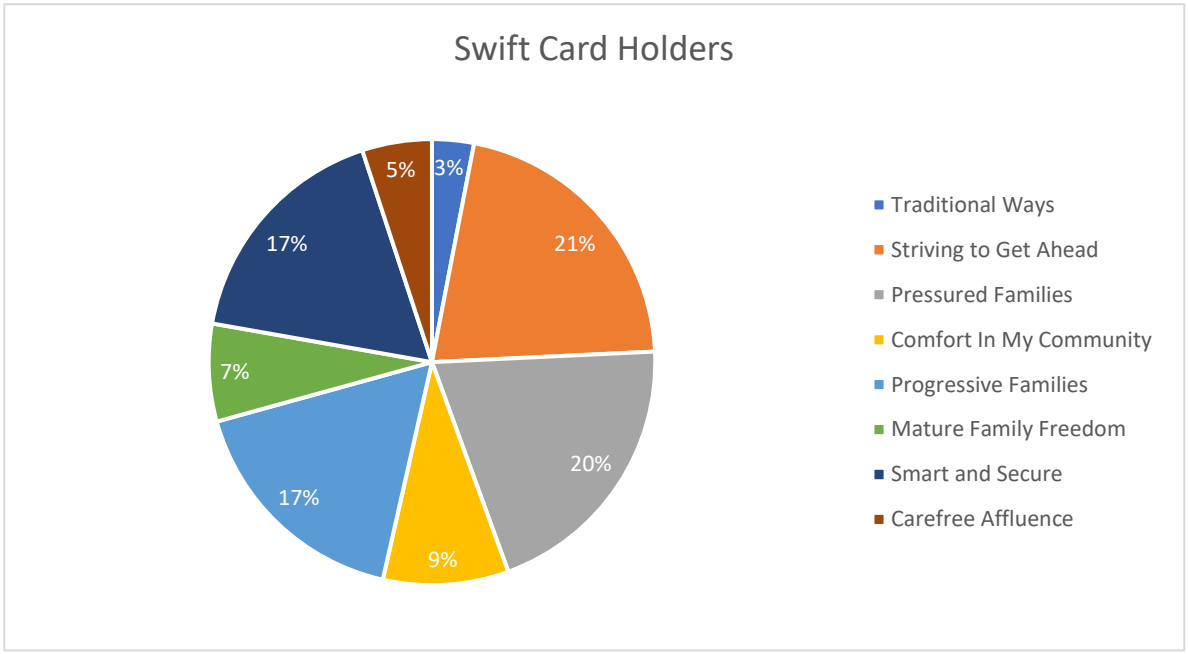

Figure 3-9: Proportion of Swift Card Holders by Persona Population Segment (sourced from TfWM's Data Insight Tableau Service)

3.3.4 Impact of Covid-19

Some additional statistics regarding the different population segment's behavioural changes post Covid-19 are shown in **Figure 3-10** below.

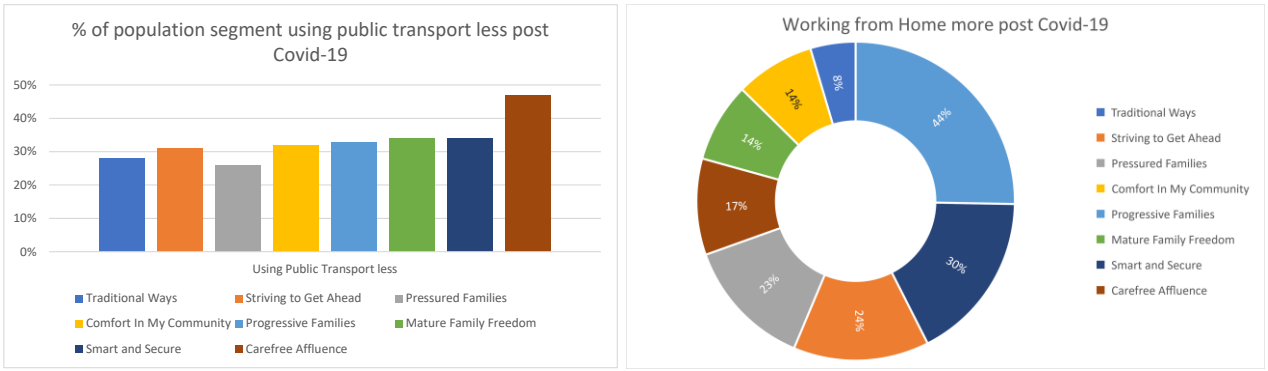

Figure 3-10: Behavioural change post Covid-19 (sourced from TfWM's Data Insight Tableau Service)

Figure 3-10 indicates that all population segment's use of public transport decreased post-pandemic with the 'Carefree Affluence' population segment's use decreasing the most whilst the 'Pressured Families' population segment's use decreasing the least.

In considering working from home post Covid-19, **Figure 3-10** shows that the 'Progressive Families' and the 'Smart and Secure' population segments were most likely to work from home post-pandemic whilst the

'Traditional Ways', 'Comfort In My Community', 'Mature Family Freedom', and 'Carefree Affluence' population segments were least likely to. It should be noted that much of the population of these segments are likely to not work at all, which could explain the low percentages.

Although not strictly transport related, there is an opportunity to enhance and ensure high-quality digital connectivity in areas where a high proportion of the population segments who were most likely work from home post Covid-19. High-quality digital connectivity will support working from home, reducing trips on Birmingham's network helping BCC meet its carbon reduction targets.

Conversely, there are challenges around accommodating the dispersed travel patterns for those people who cannot work from home due to the nature of their jobs (i.e. working in the service industry), both in terms of location and working hours. There is potential to explore Demand Responsive Transport (DRT) solutions in those areas where a high proportion of the population do not work in the service industry. Other opportunities to promote DRT include at new development used by population segments who have are less likely to own a car and are more reliant on public transport (e.g. the Pressured Families population segment), population segments who are technologically savvy and use technology to assist with their day-to-day living (e.g. the Striving to Get Ahead and Progressive Families population segments), and population segments where a high proportion of the population are likely to have a disability (e.g. the Traditional Ways population segment).

3.3.5 Future Services

Figure 3-11 illustrates the different population segment's attitudes towards adopting emerging travel services that will exist in the West Midlands area.

Figure 3-11 indicates that the 'Striving to Get Ahead' segment of the population are most likely to adopt all of the different travel services which are emerging in the West Midlands area meaning there is a strong opportunity for new developments located within areas such as Handsworth, Perry Barr, Aston Gravelly Hill, Balsall Heath, Sparkbrook, Sparkhill, Selly Park, and Edgbaston (North) to integrate and promote the use of emerging transport technologies where there is a high proportion of the 'Striving to Get Ahead' segment of the population living there.

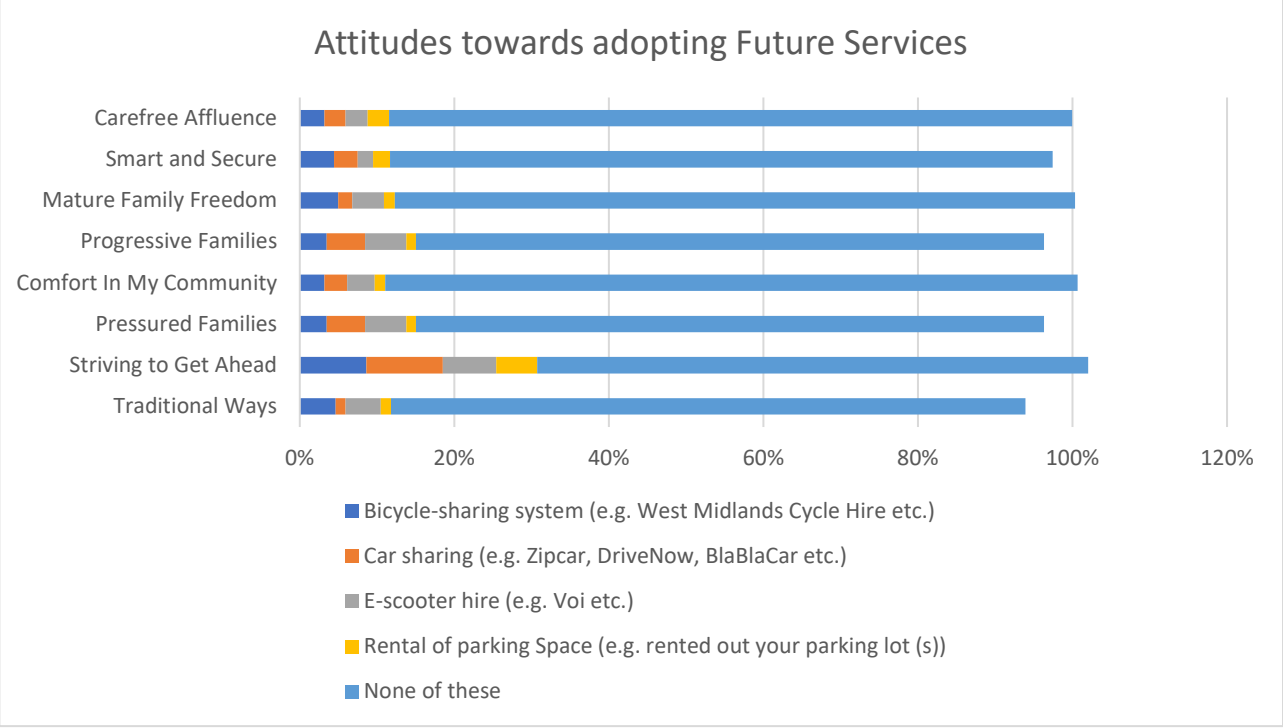

Figure 3-11: Attitudes towards adopting Future Services (sourced from TfWM's Data Insight Tableau Service)

The 'Traditional Ways' and 'Mature Family Freedom' population segments indicated some appetite to utilise cycle hire systems, whilst the 'Progressive Families' and 'Pressured Families' population segments indicated that they have some desire to car share presenting an opportunity for medium-to-low value residential developments as well as build-to-rent residential developments to actively promote car sharing schemes in areas where the 'Progressive Families' and 'Pressured Families' population segments are likely to live. The 'Carefree Affluence' population segment was most likely to rent out their car parking space whilst the 'Traditional Ways', 'Pressured Families', and 'Progressive Families' all indicated that they are open to use a E-scooter hire scheme.

Figure 3-11 suggests that the 'Comfort In My Community', 'Smart and Secure', and 'Carefree Affluence' population segments are least likely to adopt emerging travel services which suggests that there is a constraint in promoting these new services in areas where there is a high proportion of these population segments living in.

3.4 Employment

Figure 3-12 displays the following information which provides a spatial understanding of Birmingham's employment:

- Economic Zones;
- Enterprise Zone Sites;
- Core Employment Areas; and
- Key Route Network (KRN).

It should be noticed that recent policy announcement by Central Government in relation to Investment Zones has not been reflected in this analysis due to the absence of detail available at time of writing. Further review will need to be undertaken to determine the significance of Investment Zones and how they will relate to the Birmingham Local Plan.

Economic Zones

Figure 3-12 shows a series of Economic Zones where BCC have implemented a range of measures such as providing simplified planning, gap funding and access to finance to attract investment and promote business growth.

Enterprise Zone Sites

Figure 3-12 shows the 39 development sites located within the Birmingham City Centre Enterprise Zone (EZ) which was established by GBSLEP in 2011. GBSLEP chose Birmingham city centre as their EZ location, promoting economic development around the following sectors in the sites identified as being appropriate for development:

- Business and Financial Services;
- ICT;
- Creative Industries; and
- Digital Media.

Core Employment Areas

Figure 3-12 shows the Core Employment Areas which BCC have designated to be retained in employment use and are the focus of future economic regeneration activities and development opportunities. The Core

Employment Areas are focussed on the following employment uses, as defined by Town and Country Planning (Use Classes) Order[6]:

- B2 (General Industrial) (incorporating previous class B1);
- B8 (Storage or Distribution); and
- Other uses appropriate for industrial areas such as waste management, builders' merchants, and machine/tool hire centres.

Applications for uses outside the above use categories within the Core Employment Areas are not supported unless an exceptional justification exists.

Whilst much of Birmingham's service industry is located within the city centre, this has not been mapped independently. However, this employment will, in part, be covered by Enterprise Zone sites and the logical assumption that the city centre will have a high employment concentration.

Key Route Network (KRN)

Figure 3-12 shows the KRN that routes through Birmingham. Carrying 50% of all traffic in the West Midlands area, the KRN is a 605km network of key highways which serve strategic demand flows of people, goods, and services across the region. The KRN enables the growth ambition of the region and is important for the successful delivery of the transport objectives of the West Midlands Combined Authority's (WMCA's) Strategic Economic Plan and West Midlands Devolution Deal.

[6] Town and Country Planning (Use Classes) Order 1987, amended September 2020

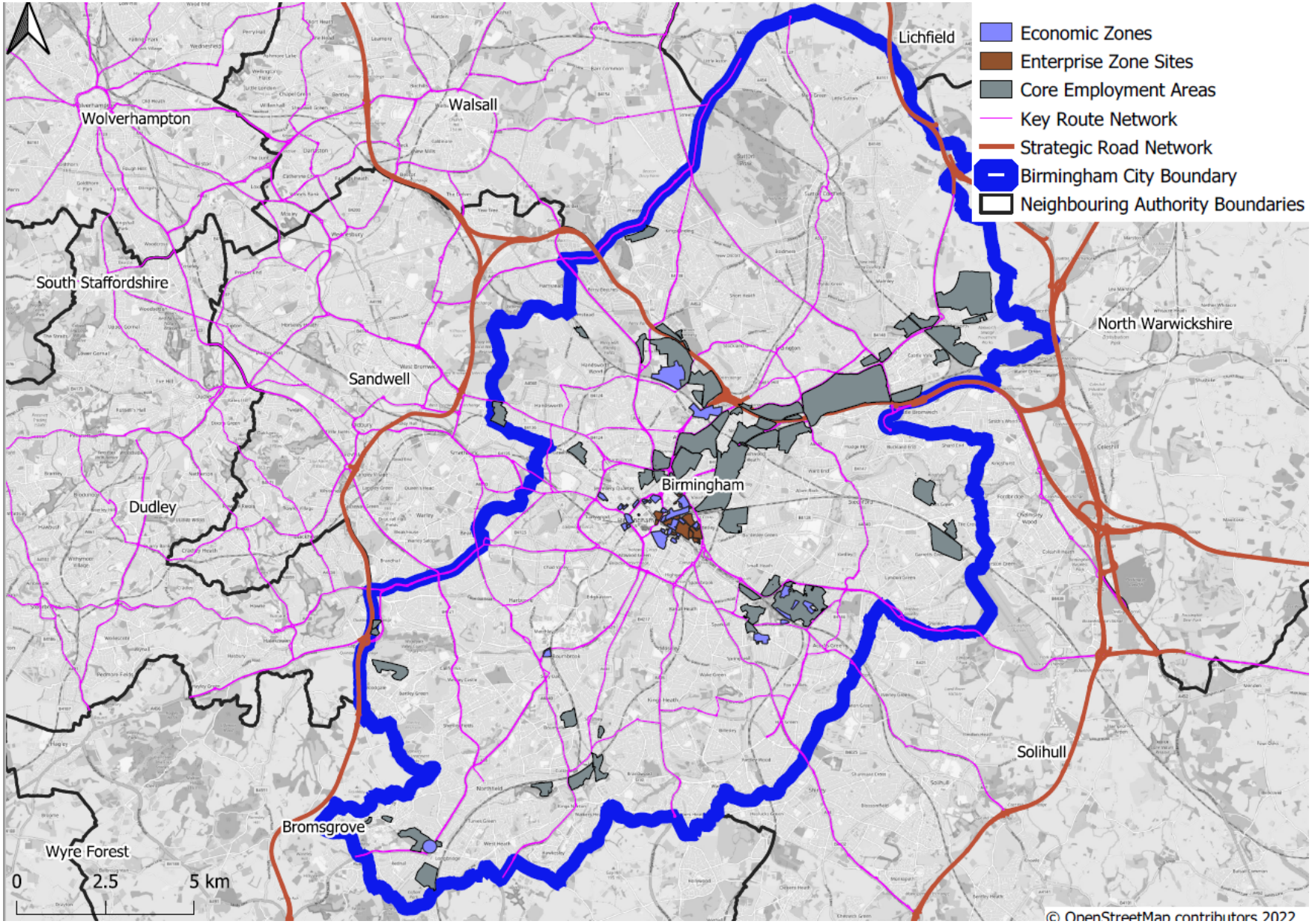

Figure 3-12: Birmingham Employment

Figure 3-12 shows a concentration of industrial employment sites located in north-east Birmingham, along the M6 and A38 corridors, as well as along the M6 corridor routing through the north-west of the city. The KRN provides access to the majority of the Core Employment Sites shown on **Figure 3-12,** apart from those located in east Birmingham (in the Garretts Green and Kitts Green areas), in Bartley Green, Hamstead and Frankley. This could act as a constraint to their growth and development, as freight and general traffic could find it harder to access these sites.

As stated, much of Birmingham's service industry is currently located in the city centre and will be in the future, with the Enterprise Zone sites shown in **Figure 3-12** highlighting where much of the future economic and residential development is likely to take place. **Figure 3-12** illustrates that many of the Enterprise Zone sites are located close to the new Curzon High Speed Rail 2 (HS2) Station, providing an opportunity for existing and new development to capitalise on the enhanced transport connectivity and regeneration opportunities that HS2 will bring. Therefore it is vital that any new developments within these areas establish strong active mode and micro-mobility mode connectivity with the station to ensure that the full benefits associated with HS2 are captured.

Figure 3-12 shows that all of the Economic Zones are well connected to the KRN.

3.5 Modal Share

TfWM carry-out cordon counts at nine strategic centres throughout the West Midlands every two years with Birmingham last being surveyed in 2021. The data collected in Birmingham's cordon counts provide an indication of current modal share usage in Birmingham.

The 2021 Birmingham cordon counts found that:

- AM Peak trips by public transport represented a 51.7% share of all trips (bus 28.1%, rail 21.6% and tram 2.0%) with car representing 41.2%, light vehicles 4.6%, heavy vehicles 1.7% and cycle 0.8%;
- Trips across all modes have decreased post Covid-19 pandemic with Public Transport usage experiencing the largest decrease (51.4% decrease from 2019), car trips experiencing a 29.2% decrease, and heavy vehicle trips experiencing a 2.7% decrease;
- For the first time since 2009, bus was the dominant public transport mode; and
- Car was the dominant mode overall at 41.2% of all trips, previously (2017 and 2019), rail has been the main mode for inbound AM peak trips to Birmingham.

The above statistics suggest that the change in people's travel patterns post the Covid-19 pandemic in terms of modal choice may act as a constraint to promoting the use of sustainable modes of transport as the car has once more taken over as the dominant choice of mode for trips made within Birmingham. However, as Covid restrictions have relaxed these travel behaviours may have changed further.

3.6 Current Travel Patterns & Trends

The maps in **Appendix C**, **Appendix D**, and **Appendix E** present data that provide an indication as to where people are travelling to and from when travelling to, from, within, and through Birmingham as well as how they are choosing to travel.

The maps in **Appendix C** display 2019 mobile phone data collated across the WMCA area which indicates the origins and destinations of trips made to and from selected key local centres and key employment areas, Birmingham city centre, and the Birmingham Airport area. The maps in **Appendix D** show the origins and destinations of vehicle trips travelling to and from the same locations but the data presented in these maps have been extracted from the 2016 Base Year West Midlands PRISM multi-modal model.

A manageable amount of locations were selected on the basis that they covered some key Local Centres (which included some District Centres and District Growth Points), some of the larger Core Employment Areas

located at a range of locations across Birmingham, and for being obvious trip attractors such as Birmingham City Centre and the airport area.

Analysis of the maps in **Appendix C** and **Appendix D** reveal the following about travel patterns within Birmingham (please note that cross-boundary travel patterns from areas surrounding Birmingham and further afield have been summarised in **Section 8.6**).

It should be noted that the origin and destination data presented in this section is based on data collated prior to the Covid-19 pandemic, where travel patterns have since changed due to increased home working arrangements within certain industries.

The maps in **Appendix C** and **Appendix D** show that the majority of trips made to and from Local Centres are generally shorter-distance trips made from neighbouring areas with the exception being Perry Barr which attracts trips from further north, east and west of the city. There is an opportunity for new developments located within or close to Local Centres to contribute towards making centres accessible encouraging active travel for short-distance trips made to and from centres.

In terms of movements to and from Core Employment Areas, the maps in **Appendix C** and **Appendix D** show that:

- The majority of trips to the Castle Bromwich and Minworth employment areas are primarily made from areas in north Birmingham as well as some areas in nearby east Birmingham;
- The majority of trips to the Hay Mills employment area are primarily made from areas in east and south-east of Birmingham; and
- The majority of trips to the Longbridge employment centre are made from areas in the south of Birmingham including Northfield, Edgbaston, Harborne, Selly Oak, and Kings Norton as well as from Birmingham city centre.

The movements described provide opportunities for new residential developments located in the aforementioned areas of Birmingham to contribute towards establishing strong public transport connections to relevant Core Employment Areas.

Many people travel to the city centre from areas in north-west and south-west Birmingham, with fewer people travelling to the city centre from east Birmingham (with the exception of Castle Vale in north-east Birmingham).

Dominant destinations of people travelling from Birmingham city centre include Selly Oak, areas in north-west and south-west Birmingham, Castle Vale, and Walmley. There is a distinct lack of trips to areas in east Birmingham from the city centre (apart from Ward End).

Extracted from the 2016 Base Year West Midlands PRISM multi-modal model, the data shown on the maps in **Appendix E** illustrates the numbers of people that board and alight at each bus stop in Birmingham during the AM and PM peaks.

The maps in **Appendix E** show that bus stops located in the city centre are the most used with stops on Colmore Row, Moor Street Queensway and Corporation Street being particularly well-used. Other well-used bus stops are located along the following arterial routes in and out of the city centre which include the following:

- A34 Stratford Road;
- A5127 Birmingham Road;
- A34 Birchfield Road;
- A435 Alcester Road;
- A38 Bristol Road;
- B4128 Bordesley Green; and
- B1438 Kingstanding Road.

Well-used bus stops are also located in Selly Oak, Stechford, Kitts Green, and Sutton Coldfield town centre.

3.7 Traffic and Congestion

Figure 3-13 and **Figure 3-14** show the following information which provides an understanding of the traffic conditions within Birmingham:

- AM and PM peak Node Volume over Capacity (V/C) extracted from the 2022 The Birmingham Strategic Transport Model (BSTM); and
- 2019 AM and PM peak Trafficmaster Data.

Birmingham Strategic Transport Model (BSTM) Node Volume over Capacity (V/C)

The Birmingham Strategic Transport Model (BSTM) is a Simulation and Assignment of Traffic to Urban Road Networks (SATURN) highway assignment package model of the road network in Birmingham. The base model of the BSTM was built in 2016 with future year forecast models built for 2022, 2026 and 2037.

The Volume over Capacity (V/C) of each node has been extracted from the AM and PM peak periods of the 2022 BSTM and are shown in **Figure 3-13** and **Figure 3-14**. The V/C ratio is used to estimate the relative level of congestion at a junction with congestion generally beginning to occur where values exceed 85%.

It should be noted that recent work has found that the BSTM over-estimates traffic flows in the future year forecast models, meaning that node V/Cs shown on **Figure 3-13** and **Figure 3-14** are probably shown to perform worse than in reality. This is likely because the base model was built in 2016 and future levels of development within Birmingham forecast has not materialised, as well as the models not taking into account significant events that have since occurred which have impacted traffic levels such as the Covid-19 pandemic. It is understood BCC are currently undertaking work to update the BSTMs in line with actual traffic conditions. It is recommended that the V/C data presented in this report is superseded with the equivalent data from the updated BSTMs once they are ready.

2019 AM and PM Trafficmaster Data

2019 AM and PM Trafficmaster Data shows the average delay (seconds) on the Strategic Road Network (SRN) and locally managed A roads in Birmingham during the AM and PM peaks of 2019.

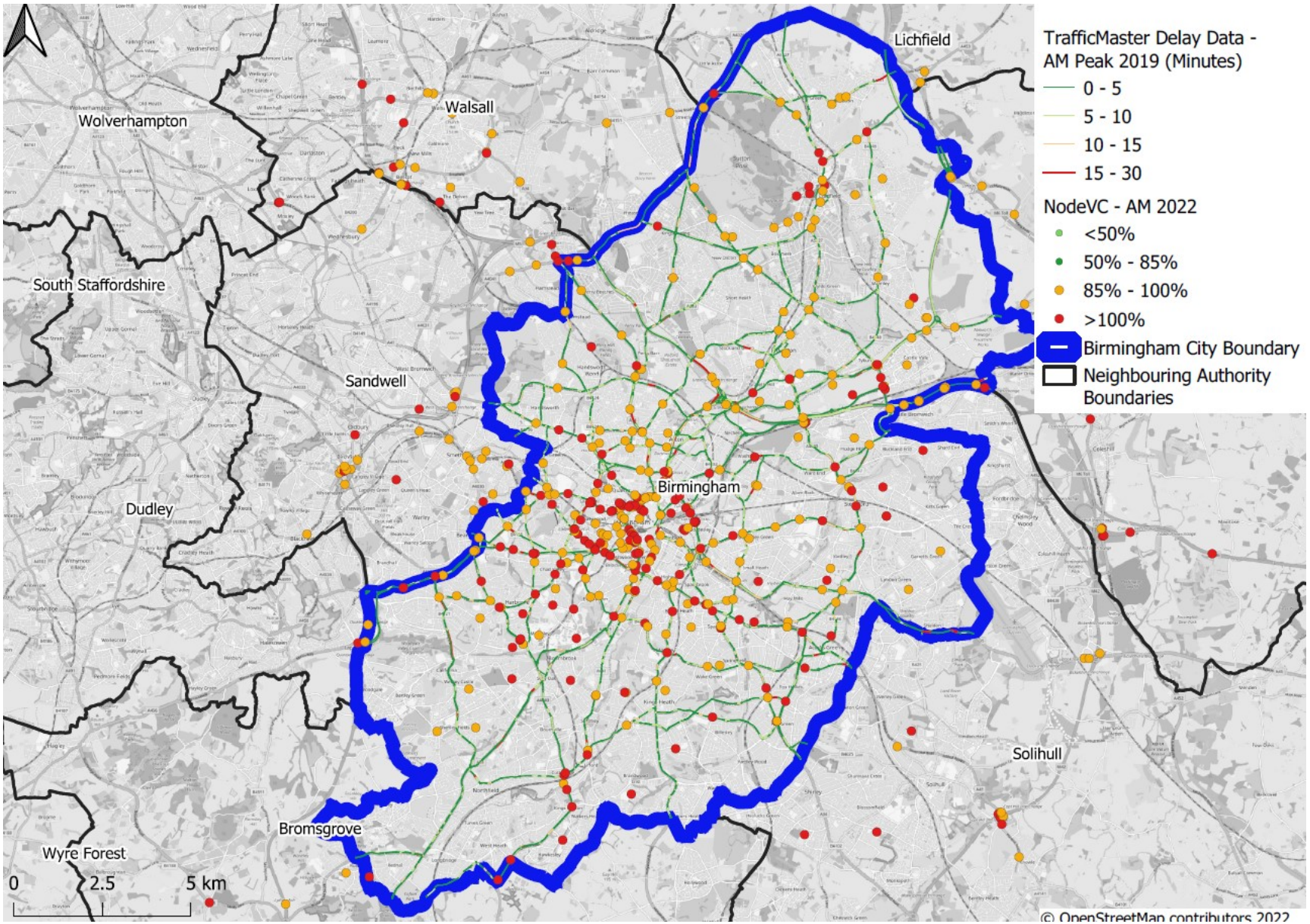

Figure 3-13: Birmingham Traffic and Congestion AM Peak

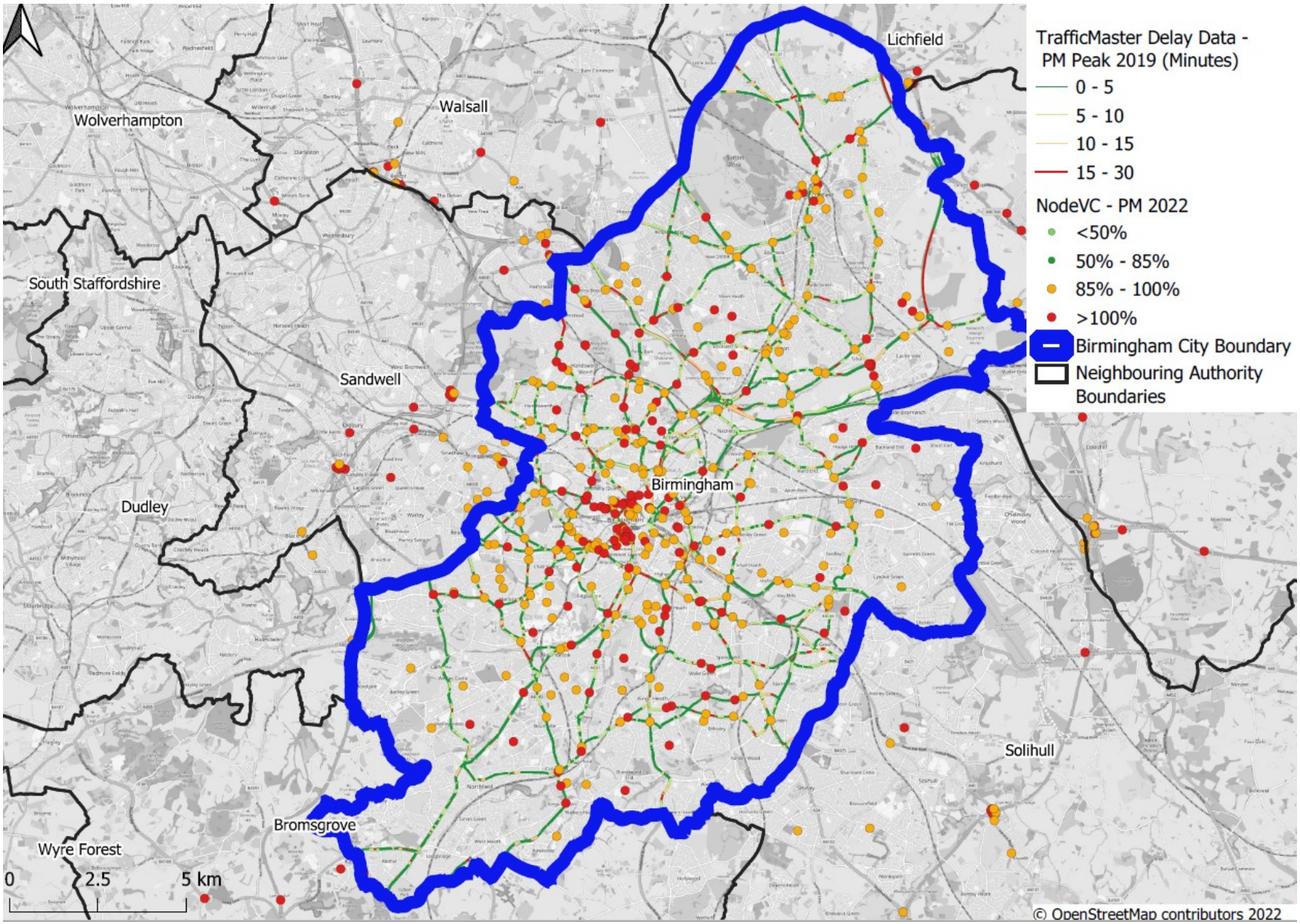

Figure 3-14: Birmingham Traffic and Congestion PM Peak

Figure 3-13 and **Figure 3-14** indicate that there are currently traffic congestion issues at the following locations in Birmingham:

- Sections of the A4540 Middleway (particularly to the south and west of the city centre);
- Routes in and around Sutton Coldfield;
- Sections of arterial routes in and out of the city centre including:
    - A38 Aston Expressway;
    - A41 Soho Road;
    - A435 Alcester Road;
    - A38 Bristol Road;
    - A441 Pershore Road; and
    - A456 Hagley Road.
- Routes through Tyburn, Stechford, Bordesley Green, Erdington, and Acocks Green; and
- Access to and sections of the M6.

New development located close to any of the locations listed above should be developed in a way that it does not contribute to existing congestion issues.

3.8 Accessibility

Figure 3-15 below is based on data prepared by Mott MacDonald for WMCA's Local Transport Plan 5 and sets out a measure of 'Triple Access', i.e. 15-minute physical accessibility, 45-minute transport activity (public transport) and digital access, all scaled to a consistent range and combined in an equal weighted sum.

The "15-min physical accessibility" indicator reflects accessibility to the following basket of amenities deemed to be important for a sustainable local neighbourhood:

- Main and regional centres (as a proxy for retail, banking, post office uses);
- Primary and secondary education;
- Primary healthcare (GP, pharmacy, dentist);
- High-frequency PT stops and stations;
- Greenspace and play areas;
- Social amenities such as community centres;
- Cultural amenities; and
- Theatres and cinemas.

Access to the different types of amenities has been weighted by their importance, which is reflected in the ordering of the list above. Accessibility via walking and wheeling is considered with 15 minutes being defined as the round-trip time, so a maximum outbound access time of 7.5 minutes. To summarise, the overall "15-min physical accessibility" measure (or score) is a combination of access to each of the amenities listed above with the more types of amenity within a 15 min round trip of a location, the higher the score for that location.

The "45-min transport accessibility (PT)" indicator reflects the number of jobs accessible by PT during a morning peak period. The more jobs accessible within 45 mins by PT of a given location, the higher the score for that location.

The digital access indicator provides a score relating to the proportion of households with access to super-fast through to full fibre broadband within an area.

The measure of 'Triple Access' was produced to indicate the extent to which different areas currently meet TfWM's aim for all West Midlands residents to be no more than a 45 minute ride trip away from three major regional centres in peak travel times and no more than a 15 minute walk or wheel round trip from the nearest neighbourhood centre whilst also taking into account their access to digital services (i.e. the internet). The warmer coloured hexagons in **Figure 3-15** show better accessibility and cooler colours show poorer accessibility. Each hexagon covers an area of circa 0.1 km sq.

Figure 3-9 shows that:

- Overall there is good 'triple access' coverage across Birmingham with areas that have particularly good triple access including:
  - Northfield;
  - Selly Oak;
  - Harborne;
  - Stirchley;
  - Erdington;
  - Kings Heath;
  - Moseley;
  - Kings Norton;
  - Perry Barr; and
  - Sutton Coldfield.
- Areas in the east of Birmingham tend to have a lower triple access score then elsewhere;
- Areas to the north, particularly north and east of Sutton Coldfield have lower triple access score; and
- Areas with particularly low triple access scores include:
  - Shenley Fields;
  - Longbridge;
  - Hawkesley;
  - Greet;
  - Garretts Green;
  - Hodge Hill; and
  - Adderley Park.

Taking the 'triple access' score into consideration when looking at new developments can assist in identifying opportunities to provide better accessibility. There is also an opportunity to establish high quality, affordable family housing in areas with good triple access to enable families to continue living sustainable lifestyles as they reach the next stage in life and could become more dependent on car travel.

Figure 3-16 and **Figure 3-17** map the "15-min physical accessibility" and digital indicators which make up the measure of 'Triple Access' providing a more in depth and focused understanding of the different types of accessibility of areas across Birmingham. Access to jobs via public transport is covered in **Section 5.3**.

The colder coloured hexagons in **Figure 3-16** indicate areas that have poorer "15-min physical accessibility" with clusters of the coldest coloured hexagons covering the following residential areas:

- Walmley;
- Little Sutton;
- Hill Hook;
- Falcon Lodge;
- Oscott;
- Queslett;
- Edgbaston;
- North Harborne;
- Moor Green;
- Weoley Castle;
- Frankley;
- Brandwood End;
- West Heath;
- Yardley Wood;
- Wake Green;
- Hay Mills; and
- Bromford.

Development types which provide a range of amenities and services should be promoted in these areas to help establish sustainable neighbourhoods in line with BCC and TfWM aspirations

Figure 3-17 indicates that areas to the far north, north-west, and much of the south of Birmingham (excluding Warstock, Billesley, Hawkesley, West Heath, Frankley, Long Bridge, Weoley Castle, and Woodgate have access to faster broadband whilst the majority of east Birmingham and the areas surrounding the city centre to the north have access to slower broadband speeds.

Figure 3-18 maps the mean average download speed being received by fixed broadband lines (Mbps), May 2021, by constituency across Birmingham based on Ofcom data. **Figure 3-18** shows that the Ladywood constituency, which covers Birmingham city centre and the area located to the west of Birmingham city centre, have the lowest broadband download speeds whilst the Northfield, Selly Oak, and Yardley constituencies have the highest broadband download speeds in the city. It should be noted that the download speed of the areas located in the Ladywood constituency but not located in the city centre are likely bringing the average download speed for the whole of the constituency down explaining why **Figure 3-18** shows the city centre area having the lowest average broadband download speeds. This is augmented by **Figure 3-17** which indicates that areas in the city centre have access to faster broadband.

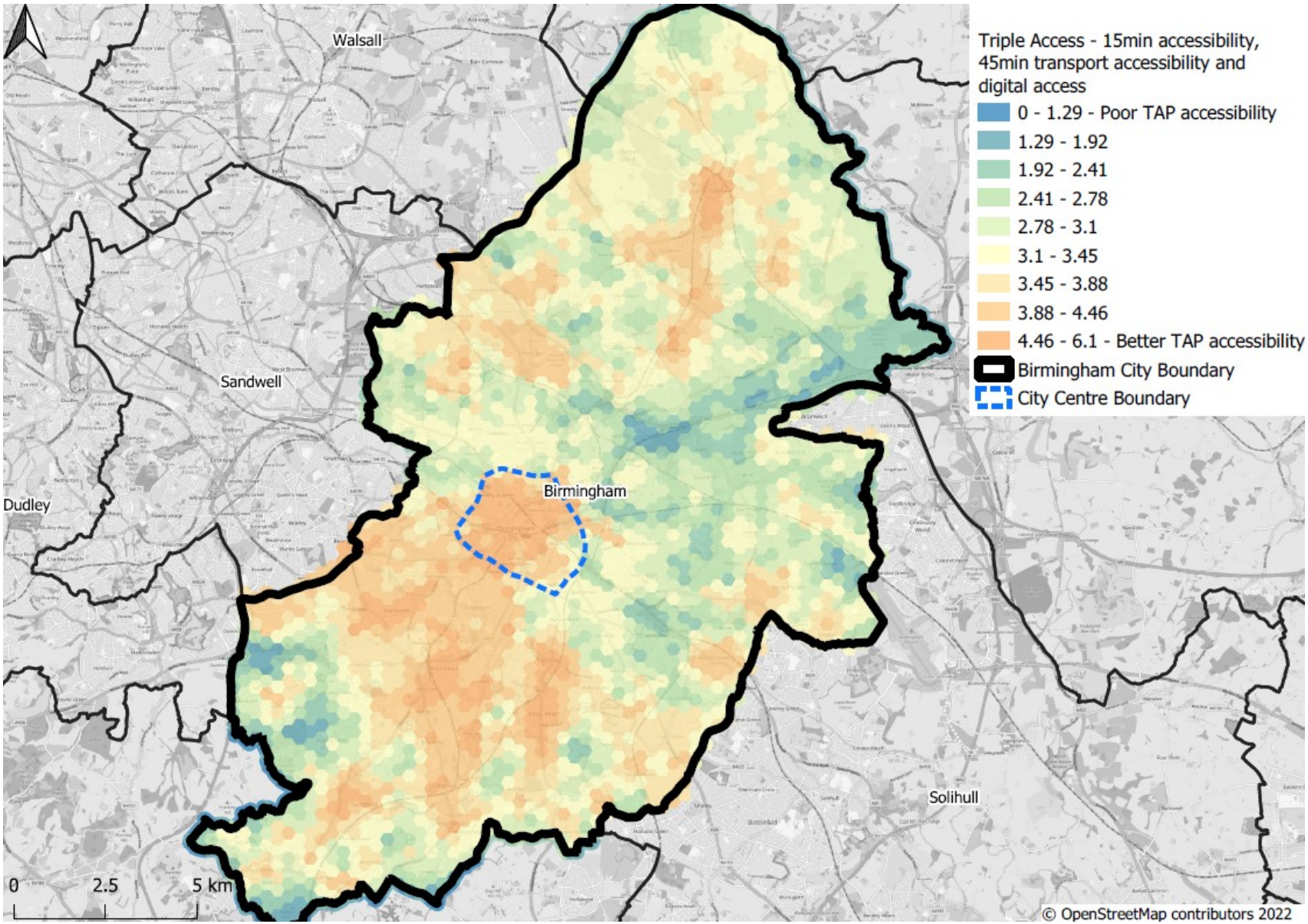

Figure 3-15: Triple access, i.e. 15min accessibility, 45min transport accessibility and digital access (TfWM LTP5 data)

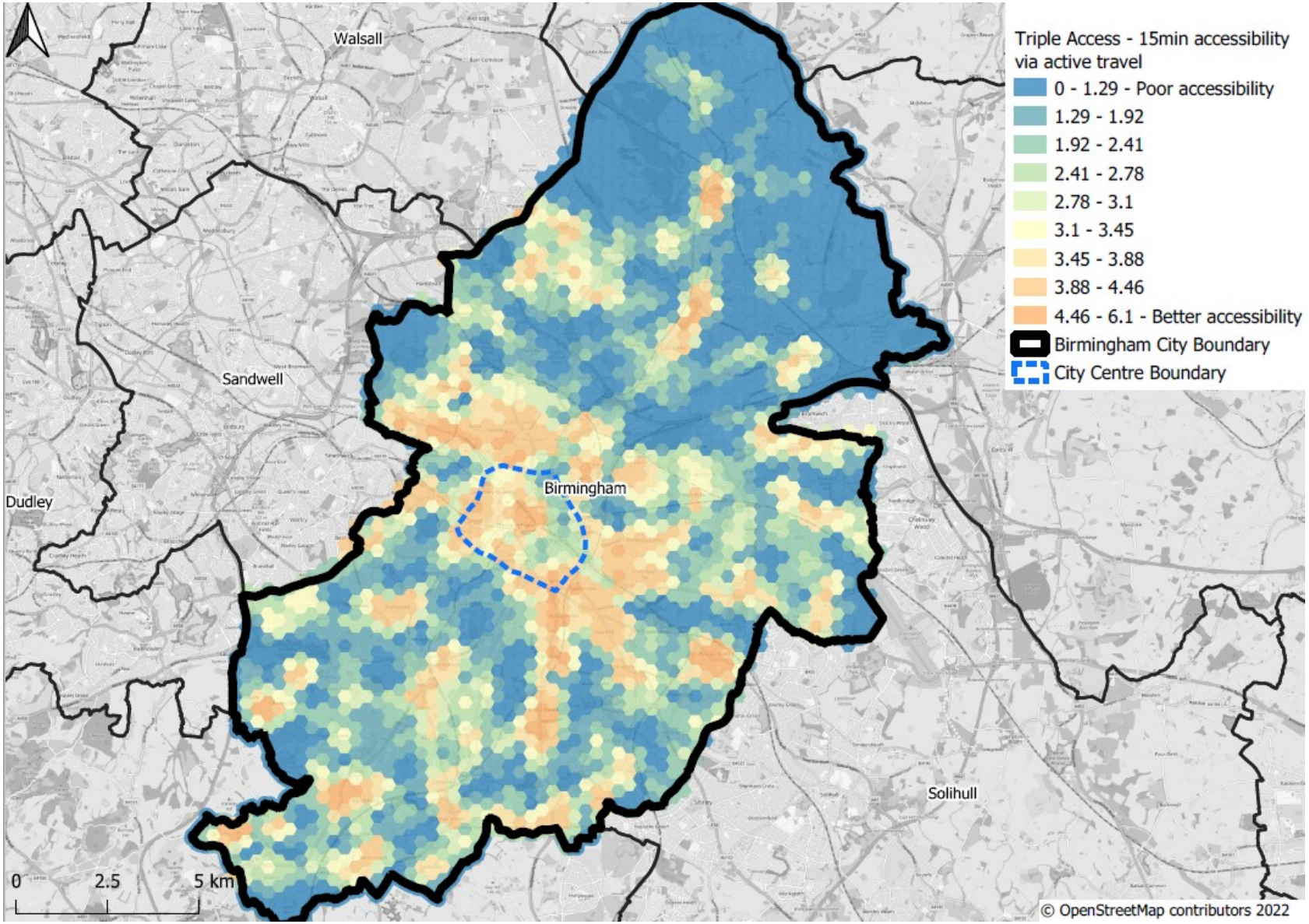

Figure 3-16: Triple access - 15 minute accessibility via active travel indicator (TfWM LTP5 data)

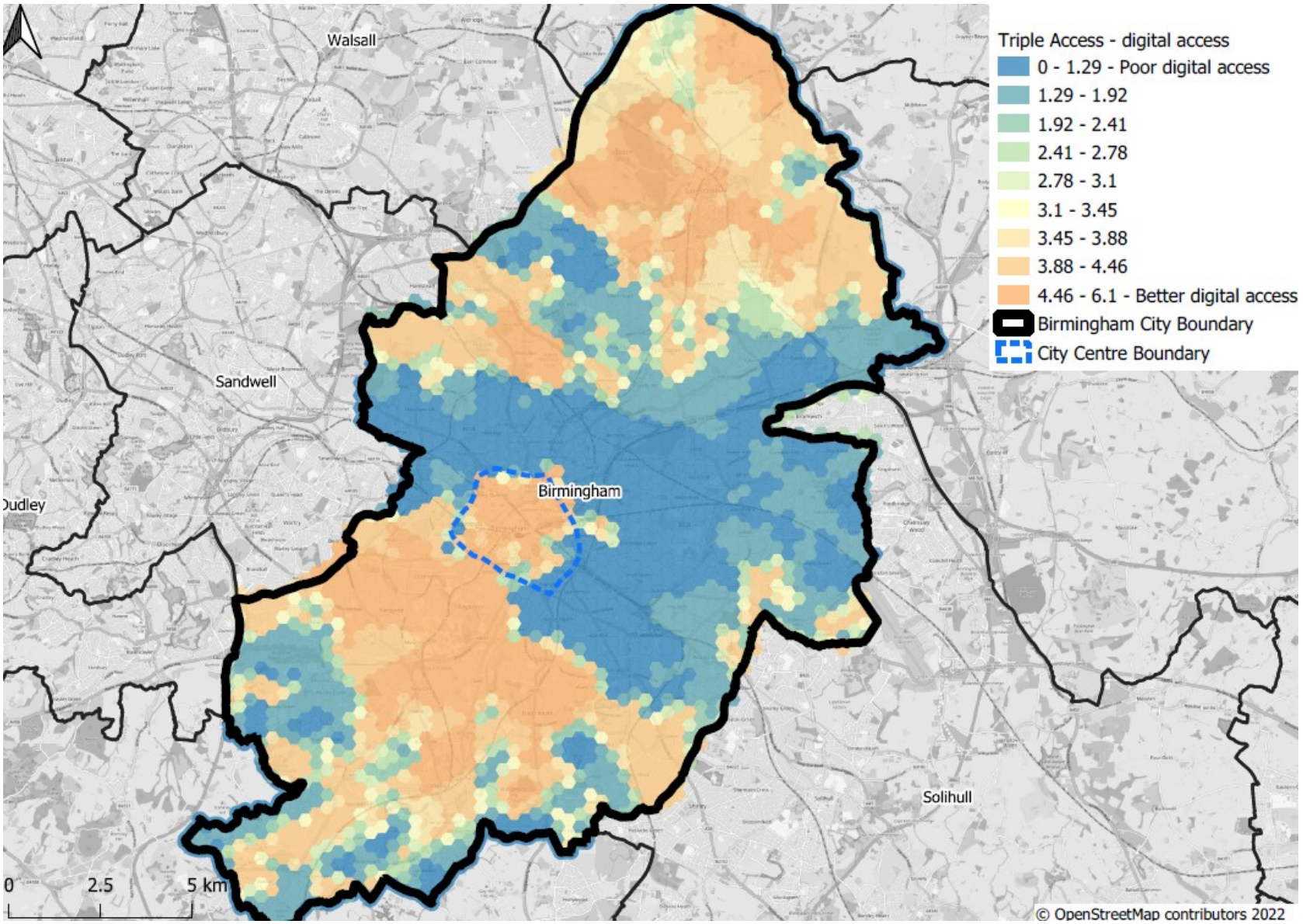

Figure 3-17: Triple access - digital accessibility indicator (score based on proportion of households with access to super-fast through to full fibre broadband) (TfWM LTP5 data)

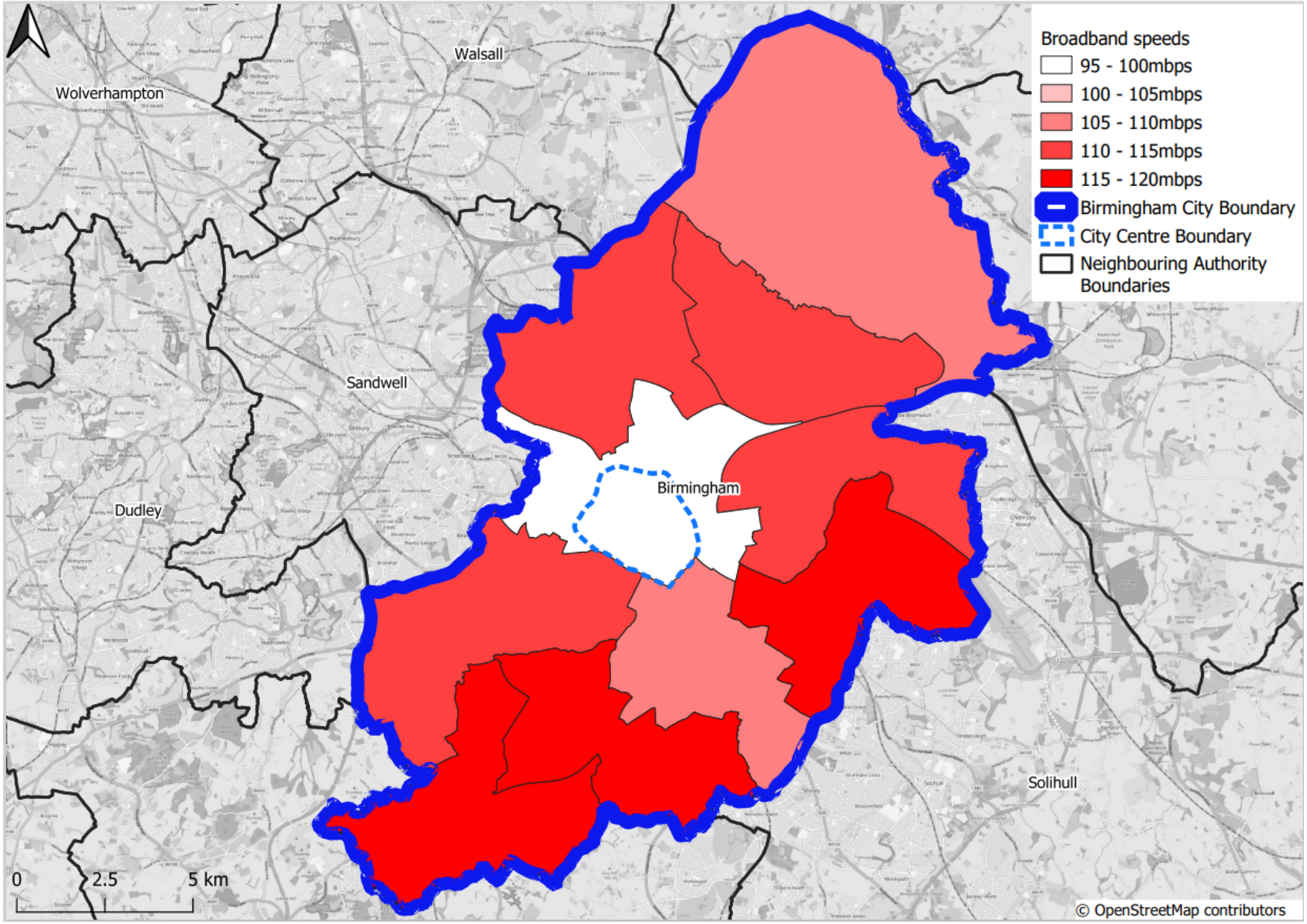

Figure 3-18: The mean average download speed being received by fixed broadband lines (Mbps), May 2021, by constituency across Birmingham (based on Ofcom data)

3.9 Parking

The maps in **Appendix F** display car and cycle parking capacity information at train stations located in the WMCA area.

The Park & Ride car parking map at **Appendix F** shows that train stations in the southern and northern peripheral areas of Birmingham have a relatively high number of car parking spaces which enable these stations to capture longer distance car trips travelling to Birmingham from areas further afield (e.g. Bromsgrove, Worcester, Redditch, Solihull, Warwick, Lichfield and Tamworth as well as capturing more localised trips. Stations such as Rowley Regis, Sandwell and Dudley, Tame Bridge Parkway, Cradley Heath, and The Hawthorns) also have a relatively high number of car parking spaces which help capture car trips travelling from the Black Country and further west of Birmingham.

Usage data collated for the rail park and ride sites between April 2016 and February 2020 (before the Covid-19 pandemic and associated national lockdowns) indicated that the car parks, on average, were 91.3% full suggesting that there was still some capacity to accommodate additional users even at typical usage in non-Covid impacted times. From March 2020 to May 2022 (which includes the Covid impacted times) usage data suggested that, on average, TfWM park and ride sites were only 22.4% full, although it should be noted that usage has been higher than this in more recent times and it looks like usage will continue to rise.

Train stations immediately to the north-west, north, north-east, east and south-east of the city centre have relatively low levels of parking provision in comparison to those located to the south of the city, in Sutton Coldfield and areas outside of Birmingham.

Whilst there is opportunity for new development to contribute towards the establishment of more localised Park and Ride sites at these stations to capture the potential rail users travelling to the station by car, TfWM policy does not promote additional car parking provision. Additional parking provision should be focused on active travel/ micro-mobility modes, in addition to promoting public transport access to these sites.

The Park & Ride cycle parking map in **Appendix F** shows that there are far fewer cycle parking spaces than car parking spaces at a train stations with parking provision in Birmingham, with only a cluster of train stations in the centre, the far north, and the far south of Birmingham providing a significant level of cycle parking. Train stations in Birmingham with high level of cycle parking provision include Birmingham New Street (194), Selly Oak (127), Birmingham Moor Street (80), Four Oaks (79), Sutton Coldfield (72), and Yardley Wood (56).

The lack of cycle parking facilities at many of Birmingham's train stations is a constraint to people accessing the railway system where their journey to the station may be too far too walk, who may have no direct public transport options to access the station, or where car parking is limited at or nearby a station. There is an opportunity for new development to contribute towards the provision of cycle parking facilities at all of the city's train stations to encourage the use of active and public transport modes when travelling around the city. The cycle parking provision provided should be in line with the appropriate standard detailed in TfWM's West Midlands Cycle Design Guidance[7].

The West Midlands Rail Investment Strategy (2022 – 2050) outlines how there are a multitude of future rail improvements planned in and around Birmingham including the Midlands Rail Hub initiative which will provide additional rail capacity. This emphasises the importance of capturing opportunities to increase rail accessibility through measures such as the provision of cycle parking, improved public transport access and considered implementation of addition car parking, where appropriate.

[7] West Midlands Cycle Design Guidance (Second edition), Transport for West Midlands, May 2019

3.10 Freight

The maps in **Appendix G** show the origins and destinations of freight traffic within Birmingham, extracted from the 2016 base year PRISM model.

The majority of freight activity (in terms of both origins and destinations) in Birmingham occurs close to the SRN, in the Castle Bromwich and Perry Barr areas. Other areas with relatively high freight traffic travelling to and from them include Yardley (near Swan Island), Heartlands Hospital and surrounding area, Nechells, Aston and Edgbaston.

The freight traffic maps in **Appendix G** suggest there is an opportunity to establish freight consolidation centres at various locations on the Birmingham Motorway Box (the motorways surrounding Birmingham: M40, M42, M6 and M5), particularly along the M6 which routes through Birmingham to the north of the city centre. Freight consolidation centres provide an opportunity to intercept freight journeys with a destination in Birmingham and stop them from travelling on the city's local road network by facilitating 'Last Mile' deliveries of goods into and out of the city.

The Midlands Connect Freight Strategy (August 2021) which highlights the current and future aspirational conditions of freight in the Midlands area, emphasises the importance of rail freight in Birmingham and the wider Midlands area. This strategy identifies several nationally significant rail freight intermodal interchanges located in or close to Birmingham, e.g. Lawley Street in Birmingham and Hams Hall, Coleshill. The strategy also highlights how their Midlands Rail Hub initiative will create more capacity for enhanced rail freight movements to and through Birmingham.

New development in Birmingham should capitalise on the established and likely growth of rail freight in Birmingham with relevant development types (such as warehousing and distribution centres) being located in appropriate locations relative to key rail freight hubs.

3.11 Summary

Through the analysis of evidence which provides an indication of Birmingham's current and future population, employment, travel patterns and traffic conditions, this section has set the scene in which this Baseline Transport Assessment has been compiled.

Highlighting Birmingham's young population, identifying densely populated areas which are not located close to the amenities available in a Local Centre, and defining the predominant population types that live within different areas has enables the identification of opportunities to promote public transport, active modes, Demand Responsive Transport solutions, and micro-mobility mode usage at specific locations and certain population segments as well as providing additional amenities at certain locations.

4 Housing and Development Growth

4.1 Introduction

This section presents a range data which provides an indication as to where future housing development is likely to occur in and around Birmingham. Data has been analysed in conjunction with population density, planning, and future transport scheme data to gain an understanding of how accessible and well connected to services future housing development sites are likely to be. Future housing developments outside of Birmingham have been analysed to understand how they may impact relevant cross-boundary movements.

4.2 Strategic Housing Land Availability Assessment (SHLAA) Sites

Figure 4-1 to **Figure 4-4** display sites which have been identified in a Strategic Housing Land Availability Assessment (SHLAA) as being suitable for housing development, providing an indication of where housing growth is likely to occur within Birmingham. The current Local Plan (2011 to 2031) demonstrated a capacity to deliver 51,100 homes, although this represented a significant shortfall on the projected 89,000 household requirement for the city for the plan period. Since then, through the Duty to Cooperate, the Council has been working with 13 other local authorities which make up the Greater Birmingham and Black Country Housing Market Area to accommodate this shortfall within the wider housing market area.

A SHLAA is a technical exercise undertaken every year to determine the quantity and suitability of land potentially available for housing development. SHLAA is not a site allocations exercise and the sites shown in **Figure 4-1** to **Figure 4-4** are not guaranteed to be developed into housing but will feed into the housing development sites allocated in the new Birmingham Local Plan.

As the 2022 SHLAA was in draft at the time of undertaking this baseline assessment, the validated 2021 SHLAA information has been presented in **Figure 4-1** to **Figure 4-4.** It is recommended that the SHLAA data shown in **Figure 4-1** to **Figure 4-4** is updated with the 2022 SHLAA sites when the data has been validated.

A draft version of the 2022 SHLAA has been reviewed to determine the potential for any additional large housing development sites in Birmingham which are not included in the 2021 SHLAA. The review indicated that there could be additional housing development in the following areas:

- Central Sutton Coldfield;
- Stockland Green;
- Handsworth (A41 Holyhead Road area);
- Winson Green;
- Jewellery Quarter;
- Edgbaston Reservoir;
- Small Heath / Sparkbrook;
- Tyseley;
- Selly Oak; and
- Frankley.

Along with the SHLAA sites, **Figure 4-1** to **Figure 4-4** shows greenbelt land and key existing and future public transport infrastructure, which could be a constraint to development. The public transport infrastructure shown in **Figure 4-1** to **Figure 4-4** has been mapped so that access to potential future housing development sites can be analysed. The existing residential dwelling density has also been presented to provide an understanding of how densely populated the area that new housing development could be located in already is.

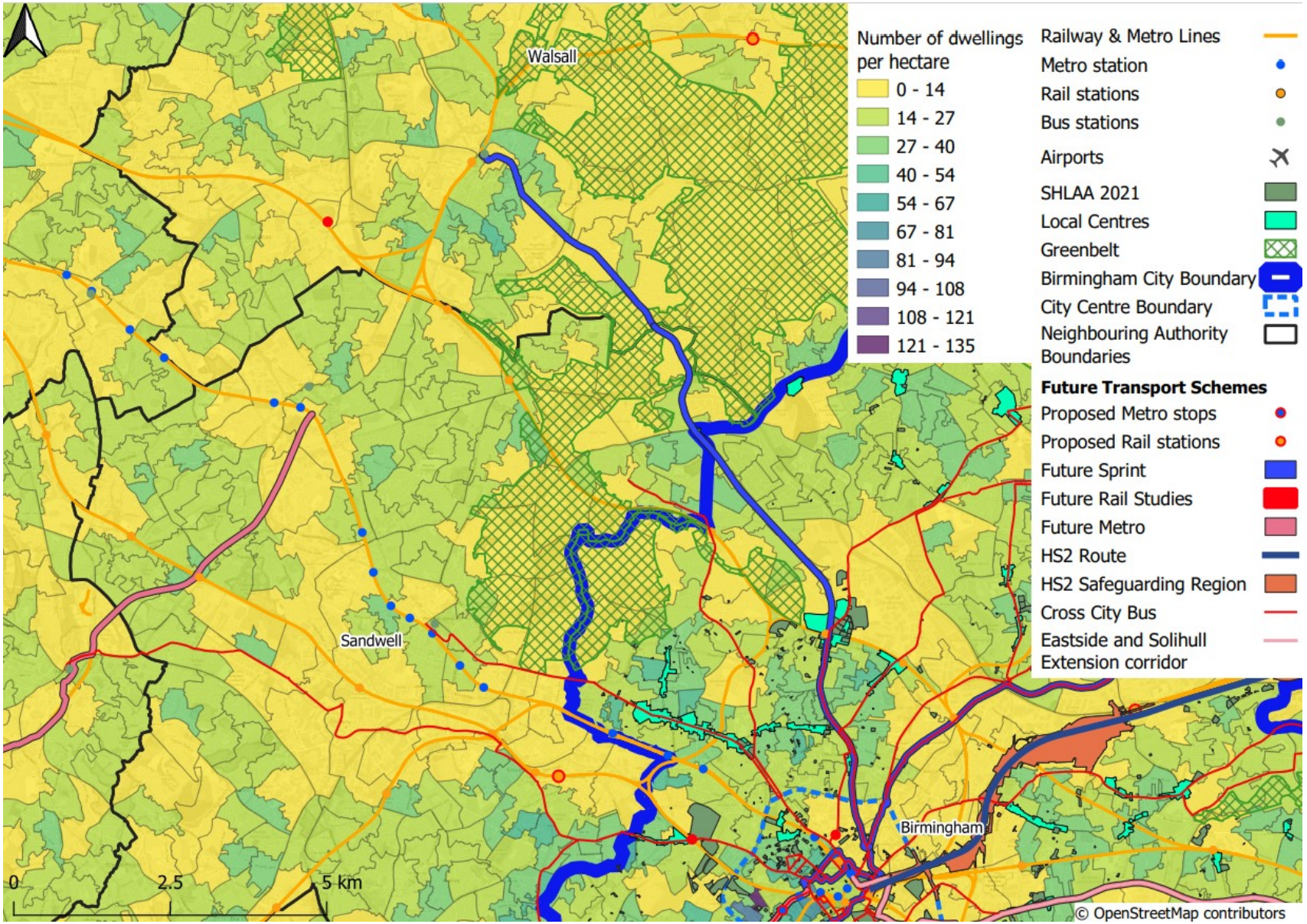

Figure 4-1: Birmingham Housing and Development Growth (North West)

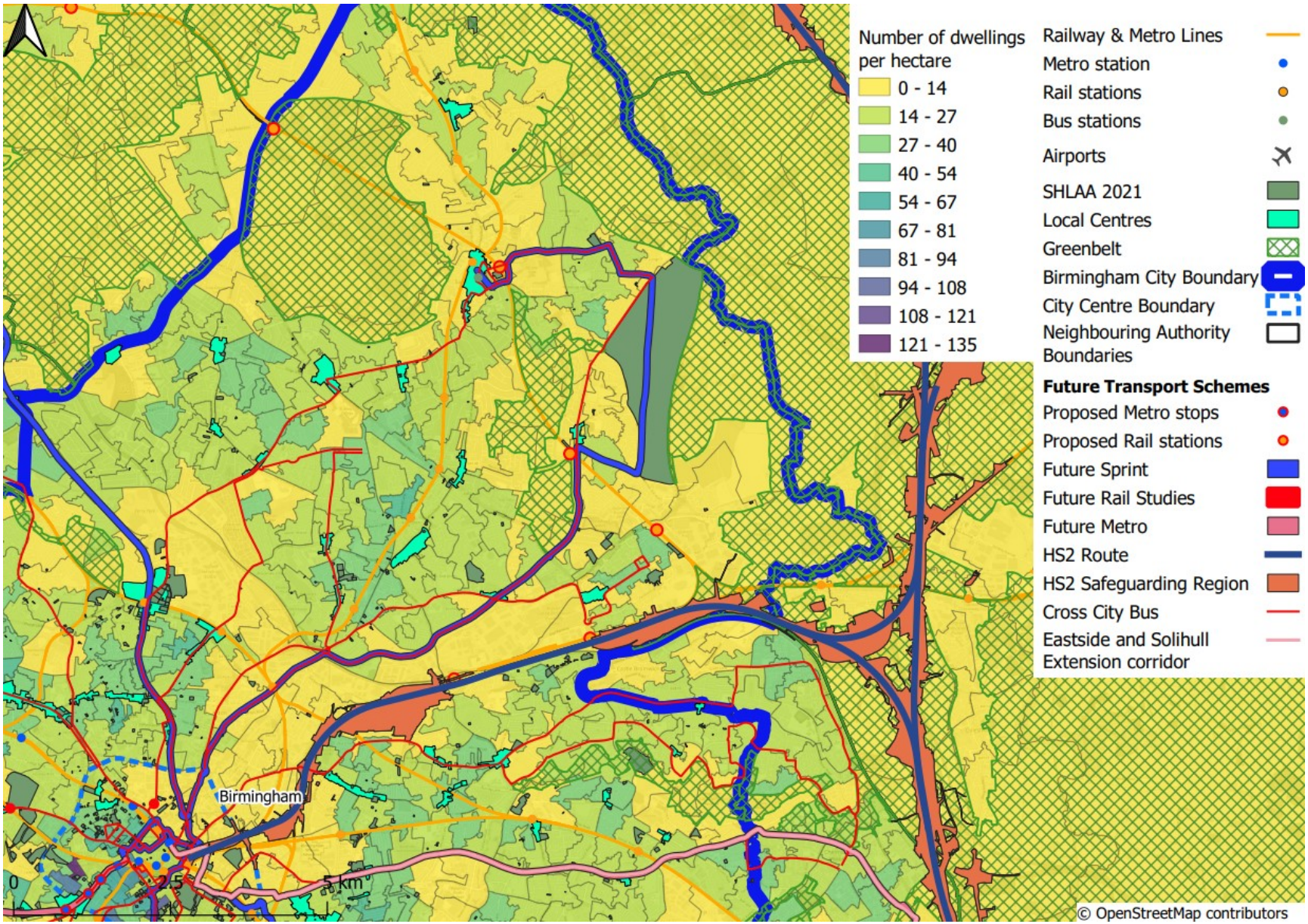

Figure 4-2: Birmingham Housing and Development Growth (North East)

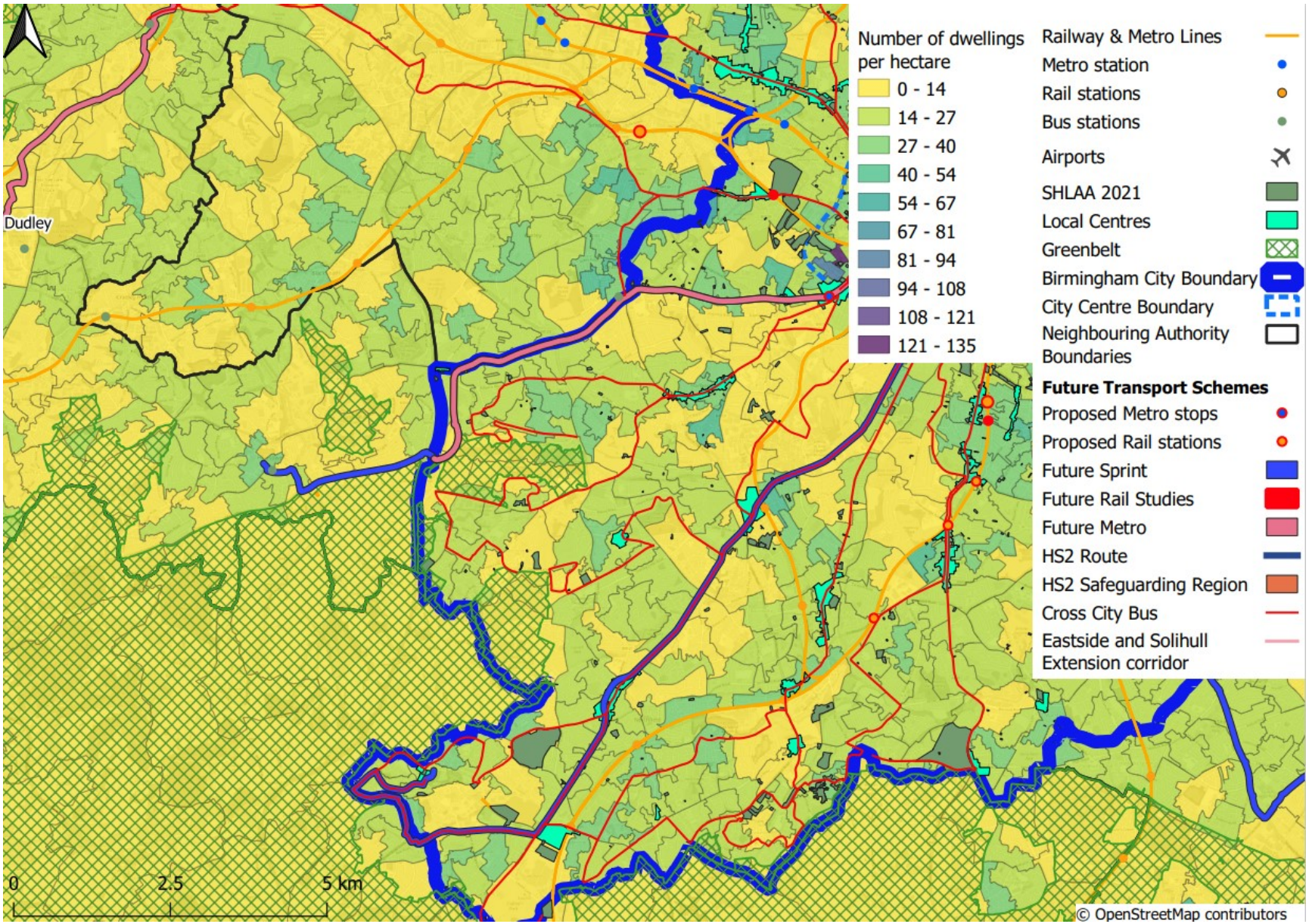

Figure 4-3: Birmingham Housing and Development Growth (South West)

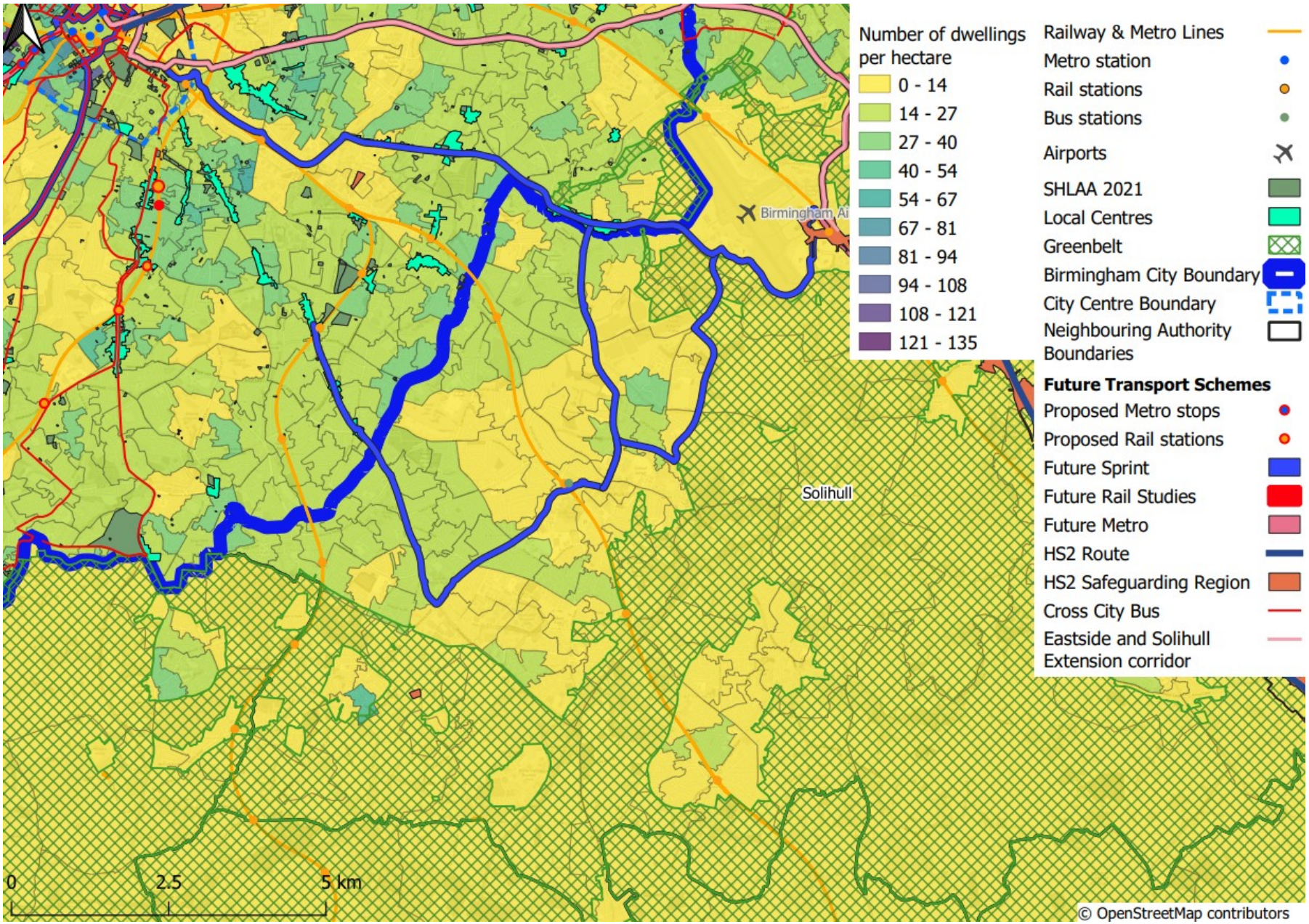

Figure 4-4: Birmingham Housing and Development Growth (South East)

Figure 4-1 to **Figure 4-4** shows that SHLAA sites have been identified across Birmingham with clusters of sites located in the following areas:

- South of the city centre (Digbeth and Southside);
- Jewellery Quarter;
- Ladywood / Winson Green area;
- Perry Barr; and
- Kings Norton / Walkers Heath / Hawkesley.

The SHLAA sites with high capacity in terms of numbers of residential dwellings detailed in **Table 4-1** below.

Table 4-1: SHLAA sites with high capacity in terms of numbers of residential dwellings

Name	Location	Number of Residential Dwellings (Capacity)	Located within the A4540 Middleway?
Langley Sustainable Urban Expansion (SUE)	Ox Leys Road (Sutton Coldfield)	2627	No
Digbeth Central Bus Garage	Liverpool St (Digbeth)	1987	Yes
Martineau Galleries	Between Priory Queensway and Moor Street (Birmingham city centre)	1300	Yes
Tesco Monaco House	Bristol Street, (Southside Birmingham)	1009	Yes
Bull Ring Trading Estate	High Street Deritend (Digbeth)	995	Yes
Smithfield	Pershore Street & Bradford Street & High Street (Digbeth and Southside)	800	Yes
Connaught Square	Corner of Bradford Street and Rea Street (Digbeth)	770	Yes
Eastside Locks	Fronting Gopsal Street and Cardigan Street and Belmont Row (Eastside)	753	Yes
Former North Worcestershire Golf Club Land off Frankley Beeches Road	Frankley	700	No
Land bounded by Dudley Road to the North, Railway Line to South	Ladywood	700	No
City Hospital Site Dudley Road	Winson Green	550	No
Land at Holford Drive	Perry Barr	458	No
Icknield Port Loop (IPL) Site	Ladywood	393	No
Land at Hagley Road	Ladywood	392	No

The majority of the larger SHLAA sites detailed in **Table 4-1**, particularly those located in Digbeth, Ladywood, and the site in Frankley, are located close to existing or planned future enhanced public transport provision, providing an opportunity to encourage and promote the use of public transport at housing built at these locations. Limiting the provision of parking spaces at residential developments located close to existing or planned future rail and metro lines should help encourage the use of public transport by residents of these developments. There are opportunities to densify development along these public transport corridors as well as locate high quality, affordable family housing along them to further encourage transport mode usage by Birmingham's residents.

In addition, many of the SHLAA sites are located close to arterial routes, which provide access to and from the city centre providing an opportunity to establish public transport and active travel corridors along these routes.

As outlined in **Section 2**, encouraging the use of public transport and active modes of transport, through the provision of infrastructure and the creation of strong connections between housing and services, fits with what the Government, both nationally and locally, are trying to achieve.

4.3 PRISM Uncertainty Log

The West Midlands PRISM multi-modal model's uncertainty log contains information about future developments forecast to materialise in the WMCA area. Developments which have secured planning consent and which fall within the DfT's 'near certain' and 'more than likely' categories are shown in **Figure 4-5**, with key observations detailed below:

- Large number of residential developments predicted within Birmingham, with large concentration around the city centre.
- Large residential development on the outskirts of Coventry which may also influence travel patterns to/ from Birmingham.

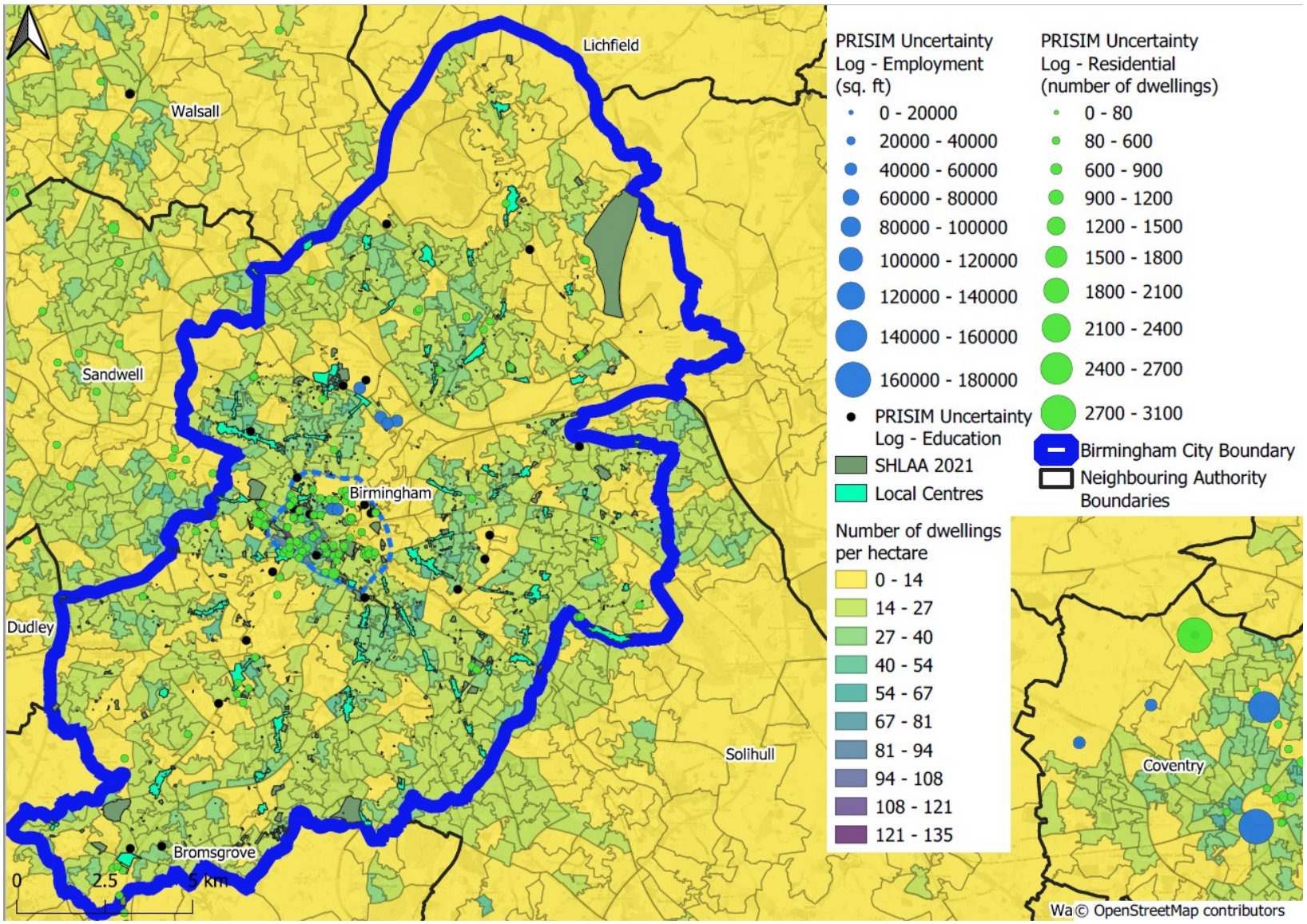

Figure 4-5: 'Near Certain' and 'More than Likely' developments from PRISM Uncertainty Log

4.4 Summary

This section has presented a range of data which provides an understanding as to where future housing development is likely to occur in and around Birmingham, highlighting areas where there are particularly large potential residential sites and where there are clusters of sites. Population density, planning, and future transport scheme data has also been analysed to identify accessibility and transport-related opportunities and constraints regarding the locations of the potential locations of future housing development. Opportunities regarding the location, density, and types of housing development that could be provided to encourage the utilisation of planned future public transport and development of active and public transport corridors along arterial routes for relevant sites have been identified.

5 Sustainable Economy

5.1 Introduction

This section presents a range of data which provides an understanding of where economic activity does and will occur in Birmingham and how accessible this economic activity is.

5.2 Economic Activity

Figure 5-1 displays a range of data which indicates where current economic activity occurs, and future economic activity is likely to occur, in Birmingham.

As well as Local Centres, Core Employment Areas, Economic Zones and Enterprise Zone Sites (defined in **Section 3.3**), **Figure 5-1** also shows the 'centres for transformation' identified in BCC's Urban Centres Framework strategy (January 2020), as the initial centres to direct investment decisions and target actions to create sustainable, inclusive and connected places. **Figure 5-1** also shows sites which have been identified as being suitable for economic development in the 2020 Economic Land Availability Assessment (ELAA).

Similarly to the SHLAA, the ELAA is not a site allocations exercise and the sites shown are not guaranteed to be developed for employment use. The ELAA will feed into the development sites allocated in the new Birmingham Local Plan, providing an indication of where economic development is likely to occur in Birmingham.

Figure 5-1 shows sites identified in the validated 2020 ELAA, with the 2022 ELAA still in draft at the time of undertaking this baseline assessment. It is recommended that the ELAA data shown in **Figure 5-1** is updated with the 2022 ELAA data when the data has been validated.

A draft version of the 2022 ELAA has been reviewed to determine whether any additional sites have been identified as being suitable for economic development, which are not included in the 2020 ELAA. The review revealed that the 2022 ELAA identified additional sites located in the following areas:

- Kings Norton;
- Hay Mills;
- Perry Barr;
- Minworth;
- Castle Bromwich;
- Hockley; and
- Stirchley.

The ELAA sites shown in **Figure 5-1** largely fall within the Core Employment Areas identified by BCC which, as outlined in **Section 3.3**, are well connected via road. There is an opportunity to establish and improve public transport and active mode connectivity on these routes, encouraging workers employed at the identified sites and currently working within the Core Employment Areas to use modes alternative to the car when travelling to and from work. From review of Capital Funding programme schemes in **Figure 5-1**, a number of these key employment sites will potentially be served by proposed schemes. Public transport schemes such as the proposed Sprint bus rapid transport and Cross City bus routes will begin to provide better access to the core employment zones and ELAA sites.

Figure 5-1 shows that the majority of the ELAA sites and Core Employment Areas are located near Local Centres providing an opportunity to establish communities where people live and work which will reduce the need for longer distance travel and help BCC and the national Government achieve their net zero aims. Areas where there is likely to be employment development but are not located close to an existing Local Centre include Bartley Green, Hamstead, Quinton, and Minworth.

The largest ELAA sites in terms of their area which are shown in **Figure 5-1** are as follows:

- Peddimore;
- Former Wheels Site Adderley Road South (Bordesley Green);
- Redevelopment site at NSG Group, Eckersall Road (Kings Norton);
- Site of West Works MG Rover Group Bristol Road South (Longbridge);
- Land between Cole Hall Lane and Lea Ford Road (Kitts Green); and
- Former IMI Works The Hub Phase 3 Witton Road (Perry Barr).

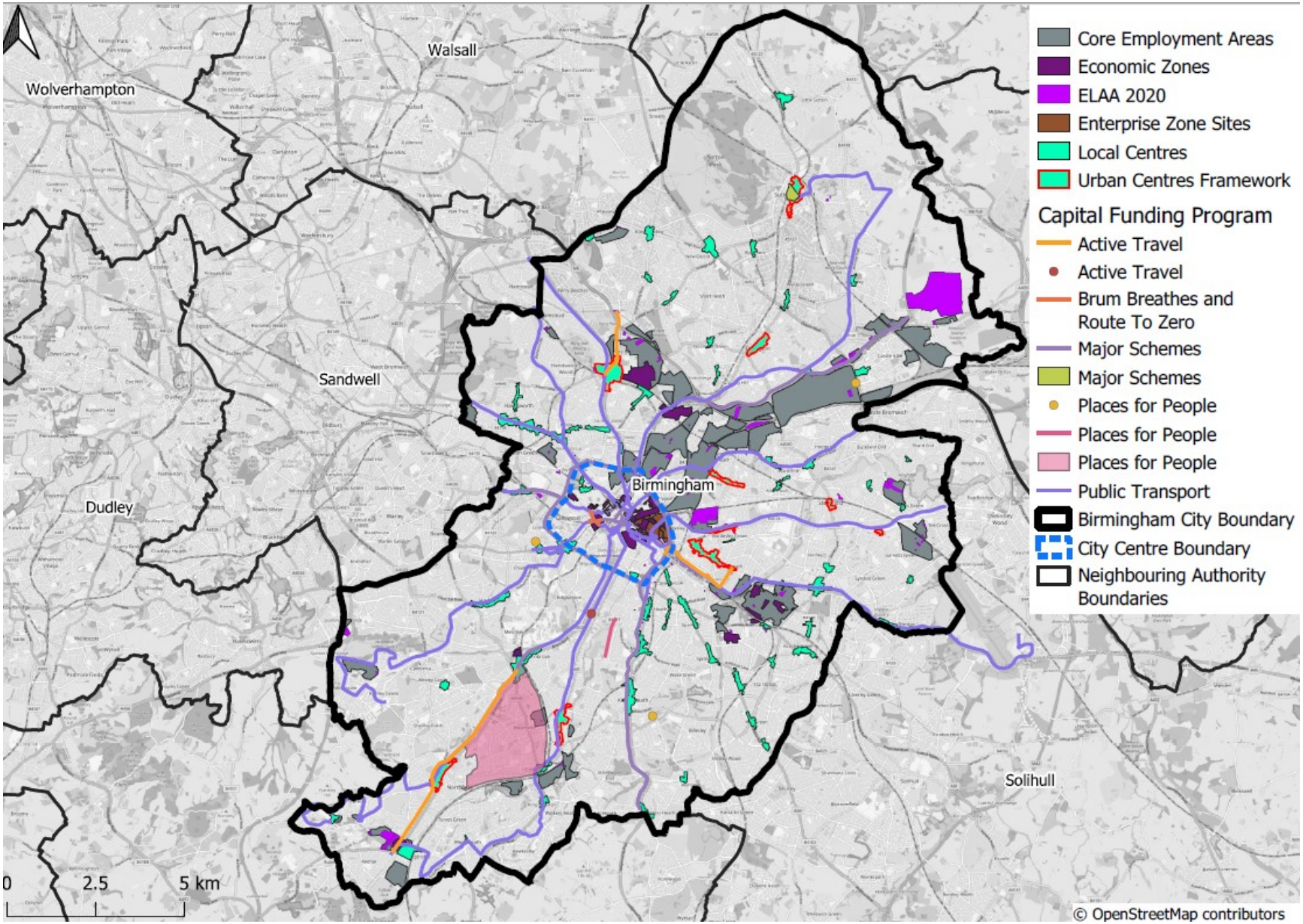

Figure 5-1: Sustainable Economy

5.3 Employment Accessibility

Figure 5-2 provides an indication of accessibility to jobs via public transport in Birmingham, derived from PRISM public transport skims for AM period, Bus, Metro and Train modes identifying Origin and Destination zone pairs with a public transport journey time of 45 minutes or less[8]. The jobs in the matching destination zones for each origin were summed, and this was classed as the number of jobs accessible in 45 minutes from the origin.

The score shown on **Figure 5-2** is this count of jobs normalised using a minmax approach, with min=0 and max=the maximum number of observed jobs accessible from across all origin zones. The darker red hexagons indicate areas where there are a higher number of jobs accessible in 45 minutes via public transport with the lighter coloured hexagons indicating areas where there are a lower number of jobs accessible in 45 minutes via public transport. For example, the lightest (white) hexagons, which show the areas classified in the 0-1 job accessibility via public transport level, indicate areas with access to a number of jobs that fall within the lowest sextile of the maximum number of jobs accessible within 45 minutes via public transport in the West Midlands area. Similar to the Triple Accessibility maps in **Section 3.8**, each hexagon shown on **Figure 5-2** covers an area of circa 0.1 km sq.

Figure 5-2 shows that areas in and surrounding Birmingham city centre have access to a higher number of jobs via public transport than those located to the periphery of Birmingham. Areas further afield from the city centre with access to a higher amount of jobs via public transport include Selly Oak, Acocks Green, Stechford, and Gravelly Hill. It is thought that these areas have access to a higher amount of jobs due to being located close to rail stations that have further reaching rail links. There is an opportunity to locate new residential development types which house residents who do not own vehicles in these areas as they are already well connected to job opportunities via public transport. The opportunity to densify development at these locations should also be explored.

Areas with access to fewer jobs via public transport include Bartley Green, Rubery, Frankley, Walmley, Minworth, Falcon Lodge, Four Oaks, and Mere Green. There is therefore a constraint to BCC achieving its aim of enabling Birmingham residents to live a sustainable lifestyle if new residential development is located in these areas without improving to public transport connectivity.

[8] Data collated as part of TfWM's LTP5

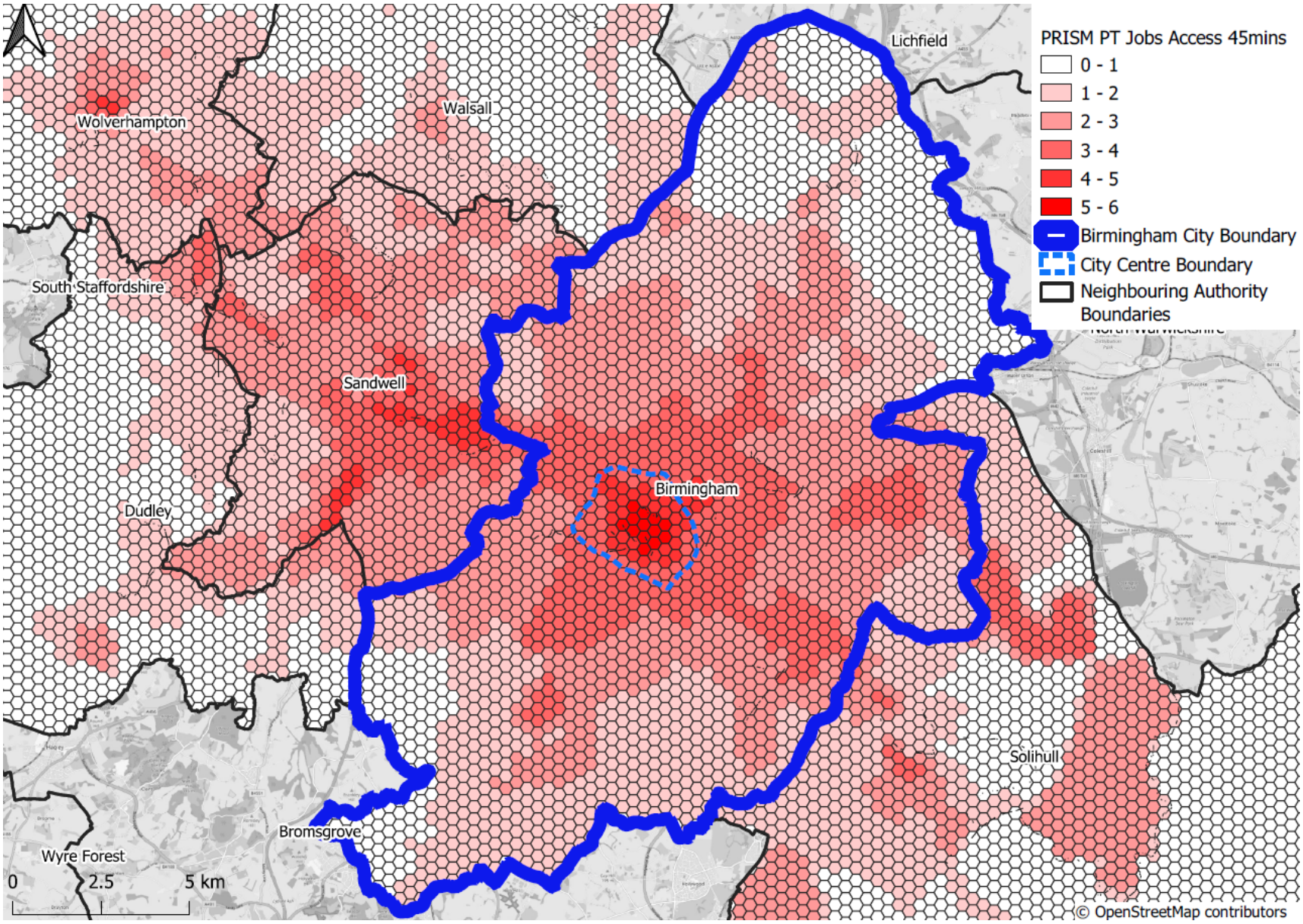

Figure 5-2: Accessibility to jobs via public transport (TfWM LTP5 data)

The maps in **Appendix H** indicate the 2019 journey times from different areas in Birmingham to the nearest employment centre with 500 to 4,999 jobs via cycling, driving, and public transport. The data is collated by the DfT with further detailed information about how the journey times are calculated provided on the Government's website.[9] Please note that the DfT's definition of "employment centres" differs from what constitutes a "Core Employment Area" as discussed earlier in this report. The Government's website provides a full definition of what an "employment centre" is[10].

The maps in **Appendix H** show that the majority of areas in Birmingham have reasonably quick access to employment centres (within 10 minutes) via cycling and driving. Areas with slightly longer journey times to employment centres via cycling include Minworth, Sutton Coldfield, Edgbaston (Chad Valley), and Frankley although, it should be noted that these journey times are still under 20 minutes.

The journey times to employment centres using public transport map in **Appendix H** largely reflects what is shown in **Figure 5-2** in terms of highlighting the areas in Birmingham with poorer accessibility to employment via public transport. The yellow LSOAs in the north-east, east and west of Birmingham reflect the fact that a large employer such as a hospital or car factory is located within these LSOAs. It should be noted that the journey times to employment centres using public transport map in **Appendix H** suggests that areas in the peripheral south of Birmingham have particularly poor access to employment via public transport.

5.4 Summary

This section has analysed a range of data to gain an understanding of where economic activity currently does and will occur in Birmingham and how accessible this economic activity is.

To identify opportunities around how people travel to site and how accessible sites are/ will be to sustainable transport modes, current areas of employment development (e.g. Core Employment Areas and the Birmingham city centre Enterprise Zone) has been analysed alongside ELAA data, Local Centres, and the future transport schemes listed in Birmingham's capital funding programme. This analysis found that the majority of employment development sites are located close to existing Local Centres, with many being located close to future transport schemes. Areas such as Bartley Green, Hamstead, and Quinton were identified as areas where there is likely to be employment development but are not located close to an existing Local Centre.

In addition, some employment accessibility data has been analysed to identify areas in and around Birmingham which have better and worse accessibility to jobs via public transport. This highlighted that areas north of Birmingham and in the south-west periphery of the city had access to the least amount of jobs via public transport. Conversely, areas in and around the city centre, as well as areas located further afield such as Selly Oak, Acocks Green and Lea Hall, have access to a greater amount of jobs via public transport.

[9] https://www.gov.uk/government/publications/journey-time-statistics-guidance/journey-time-statistics-notes-and-definitions-2019

[10] https://www.gov.uk/government/publications/journey-time-statistics-guidance/journey-time-statistics-notes-and-definitions-2019

6 Active & Healthy Communities

6.1 Introduction

Figure 6-1 to **Figure 6-5** all display data which indicate where active and healthy communities may or may not exist in Birmingham. The provision of active and healthy communities is fundamental to NPPF's "Social Pillar" of sustainable development as it states that development should create a well-designed and safe built environment, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being.

6.2 Road Safety

Figure 6-1 shows personal injury collisions recorded in the Birmingham area between 2017 and 2019 (inclusive), where casualties were either killed or seriously injured (KSI), along with key employment indicators (defined in detail in **Section 3.3**) and residential dwelling densities. This map enables the identification of safe and unsafe areas in Birmingham in regard to road safety and the functionality of these areas.

Figure 6-2 shows KSI personal injury collisions involving cyclists in the Birmingham area between March 2018 and March 2022 (inclusive) along with the key employment indicators (defined in detail in **Section 3.3**) and residential dwelling densities. This map enables the identification of areas in Birmingham where cyclists are at risk of being involved in personal injury collisions indicating an areas' safety in regard to road safety and the functionality of these areas.

The KSI personal injury collisions dataset is consistent with what was used in the West Midlands LTP5 whereas the latest five-year KSI personal injury collisions involving cyclists dataset was downloaded from TfWM's Data Insight service for the latest five year period which explains the difference in date ranges for the two datasets.

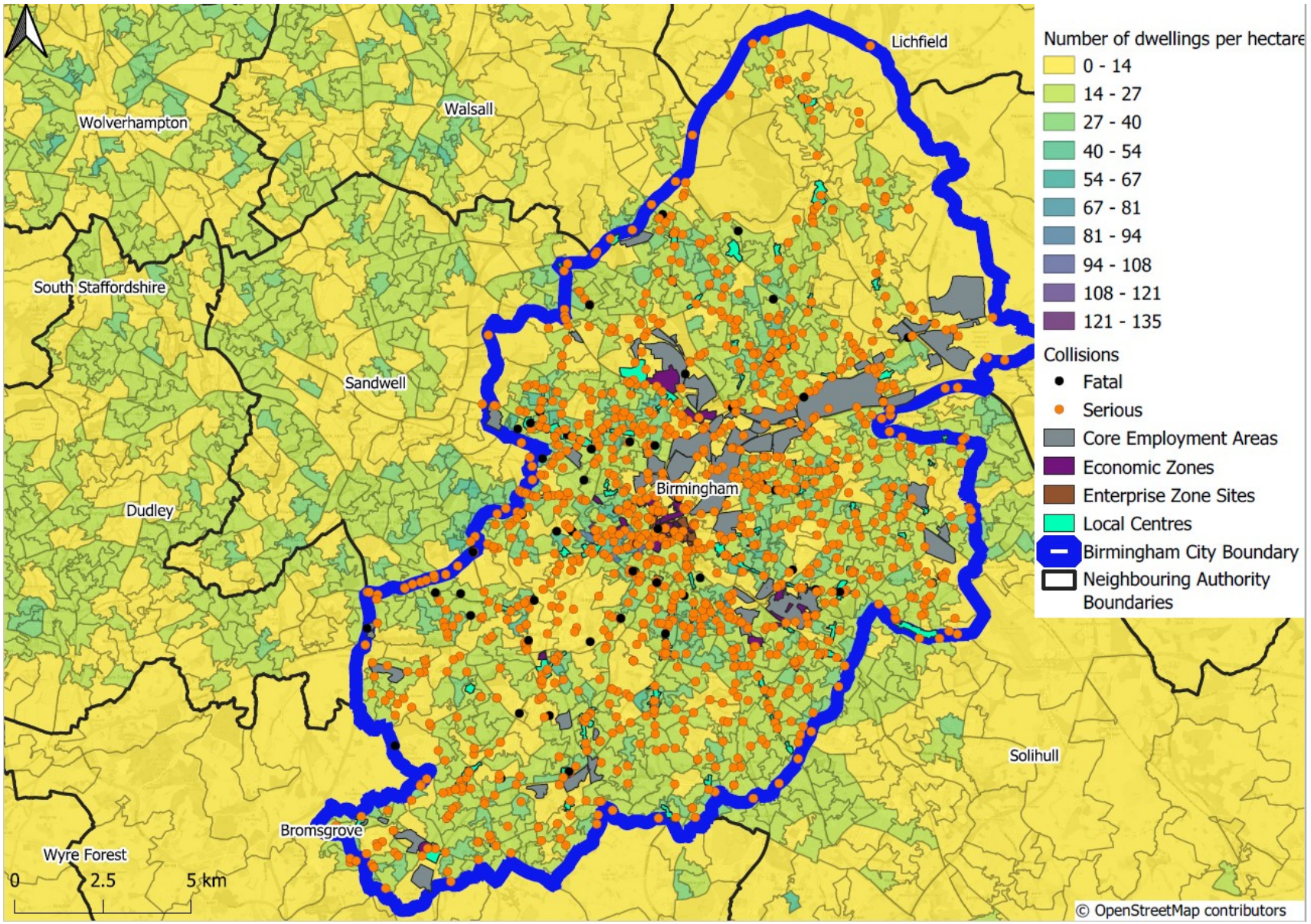

Figure 6-1: Birmingham Active and Healthy Communities – Road Safety 2017 to 2019 (inclusive) (TfWM LTP5 data)

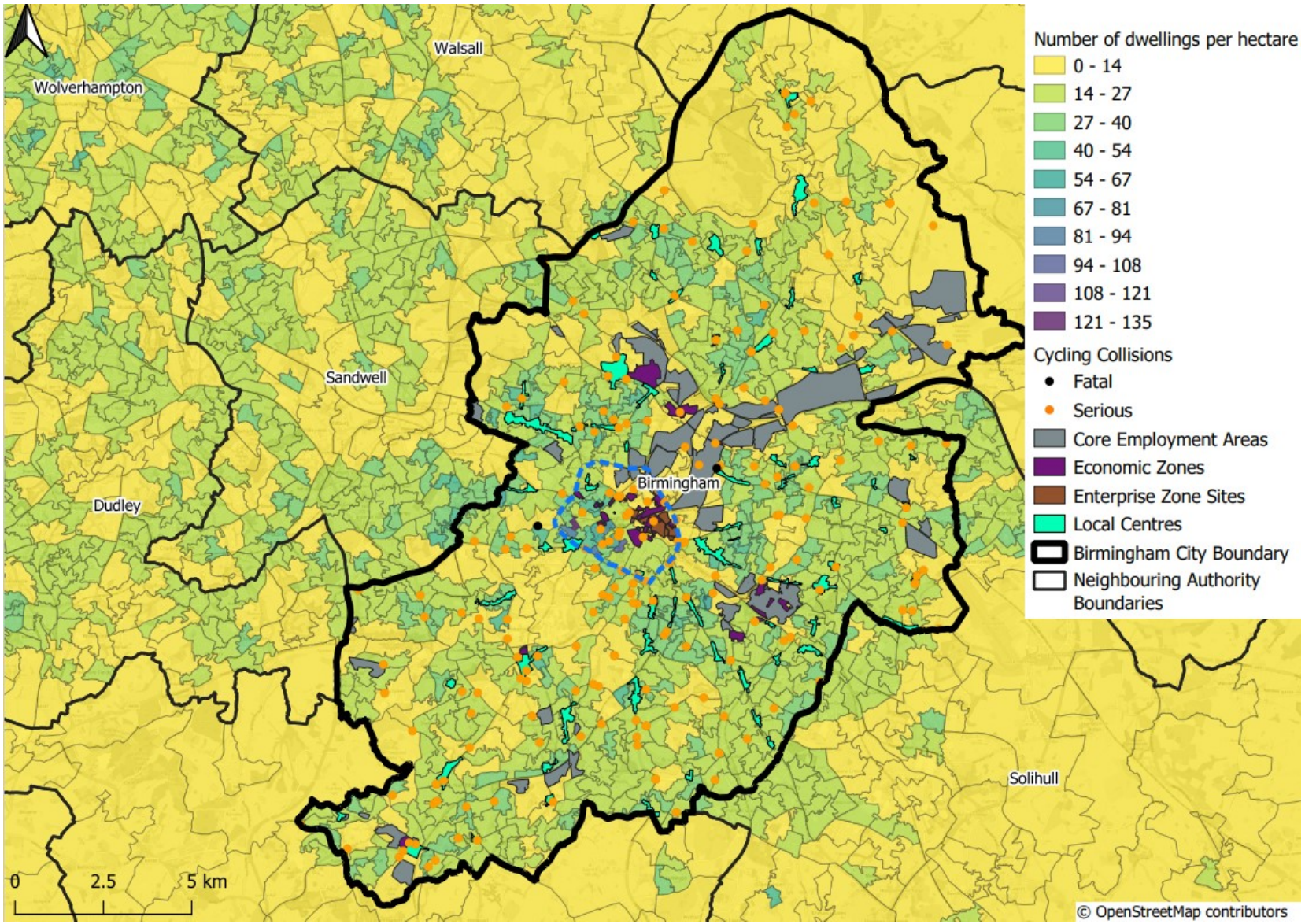

Figure 6-2: Birmingham Active and Healthy Communities – Cycle Safety March 2018 to March 2022 (inclusive) (collision data downloaded from TfWM's Road Traffic Collision data download service)

Figure 6-1 and **Figure 6-2** show that many KSI collisions occur on the arterial routes to and from the city centre, with particular concentrations of collisions occurring on:

- A34 Stratford Road through Sparkhill;
- A5127 Sutton New Road through Gravelly Hill and Erdington;
- A41 Soho Road;
- A457 Dudley Road;
- A38 Tyburn Road;
- A38 Bristol Road through Selly Oak and Northfield; and
- A435 Alcester Road through Balsall Heath and Moseley.

Figure 6-1 and **Figure 6-2** show that concentrations of KSI collisions occur at or near the following Local Centres:

- Sparkhill;
- Alum Rock Road;
- Ward End;
- Soho Road;
- Sutton Coldfield;
- Northfield;
- Selly Oak; and
- Dudley Road.

Figure 6-2 shows that clusters of KSI road traffic collisions involving cyclists were recorded at or near the Selly Oak, Lozells and Longbridge Local Centres.

Poor road safety at the locations identified can act as a constraint to establishing Local Centres which are accessible via active mode transport, as people may be deterred from using active modes due to fears of safety.

Other areas of notable clusters of KSI collisions include:

- Belgrave Interchange;
- A5127 Birmingham Road on approach to Sutton Coldfield; and
- A452 Chester Road (east of Erdington).

6.3 Amenities

Figure 6-3 shows the General Practitioners (GP) surgeries, leisure centres, recreation grounds and schools located in Birmingham, overlayed onto the residential dwelling density along with the Local Centres highlighting the spatial differences in communities' accessibility to these vital services.

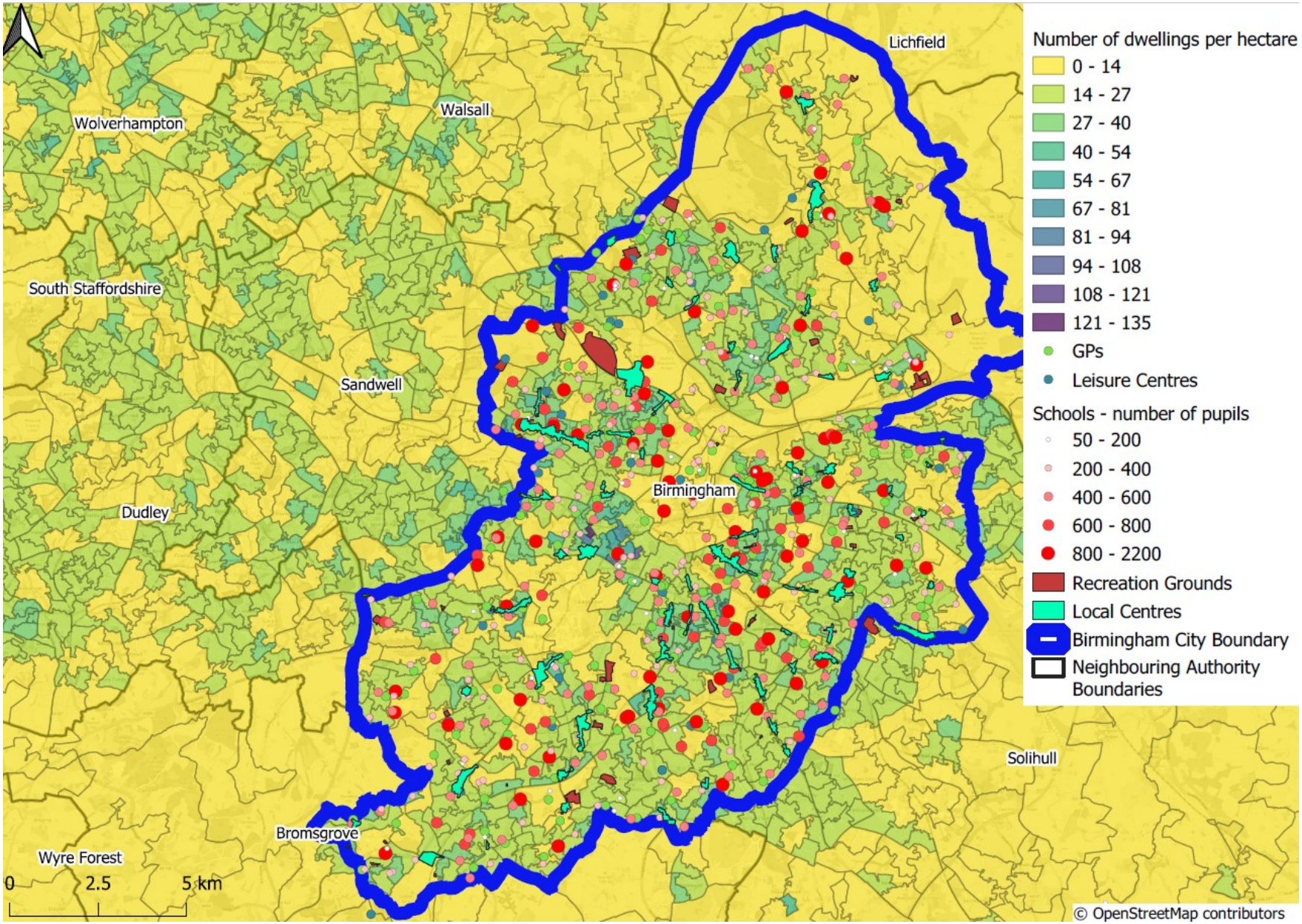

Figure 6-3: Birmingham Active and Healthy Communities – Amenities

Figure 6-3 shows that there are range of amenities in the densely populated areas, located close to the majority of Birmingham's Local Centres. Densely populated areas which have the fewest amenities within reasonable walking and cycling distance include:

- Chester Road (west of the station);
- Quinton; and
- Brandwood.

Although not as densely populated as the areas listed above, Walmley and Tyburn also appear to have a low level of amenities located within reasonable walking and cycling distance. Not providing amenities in proximity to where people live will act as a constraint to BCC establishing Healthy Living Zones, as well as not being in line with NPPF's stipulation that new development must be sustainable.

The maps in **Appendix I** show 2019 journey times to schools (primary and secondary) using different modes of travel for each LSOA within Birmingham. The data is collated by the DfT with further detailed information about how the journey times are calculated provided on the Government's website.[11]

The maps in **Appendix I** show that primary schools can be accessed within a 20 minutes' walk from everywhere in Birmingham with areas located just to the north-east of Birmingham city centre (Newtown, Aston, Duddeston, and Nechells) having access to primary schools in less than a five minutes' walk.

Areas that can access primary schools within a 10-20 minutes' walk (i.e. the longest walk time to a primary school in Birmingham) include:

- Edgbaston;
- Weoley Castle;
- Areas of Longbridge / Frankley;
- Perry Barr;
- Mere Green;
- Walmley;
- Falcon Lodge;
- New Oscott;
- Areas of Kitts Green / Garretts Green / Lyndon Green;
- Yardley Wood;
- Warstock; and
- North Northfield.

In terms of access to secondary schools, the maps in **Appendix I** indicate that people living in the following peripheral areas of Birmingham have the longest journey times to secondary schools by walking, cycling, and public transport use:

- Little Sutton;
- Boldmere;
- Shard End;
- Yardley Wood; and
- Hampstead.

[11] https://www.gov.uk/government/publications/journey-time-statistics-guidance/journey-time-statistics-notes-and-definitions-2019

Locating new housing development in the areas listed above could act as a constraint to BCC achieving its aims of enabling Birmingham residents to live a sustainable lifestyle which in turn would hinder BCC with meeting its climate targets.

Areas with the shortest journey times to secondary schools by walking, cycling, and public transport use include:

- Birmingham city centre;
- Duddeston;
- Bordesley;
- Alum Rock;
- Garretts Green;
- Small Heath;
- Kings Heath;
- Balsall Heath; and
- Sparkbrook.

There is an opportunity to locate new high-quality and affordable family housing development in the areas listed above to capitalise on the existing short journey times to secondary schools.

6.4 Active Travel

Figure 6-4 shows the existing and proposed active travel infrastructure in Birmingham overlayed on the residential dwelling density along with the Local Centres showing existing and future active mode connectivity in Birmingham.

Figure 6-4 shows an extensive network of existing and proposed cycle routes across Birmingham, with many routes through the city centre and surrounding areas. However, there is a lack of existing or proposed cycle routes in the Bordesley Green / Alum Rock area. There is an opportunity for new development in this area to contribute towards establishing new cycle routes providing access to and from the city centre area, which would strongly align with NPPF's desire for new developments to promote active travel where appropriate.

Other areas which **Figure 6-4** indicates have a lack of cycle route infrastructure include:

- Lyndon Green;
- Hall Green;
- West Heath;
- Kings Heath (South);
- Bartley Green;
- Quinton;
- Kingstanding; and
- Mere Green.

As the locations above are much more suburban in nature, located further from the city centre than the Bordesley Green and Alum Rock areas, there are opportunities to create cycle routes which connect to key rail stations and the existing cycle network, rather than creating routes which connect to the city centre.

Figure 6-4 shows the locations of West Midlands Cycle Hire scheme coverage across Birmingham, showing clusters of cycle hire stations in the city centre, around Selly Oak and around Sutton Coldfield. Cycle hire stations Are also dotted around the west and south of the city centre, as well as along the A34 north of the city centre. There are opportunities for new developments within these areas to promote the use of the cycle hire scheme and contribute to the associated supporting cycle infrastructure.

There are currently no cycle hire stations in the whole of the east and south-east Birmingham, much of north Birmingham and the peripheral areas of the city. This provides an opportunity for new developments to contribute to the establishment of new cycle hire stations and the associated supporting cycle infrastructure.

In May 2022 the UK Government launched the Active Travel Fund (ATF) comprising of £200 million funding for new walking and cycling schemes across England. TfWM was awarded £17 million to fund 12 schemes which promote walking and cycling within the WMCA. The schemes which are located in Birmingham are shown in **Figure 6-4** with key ones of note listed below:

- City Centre Segments;
- Lozells and Kings Heath and Moseley Local Traffic Neighbourhoods;
- School Street Measures;
- City-wide cycle parking; and
- Cycle lanes at various locations across the city.

There is an opportunity for new development to harness the existing and proposed active travel infrastructure in Birmingham.

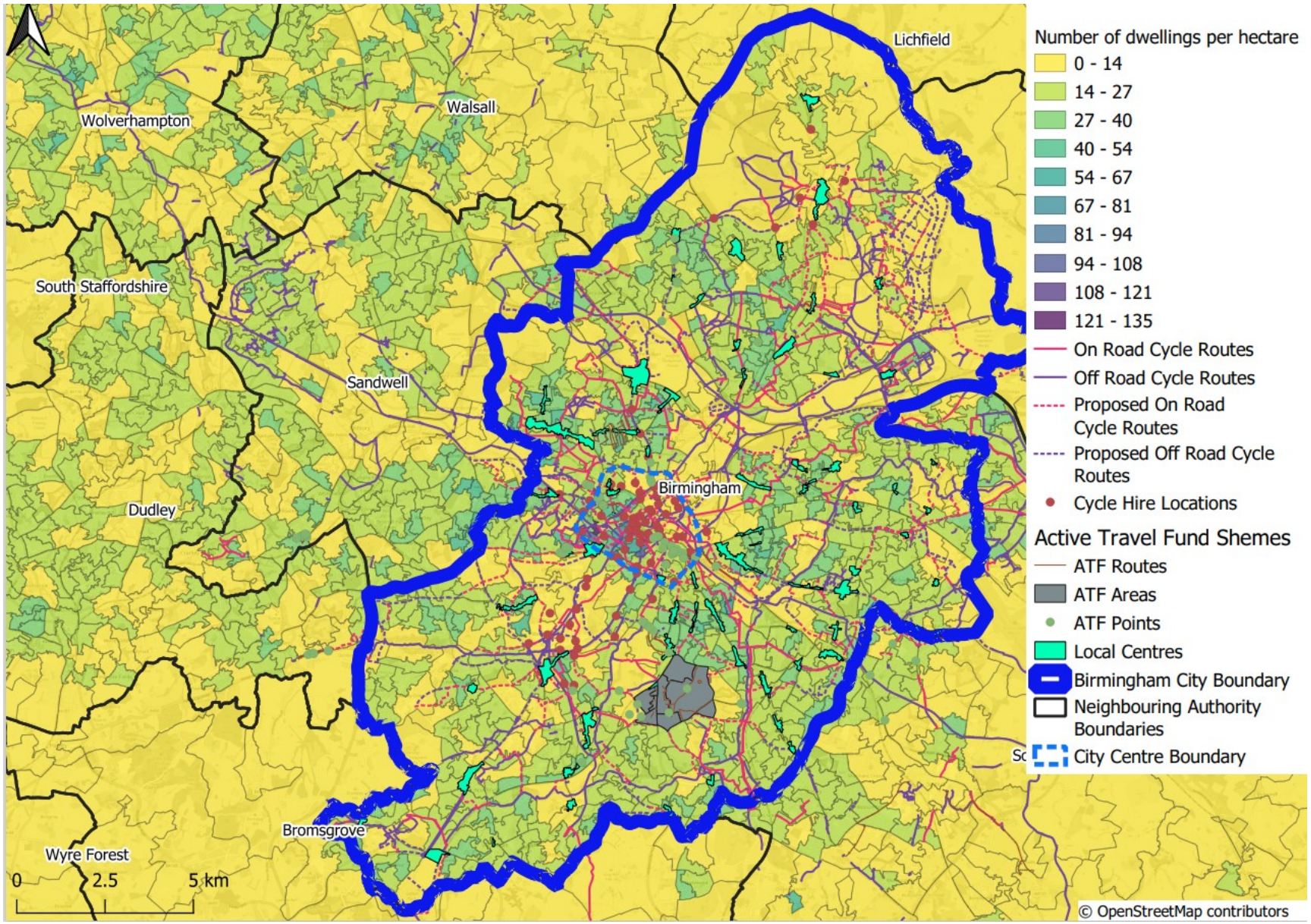

Figure 6-4: Birmingham Active and Healthy Communities – Active Travel

6.5 Green and Blue Infrastructure

Figure 6-5 shows the green spaces and blue (water) infrastructure in relation to Birmingham's Local Centres, highlighting people's accessibility to these spaces along with their potential to connect areas and be used for active mode travel. Ensuring Birmingham's residents have access to and are able to utilise green and blue infrastructure is a key aspiration of BCC, as conveyed by the Our Future City Plan, the Healthy Living Zones initiative, and the aspiration to provide a minimum of two hectares of open space per 1,000 population (as outlined in the BDP) with this aim to be updated imminently to a new figure of 2.72 hectares of open space per 1,000 population.

Figure 6-5 demonstrates that a significant amount of green space and blue infrastructure is accessible to a wide range of different areas across Birmingham, showing that some of the green space and blue infrastructure join with one another creating corridors which spread across multiple different localities. For example, green spaces are located alongside much of the River Cole, routing from Yardley Wood in the south-east of the city to the Kitts Green area in the east, passing through the Grand Union canal, which itself routes into the city centre.

Another example of green and blue infrastructure joining to create a corridor is the green infrastructure located along much of the River Rea in the south of the city, routing from Longbridge to Edgbaston. There is an opportunity to develop active mode infrastructure along these green and blue infrastructure corridors, enhancing active mode connectivity in the city and creating spaces for active mode leisure use encouraging people to exercise and become healthier.

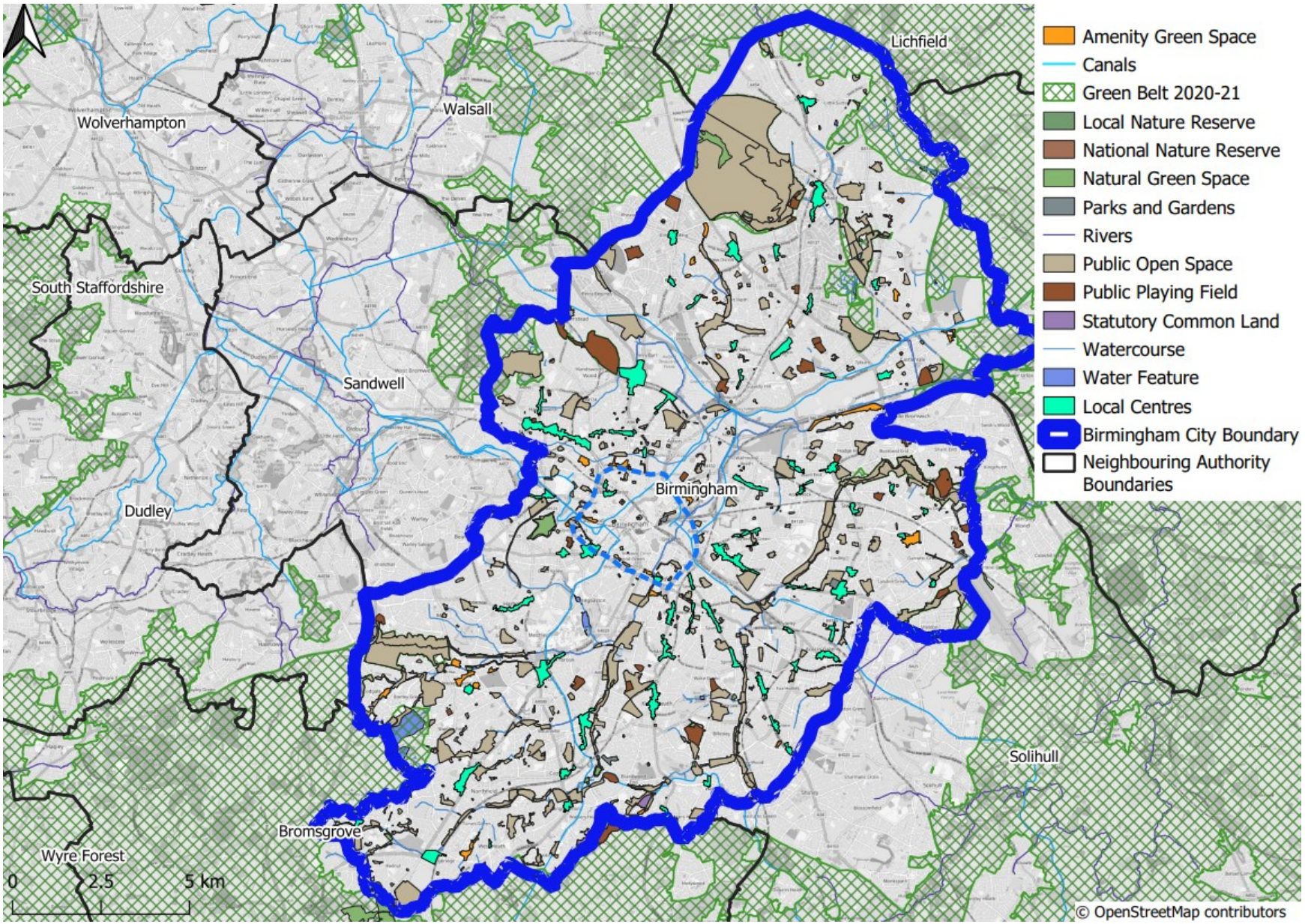

Figure 6-5: Birmingham Active and Healthy Communities – Green and Blue Infrastructure

6.6 Summary

A range of data has been analysed to provide an indication as to where active and healthy communities may/ may not exist in Birmingham and an indication as to why they may/ may not exist. Analysis of data (e.g. collision data and locations of amenities) has enabled the identification of potential constraints to establishing healthy and active communities in certain localities. The analysis of current and proposed active travel infrastructure (including green spaces and blue infrastructure) in and around the city has enabled the identification of opportunities for people to become more active and healthier.

Key findings from the data analysed in this section include:

- Poorer record of road safety at many inner-city Local Centres;
- Inner-city Local Centres are likely to have quickest access to amenities by active modes and tend to have better active mode infrastructure (excluding Alum Rock / Bordesley Green area); and
- Green and blue infrastructure join with one another creating arterial and orbital corridors that spread across multiple different localities.

7 Environment, Climate Change and Decarbonisation

7.1 Introduction

This section presents a range of data which sets out the baseline environmental conditions in Birmingham and provides an indication as to why these conditions might be. Improving Birmingham's air quality and reducing its residents' carbon emissions is a key aim of BCC in its mission to achieve net zero carbon by 2030 and to combat the wider climate change issue. Data has been analysed with this in mind.

7.2 Carbon Emissions

In 2019 Midlands Connect undertook a study which collated baseline information about carbon emissions in all of its local authority areas. The graphs shown in **Figure 7-1** below provide information about Birmingham's carbon emissions which indicate how Birmingham is fairing with regards to environment, climate change, and decarbonisation.

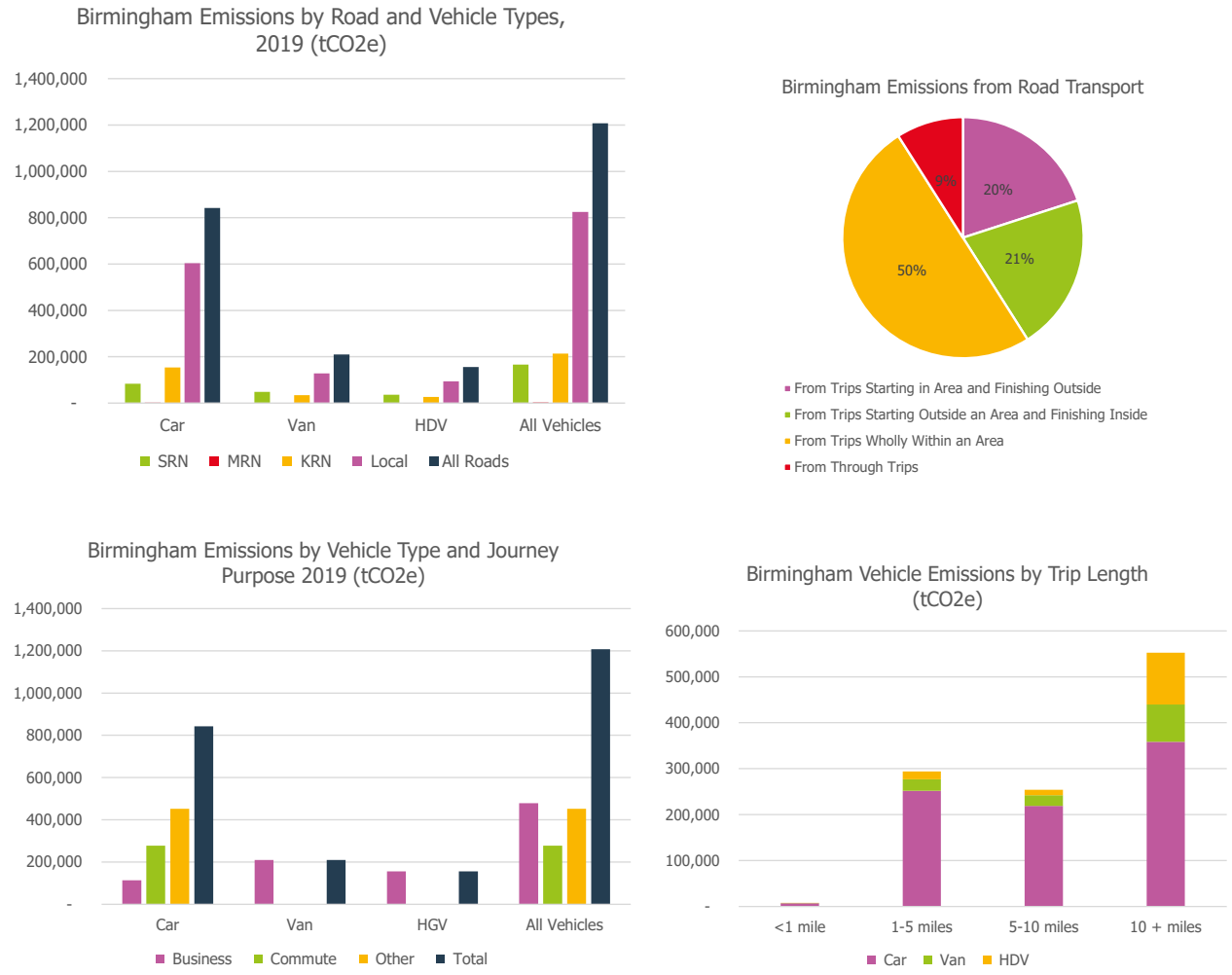

Figure 7-1: Key graphs pertaining to 2019 carbon emissions in Birmingham taken from Midlands Connect 2019 Baseline Carbon Study

Key findings from the graphs above include:

- Local, non-business related car travel was the main source of vehicular carbon emissions in Birmingham during 2019;
- Van and heavy vehicle carbon emissions accounted for much less carbon emissions than car;

- Vehicle trips with an origin and destination within Birmingham accounted for half of all vehicle carbon emissions; and
- Short distance car journeys (1-5 mile journeys) accounted for the second highest proportion of vehicular emissions.

The statistics above suggest that there is a major opportunity to promote modal shift for short-distance leisure trips made within Birmingham as these are the trips which accounted for a reasonable proportion of carbon emissions in 2019. In theory, these trips should be the easiest to target for modal shift, as they are not likely to be ingrained trip patterns. Furthermore, carbon emissions from commuting car trips have likely reduced post the Covid-19 pandemic as working from home has become more commonplace in some industries.

7.3 Noise and Air Quality

Figure 7-2 maps information which provides an indication of environmental factors across Birmingham relating to noise and air quality.

Figure 7-2 displays the average air quality index readings recorded in 2019 using diffusion tubes located at locations across the city, which enables the identification of localised areas that are likely to suffer from poor air quality. Health impacts are predicted where the average air quality index readings exceed a 40 $\mu g/m^3$ threshold, with applicable diffusion tube locations denoted by red dots on **Figure 7-2**. It is recognised that there is no safe limit to NO^2 exposure and that health effects may occur at lower levels of exposure; the UK government does not propose to reduce the 40 $\mu g/m^3$ NO_2 limit value.

In terms of noise, **Figure 7-2** shows the locations of Noise Action Planning Important Areas (NAPIAs) in and around Birmingham which highlight “hotspot” locations where the highest 1% of noise levels from road and rail sources at residential locations can be found.

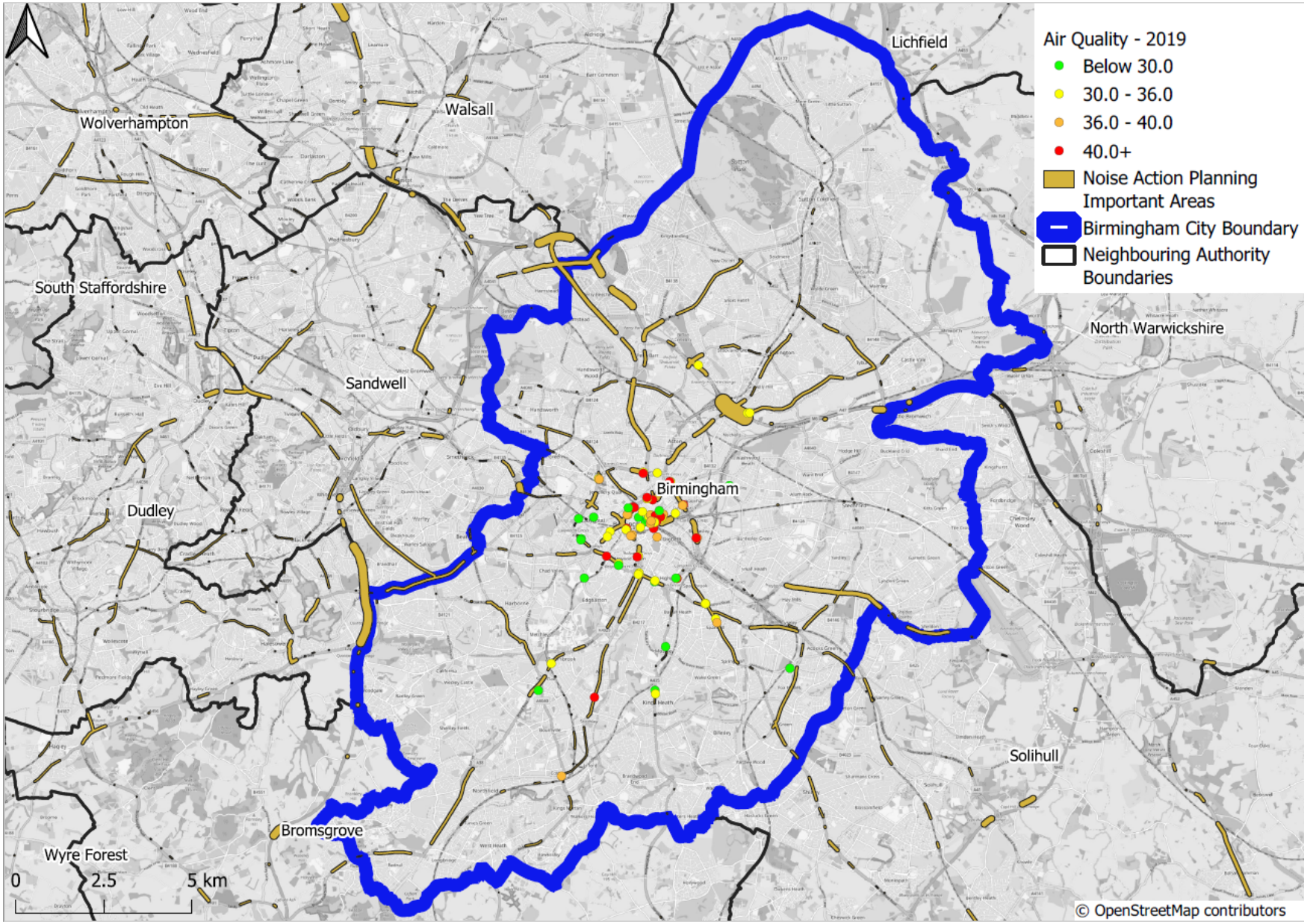

Figure 7-2: Environment, Climate Change and Decarbonisation in Birmingham

Whilst the location of diffusion tubes do not enable a comprehensive understanding of air quality across the whole of Birmingham, **Figure 7-2** shows the vast majority of areas suffering from poor air quality are located within the city centre and along the A4540 Ring Road. Other areas of poorer air quality identified include the A34 Stratford Road through Sparkhill and the A441 Pershore Road through Stirchley. Since the introduction of the Clean Air Zone (CAZ) in June 2021 (which encompasses Birmingham City Centre), the amount of CAZ compliant vehicles has begun to steadily increase. Data shows the percentage of compliant cars has risen from 85.5% to 91.6% between June 2021 and May 2022[12] and there has been improvements across all vehicle classes. It can be inferred that the increase in CAZ compliant vehicles means an improvement to air quality.

Figure 7-2 also shows that NAPIAs are located on the majority of arterial roads routing to, from and through the city centre, as well at various locations on the A4540 Ring Road. Other NAPIA locations include:

- Fox Hollies Road between Hall Green and Acocks Green;
- Harborne Park Road between Harborne and Selly Oak;
- Stockfield Road in Yardley;
- Around M6 Junction 6 / Salford Circus;
- College Road in New Oscott / Kingstanding;
- Birmingham Road and High Street in the Sutton Coldfield area;
- Small areas to the south of Four Oaks rail station; and
- Boulton Road, Winson Green.

With the environmental constraints listed above in mind, there is an opportunity to really promote active travel and use of existing public transport infrastructure at new developments located at or close to the areas listed above with the idea for new developments not to exacerbate the existing environmental issues.

7.4 Car Driver Carbon Emissions

Figure 7-3 presents an estimate of per-person carbon footprint by LSOA, taken from the Place-Based Carbon Calculator published by Centre for Research into Energy Demand Solutions[13] and based on 2018 data, showing estimates of the average carbon footprint per person from driving cars. LSOAs are graded by their carbon footprint, with A representing the best 10%, C- being above average, D+ being below average and F representing the worst 10%. Key findings from **Figure 7-3** are as follows:

- The level of emissions for those people living in and around the city centre is much lower than other areas, which may be attributable to lower car ownership and better accessibility for public transport and active modes.
- People living in the north of Birmingham, particularly around Sutton Coldfield, are estimated to have much higher emissions compared to the average. This is likely attributable to high levels of car ownership, poorer public transport provision, and potentially its geography, bounded by areas of more rural characteristic. The characteristics of Sutton Coldfield and the surrounding areas may constrain BCC in achieving its environmental policy objectives (e.g. becoming net zero by 2030), as their characteristics are not conducive to establishing and promoting sustainable ways to travel. There is therefore an opportunity for new development in Sutton Coldfield and the surrounding areas to establish new services which are accessible residents living in the area to reduce their need to travel by car.
- Residents living in a number of suburban areas, bounded by arterial routes, also are estimated to have higher than average emissions, including Harborne, Kings Norton, Hall Green, Kings Heath, Perry Beeches, Hamstead, Lyndon Green, and Moseley. There is an opportunity for new development in these areas to contribute towards the establishing new and improved active mode infrastructure, integrated with existing/ future planned public transport infrastructure connecting to the city centre, encouraging modal shift and the reduction of residents' carbon footprint.

[12] Brum Breathes https://www.brumbreathes.co.uk/CAZdata
[13] A place-based carbon calculator for England. Morgan, Malcolm, Anable, Jillian, & Lucas, Karen. (2021). Presented at the 29th Annual GIS Research UK Conference (GISRUK), Cardiff, Wales, UK

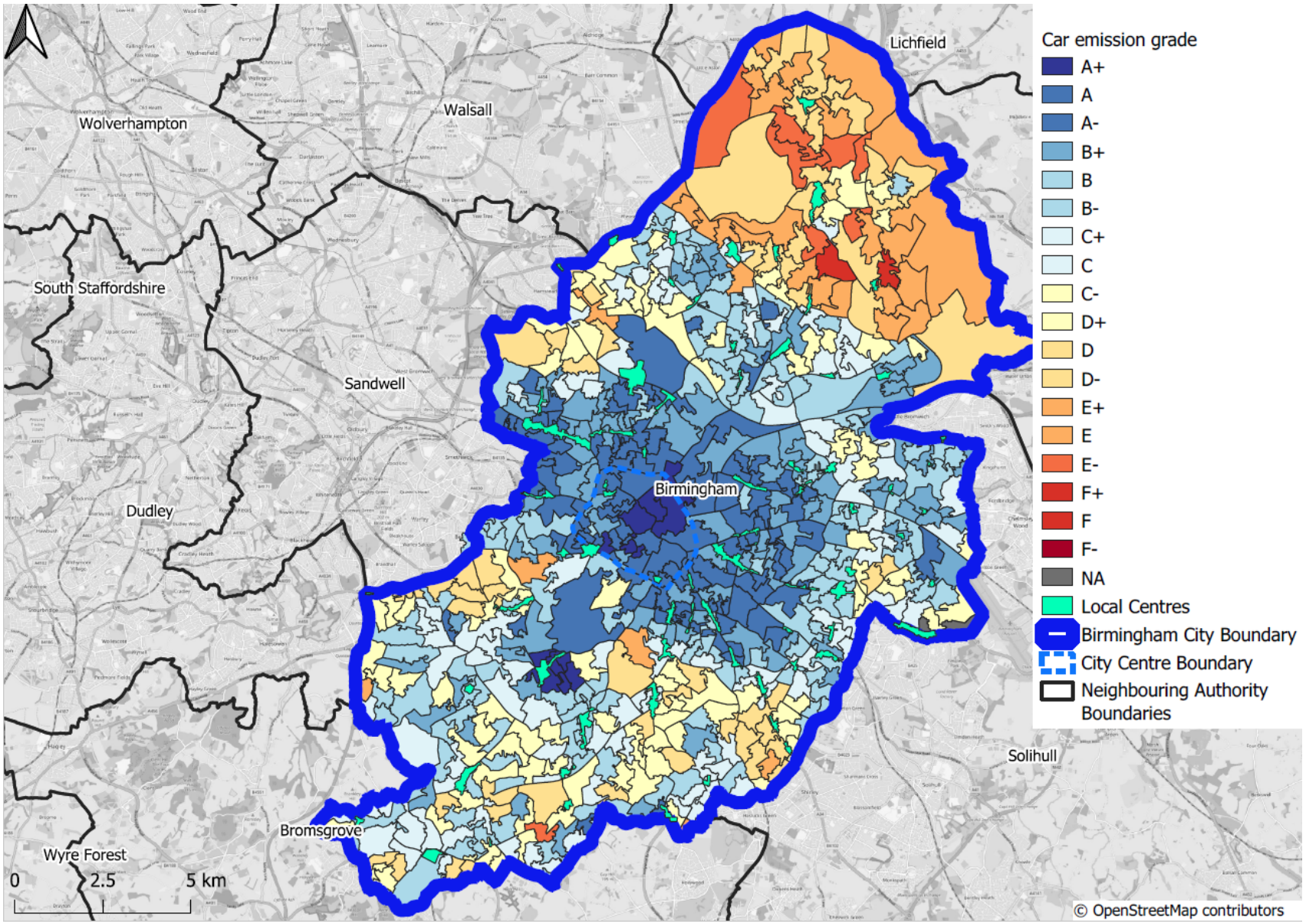

Figure 7-3: Levels of car emissions per LSOA (2018) (Place-Based Carbon Calculator data)

7.5 Summary

A range of data has been analysed to determine baseline environmental conditions, providing an indication as to how well Birmingham is responding to the wider issues of climate change and decarbonisation. Baseline transport-related carbon emissions for the whole city have been presented with analysis identifying that short distance car journeys (1-5 mile journeys) account for a substantial proportion of vehicular emissions. It should be noted that longer distance car journeys (journeys of 10+ miles) account for the highest proportion of carbon emissions.

More locational specific data relating to air quality, noise emissions, and car driver carbon emissions have also been analysed to identify specific localities' environmental conditions and how they are contributing to BCC's environmental objectives. Key findings from this analysis include:

- Areas on and around the A4540 Middleway and arterial routes in and out of the City Centre have the poorest air and noise quality; and
- Peripheral areas in the north of Birmingham (Sutton Coldfield) and some areas in the peripheral north-west, west, and south-east of the city are estimated to be home to the highest carbon emitters via car driving.

The environmental data presented has been analysed alongside current and future transport infrastructure data, as well as the future housing and employment development data to identify opportunities and constraints for Birmingham to use future development to achieve its environmental targets. This analysis is presented in the associated "Birmingham Local Plan – Baseline Transport Assessment Opportunities and Constraints" report.

8 Transport Connectivity

8.1 Introduction

Understanding current and future connectivity in Birmingham is key to achieving NPPF's aim in ensuring that "opportunities to promote walking, cycling and public transport use are pursued". Focussing on more sustainable modes of transport (i.e. public transport and active modes), this section presents a range of information which indicate the current and future transport connectivity of different localities throughout Birmingham.

8.2 Active Travel

Figure 8-1 shows current and proposed cycle routes in and around Birmingham, along with the locations of blue infrastructure, e.g. rivers and canals, that can often be utilised for active travel modes.

The access to and coverage of existing and proposed cycle infrastructure in Birmingham has been summarised in detail in **Section 6.4**. **Figure 8-1** shows that the cycle routes in Birmingham are generally well connected to blue infrastructure but there are opportunities to improve and establish some new connections particularly in the north-west and south-west peripheral areas of the city.

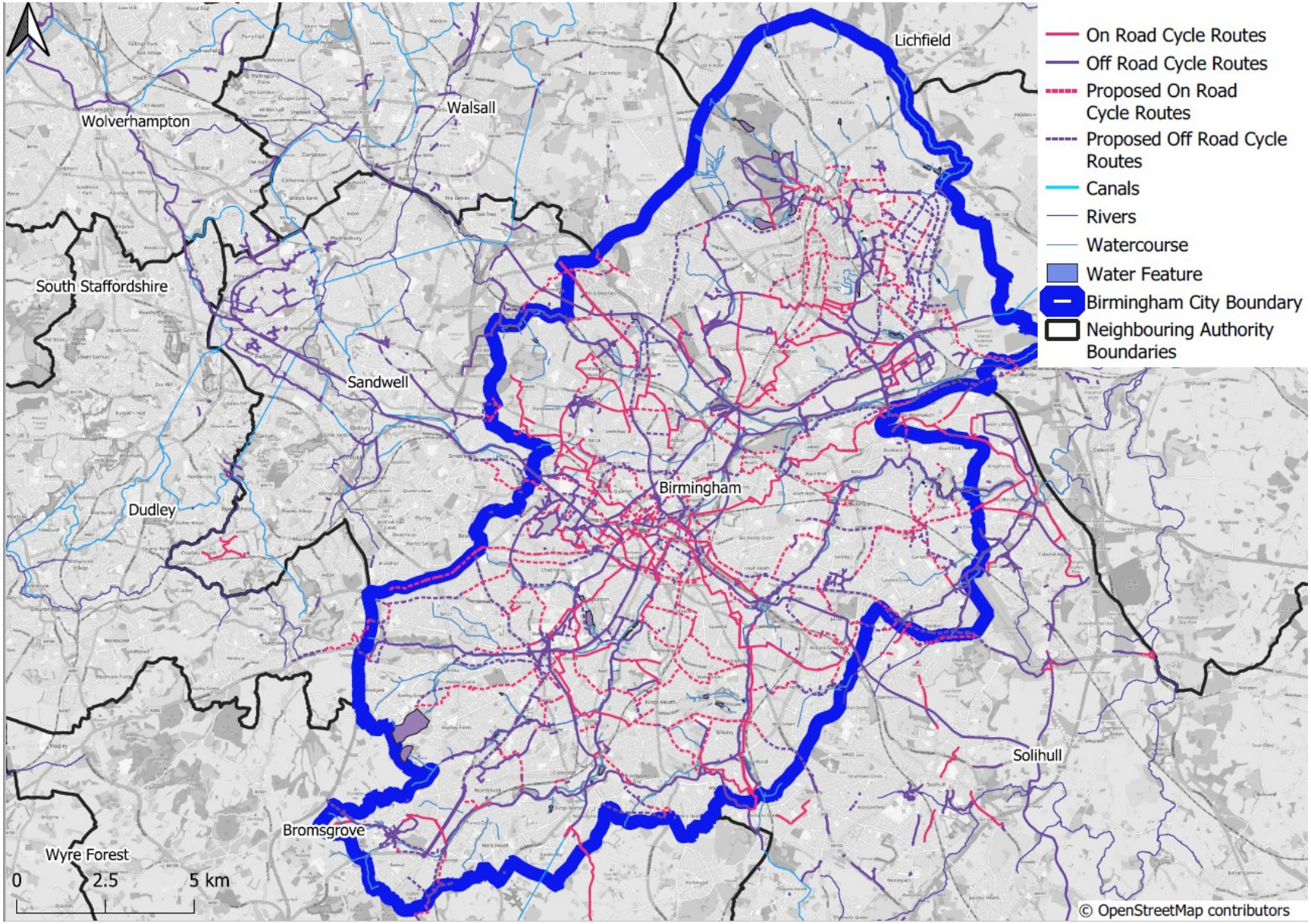

Figure 8-1: Transport Connectivity Birmingham - Active Travel

8.3 Public Transport

Figure 8-2 shows where existing rail and metro infrastructure is located. Also shown are areas where future public transport infrastructure will be implemented, including new bus, rapid transit (Sprint) and rail routes (HS2) and the Metro Eastside and Solihull Extension Corridor.

Figure 8-2 shows that although there are existing rail and metro lines routing north, east, south, and west of the city, there are a lack of rail and metro infrastructure in the following areas:

- North-West of Birmingham (Kingstanding area);
- North-East of Birmingham (Castle Vale, Walmley, Shard End areas);
- South of Birmingham (Moseley and Kings Heath areas); and
- South-West of Birmingham (Weoley Castle, Bartley Green, Quinton areas).

TfWM have confirmed that the Camp Hill railway line will be reopened to passenger trains with three new railway stations (Moseley Village, Kings Heath, and Pineapple Road) scheduled to open on the line in late 2023. This provides an opportunity for any new development in the south of Birmingham to contribute to establishing strong connections with these new stations.

In addition, TfWM also have plans to reopen the following old railway stations in the north-east of Birmingham on the existing railway line routing from Birmingham Moor Street through Sutton Coldfield to Walsall for passenger services:

- The Fort;
- Castle Bromwich;
- Minworth;
- Sutton Coldfield town;
- Walmley; and
- Streetly.

There are also plans to open passenger railway stations in Balsall Heath and on Dudley Road.

Although plans for these stations are at a very early stage of development, there is an opportunity to locate development close to the prospective locations of these stations establishing transit-oriented development. Opportunities to densify housing development close to these locations should also be explored.

The Metro Eastside and Solihull Extension Corridor shown in **Figure 8-2** indicates the alignment of the proposed EBS Eastside Metro extension. TfWM undertook a study in 2021 to identify short to medium-term options for transport enhancements along the corridor in light of the fact that the EBS Eastside Metro extension is a longer term aspiration. There is an opportunity for any future development within the corridor extents to be developed in a way so that they are integrated with any short to medium-term options proposed, as well the longer-term metro aspiration.

Figure 8-2 shows that the proposed cross-city bus routes cover much of the city excluding areas in the north-west, far north, and south-east of the city. The cross-city bus project aims to deliver fast, reliable, and stable bus journeys by establishing routes which connect different sides of the city and providing new bus priority infrastructure along these routes. Initially looking at three 'spines' which route through the city centre, the cross-city bus project is set to deliver 6 packages of cross-city bus routes with each package including one or more arterial routes.

Figure 8-2 also shows the Sprint bus routes which are planned to be implemented in Birmingham with routes proposed along key corridors to the north-west, north-east, south-east, south-west, and west of the city centre providing links to neighbouring areas including Halesowen, Walsall and Solihull. Sprint is a bus priority concept within the West Midlands that consists of extending bus lanes and introducing priority signalling along chosen corridors which will mean quicker journey times and greater reliability for all buses – without vehicles going

faster. Enhanced bus shelters designed specifically to improve both the comfort and safety of bus users will also be introduced along the Sprint corridors which will grant easy access to the vehicles, reducing bus stopping times and allowing for more reliable onward travel.

There is an opportunity to locate new development close to the new Sprint and cross-city bus routes and to ensure good connectivity to the bus stops along the routes. Densification opportunities should also be explored to capitalise on the new public transport infrastructure provision. There is also an opportunity for new developments located in those areas which are not covered by any of the proposed Sprint or cross-city bus routes to contribute to localised bus prioritisation infrastructure as these areas are not set to receive any bus improvement infrastructure at the time of writing.

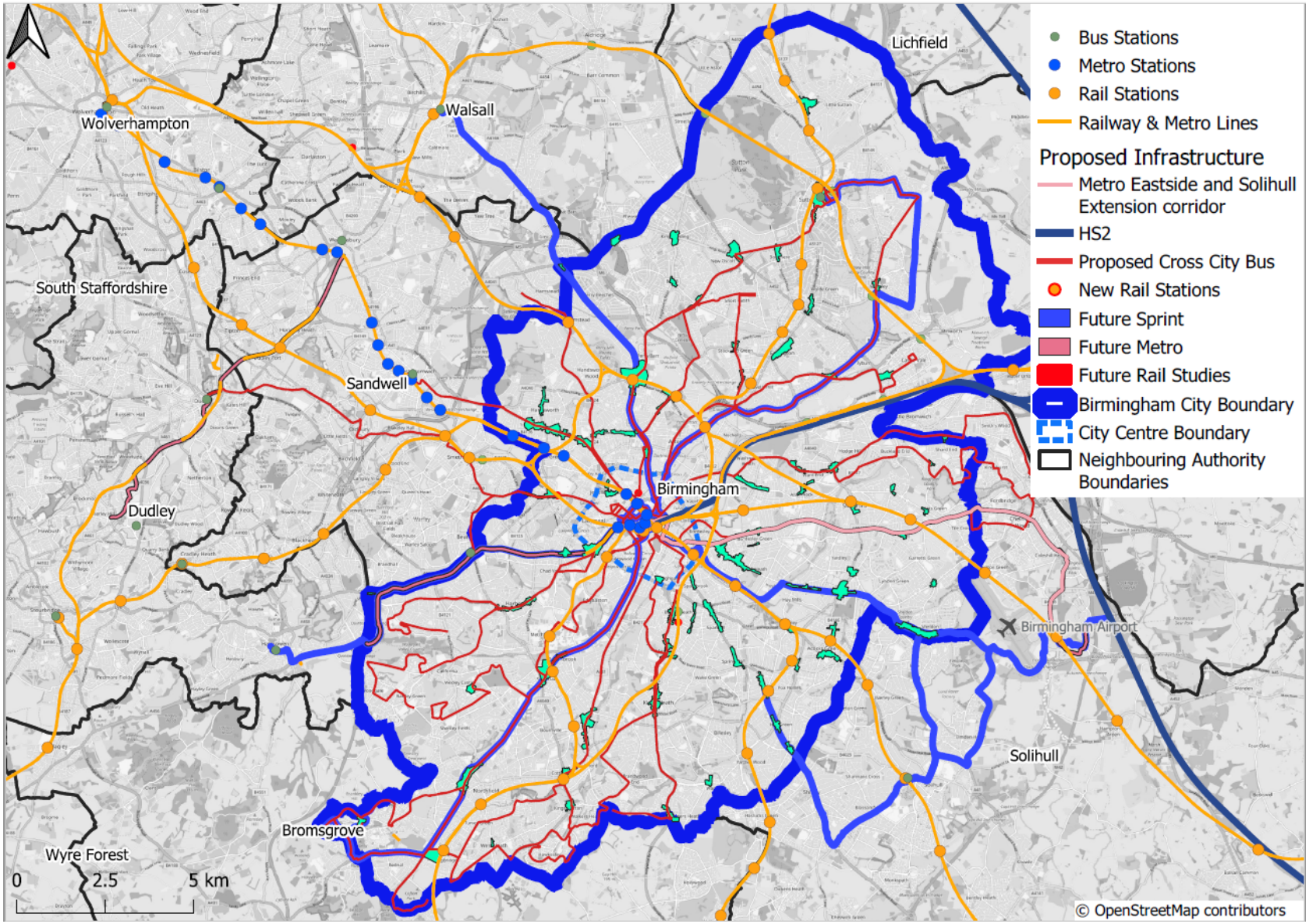

Figure 8-2: Transport Connectivity Birmingham - Public Transport

8.4 Bus Accessibility

Extracted from the Consumer Data Research Centre's (CDRC's) website, **Figure 8-3** indicates bus accessibility estimated to selected Places of Intertest (retail centres, supermarkets, clinics, GPs, hospitals, railway stations) on the bus timetables and the Integrated Transport Network (ITN) road network at Output Area (OA) level 2010-2016. These datasets are based around the boarding and travel associated to smartcards in the WMCA area and are linked to the English National Concessionary Travel Scheme (ENCTS). This data demonstrates:

- A good level of accessibility to the city centre and immediately outlying urban areas, in particular along arterial routes.
- Beyond arterial routes, some residential areas further out from the city centre show poorer level of bus accessibility, e.g. Bartley Green, Brandwood End, Shard End, Castle Vale and Kingstanding.
- Most core employment areas are accessible within a 20 to 45 minutes bus journey however, some have greater accessibility times, including:
    - Woodgate Business Park;
    - Castle Vale Enterprise Park;
    - Quinton Business Park; and
    - Kingsbury Business Park.

The information shown in **Figure 8-3** however does not portray the constraint of the perception of safety on public transport and the barrier that it presents to modal shift.

There is also the constraint of public transport not supporting the evening economy of the city due to the limited hours of operation.

Taken from the Place-Based Carbon Calculator published by Centre for Research into Energy Demand Solutions[14], **Figure 8-4** presents bus stop information from the National Public Transport Access Nodes (NaPTAN) dataset together with frequency of service using each bus stop based on 2020 pre-pandemic timetables. The bus stops displayed are coloured to indicate the frequency of services stopping at the stop using the A+ (most) to F- (least) frequent grades. This provides an understanding of how useful a bus stop is.

Key observations from **Figure 8-4** include:

- Bus stop grading is particularly good on the main arterial routes in and out of Birmingham. However, routes running perpendicular or between arterial routes tend to have a lower grade, particularly noticeable on east-west routes in northern Birmingham (between Great Barr and Sutton Coldfield), north-south routes in east Birmingham (between Shard End and Tyseley) and various locations between arterial routes in south-west Birmingham (Harborne, Bartley Green and Northfield).
- There are some local centres which have a higher proportion of below average bus stops in their vicinity. These include:
    - Local centres in Tyseley;
    - Hay Mills;
    - Wylde Green;
    - Highfield Road;
    - Ivy Bush;
    - Glebe Farm; and
    - Bordesley Green.

Figure 8-5 presents details of Universal Credit Claimant (UCC) and Job-Seekers Allowance (JSA) as a percentage of the total working age population in each LSOA within Birmingham, taken from the 2011 Census.

[14] A place-based carbon calculator for England. Morgan, Malcolm, Anable, Jillian, & Lucas, Karen. (2021). Presented at the 29th Annual GIS Research UK Conference (GISRUK), Cardiff, Wales, UK

Key observations from **Figure 8-5** include:

- East of Birmingham city centre has high proportions of UCC and JSA claimants, corresponding with areas of lower public transport accessibility. However, proposed transport schemes will benefit this area of Birmingham, including Sprint and Metro.
- Cross-city bus will help to benefit the following areas which have a relatively high proportion of UCC and JSA claimants:
    - Woodgate;
    - Bartley Green;
    - Short Heath;
    - Handsworth;
    - Aston;
    - Gravelly Hill;
    - Shenley Fields;
    - Washwood Heath;
    - Druids Heath; and
    - Hawkesley.

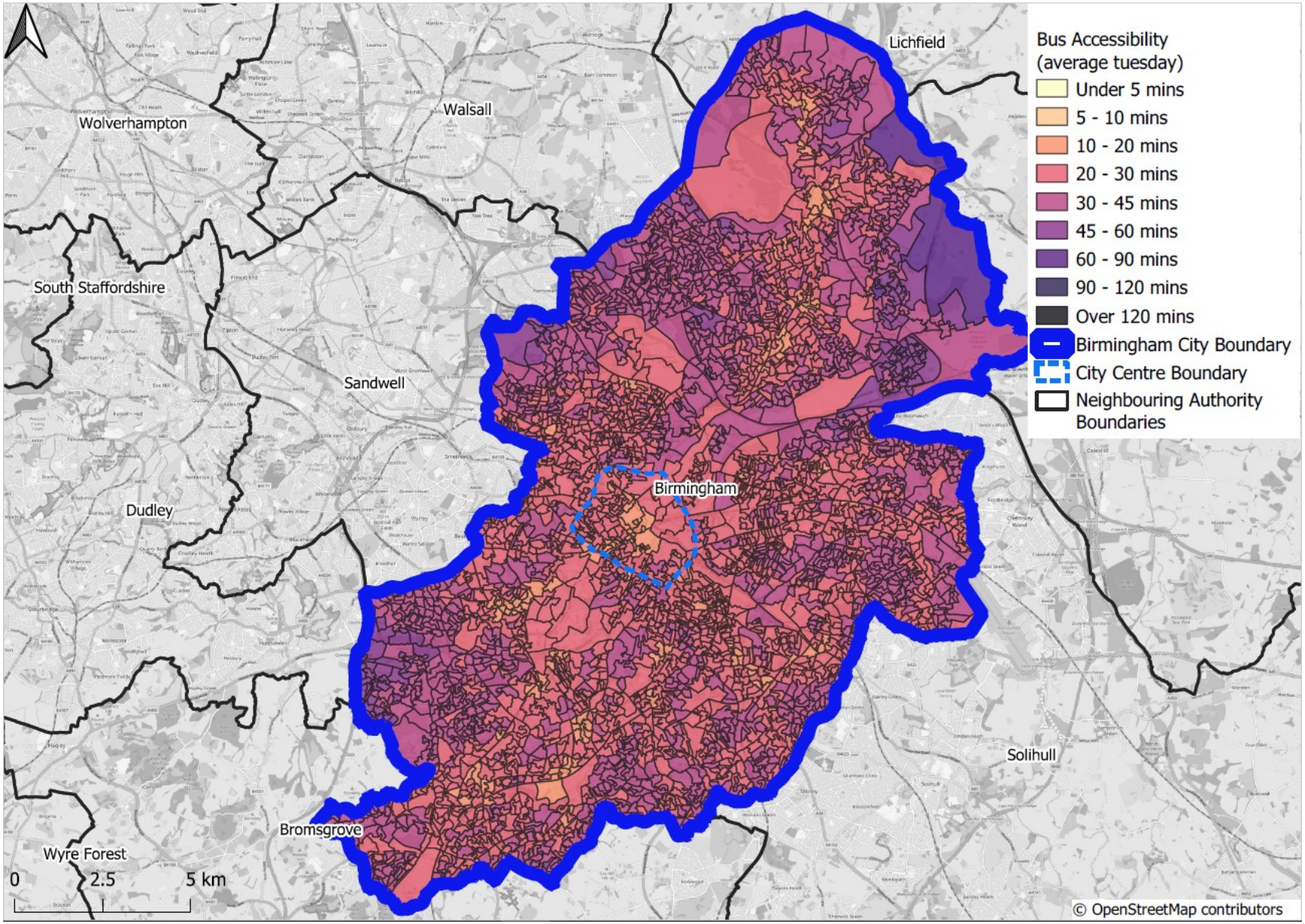

Figure 8-3: Bus accessibility (based on average Tuesday between 2010 and 2016) (CDRC data)

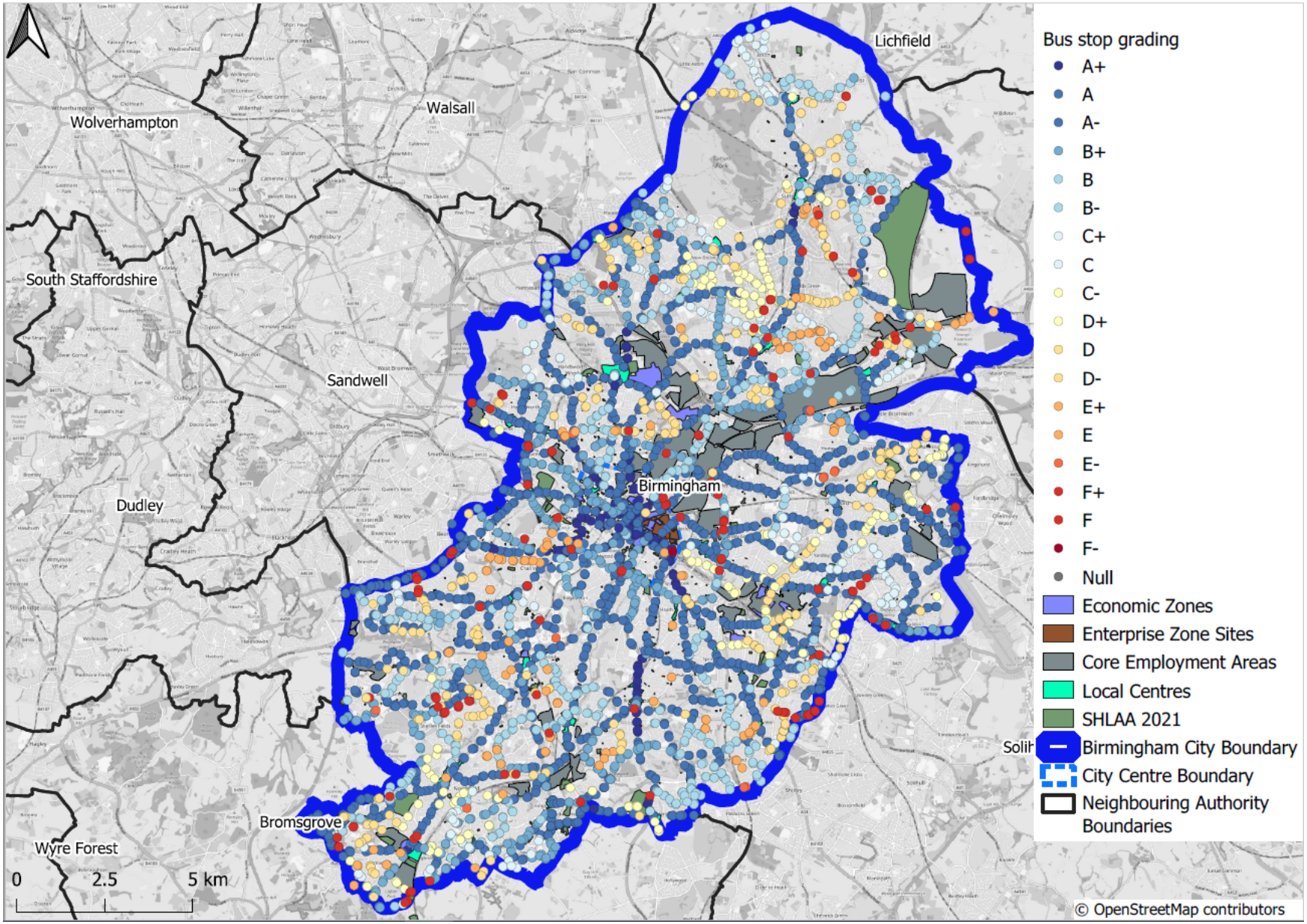

Figure 8-4: Bus stop grading (based on 2020 pre-pandemic timetables) (Place-Based Carbon Calculator data)

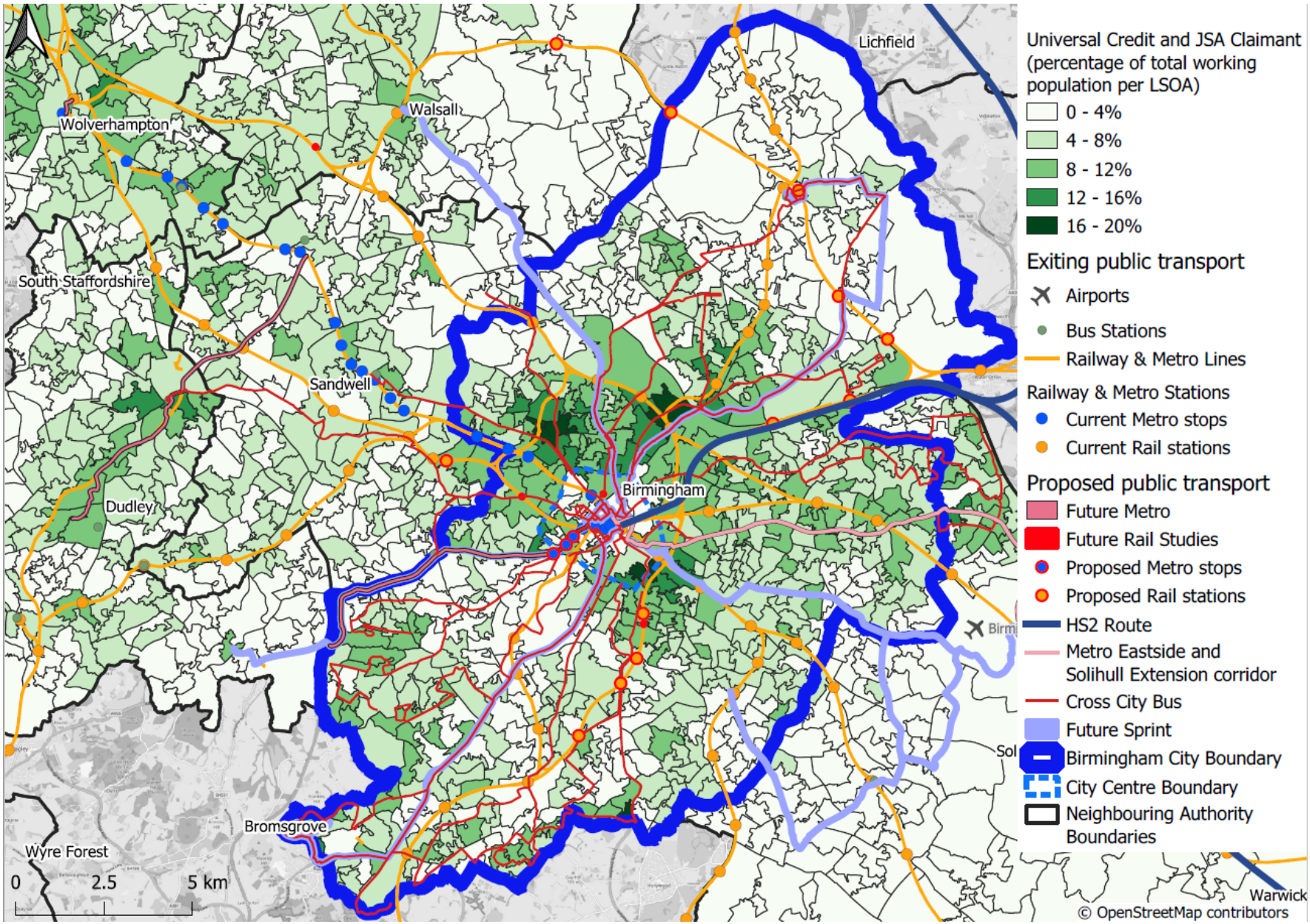

Figure 8-5: JSA and Universal Credit claimant (Census 2011 percentage of total working population)

8.5 Public Transport Accessibility

Figure 8-6 provides an indication of different area's in Birmingham accessibility to services via public transport. Compiled by the National Audit Office (NAO) using 2017 data, **Figure 8-6** colour codes each LSOA within Birmingham by a score of 0–7 based on the number of services for which the mean journey time to a service was longer for that LSOA than the national average. A lower number represents better public transport accessibility to services than the mean whilst a higher number represents a worse public transport accessibility.

The metric is a count of the number of services for which the mean journey time in the relevant LSOA is greater than the national average. A mean value is used so that outliers (that is, very long or very short journey times to services) were given weight in the calculation. The model has a maximum journey time of 120 minutes, so any extreme outliers are not included in the data. Further information about the data presented in **Figure 8-6** can be found on the NAO's website[15].

Figure 8-6 indicates that areas directly to the north-west, north, and east of the city centre have good public transport accessibility to services as well as areas further away in the east, south-east and north-east of Birmingham. There is an opportunity to promote residential development in these areas as new residents will be able to utilise the existing good public transport connectivity which will help BCC and the wider national Government achieve their climate and sustainability goals. Opportunities to provide high-quality, affordable family housing in these areas should be considered as the existing good public transport accessibility can be utilised by young families to continue travelling sustainably.

Areas in the far north and south-west of Birmingham do not have as good public transport connectivity to services but it should be noted that public transport accessibility to services in these areas is only slightly worse than that national average. The LSOAs with the worst level of public transport accessibility to services in Birmingham is located in the Hampstead area of the city, just south of Perry Beeches and in the Warstock / Yardley Wood area to the far south of the city just north of Solihull Lodge. Other areas in Birmingham with poorer than average public transport accessibility to services include:

- West Heath;
- Frankley;
- Woodgate;
- Edgbaston;
- Brookvale Village;
- Walmley;
- Four Oaks; and
- Little Sutton.

Poor public transport accessibility acts as a constraint to BCC achieving its aim of enabling Birmingham residents to live a sustainable lifestyle if new residential development was located in these areas without improvement to public transport connectivity. However, at the same time there is an opportunity for BCC to promote development which includes services in these areas which will improve existing and future residents' public transport accessibility to services.

[15] Transport accessibility to local services: a journey time tool - National Audit Office (NAO) report

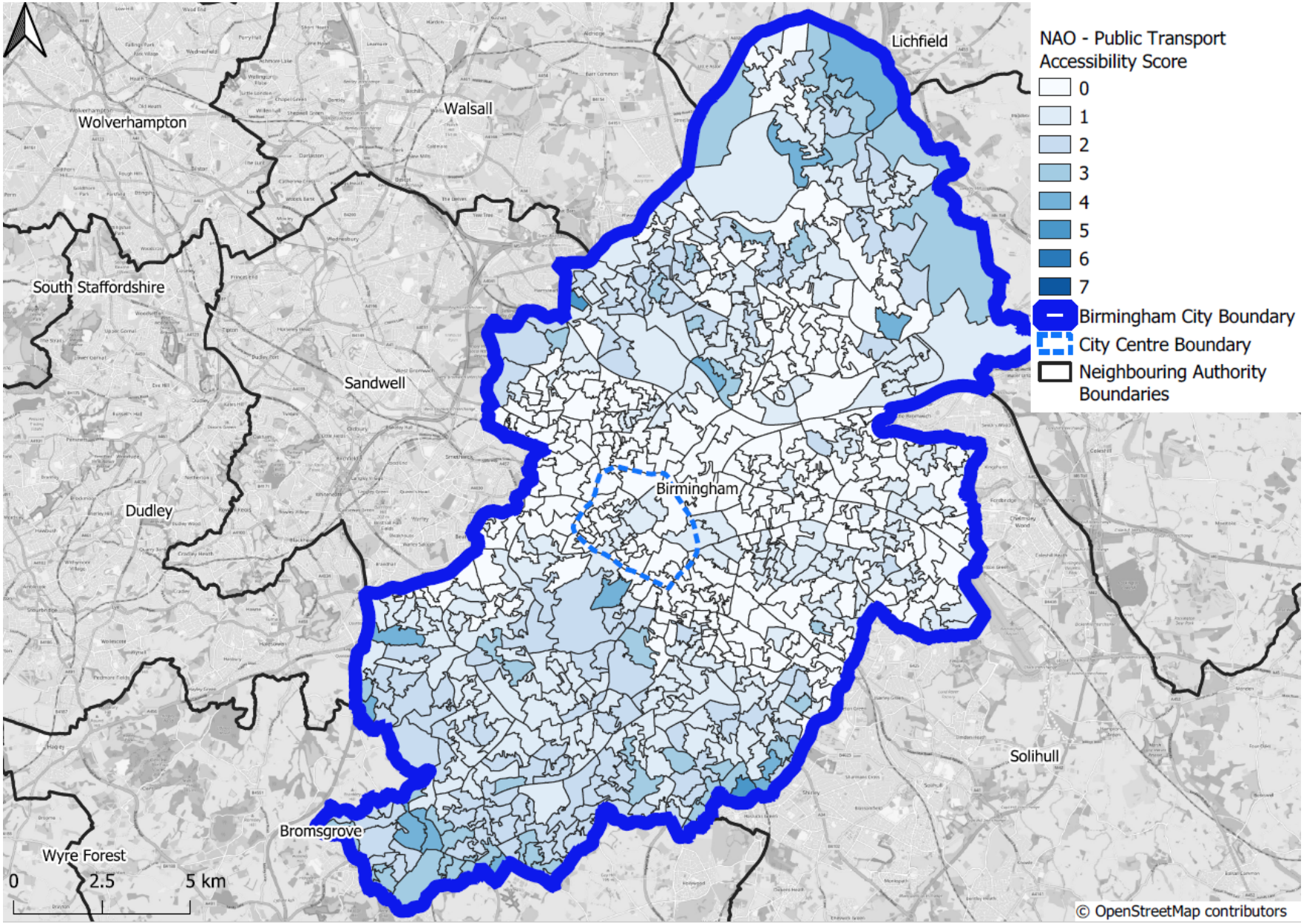

Figure 8-6: Public Transport Accessibility to Services (2017) (NAO data)

8.6 TRACC Accessibility

Additional multi-modal accessibility analysis has been undertaken using Basemap's TRACC software to further understand accessibility across the city.

The TRACC software has been used to run multi-modal journey time calculations from Local Centres and areas where there are likely to be a cluster of future development for walking, cycling, and public transport (bus and rail) detailed in **Table 8-1** below.

Table 8-1: TRACC Accessibility Analysis Locations

Area of likely future development	Local Centre
Langley SUE	Perry Barr
Digbeth	Acocks Green
Eastside	Alum Rock
Ladywood	Kings Heath
Perry Barr	Meadway
Frankley	Selly Oak
City Hospital	Soho Road
Sutton Coldfield	Stirchley
Buckland End	

Maps showing where is accessible via walking, cycling, and public transport (bus and rail) within selected travel times from the locations detailed in **Table 8-1** above are included in **Appendix J.**

Analysis of the maps in **Appendix J** indicates the following:

- The Langley SUE area is currently not very accessible via public transport with access to the city centre taking circa 60 minutes and access to areas in south, west, and east Birmingham taking over an hour. The potential new rail stations earmarked at Walmley and Minworth fall just outside what is deemed as sensible walking times to/from Langley SUE.
- The central locations such as Digbeth and Eastside have good access to a range of employment facilities and amenities but lack access to recreational space.
- That there are 60 minutes-plus travel times via public transport to the Walmley, Bartley Green, and Frankley from a lot of the areas detailed in **Table 8-1** indicating poor public transport accessibility in these areas.
- The Meadway Local Centre has good cross-boundary accessibility via public transport with areas in the Solihull and Coventry Districts as well as with areas in the Wolverhampton, Sandwell, and Walsall Districts.
- The majority of the areas identified as likely to have cluster of future development (see **Table 8-1**) have access to a range of amenities and services within a reasonable walking time excluding the Langley SUE, Frankley, and City Hospital areas. It is noted that additional amenities and services will be provided by the Langley SUE development.

The analysis above suggests that there are opportunities to promote housing development and the densification of housing development in areas where there is existing good public transport accessibility such as in Digbeth and Eastside. Conversely, the poor current public transport connectivity noted in areas such as Walmley, Bartley Green, and Frankley is a constraint to residents travelling sustainably. The Frankley and Walmley areas (where Langley SUE is located) were also identified as lacking a range of amenities and services located within standard and sensible walking journey times which further constrains residents' lifestyles. This however does present the opportunity to promote development types which provide a range of amenities and services to cover the current shortfall.

Opportunities to promote dense residential and employment development in the Meadway, Eastside, and Digbeth areas should be explored as the TRACC accessibility analysis indicates that these areas are well connected with a large catchments of areas across the wider region via public transport.

8.7 Summary

In terms of current and future transport infrastructure provision, the infrastructure and accessibility data presented in this section has shown that most areas are, or either will be, well covered by public transport and active mode infrastructure, excluding some areas located to the peripheral south-west and north-west of the city.

Analysis of the public transport accessibility data indicates that peripheral areas in the south and south-west of the city have the poorest public transport accessibility in Birmingham. Opportunities for how new development can tap into the existing transport connectivity and improve it have been identified in the associated "Birmingham Local Plan – Baseline Transport Assessment Opportunities and Constraints" report.

9 Cross-Boundary Considerations

9.1 Introduction

Birmingham is at the centre of the West Midlands region and has important relationships with surrounding areas. A significant number of residents from neighbouring authorities travel into Birmingham for work, business, and leisure purposes, particularly from within the rest of the West Midlands Metropolitan area, as well as from south-east Staffordshire, south Warwickshire, and north Worcestershire. Encouraging these trips to be made via sustainable modes can be shaped through introducing restrictions on accessing the city by car and reducing overall car use for Birmingham's residents.

Birmingham also has important connections to neighbouring communities, regeneration programmes, and environmental networks in the Black Country, north Solihull, and Bromsgrove. BCC collaborates with neighbouring authorities through partnership arrangements, including the Greater Birmingham and Solihull Local Enterprise Partnership (GBSLEP) and is a constituent member of the West Midlands Combined Authority (WMCA).

Birmingham's functional Housing Market Area (HMA) (shown in **Figure 9-1**) is a designated geographical area where household demand and preferences for all types of housing are similar. Subsequently, local authorities have committed to work together through the 'Duty to Cooperate' to meet the housing need in this area, extending to include the Black Country and parts of Worcestershire, Warwickshire, and Staffordshire. It comprises local authorities within the GBSLEP area and Black Country LEP (BCLEP) area together with South Staffordshire; as well as North Warwickshire and Stratford-on-Avon Districts which fall within an area of overlap between the Birmingham and Coventry/ Warwickshire HMA. To achieve Birmingham's sustainable development objectives, it is necessary to have coordinated ambition and action across all levels of government (local, regional and national) which these partnerships hope to achieve.

This section presents evidence demonstrating the nature of Birmingham's relationship with neighbouring authorities highlighting the flows of people that travel to and from Birmingham, why they travel, how they travel including what transport infrastructure they utilise when travelling.

9.2 Area of Influence

Through discussions with BCC and the project's Strategic Advisors it was determined that the neighbouring Local Authorities which were likely to have a relationship with Birmingham in terms of people movements between them are the ones shown in **Figure 9-1**.

The cross-boundary evidence presented in this section is based on available datasets and discussions with relevant local authority stakeholders.

9.3 Origin and Destinations of Cross-Boundary Movements

In line with the origin and destination analysis undertaken in **Section 3.6**, the maps in **Appendix C** show 2019 mobile phone data collated across the WMCA area which indicates the origins and destinations of trips made to and from to selected key local centres, key employment areas, Birmingham city centre, and the Birmingham Airport area. The maps in **Appendix D** show the origins and destinations of vehicle trips travelling to and from the same locations but the data presented in these maps has been extracted from the 2016 Base Year West Midlands PRISM multi-modal model. Both sets of data have been analysed in terms of identifying cross-boundary movements between Birmingham and local authorities located within the area of influence shown in **Figure 9-1**.

It should be noted that the origin and destination data presented in this section is based on data collated prior to the Covid-19 pandemic where travel patterns have since changed due to working from home becoming more acceptable for certain industries.

9.3.1 Origins and Destinations of people travelling to and from key local centres

The key local centres maps in **Appendix C** and **Appendix D** indicate the origins and destinations of people travelling to and from selected key local centres in Birmingham. The key local centres mapped are:

- Sutton Coldfield;
- Perry Barr;
- Soho Road;
- Selly Oak;
- Kings Heath; and
- Stirchley.

Key cross-boundary movements to and from key local centres include:

- Between Sandwell (Great Barr, West Bromwich, Tipton, Bilston, Rowley Regis), Wolverhampton, Coventry, Aldridge, Kingshurst, Birmingham Airport, Brierley Hill / Dudley, Blackheath, and Walsall (Aldridge, Wednesbury, High Heath, Bloxwich) and ***Perry Barr***;
- Walsall, Aldridge, Great Barr, Kingshurst, Coleshill, Brownhills, and Worcester to ***Sutton Coldfield***;
- ***Sutton Coldfield*** to Derbyshire Dales and Cannock Chase;
- Dickens Heath, and Blackheath to ***Stirchley***;
- Between ***Kings Heath*** and Warwick, Dickens Heath, Blackheath, Solihull and Oxford; and
- Between West Brom, Blackheath, Wednesbury, Wolverhampton, and Walsall and ***Soho Road***.

9.3.2 Origins of people travelling to key employment centres

The key employment areas maps in **Appendix C** and **Appendix D** indicate the origins of people travelling to selected key employment centres in Birmingham. The key local centres mapped are:

- Minworth area;
- Castle Bromwich;
- Perry Barr;
- Hay Mills area; and
- Longbridge.

Key cross-boundary movements to key employment centres include:

- Sandwell (Great Barr, West Bromwich, Tipton, Bilston, Rowley Regis), Wolverhampton, Coventry, Aldridge, Kingshurst, Birmingham Airport, Brierley Hill / Dudley, Blackheath, and Walsall (Aldridge, Wednesbury, High Heath, Bloxwich) to ***Perry Barr***;
- Coventry, Kingshurst, and Solihull to ***Minworth***;
- Dickens Heath, Blackheath, and Brierley Hill / Dudley to ***Longbridge***;
- Solihull, Dickens Heath, Kingshurst, Coventry, Birmingham Airport, and Blackheath to ***Hay Mills***; and
- Marston Green, West Brom, Walsall, Blackheath, Aldridge, Birmingham Airport, and Coventry to ***Castle Bromwich***.

9.3.3 Origins of people travelling to Birmingham Airport area

The Birmingham Airport maps in **Appendix C** and **Appendix D** indicate the origins of people travelling to the Birmingham Airport area which incorporates the National Exhibition Centre (NEC), Resorts World, Birmingham Business Park and other employment land uses centred around the airport.

Key cross-boundary movements to the Birmingham Airport area include:

- Movements from Sandwell, Wolverhampton, Dudley, and Walsall;
- Movements from Coventry, and Solihull;
- Movements from East Staffordshire, and North-West Leicestershire; and
- Movements from Droitwich Spa and Worcester.

9.3.4 Origins and Destinations of people travelling to and from Birmingham city centre

The Birmingham city centre maps in **Appendix C** and **Appendix D** indicate the origins and destinations of people travelling to and from Birmingham city centre.

Key cross-boundary movements to and from Birmingham city centre include:

- **South of Birmingham**: Alvechurch, Hollywood, Solihull, and Bromsgrove (Lydiate Ash and Catshill);
- **East of Birmingham**: Coleshill, Rugby, Coventry, Daventry, and Kingsbury;
- **North of Birmingham**: Bloxwich, Aldridge, Tamworth, North-West Leicestershire, South Lakeland, Derbyshire Dales and Newark and Sherwood; and
- **West of Birmingham**: Sandwell, Tipton, Oldbury, West Bromwich, Smethwick, Dudley, Kingswinford, and Brandhall.

9.4 Volume of Cross-Boundary Movements

Figure 9-1 maps the number of people whose place of work was based in Birmingham at the time of the 2011 Census, providing an understanding of where people travelling to and from Birmingham come from. Similarly to the origin and destination data it should be noted that the data presented in this section was collected prior to the Covid-19 pandemic where travel patterns have since changed due to working from home becoming more acceptable for certain industries. Data should be updated with the equivalent 2021 Census data when available.

Figure 9-1 shows that the highest number of people commuting into Birmingham come from the neighbouring authorities, which are also part of the WMCA: Walsall, Sandwell, Dudley, and Solihull. Other local authorities from which a significant amount of people commute into Birmingham from include Lichfield, Bromsgrove, and Wolverhampton. **Figure 9-1** shows that a reasonable amount of people commute into Birmingham from authorities further afield such as South Staffordshire, Cannock Chase, Tamworth, North Warwickshire, Coventry, Warwick, Stratford-on-Avon, Redditch, and Wyre Forest.

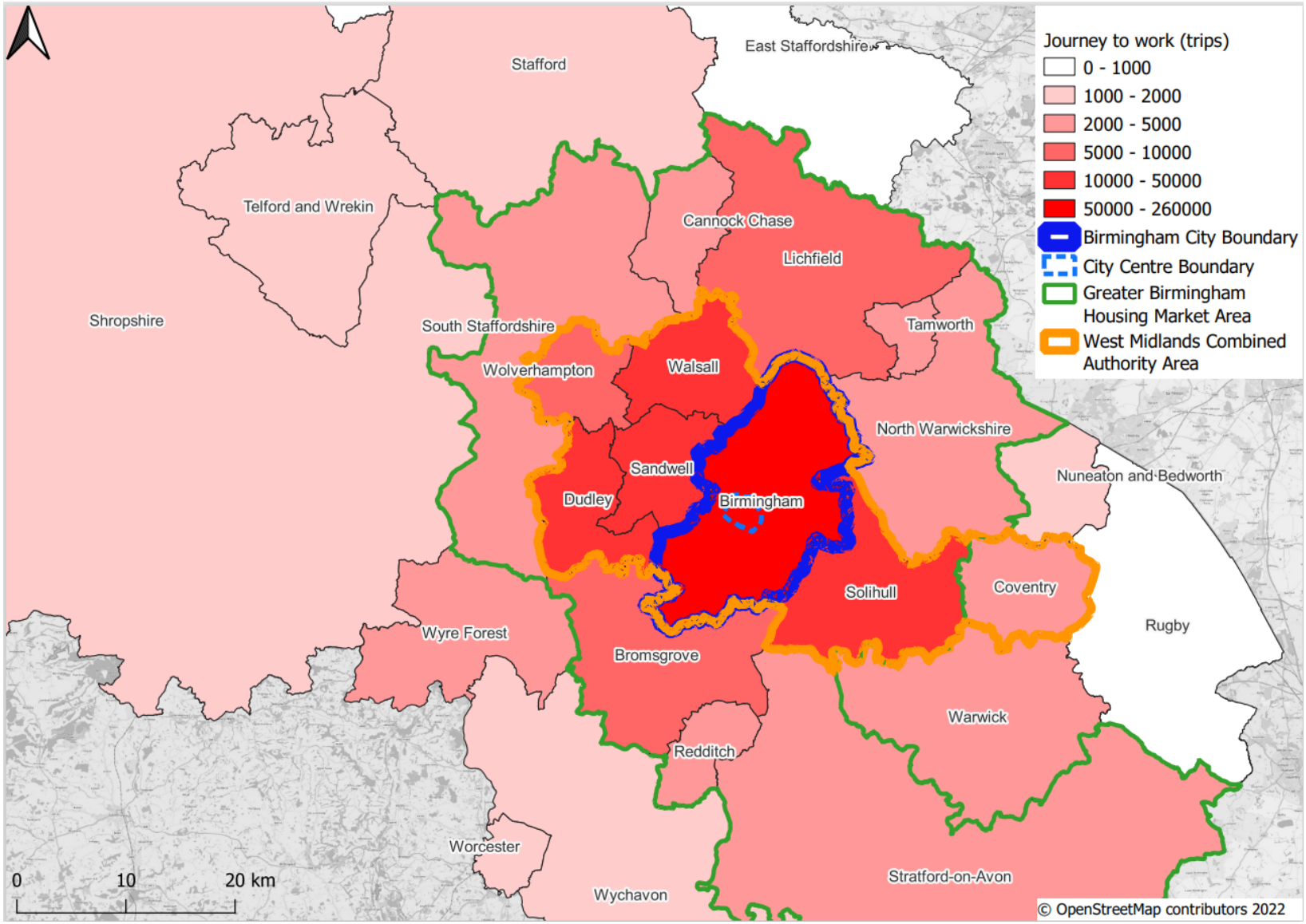

Figure 9-1: Volume of cross-boundary movements in to Birmingham (Journey to Work Census 2011)

9.5 Key Cross-Boundary Transport Infrastructure

Figure 9-2 shows the key existing transport infrastructure which facilitate cross-boundary movements between Birmingham and the identified area of influence. Showing road, rail, bus, and metro infrastructure, **Figure 9-2** shows that Birmingham is well connected through a multitude of transport modes to its neighbouring authorities and those located further afield.

Key cross-boundary rail infrastructure of note include:

The Cross-City Line runs for 32 miles (51 km) from Redditch and Bromsgrove in Worcestershire (its two southern termini) to Lichfield (its northern terminus), via Birmingham New Street, connecting the suburbs of Birmingham in between. Services are operated by West Midlands Trains running between 40 and 60 trains per day on the route at a 15 to 30 minute interval depending on the final destination. First trains start operating just before 6am with last trains departing around 23:30.

The Chase Railway Line is a suburban railway line running from its southern terminus, Birmingham New Street, to Walsall, and then Rugeley in Staffordshire, where it joins the Trent Valley Line providing connectivity to Stafford and Soke-on-Trent further north. The average journey time by train between Rugeley Town and Birmingham New Street is 50 minutes, with around 41 trains per day. First trains start operating just after 6am with last trains departing just after 23:00.

The Birmingham Snow Hill Lines is the collective name for the railway lines running through Birmingham Snow Hill, and Birmingham Moor Street stations. They form an important part of the suburban rail network of Birmingham, Warwickshire and Worcestershire routing through Sandwell, Dudley, Wyre Forest, Solihull and Stratford-upon-Avon. The Snow Hill lines carry around 20% of the daily rail services into Birmingham; the remainder use New Street.

The West Coast Main Line (WCML) is one of the most important railway corridors in the United Kingdom, connecting the major cities of London and Glasgow with branches to Birmingham, Liverpool, Manchester and Edinburgh. In terms of facilitating cross-boundary movements in and out of Birmingham, the WCML provides rail connectivity to and from Coventry, Rugby, Wolverhampton, Stafford, Northamptonshire and Stoke-on-Trent and Crewe further afield. Services routing through Birmingham are operated by Ariva West Coast and West Midlands Trains with Ariva West Coast operating the longer distance services whilst West Midlands Trains provides commuter services between Birmingham New Street and London Euston.

There is also rail connectivity between Central Birmingham, Tamworth, Burton-upon-Trent, and Derby.

Figure 9-2 shows the West Midlands Metro route and which provides tram connections between Birmingham city centre, Sandwell and Wolverhampton. Mondays to Saturdays, services run at six to eight-minute intervals during the day. Evening and Sunday service is at fifteen-minute intervals. Trams take roughly 45 minutes to complete the route. First trams start operating at 04:45 with last trams starting at 00:45.

The operational timings of the rail and tram infrastructure outlined above suggests that there is a constraint in terms accessing Birmingham's night-time economy from outside of Birmingham as services often stop prior to midnight.

The extensive cross-boundary rail and tram connectivity with Birmingham suggests that there is an opportunity for new developments located close to stops/stations on cross-boundary rail and tram corridors to actively promote and contribute towards the establishment of new, or enhanced existing, car and active mode Park and Ride offerings at those stops/stations located to the periphery of the city.

Improved active mode and car (where appropriate) park and ride facilities will encourage the use of rail and tram, for at least part of the journey, when undertaking some of the popular cross-boundary movements in and out of Birmingham identified in **Section 9.3** above as rather than using cars for all of the journey. New development should contribute to establishing strong cycle connections and cycle parking facilities at rail and

tram stops/stations in Birmingham to further encourage the use of these modes when undertaking cross-boundary movements.

Section 9.3 presents evidence suggesting that there is a large volume of cross-boundary movements between Birmingham, West Brom, Wednesbury and Wolverhampton suggesting that there is a strong opportunity for new developments close to the Birmingham to Wolverhampton tram corridor to contribute towards the implementation of the car parking, cycle parking, and cycle connectivity infrastructure outlined above.

Figure 9-2 also highlights some key cross-boundary bus routes showing bus connections between:

- Areas in Wychavon, Redditch, Bromsgrove and South Birmingham (Crofton Hackett);
- Coventry, East Birmingham, and Central Birmingham;
- Birmingham Central, Sutton Coldfield, Coleshill, and Tamworth;
- Birmingham Central, Walsall, and Cannock; and
- Birmingham Central, Sandwell, Dudley and Wolverhampton.

There are also strong bus connections between Birmingham, Solihull and neighbouring areas in the Black Country (e.g. Sandwell and Dudley) which aren't shown on ***Figure 9-2*** due to the high number of services operating between these locations.

Figure 9-3 shows the key arterial roads routing in and out of Birmingham which provide cross-boundary road connections with neighbouring authorities highlighting where cross-boundary users of the roads were likely to travel to and from.

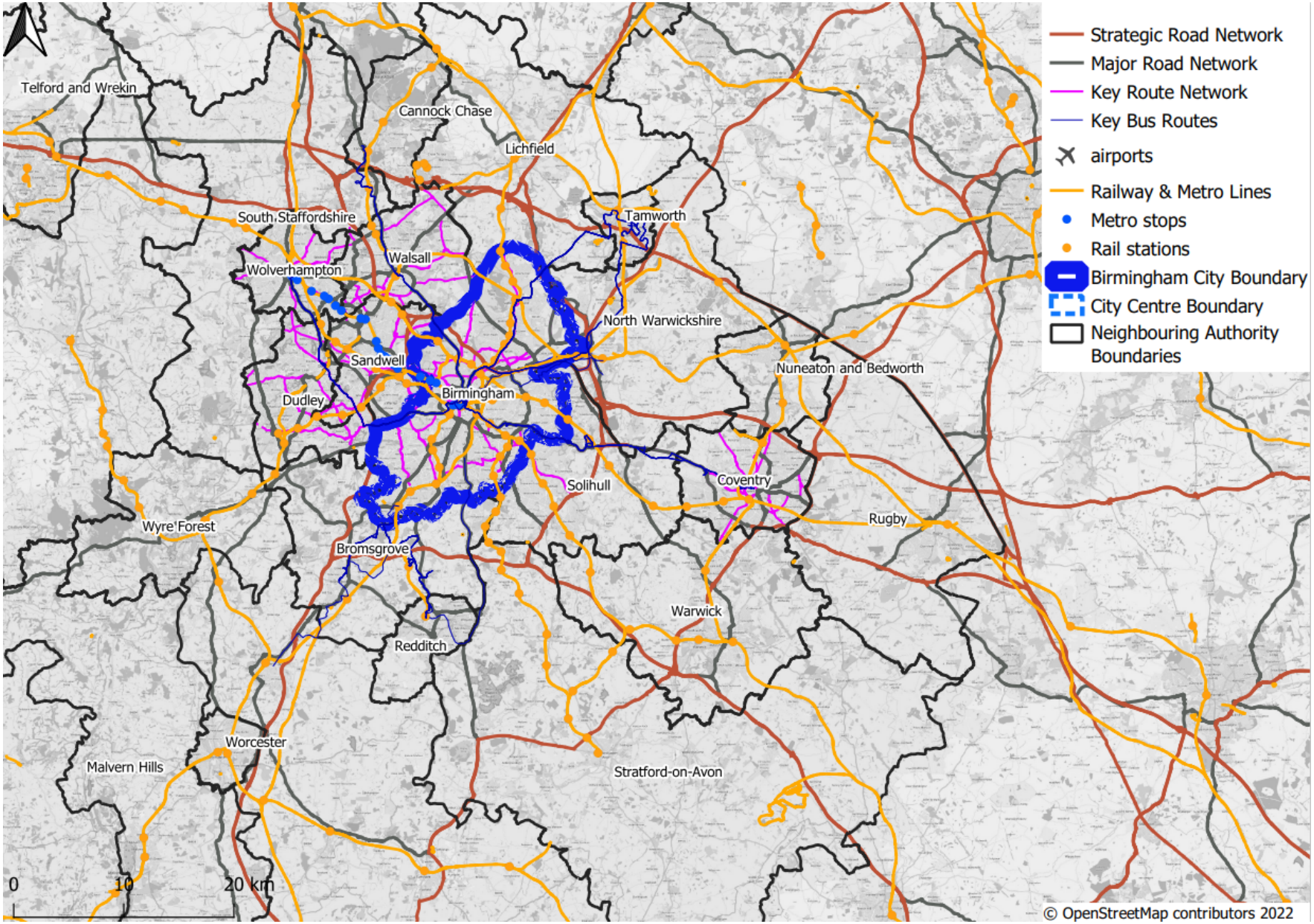

Figure 9-2: Key Cross-Boundary Transport Infrastructure

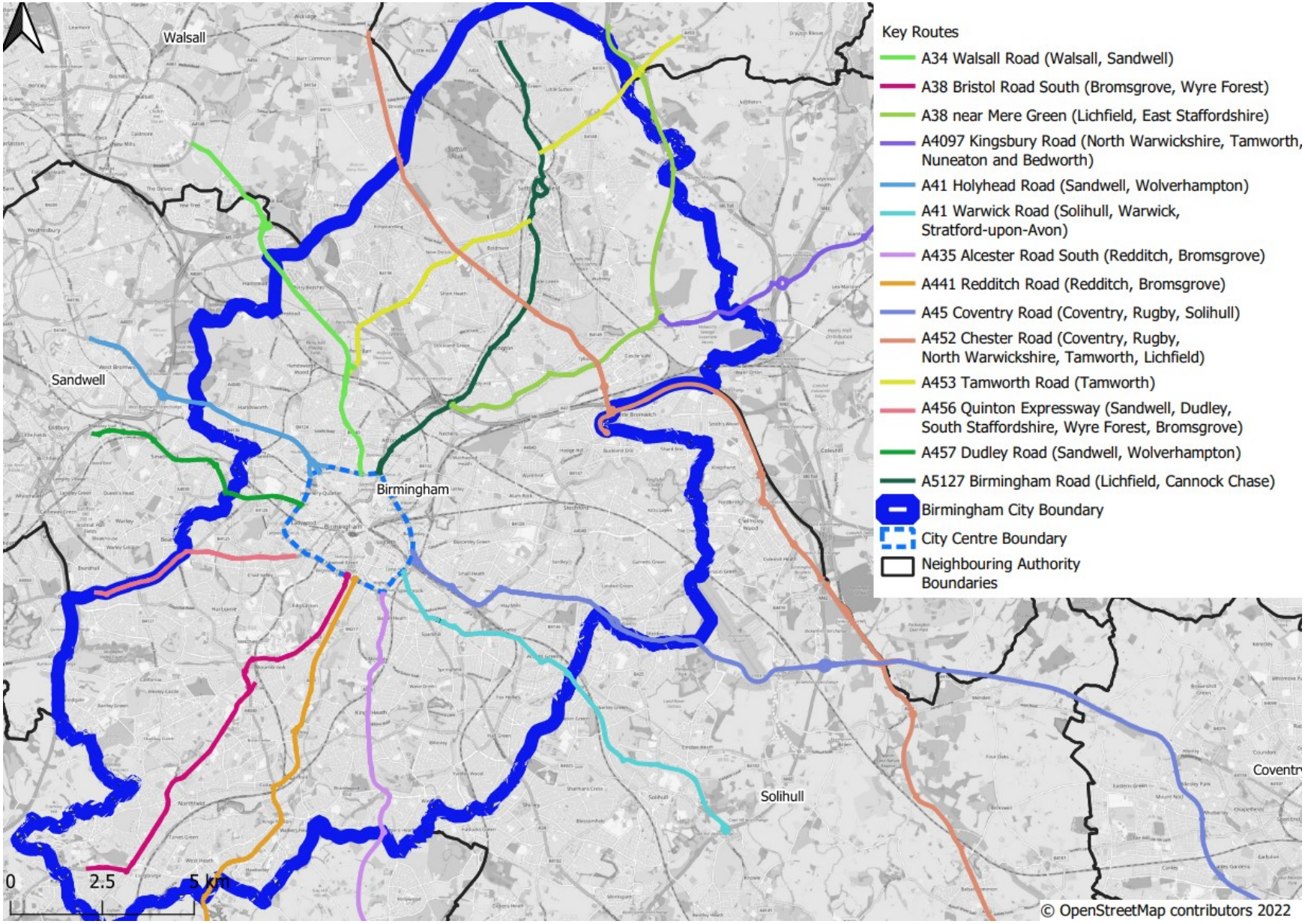

Figure 9-3: Key Cross-Boundary Road Infrastructure

9.6 Summary

Analysis of movements of people from neighbouring authorities indicates that Birmingham's strongest cross-boundary relationships exist with those authorities located closest to the city, such as those in the Black Country and Solihull. However, there is still a relationship with areas located further afield which is primarily facilitated through road and rail transport infrastructure.

Opportunities have been identified, where appropriate, for how development in Birmingham could harness the city's existing cross-boundary relationships to promote and encourage sustainable travel and living practices for its residents and those travelling through Birmingham.

10 Next Steps

This Baseline Transport Assessment has collated a range of data sources which has set the baseline transport conditions in Birmingham from which the city will develop and grow over the next twenty-plus years. Opportunities and constraints relating to how Birmingham's transport network can influence the type, location, and quantum of development have been identified through the analysis of the evidence presented. An associated Birmingham Local Plan - Baseline Transport Assessment Opportunities and Constraints report has been produced which summarises and draws out the transport-related opportunities and constraints identified.

Both the Baseline Transport Assessment and Opportunities and Constraints report will be published as part of the "Issues and Options" consultation stage of the Birmingham Local Plan with the findings of these two reports informing the Birmingham Local Plan development as well as future development decisions made in Birmingham.

Appendix A - Evidence Schedule

Appendix C - 2019 Mobile Phone Origin and Destination Data

Appendix D - 2016 PRISM Origin and Destination Data

Appendix E - 2016 PRISM Bus Stop Usage Data

Appendix F - Park and Ride

Appendix G - Freight

Appendix H - 2019 Journey Times to Employment Centres

Appendix I - 2019 Journey Times to Schools

Appendix J - TRACC Accessibility Analysis