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YORK BUS NETWORK REVIEW

Final Report

26/01/2024



DOCUMENT CONTROL ISSUE SHEET

Project & Document Details

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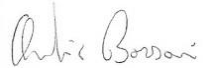
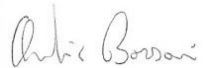

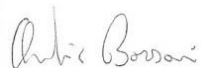
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Appendix A: List of bus services

1. INTRODUCTION

1.1 Why this study?

- 1.1.1 City of York Council (CYC) commissioned an initial bus network review to develop emerging ideas for its new Local Transport Strategy.
- 1.1.2 The Strategy aims to deliver on five major challenges:
- reaching net zero by 2030
 - strengthening the economy post-Covid-19
 - improving the health and wellbeing of residents
 - accommodating the growth set out in the Local Plan
 - addressing the existing shortcomings with transport in York as identified in “Our Big Conversation”, a citywide discussion on a 10-year strategy for the City.
- 1.1.3 Buses are the main public transport mode in York and play a key role in achieving the Local Transport Strategy. In its Bus Enhanced Partnership Plan, CYC aims to reducing traffic flows in the city by 20 per cent, increase bus use by 50 per cent and double walking and cycling by 2030.
- 1.1.4 CYC aims to tackle access imbalance between those who own a car and those who don't. Planned improvements include:
- ongoing electrification of the bus fleet
 - cheaper under-16 fares
 - new bus priorities for faster journeys (initial ideas include a Micklegate bus gate, changes and a new bus lane in the Skeldergate Bridge and Tower Street area, enforcement of city centre traffic restrictions)
 - upgrade to P&R sites
 - working with developers to provide new bus services to major developments.

How York's buses are funded

- 1.1.5 CYC successfully applied for £17,360,000 to improve York's bus network. This funding is provided by the Department for Transport (DfT) between 2022 and 2025 to deliver on the infrastructure improvements set out in the Bus Service Improvement Plan, and to run services.
- 1.1.6 Many bus services within York cannot be fully funded by user fares – yet residents, workers and visitors rely on them to access economic and social opportunities and local services, and so routes require a level of subsidy.
- 1.1.7 CYC currently pays out around £2m a year in subsidy to bus operators to keep the current bus network running. The exact amount varies over time as changes in passenger numbers, which change the amount of public support that a route needs to operate. This level of funding is currently possible thanks to the Bus Service Improvement Plan awarded by the DfT for years 2022 to 2025.
- 1.1.8 Once the Bus Service Improvement Plan funding expires in 2025, CYC estimated as of October 2023 that the revenue available to fund bus services could be as low as £750m. With inflation increasing the costs of running bus services, this means a significant proportion of bus services are unfunded beyond 2025. This report should be read in this context.

1.1.9 We were told by CYC officers that bus contracts are priced on a per-day basis – how many buses are being driven on the route every day. Service frequency increases or decreases can be made if an entire bus duty is added or removed from a schedule.

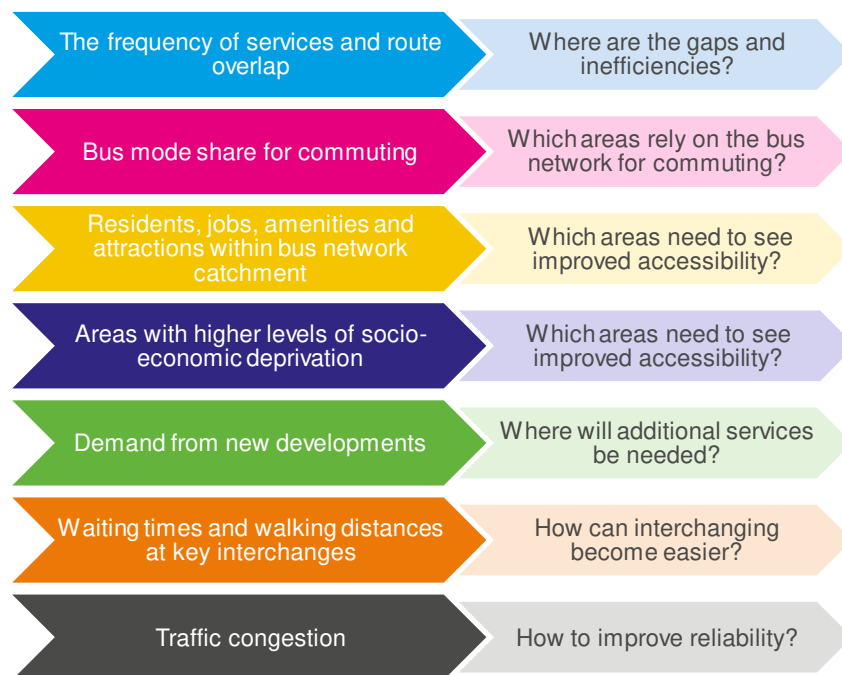
1.2 Scope

1.2.1 This study identifies key areas where the current bus network can be made more:

- Accessible: we overlay the current bus network and service frequencies with data on key amenities and attractions, where people live and work to identify service gaps
- Efficient: we identify overlapping routes and opportunities to make the best possible use of public resources
- Reliable: we assess whether routing could be improved, or termini changed to increase reliability

1.2.2 Figure 1 summarises the scope of this Bus Network Review.

Figure 1 Data used in the study



1.2.3 Changes to infrastructure (such as bus shelters or vehicle type to improve accessibility or reliability) and ticketing are outside the scope of this study. They form part of CYC's implementation of the Bus Service Improvement Plan.

1.2.4 Bus services in York are both subsidised and commercial, and CYC can only directly act on services they subsidise. Some services benefit from subsidy from University of York, North Yorkshire Council, East Riding of Yorkshire Council – and would require engagement to review. Where opportunities are identified for commercially operated routes, these are considered as suggestions for engagement between CYC and the operators through the Enhanced Partnership (the forum bringing together CYC and operators).

1.2.5 The purpose of this study is to review local services – infrequent intercity bus routes (such as York to Leeds services) are not within its scope.

- 1.2.6 Bus routes that are not available to the wider public, such as school bus routes, are not within the scope of this study. University bus route C1 is a campus route and has not been included in our analysis. The HSB route was discontinued in April 2023.

1.3 Methodology

- 1.3.1 This study is informed by the evidence provided in Table 1.

Table 1 Evidence and data sources

Evidence on	Data source
Service frequency	General Transit Feed Specification (GTFS) for timetables
Bus mode share	Office for National Statistics, Census 2021, Travel to Work
Bus routes	GTFS Open Street Map, cross-checked with the York Bus Map
Amenities and attractions	<ul style="list-style-type: none"> • CYC • Liveable Neighbourhoods tool, developed by Spatial Design Hub • 20 most popular attractions on TripAdvisor and Google Maps
York Bus Accessibility Level (YBAL)	GTFS Bespoke accessibility tool, created for this study
Residential population	Office for National Statistics, Census 2021
Workplace population	Office for National Statistics, Census 2011
Socio-economic deprivation	Office for National Statistics, Census 2021, Household Deprivation
Boardings data	CYC
Future demand analysis	List of developments likely to complete by 2025 – from CYC
Waiting times at key interchanges	GTFS
Subsidy	CYC

1.4 External presentations

- 1.4.1 The authors of the study attended the October meetings of the York Bus Forum and of the Enhanced Partnership (Performance and Operation Delivery groups) – at which the scope of the study was presented.
- 1.4.2 Key points made at these meetings that are relevant to this study include:

York Bus Forum meeting on 11 October 2023

- 1.4.3 One participant noted that Park & Ride (P&R) services are not just for visitors – but also by many residents and workers around York.

- 1.4.4 One operator described high demand on early morning services on the 415 York-Selby route.
- 1.4.5 One participant mentioned issues of capacity on some intercity services such as the Transdev service Leeds-Whitby – buses can be full by the time they reach York.
- 1.4.6 One participant explained how issues with bus reliability are impacting users that rely on buses to get to appointments or classes. In some cases people's educational choices are shaped by the reliability of bus services.
- 1.4.7 One participant suggested that e-scooter and e-bikes can broaden the bus network catchment – for people who feel comfortable are able to ride them.

Enhanced Partnership Performance and Operational Delivery Group meetings on 12 and 20 October 2023

- 1.4.8 Operators noted that lower fares have led to an increase in bus ridership.
- 1.4.9 CYC discussed plans to deliver mobility hubs at P&R locations, which could include intercity buses and improved provision for walking, cycling, and electric vehicle charging points
- 1.4.10 CYC explained that radial corridor approaches into the City Centre are being reviewed to alleviate congestion – with the first corridor to benefit from this to be Fulford Road.
- 1.4.11 One operator said that shortening routes in the City Centre could have a negative impact on passenger demand.
- 1.4.12 One operator mentioned that additional stops could reduce the attractiveness of P&R as it would make services slower but would only lead to small increases in passenger numbers. It could also be challenging to deliver at busy times (such as the Christmas Fair) when buses are near or at capacity. CYC mentioned the risk that intermediate stops on P&R routes could take away demand from other routes.

2. BASELINE ANALYSIS

2.1 Service frequencies

FREQUENCY BY ROUTE

- 2.1.1 This study reviews data for the 36 local bus routes in York. Of these:
- 17 routes have at least one service per hour on weekdays
 - 36 routes run on Saturdays
 - 19 routes run on Sundays
- 2.1.2 Figure 2 shows the average service frequency for each route at different times of the week.
- 2.1.3 Figure 3 *Figure 4* shows the average service frequency for each route at different times of the day.
- 2.1.4 Service frequencies are the one-way average frequency for both commercial and subsidised services – that is the average number of services over an hour in one direction. The time periods included in this analysis are:
- Weekday early morning 07:00-08:00
 - Weekday daytime 08:00-18:00
 - Weekday evening 18:00-19:00
 - Saturday daytime 08:00-18:00
 - Sunday daytime 08:00-18:00
- 2.1.5 For mornings and evenings, 07:00-08:00 and 18:00-19:00 were chosen to calculate average frequencies as they are the busiest early morning and early evening hours, but frequencies are generally lower than during daytime hours.
- 2.1.6 For daytime hours, a wider time span of 08:00-18:00 was chosen as there is little variation in service frequency over these hours.
- 2.1.7 There is one night bus route in York – the Clubbers Bus (CB1). It runs every 40 minutes on Saturdays between 00:10 and 4:10, between Rougier Street and the University Campus. This route is funded by the University of York. It has not been included in the mapping analysis and some of the charts below since it runs at a different time.

Figure 2 Average service frequencies

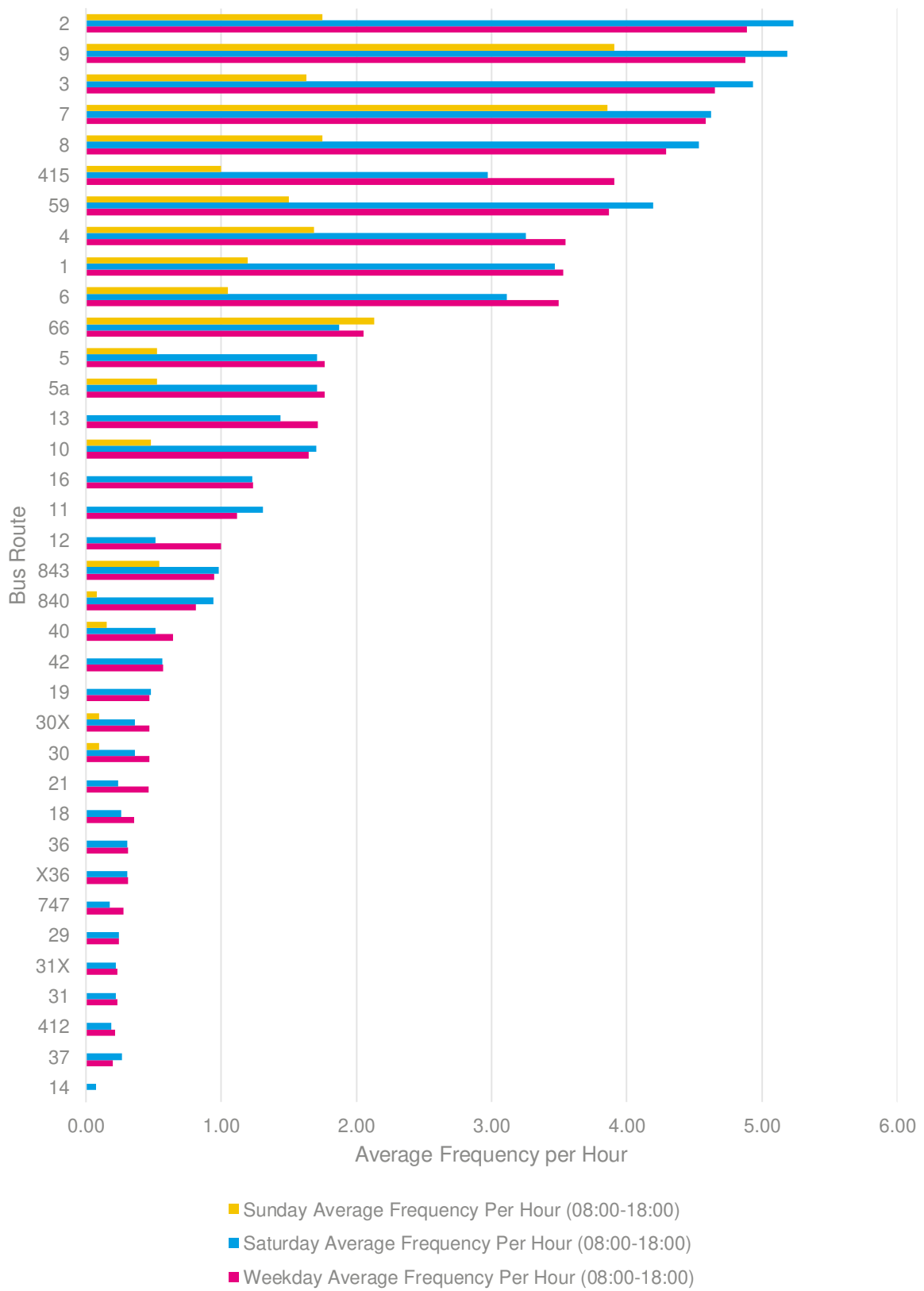
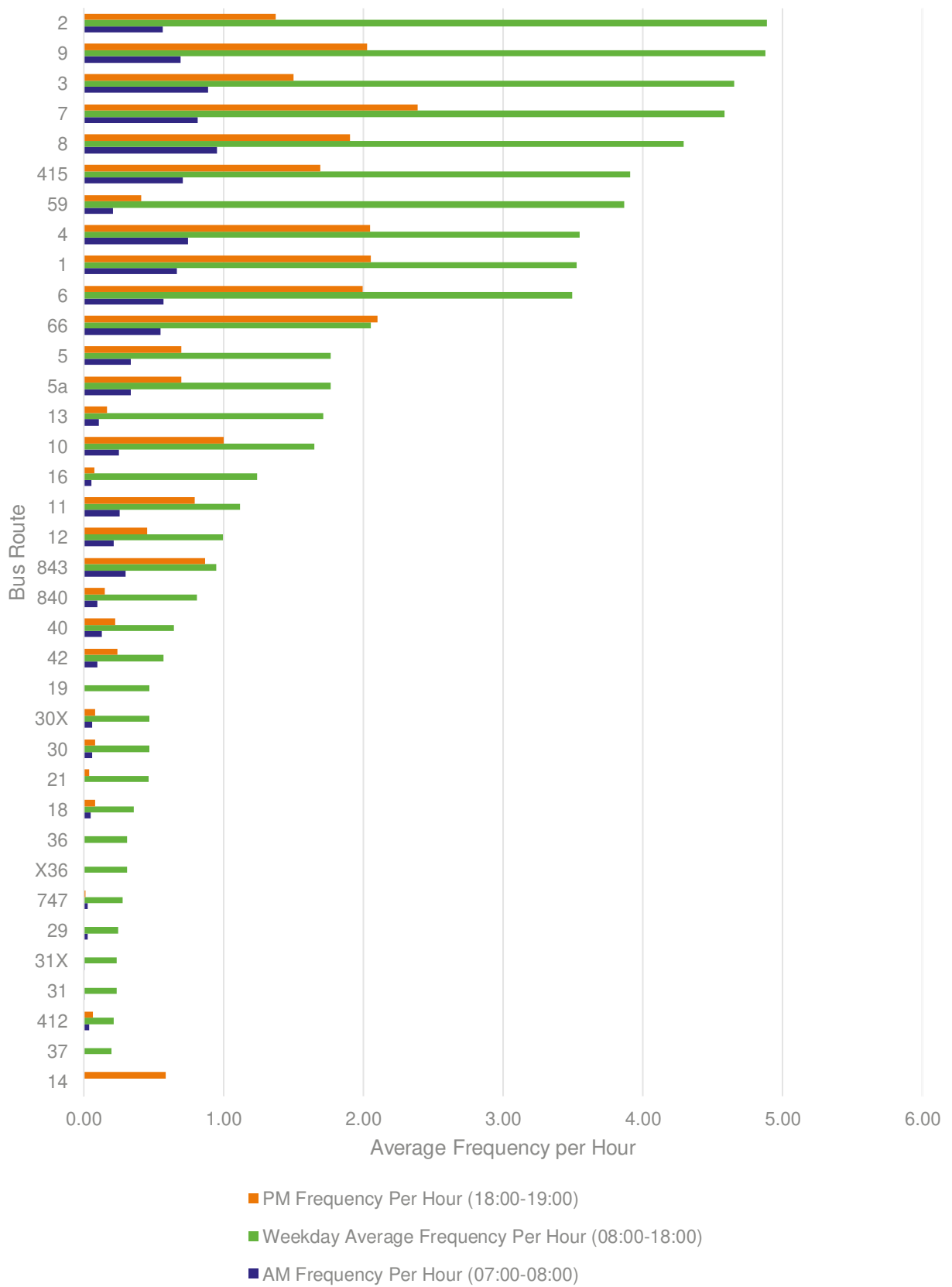


Figure 3 Average service frequency at different times of day



NETWORK FREQUENCY

- 2.1.8 This section looks at frequencies across the network – adding up the service frequencies when several bus routes run on the same road.
- 2.1.9 Figure 4, Figure 5, Figure 6, Figure 7 and Figure 8 show bus service frequencies on the CYC road network at different weekday and weekend times, to reflect how service frequencies vary.
- 2.1.10 Service frequencies are the one-way average frequency for both commercial and subsidised services – that is the average number of services over an hour in one direction. The time periods included in this analysis are:
- Weekday early morning 07:00-08:00
 - Weekday daytime 08:00-18:00
 - Weekday evening 18:00-19:00
 - Saturday daytime 08:00-18:00
 - Sunday daytime 08:00-18:00
- 2.1.11 Figure 6 also shows the time of the last service on the CYC road network. If several bus routes run on the same road, the time of the last running service on the road was selected.
- 2.1.12 The aim of frequency maps is to visually present the reach and frequencies of the bus network across York. Because some services have limited stops, people living or working along these routes don't necessarily have access to the level of frequency shown on the maps. To reflect this, data on the accessibility of the bus network is also provided in section 2.
- 2.1.13 A list of service frequencies on each route, and time of the last weekday service, is provided in Table 16 in Appendix A. Table 2 sets the main corridors where average frequencies reach four or more buses an hour in each direction – which is approaching the minimum frequency for a “turn up and go” service.
- 2.1.14 Routes with at least five services an hour in each direction (one bus every 12 minutes) can be described as “turn up and go”. For less frequent services, people would generally check timetables in advance and make a decision on when they will travel and how based on this.

Table 2 Corridors with higher frequency services (defined as 4 or more services an hour) (Yes/No)

Corridor	Weekday early morning 07:00-08:00	Weekday daytime 08:00-18:00	Weekday evening 18:00-19:00	Saturday daytime 08:00-18:00	Sunday daytime 08:00-18:00	Time of last service (weekday)
City Centre walls route (A1036)	Y	Y	Y	Y	Y	00:00-01:00
Hull Road (A1079)	Y	Y	Y	Y	Y	00:00-01:00
Heslington/University Road	Y	Y	Y	Y	Y	00:00-01:00
Fulford Road (A19)	Y	Y	Y	Y	Y	00:00-01:00
Tadcaster Road (A1036)	Y	Y	Y	Y	Y	00:00-01:00
Malton Road to Monk's Cross (A1036)	N	Y	Y	Y	Y	23:00-00:00
Boroughbridge Road (A59)	N	Y	Y	Y	N	00:00-01:00
Clifton (A19)	N	Y	Y	Y	Y	23:00-00:00
Haxby Road/Huntington Road	N	Y	Y	Y	N	00:00-01:00

FIGURE 4
WEEKDAY BEFORE 8AM SERVICE FREQUENCIES

AM Service (before 8am)
Frequency of service per hour

- - - - - < 1
- _ _ _ _ _ 1 - 2
- = = = = = 2 - 4
- █ █ █ █ █ 4 +

North
Yorkshire

East Riding
of Yorkshire

York

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Scale Bar



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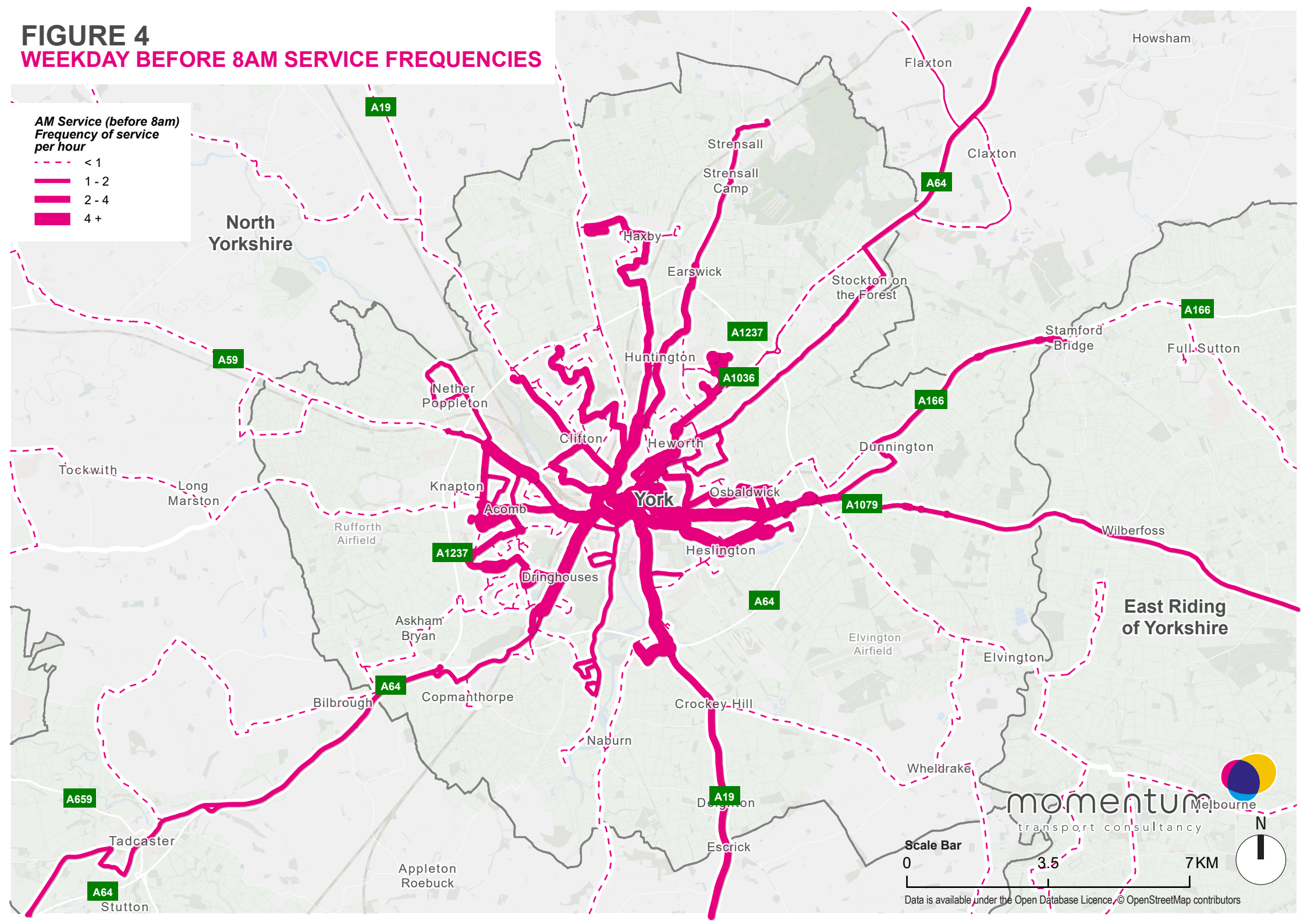


FIGURE 5
INTER PEAK 8AM - 6PM SERVICE FREQUENCIES

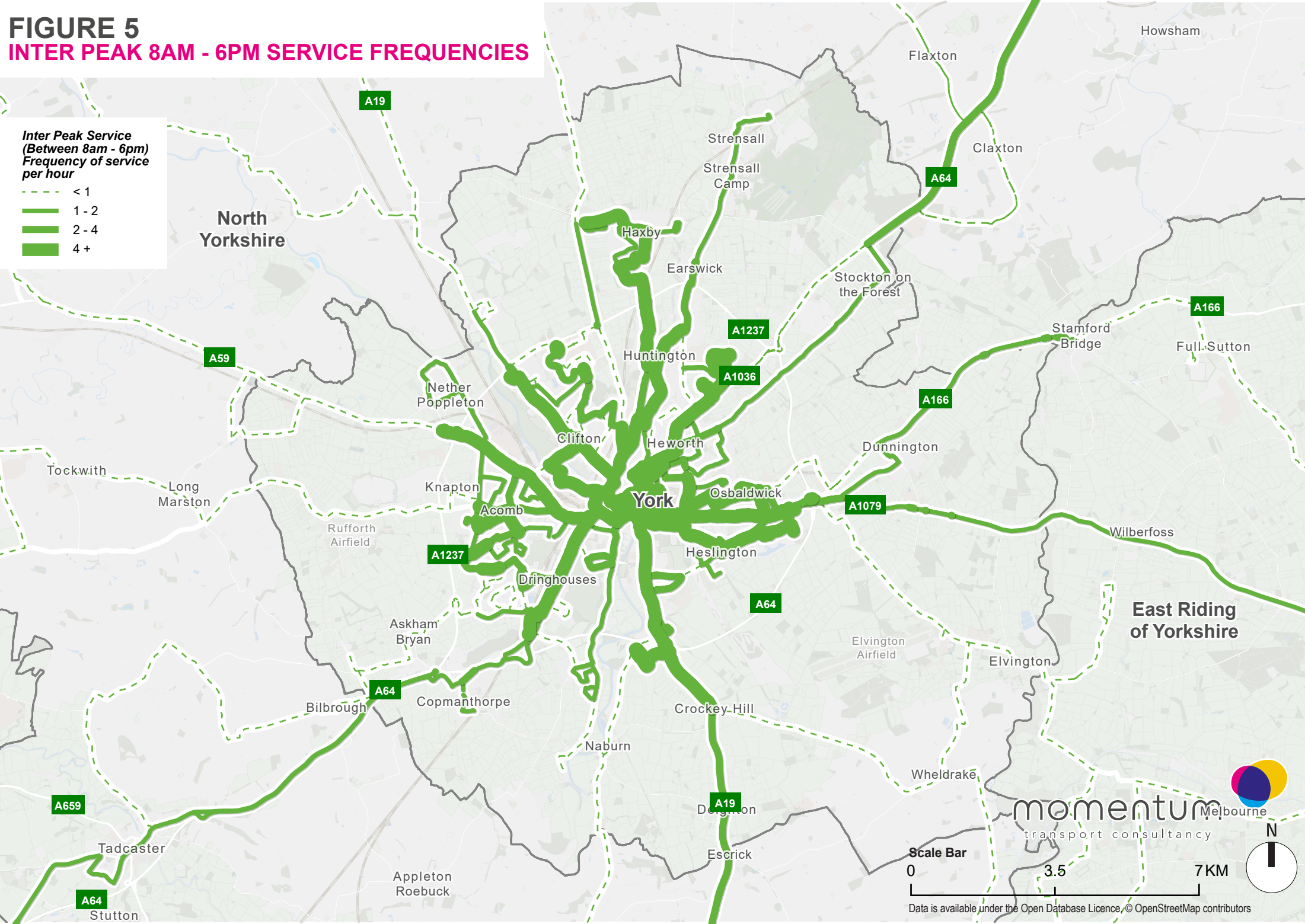
*Inter Peak Service
 (Between 8am - 6pm)
 Frequency of service
 per hour*

- - - < 1
- 1 - 2
- 2 - 4
- 4 +

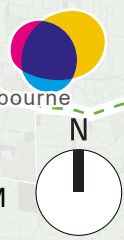
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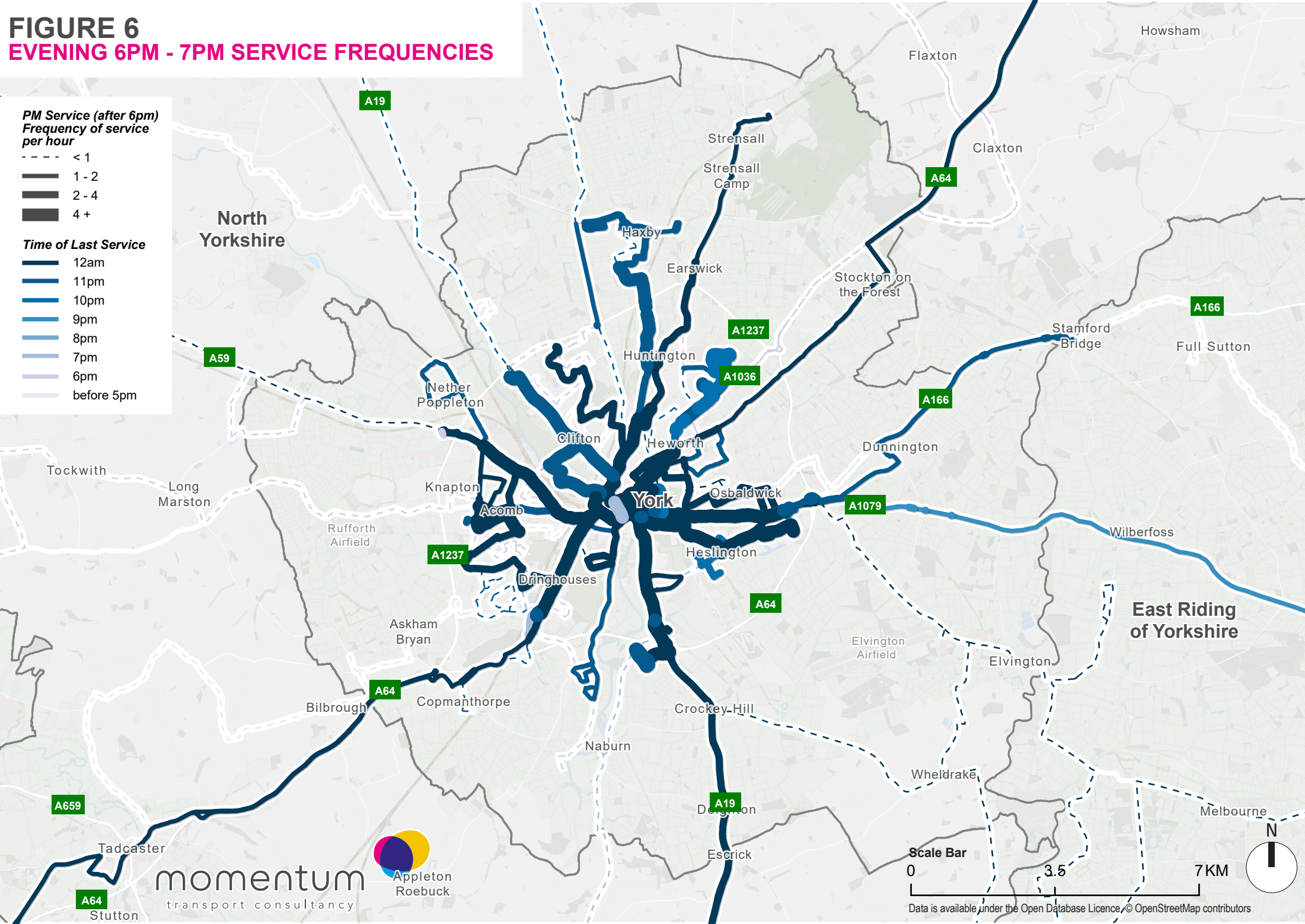
FIGURE 6
EVENING 6PM - 7PM SERVICE FREQUENCIES

PM Service (after 6pm)
Frequency of service per hour

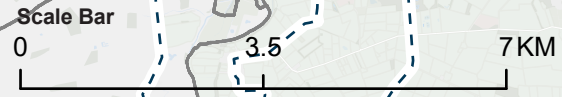
- - - - < 1
- 1 - 2
- 2 - 4
- 4 +

Time of Last Service

- 12am
- 11pm
- 10pm
- 9pm
- 8pm
- 7pm
- 6pm
- before 5pm



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FIGURE 7
SATURDAY PEAK 8AM - 6PM SERVICE FREQUENCIES

Saturday Service (8am - 6pm)
Frequency of service per hour

- - - - < 1
- 1 - 2
- 2 - 4
- 4 +

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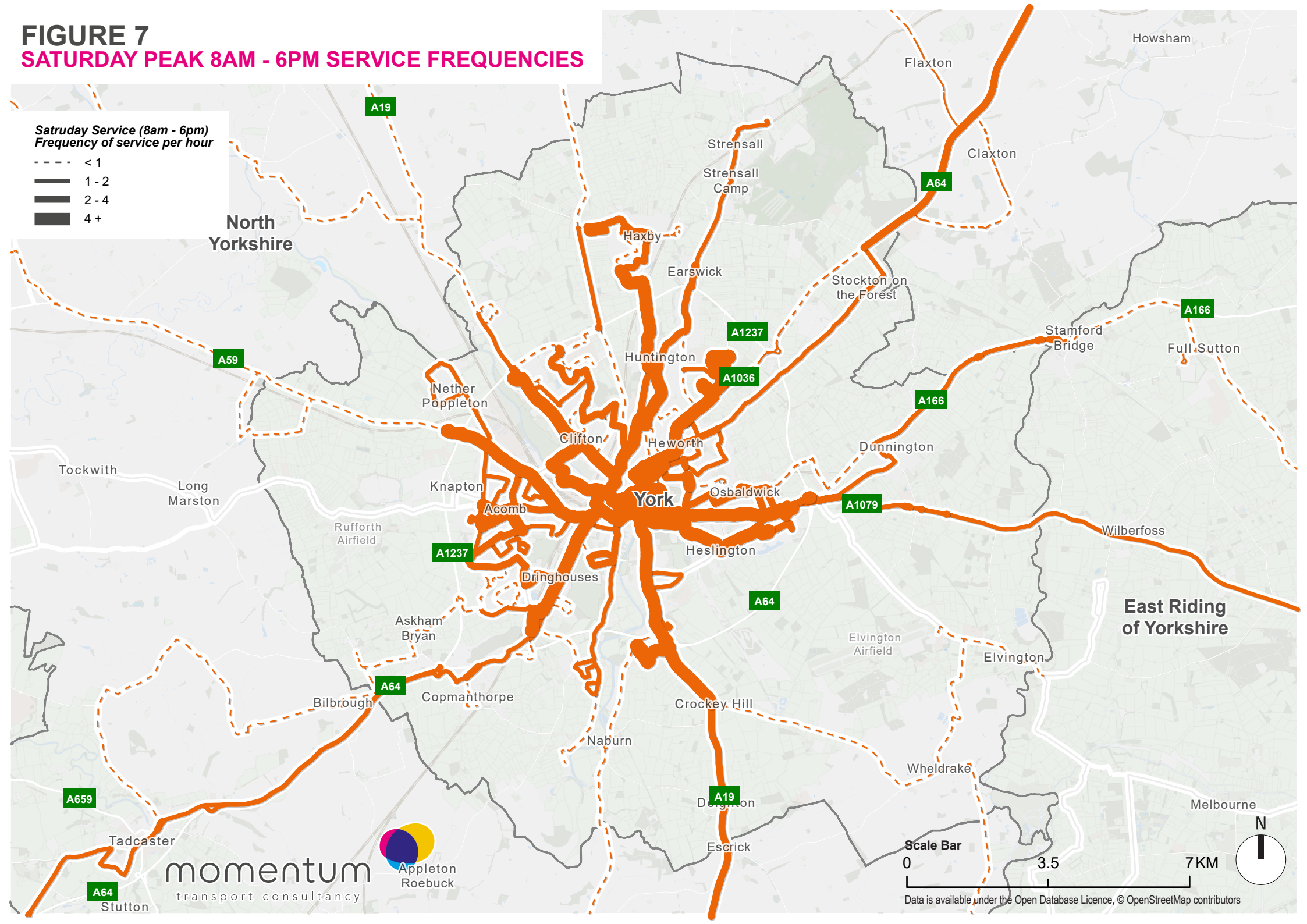
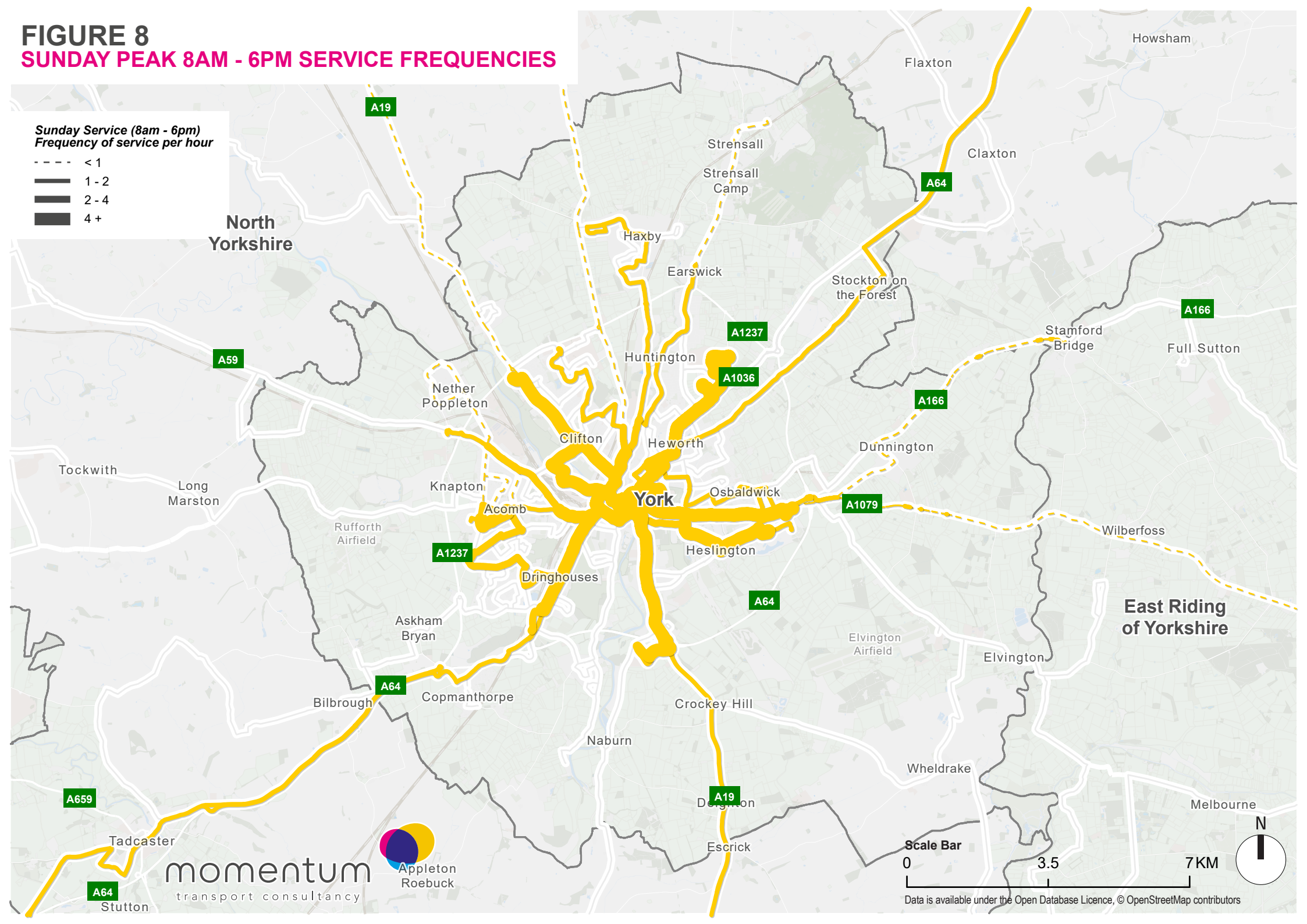


FIGURE 8
SUNDAY PEAK 8AM - 6PM SERVICE FREQUENCIES

Sunday Service (8am - 6pm)
Frequency of service per hour

- - - - < 1
- 1 - 2
- 2 - 4
- 4 +



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2.2 Ease of interchange

- 2.2.1 York's bus network is predominantly radial: only route 20 doesn't terminate or transit through the City centre. This is probably for historical reasons – as the city expanded, new neighbourhoods were connected to the centre and the train station. But large retail parks, educational institutions and housing developments are now located or being built at the city's fringe, and they would generate demand for orbital as well as radial trips.
- 2.2.2 Some routes, such as 1 or 5, transit through the centre, but most routes start at the city's fringe and terminate in central York. This is the case for the Park + Ride services, which are among the highest frequency bus routes in York. This means that interchanging would be needed to complete these orbital trips.
- 2.2.3 Table 3 shows key radial corridors across York where interchanging would be needed.
- 2.2.4 The origins and destination are places outside central York served by frequent services (at least four buses an hour). For infrequent services, people would time their departure to leave a window before their connecting bus. Origins and Destinations were chosen to cover key radial corridors where buses are running include a wide range of locations outside central York – such as York College, Monk's Cross and Designer Outlet.
- 2.2.5 Table 3 shows the average waiting time between two buses for a set of eight origins and destinations across York and surrounding communities, on weekdays during the daytime (08:00-18:00) and in the evening (19:00-22:00).
- 2.2.6 The ease of interchange analysis shows opportunities to coordinate timetables to facilitate connecting journeys. Waiting times around 3 to 5 minutes would provide for seamless interchanging in case a bus is delayed. Connecting journeys where walking is required would need to factor this in the interchanging time. Connecting trips that include waiting times above 10 minutes are unlikely to be attractive compared to trips by private car.
- 2.2.7 Waiting times are longer in the evening, when frequencies are lower.

Table 3 Corridors selected for the ease of interchange analysis

Yes: interchange needed

No: direct route available

	Grimston Bar P&R via Hull Road (A1079)	Designer Outlet via Fulford Road (A19)	Monk's Cross Shopping Centre via Malton Road (A1036)	Haxby shops via Haxby Road	York College via Tadcaster Road (A1036)	Acomb Shops via Acomb Road	Poppleton P&R via Boroughbridge Road (A59)	Rawcliffe Bar P&R via Skipton Road and York Hospital (A19)
Grimston Bar P&R via Hull Road (A1079)		Yes	Yes	Yes	Yes	Yes	No	No
Designer Outlet via Fulford Road (A19)	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Monk's Cross Shopping Centre via Malton Road (A1036)	Yes	Yes		No	Yes	Yes	Yes	No
Haxby shops via Haxby Road	Yes	Yes	No		No	No	Yes	No
York College via Tadcaster Road (A1036)	Yes	Yes	Yes	No		Yes	Yes	Yes
Acomb Shops via Acomb Road	Yes	Yes	Yes	No	Yes		No	Yes
Poppleton P&R via Boroughbridge Road (A59)	No	Yes	Yes	Yes	Yes	No		Yes
Rawcliffe Bar P&R via Skipton Road and York Hospital (A19)	No	Yes	No	No	Yes	Yes	Yes	

2.2.8 Empty cells mean there is a direct bus route and no interchanging is needed.

2.2.9 Of the 81 Origin / Destination pairs where an interchange is required, around 46% have average interchange times between 05 and 10 minutes, indicating a trip where passengers would factor in interchange times. 54% of instances (in particular during the evening, with implications for safety and equality) have interchange times over 10 minutes, indicating trips for which the interchange time would severely impact the attractiveness of bus travel in comparison with car travel.

2.2.10 No average interchange times below 05 minutes (seamless travel) have been found.

Table 4 Average waiting time (in minutes) between connecting bus journeys

	Acomb Shops		Designer Outlet York		Grimston Bar Park & Ride		Haxby Shopping Centre		Monks Cross Shopping Park		Poppleton Bar Park & Ride		Rawcliffe Bar Park and Ride		York College	
	08:00-18:00	19:00-22:00	08:00-18:00	19:00-22:00	08:00-18:00	19:00-22:00	08:00-18:00	19:00-22:00	08:00-18:00	19:00-22:00	08:00-18:00	19:00-22:00	08:00-18:00	19:00-22:00	08:00-18:00	19:00-22:00
Acomb Shops			00:08	00:11	00:13	00:19			00:10	00:16			00:09	00:19	00:10	00:13
Designer Outlet York	00:09	00:20			00:12	00:18	00:11	00:16	00:12	00:14	00:08	00:18	00:11	00:15	00:07	00:17
Grimston Bar Park & Ride	00:10	00:09	00:10	00:10			00:10	00:09	00:11	00:10					00:08	00:09
Haxby Shopping Centre			00:11	00:12	00:07	00:10					00:06	00:22				
Monks Cross Shopping Park	00:08	00:13	00:13	00:15	00:12	00:13					00:06	00:17			00:06	00:10
Poppleton Bar Park & Ride			00:08	00:09			00:10	00:18	00:07	00:07			00:08	00:06	00:09	00:20
Rawcliffe Bar Park and Ride	00:09	00:14	00:11	00:14							00:10	00:11			00:14	00:25
York College	00:07	00:12	00:08	00:13	00:13	00:15			00:09	00:07	00:06	00:15	00:11	00:21		

2.3 Bus mode share

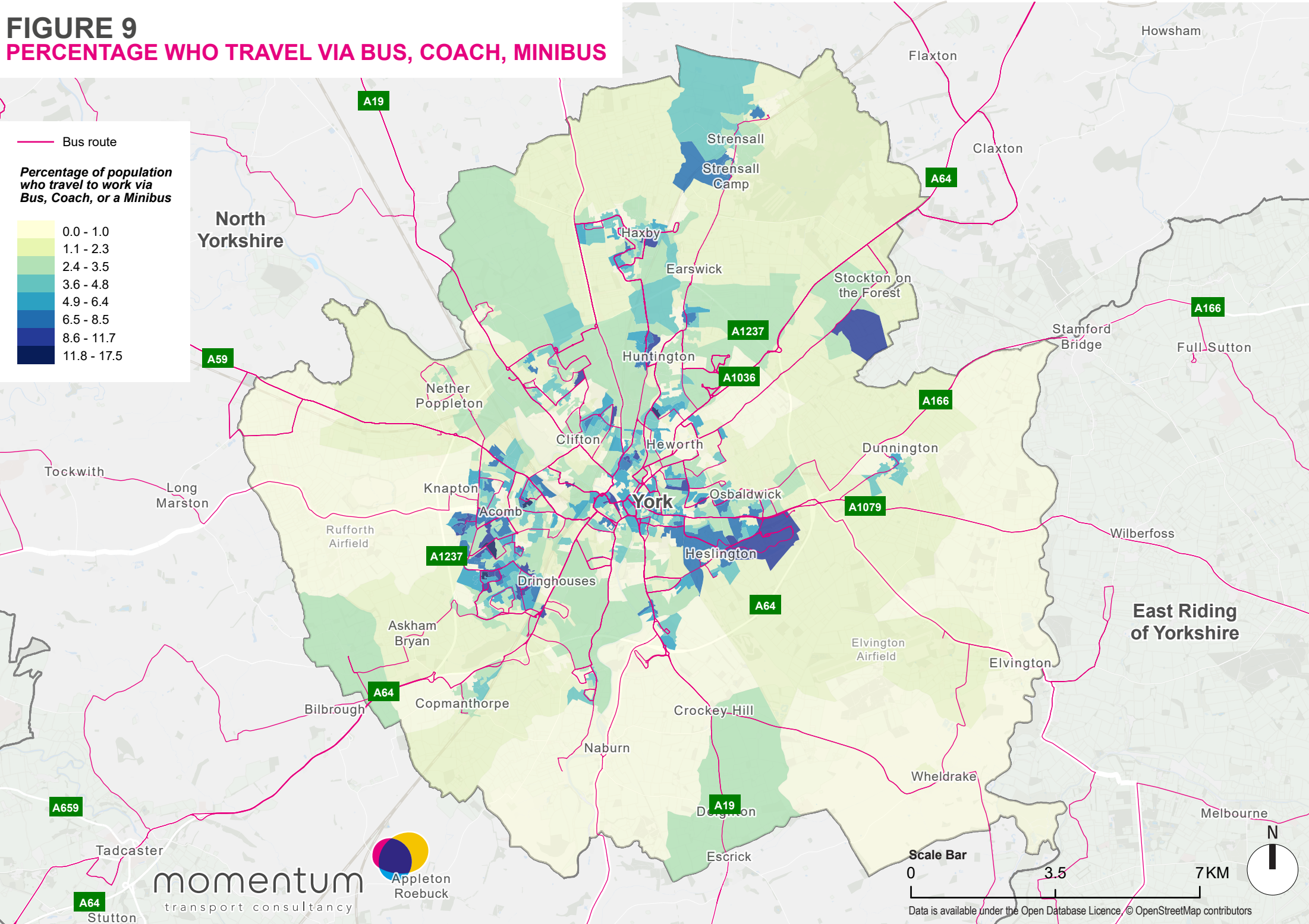
- 2.3.1 Figure 9 shows the proportion of York residents who commute by bus, overlaid with the existing bus network. This data is provided for Census Output Areas, which is the most detailed geographical level for census statistics. Each Output Area has a resident population ranging between 100 and 625 people.
- 2.3.2 The Census 2021 was collected during the Covid-19 pandemic at a time when more people regularly from home – therefore it underestimates the proportion of people who rely on buses to commute.
- 2.3.3 The aim of this map is to highlight areas where a larger number of residents rely on the bus network to get to and from work.
- 2.3.4 Residents are most likely to commute by bus if they live in:
- Heslington, and around the University of York campus
 - Fulford
 - Acomb
 - Chapelfields
 - Foxwood
 - Dringhouses
 - Clifton
 - Huntington
 - Haxby
 - Strensall
 - Stockton-on-the-forest
- 2.3.5 Residents living close to the City centre are much more likely to walk or cycle to work, while residents living further out are more likely to drive to work.

FIGURE 9
PERCENTAGE WHO TRAVEL VIA BUS, COACH, MINIBUS

— Bus route

Percentage of population who travel to work via Bus, Coach, or a Minibus

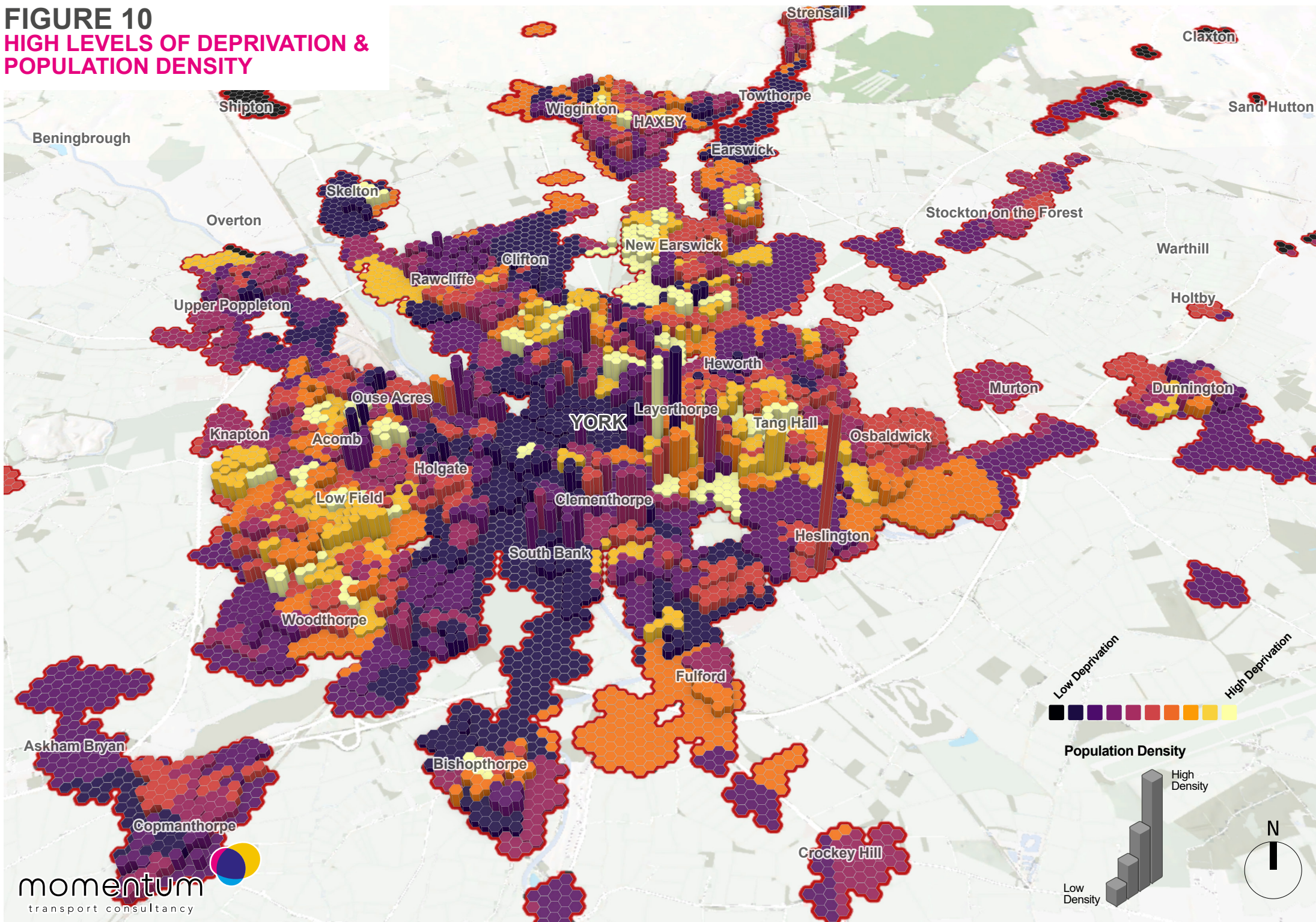
0.0 - 1.0
1.1 - 2.3
2.4 - 3.5
3.6 - 4.8
4.9 - 6.4
6.5 - 8.5
8.6 - 11.7
11.8 - 17.5



2.4 Household Deprivation

- 2.4.1 Figure 10 shows the household deprivation across York.
- 2.4.2 Household deprivation follows the definition by the Office for National Statistics: a household is considered deprived if it meets at least one of the following criteria:
- Education: A household is classified as deprived in the education dimension if no one has at least level 2 education and no one aged 16 to 18 years is a full-time student.
 - Employment: A household is classified as deprived in the employment dimension if any member, not a full-time student, is either unemployed or economically inactive due to long-term sickness or disability.
 - Health: A household is classified as deprived in the health dimension if any person in the household has general health that is bad or very bad or is identified as disabled. People who have assessed their day-to-day activities as limited by long-term physical or mental health conditions or illnesses are considered disabled. This definition of a disabled person meets the harmonised standard for measuring disability and is in line with the Equality Act (2010).
 - Housing: A household is classified as deprived in the housing dimension if the household's accommodation is either overcrowded, in a shared dwelling, or has no central heating.
- 2.4.3 Household deprivation is considered in this study to identify whether access to the bus network is equitable. Households on low incomes are usually less likely to own a car and therefore rely on public transport.
- 2.4.4 Population density is mapped on a 3D scale, so it can be read alongside bus network accessibility. Low or no bars indicate low population density, and spikes where it is highest. Population density is calculated as number of residents divided by the size of the corresponding Output Area.
- 2.4.5 Because Output Areas vary in size, very small build up areas can create density spikes, while bigger areas with the same population would have a lower density. Output area size is fixed in the Census, so the maps should be read with this caveat in mind.
- 2.4.6 Areas with higher numbers of households classified as deprived include:
- New Earswick
 - Tang Hall
 - Some areas in Acomb
 - Chapelfields
 - Foxwood
 - Some areas in Bootham
 - Some areas along Hull Road

FIGURE 10
HIGH LEVELS OF DEPRIVATION &
POPULATION DENSITY



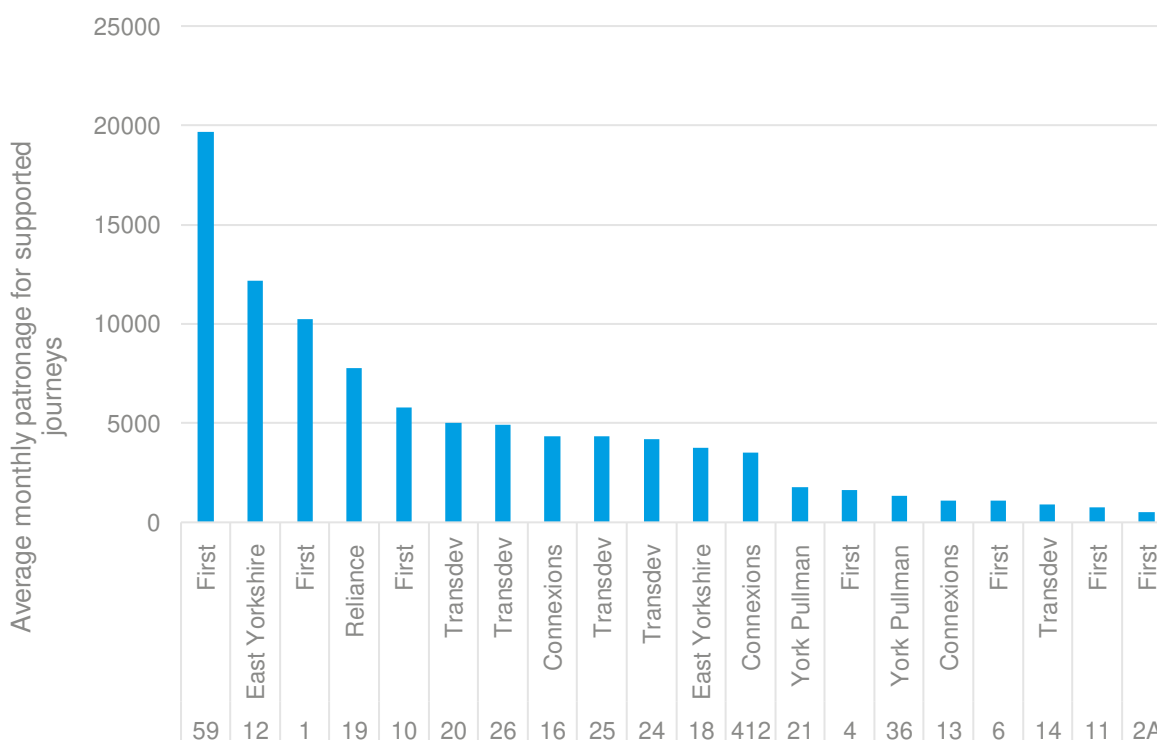
2.5 Patronage

BOARDINGS

By route

- 2.5.1 Figure 11 indicates the number of passengers for bus journeys supported by CYC.
- 2.5.2 While some routes are supported by CYC for all journeys across weekdays and weekends, some routes are only supported for early morning or evening journeys.
- 2.5.3 A total of 20 different routes were supported by CYC as of October 2023.
- 2.5.4 Route 59 connecting Poppleton Bar Park and Ride to York City Centre recorded the highest number of passengers with a total of 19,667 passenger boardings per month. The route is operated by First Bus and is the only Park and Ride service which is supported by CYC for all journeys and for which patronage data was made available.
- 2.5.5 Route 12 connecting Foxwood, York City Centre and Monks Cross, operated by East Yorkshire recorded an average of 12,167 passenger boardings per month.
- 2.5.6 Patronage figures are for boardings within the City of York boundary, they exclude any passengers who board outside York.

Figure 11 Monthly Patronage per Bus Route for journeys supported by CYC (Monday-Saturday)



(Note: For Routes 4 and 13, patronage is indicated from Monday-Friday, for 2A, Monday-Friday and Sunday, and for route 1, Monday-Sunday)

By operator

Table 5 shows the share of scheduled mileage within the City of York boundary as of April-June 2023. During this period there were an average of 370,000 scheduled bus miles per month within the CYC boundary, according to CYC data.

Table 5 Scheduled mileage within the City of York boundary, Apr-Jun 2023

Operator	Share of scheduled mileage within the York boundary (%)
First	58
Transdev	17
Arriva	7
East Yorkshire	6
Connexions	5
Reliance	5
Pullman	2

2.6 Development pipeline


















- 2.6.1 New developments will generate pockets of additional demand onto the bus network. CYC has indicated that the following developments will have been completed by 2025 (the timeframe for this study) and will impact the network due to their large size:
- Germany Beck development, Fulford: the project comprises around 650 new homes in Fulford. This is likely to create additional demand along existing routes 25, 26, 7 and 415.
 - Langley Gate – 226 homes. This is likely to create additional demand along routes 5/5A, 10 and 56 (Poppleton Bar Park and Ride).
 - Cocoa Works – 279 homes. The development would create additional demand along routes 1, 5/5A and 6.
- 2.6.2 It has been assumed that the average household size would be similar to the York average of 2.37 people per household – so the estimated number of new residents of all ages would be:
- Germany Beck – 1,542 residents
 - Langley Gate – 536 residents
 - Cocoa Works – 662 residents
- 2.6.3 Other large developments are unlikely to see significant numbers of occupants beyond 2025, and therefore have not been included in our recommendations:
- York Central: the masterplan is located at the west of York City Centre and aims to provide 2,500 homes, with 10,000sqm of office space. The masterplan is located in proximity to bus routes 10 and 2/2A.
 - Central Station Redevelopment: the rebuilding of the area in front of York Station will improve the bus interchange and provide better facilities for passengers
 - Former British Sugar site
 - Former Bootham Crescent football ground site

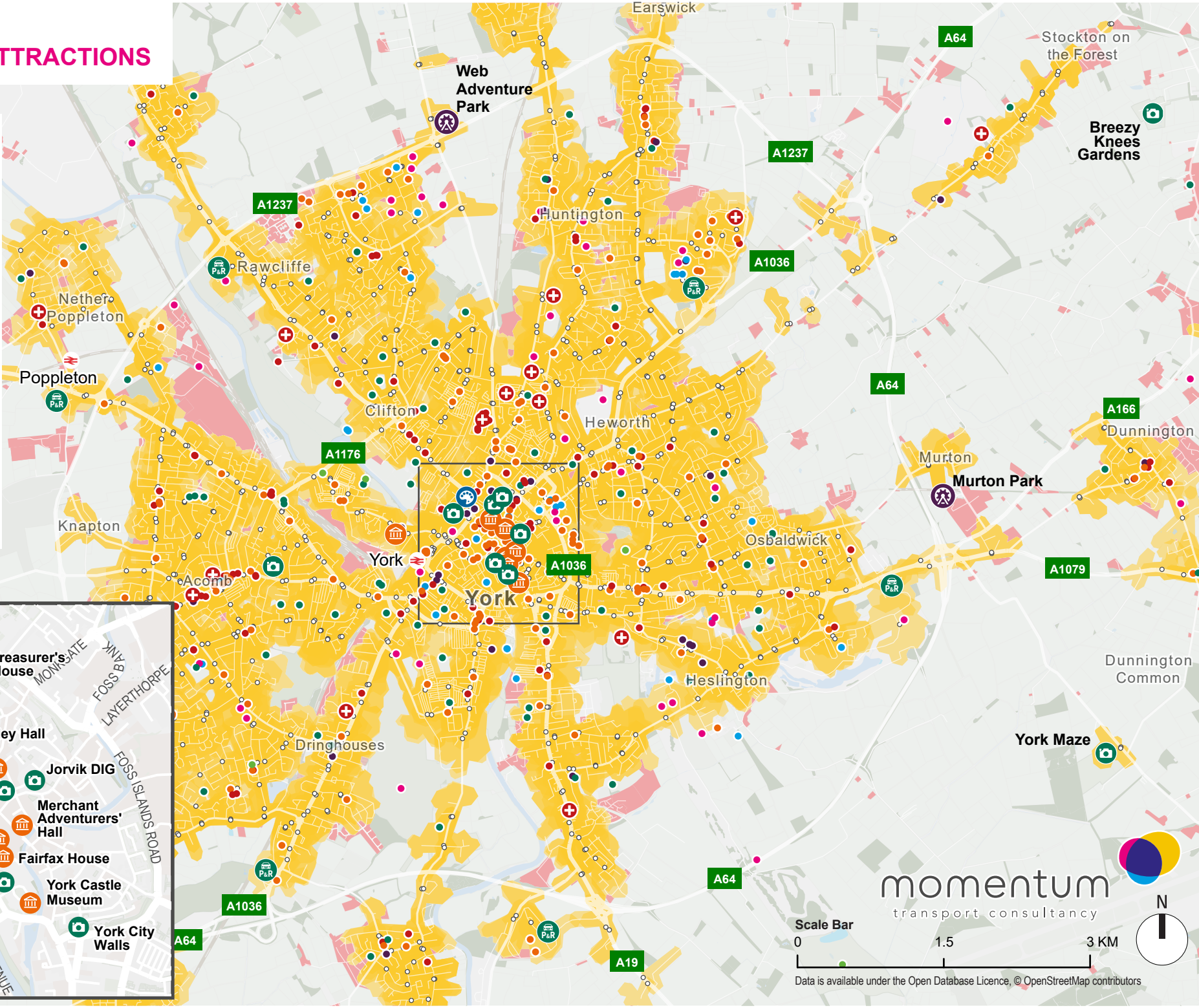
2.7 Connectivity

AMENITIES AND VISITOR ATTRACTIONS

- 2.7.1 Figure 12 overlays York's amenities and attractions within a 400m walking catchment from bus stops (an 8-minute walk at average walking speed).
- 2.7.2 400m is the accepted standard for walking catchment, though some people may be prepared to walk or wheel a longer distance to catch a bus, and some would not be able to. People cycling may be able to access bus services from much further away.
- 2.7.3 We define amenities as the shops, services or places of recreation that people would access using the bus network. These include:
- Park + Ride and other transport hubs
 - Dentist
 - Cinema
 - Corner shops
 - General practices
 - Supermarket
 - Pharmacy
 - Library
 - Primary School
 - Secondary School
 - Parks/Greenspace
 - Sports and Recreation Facilities
 - Hospitals
 - Museums
 - Shopping Centres
 - Theatres
- 2.7.4 The map also includes visitor attractions in and around York.
- 2.7.5 The map shows how many amenities and attractions are within catchment of the bus network – except for green spaces, which tend to be located further away from the road network.

FIGURE 12 AMENITIES AND ATTRACTIONS

-  Bus Stop
 -  Rail Station
 -  Park & Ride Hub
 -  400m walking catchment from bus stop
 -  Commercial / Residential outside 400m catchment
- Key Attractions**
-  Attraction
 -  Gallery
 -  Museum
 -  Theme Park
- Other Attractions**
-  Hospital & Pharmacies
 -  Leisure & Cinema
 -  Health, Dentist & GP
 -  Cultural Sites
 -  Sports & Recreations
 -  Shopping
 -  Parks & Greenspaces
 -  School



CENTRAL YORK

momentum
transport consultancy

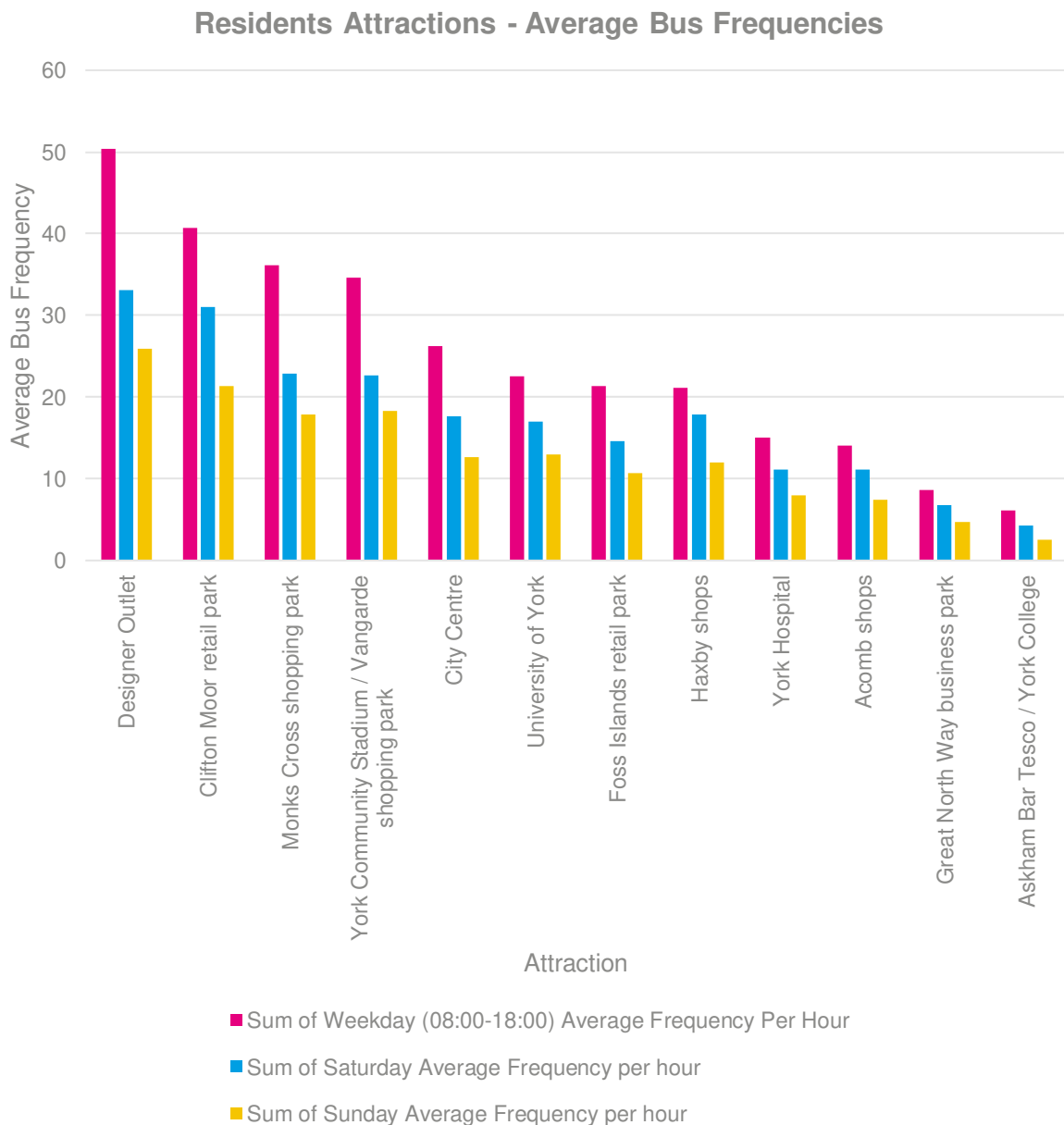
Scale Bar
0 1.5 3 KM

Data is available under the Open Database Licence, © OpenStreetMap contributors

Amenities

2.7.6 Figure 13 shows bus frequencies for key residential amenities at different times of day and week. It should be noted that for some destinations such as York City Centre, Acomb and Haxby shops, one specific shop was selected within the data base. Bus frequencies may vary depending on the size of the selected area. This bias is particularly important for York City Centre which should have the highest level of bus frequency but has bus services spread across multiple locations.

Figure 13 Bus service frequency for key local services

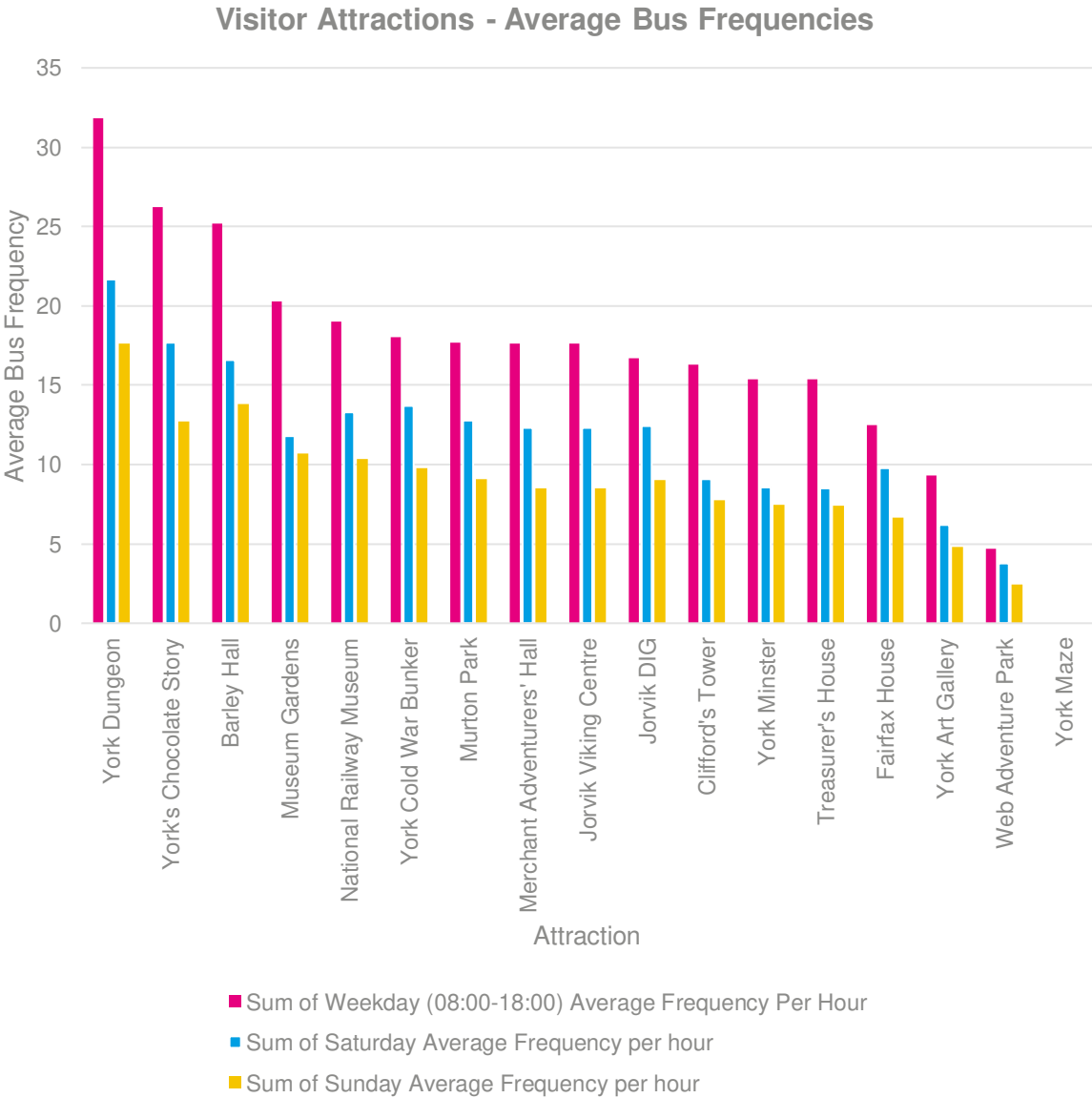


Visitor attractions

2.7.7 Figure 14 shows bus frequencies available for key visitor attractions at different times of day and week.

2.7.8 York Maze is served by bus services in the summer months only to match its opening times.

Figure 14 Bus service frequency at key visitor attractions



2.8 York Bus accessibility level

METHODOLOGY

- 2.8.1 This section overlays the bus network accessibility across York and population density.
- 2.8.2 The aim of these maps is to visualise areas where bus network connectivity improvements would benefit the largest number of people.
- 2.8.3 Population density is provided for the 2021 Census for Output Areas – the most detailed level of analysis available for Census data. Output Areas are similar in terms of population but can vary greatly in size. Particularly small output areas can lead to significant density spikes on the maps.
- 2.8.4 The colour scale indicates public transport accessibility – based on frequencies during weekdays early morning peak hour (07:00-08:00) for Figure 15, and weekdays average daytime frequencies (between 08:00-18:00) for Figure 16.
- 2.8.5 The York Bus Accessibility Level (YBAL) is a metric calculated for this study to assess whether a building or an area is well served by the bus network. It follows a similar methodology to Greater Manchester Accessibility Levels (GMAL) and London’s Public Transport Accessibility Level (PTAL).
- 2.8.6 The YBAL score is classed into eight levels, 1 to 8, where level 8 represents a high level of accessibility (dark red on the maps) and level 1 a low level of accessibility (dark blue on the maps).
- 2.8.7 For each point of interest, the accessibility index score is calculated based on:
- Actual walking time from the point of interest to nearby bus stops (within 400m)
 - The frequency bus services available at these bus stops
- 2.8.8 Areas beyond a 400m distance from a bus stop (on average an 8-minute walk) are considered outside its catchment (though some people could walk longer, or shorter distances to a bus stop). Catchments are considered based on the shortest walking route available.
- 2.8.9 YBAL thresholds are presented in Table 6. For example, a point or area with 1.5 bus trips an hour in the AM (07:00-08:00) would be awarded a score within band 1, while a point or area with 62.5 bus trips an hour would be awarded a score within band 7.

Table 6 YBAL scores

Band	Score
1 (blue)	0.15
2	0.5
3	1
4	2
5	4.5
6	9
7	17.5
8 (red)	35

- 2.8.10 Figure 15 shows the York Bus Accessibility Level during early morning on weekdays (07:00-08:00).

- 2.8.11 Figure 16 *Figure 16 PM Public Transport Accessibility and D* shows the York Bus Accessibility Level during daytime on weekdays (08:00-18:00).
- 2.8.12 Figure 17 shows the York Bus Accessibility Level on Saturdays (08:00-18:00).
- 2.8.13 The York Bus Accessibility Level is significantly lower on late evenings and Sundays – since some services do not run at these times, and those that run have lower frequencies. Services that terminate early or do not run on Sundays are presented on Figure 2 and service frequencies on Sundays is shown in Figure 8.

How to read data on density

Population density is calculated as number of residents divided by the size of the corresponding Output Area – which is defined in the Census. Census Output Areas all have a similar population but can vary greatly in size. Very small build up areas can create density spikes, while bigger areas with the same population would have a lower density. The maps should be read with this caveat in mind.

JOB DENSITY

- 2.8.14 This map overlays the York Bus Accessibility Level and employment densities, based on the 2011 Census, which is the most recently available data as of October 2023.
- 2.8.15 The map shows the main concentrations of employment across the City, and how these are served by the bus network on a weekday during the daytime (08:00-18:00).

2.9 Reliability

- 2.9.1 Reliability problems – where buses are full, not on time, or services cancelled - can arise for several reasons. They are often due to traffic congestion, which happens when there are too many other vehicles on the road, and can be made worse when a road is narrowed or closed for construction or major events. This study focuses on longer-term reliability problems – those that are due to traffic.
- 2.9.2 CYC have identified the following long-standing congestion points triggering bus reliability issues:
- City Centre (Bridge Street and Micklegate are among the 20% most congested areas in York)
 - A19 through Fulford
 - Wigginton Road near York Hospital
 - Tadcaster Road near York College
 - Burton Stone Lane north of Crichton Avenue
 - Water Lane approaching Clifton Moorgate
 - Heslington Road
 - Holgate Road
- 2.9.3 Because these congestion points are strategic corridors leading to the City Centre, many buses transit through them and nearly all bus routes are affected. Delays often then have repercussions on the rest of the affected routes.
- 2.9.4 Bus priority measures, as proposed in the BSIP, would help alleviate the impact of congestion on bus reliability. Other options include routing buses away from the most congested roads or terminating services early (and while this can reduce accessibility, in practice many people would walk or wheel to their destination if it is near) These options are explored in section 3 .

FIGURE 15
AM PUBLIC TRANSPORT ACCESSIBILITY & POPULATION DENSITY

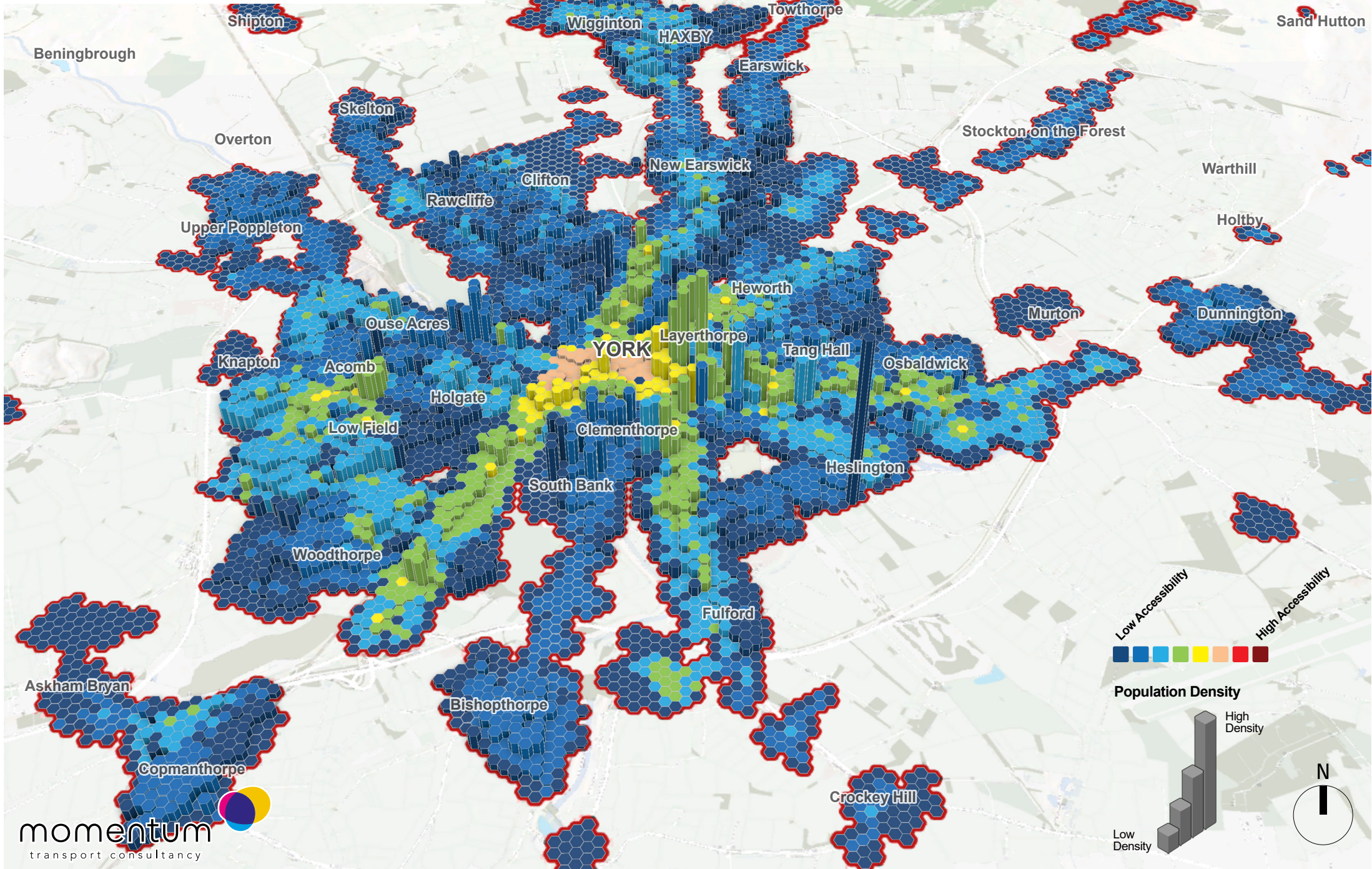
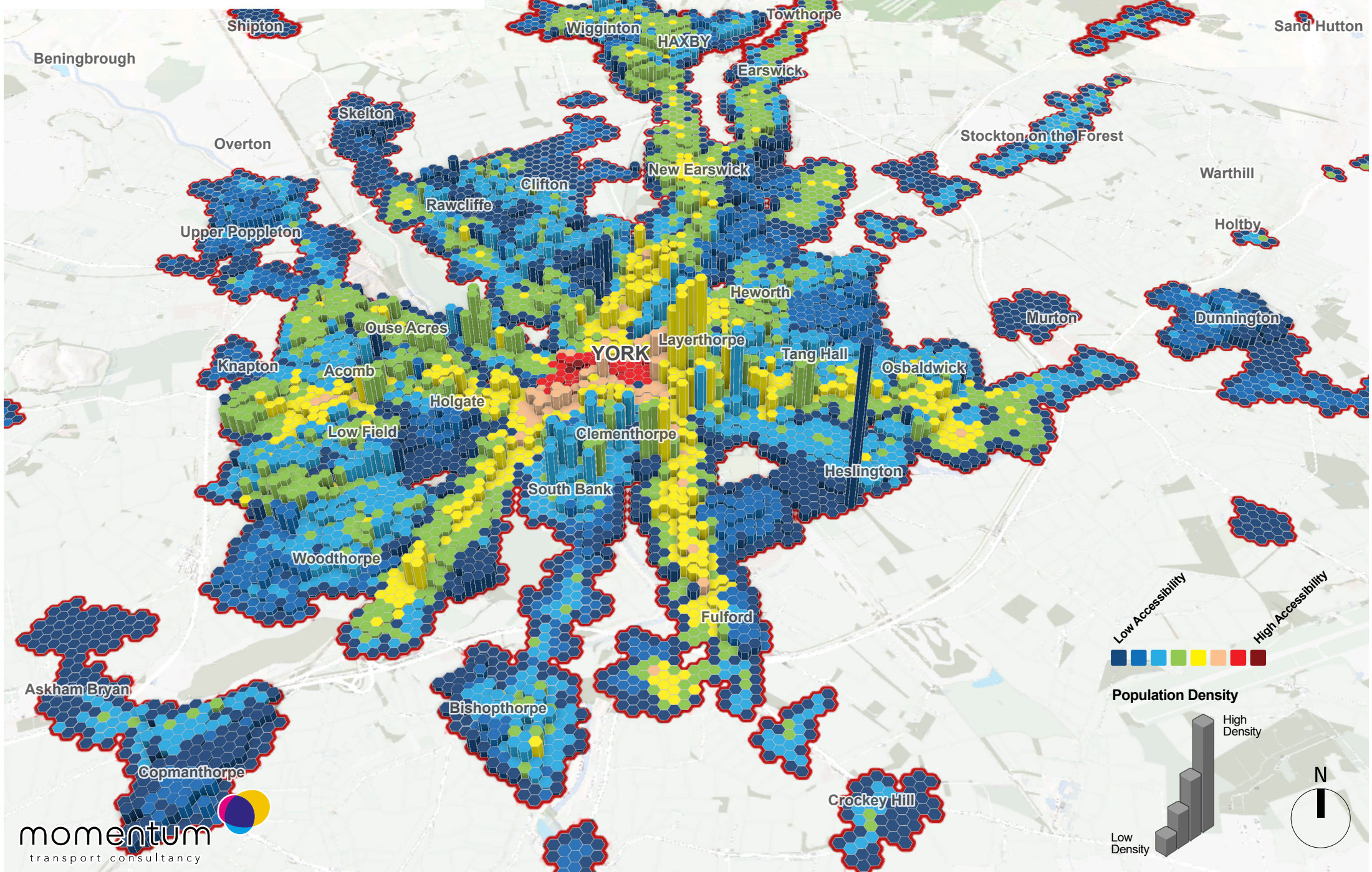


FIGURE 16
PM PUBLIC TRANSPORT ACCESSIBILITY
& POPULATION DENSITY



Low Accessibility
 High Accessibility

Population Density

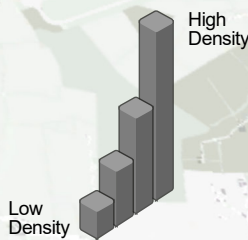


FIGURE 17
SAT PUBLIC TRANSPORT ACCESSIBILITY
& POPULATION DENSITY

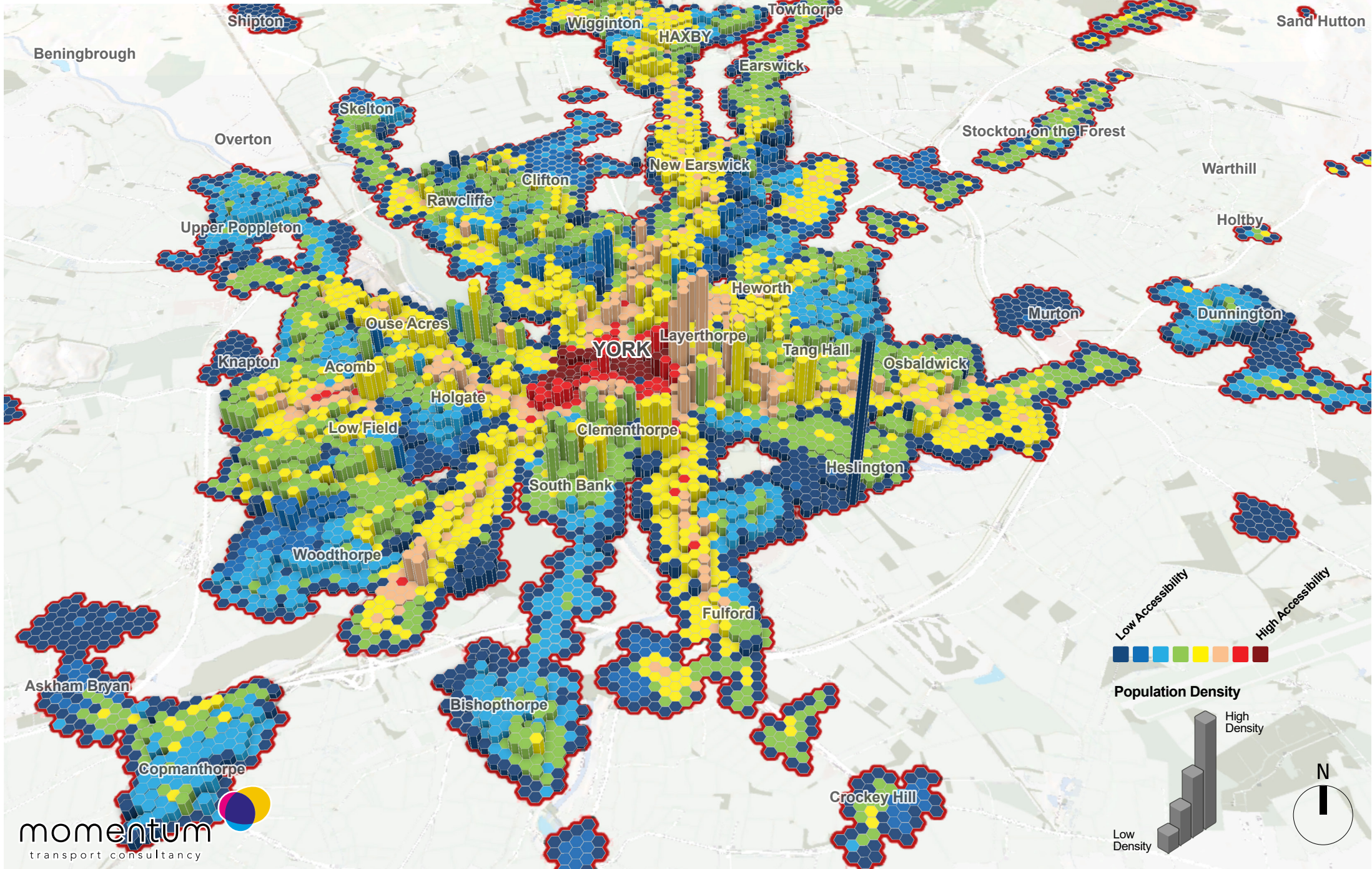
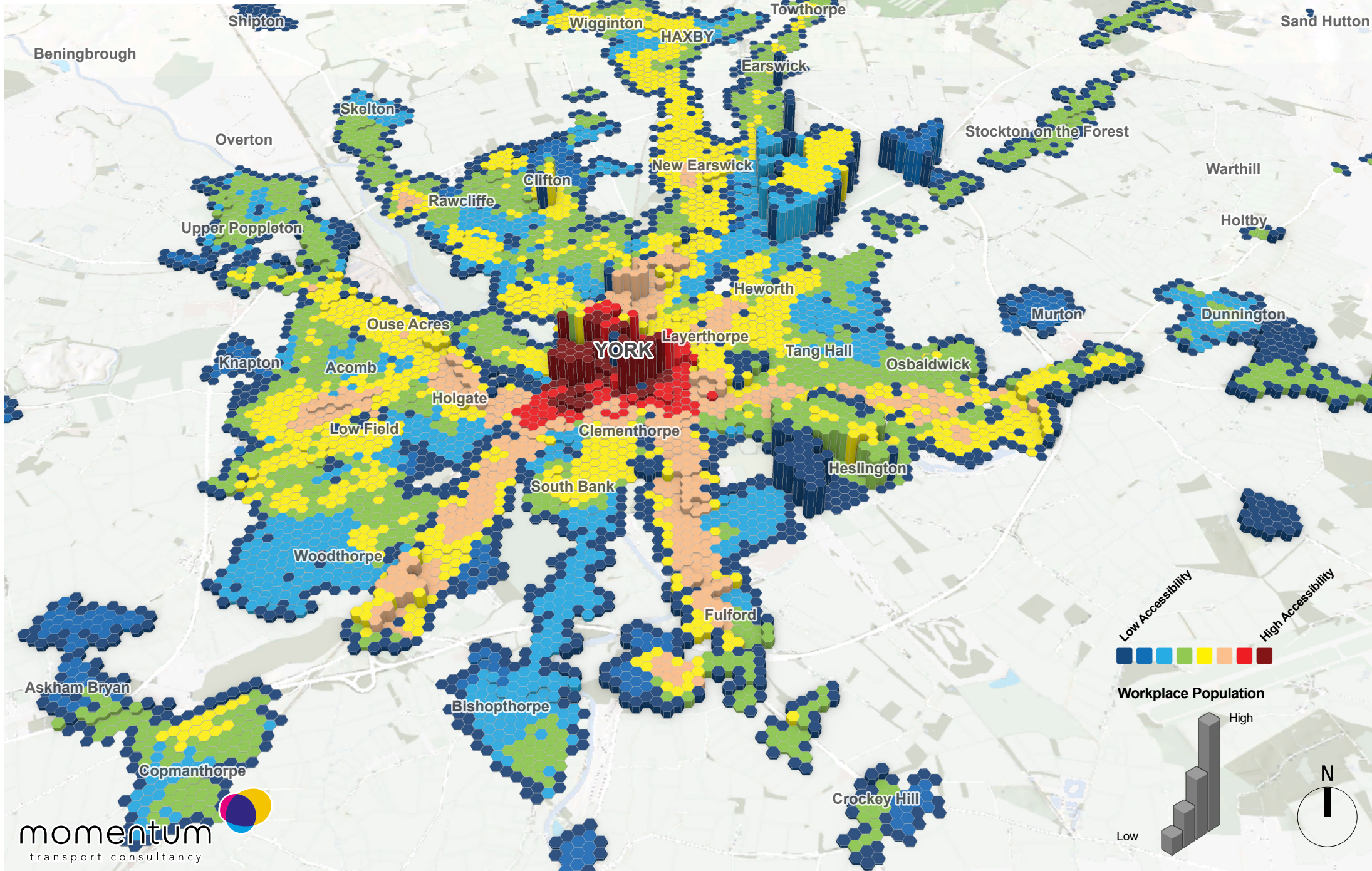


FIGURE 18
PUBLIC TRANSPORT ACCESSIBILITY &
WORKPLACE POPULATION



3. OPPORTUNITIES

3.1 Expanding bus network accessibility

3.1.1 CYC aims to deliver on the challenges of reaching net zero by 2030, accommodate growth in a sustainable way, and address imbalances between people who have access to a car and people who don't. As part of this, CYC targets an increase in bus use by 50 per cent by 2030.

PRIORITY AREAS

3.1.2 This section provides mapping analysis to identify priority areas for an expansion of bus network accessibility.

3.1.3 Figure 19 shows areas of medium or high population density but low to medium Bus Network Accessibility. These include:

- Heslington, where some of the student housing is located further away from key bus routes
- Some areas in New Earswick
- Some areas in Dunnington
- Derwenthorpe
- Some areas in Clifton and Rawcliffe
- Some areas in Poppleton
- Some areas in Bishopthorpe
- Woodfield and Foxwood
- Copmanthorpe

3.1.4 Figure 20 highlights areas with medium or high levels of deprivation but low to medium Bus Network Accessibility. These include:

- Some areas in Low Field and Woodthorpe
- Some areas in Tang Hall
- Some areas in Bishopthorpe

3.1.5 Figure 21 shows areas with high job density but low or medium Bus Network Accessibility. These include:

- York Business Park
- Some areas in New Earswick
- Some areas in Clifton
- Some areas in Heslington (parts of the University Campus)

OPPORTUNITIES

3.1.6 There is an opportunity to provide evening and Sunday services to users who don't currently have them. The lack of evening and Sunday services means some communities rely on the car for day-to-day activities at these times. This is especially the case for routes 10, 11, 12 and 13 – which are cross City routes and don't overlap with other services outside of the City centre (except for route 13, and route 10 along Hull Road and Boroughbridge road). This means users in Southbank, Bishopthorpe, Dunnington, Poppleton and Heworth rely on these services. Users of route 13 in Copmanthorpe have access to other routes but still have low to no service frequencies on Sundays.

- 3.1.7 Bus network accessibility could be expanded by running a higher frequency of services, creating new routes or amending a route so better serves an area where connectivity is poor.
- 3.1.8 For example, Park + Ride routes (routes 2, 3, 7, 8, 9 and 59) offer some of the highest service frequencies in York, but the routes are short and make limited stops. This makes them more reliable and convenient for Park + Ride users, but opens up opportunities to improve accessibility by adding stops or extending these routes.
- 3.1.9 A new night bus service would also help people who do not have access to a car, or do not wish to drive at night.
- 3.1.10 Expanding bus network accessibility will create additional cost – our recommendations section provides options to offset these with efficiency savings.

3.1 Making interchanging easier

- 3.1.1 Section 2.2 provided evidence that waiting times for some local connecting bus trips can be long. Connecting trips that include waiting times above 10 minutes are unlikely to be attractive compared to trips by private car.
- 3.1.2 The results indicate the need to better coordinate bus timetables across key corridors (in particular where low frequency routes are present) to improve interchange performance.
- 3.1.3 Further, matching routes terminating in the city centre to create more cross-city routes could reduce the need to interchange. Where possible, this should be considered for Origin / Destination pairs with higher interchange times.

FIGURE 19
SAT PUBLIC TRANSPORT ACCESSIBILITY
& POPULATION DENSITY

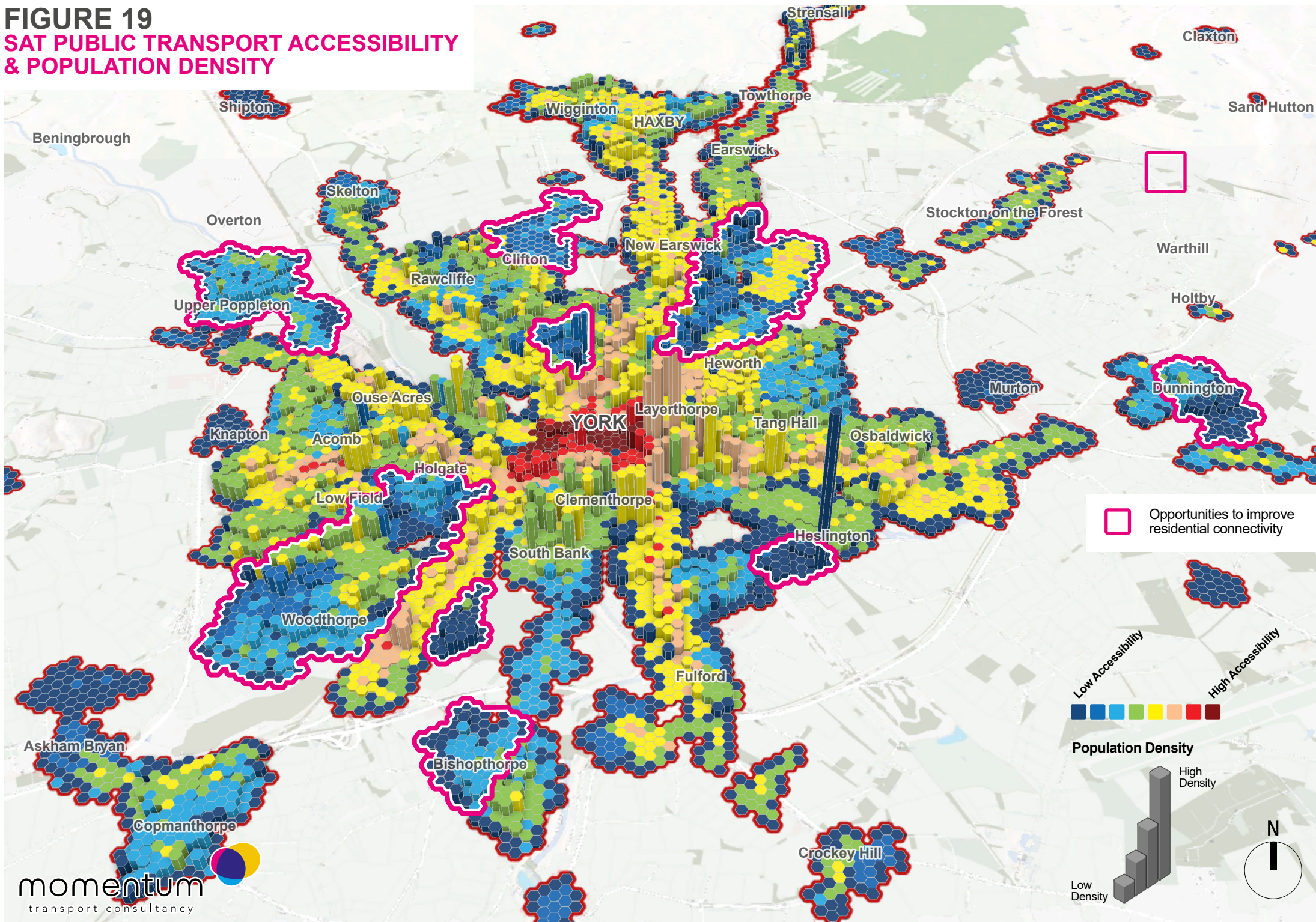


FIGURE 20
HIGH LEVELS OF DEPRIVATION & POPULATION DENSITY

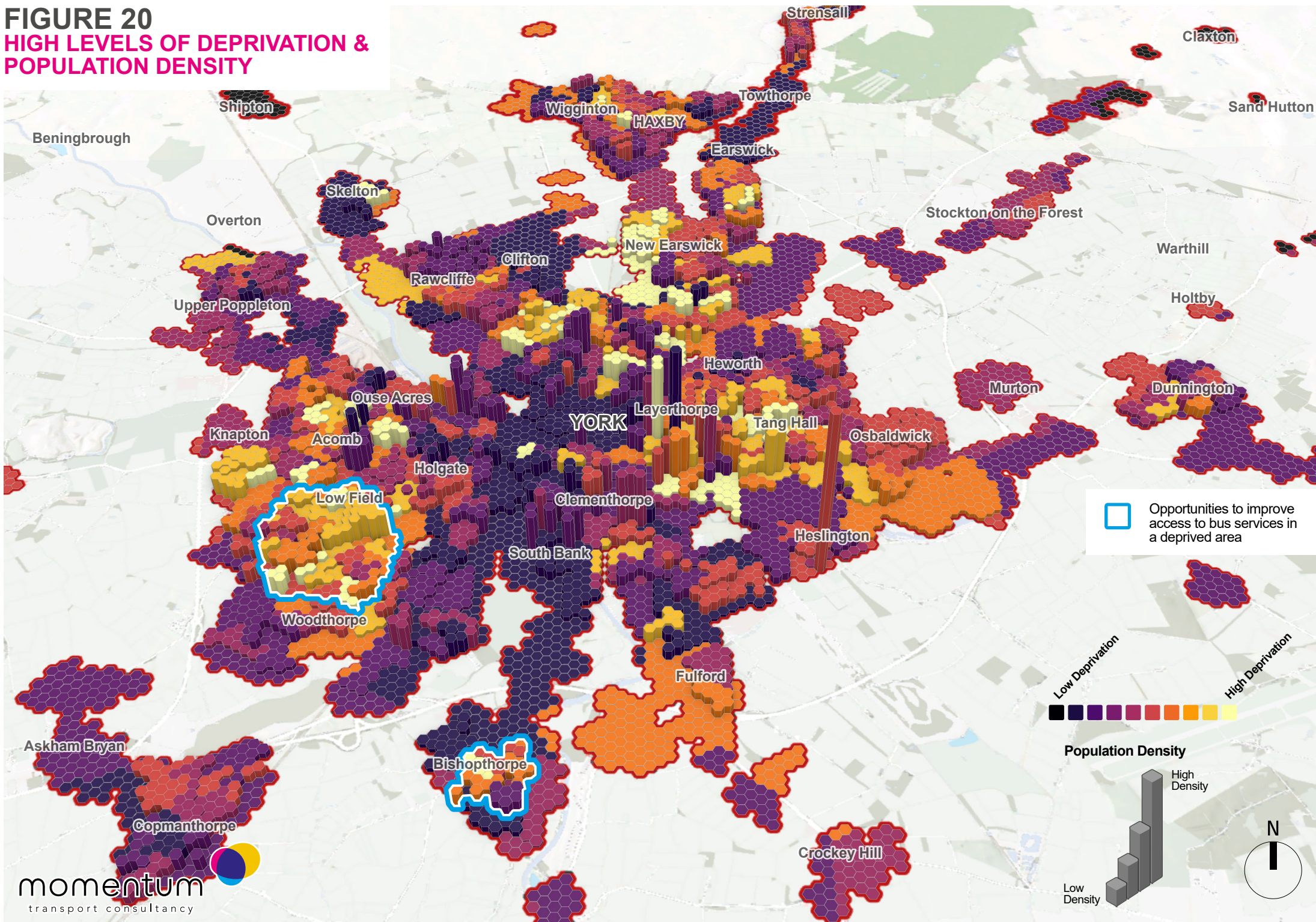
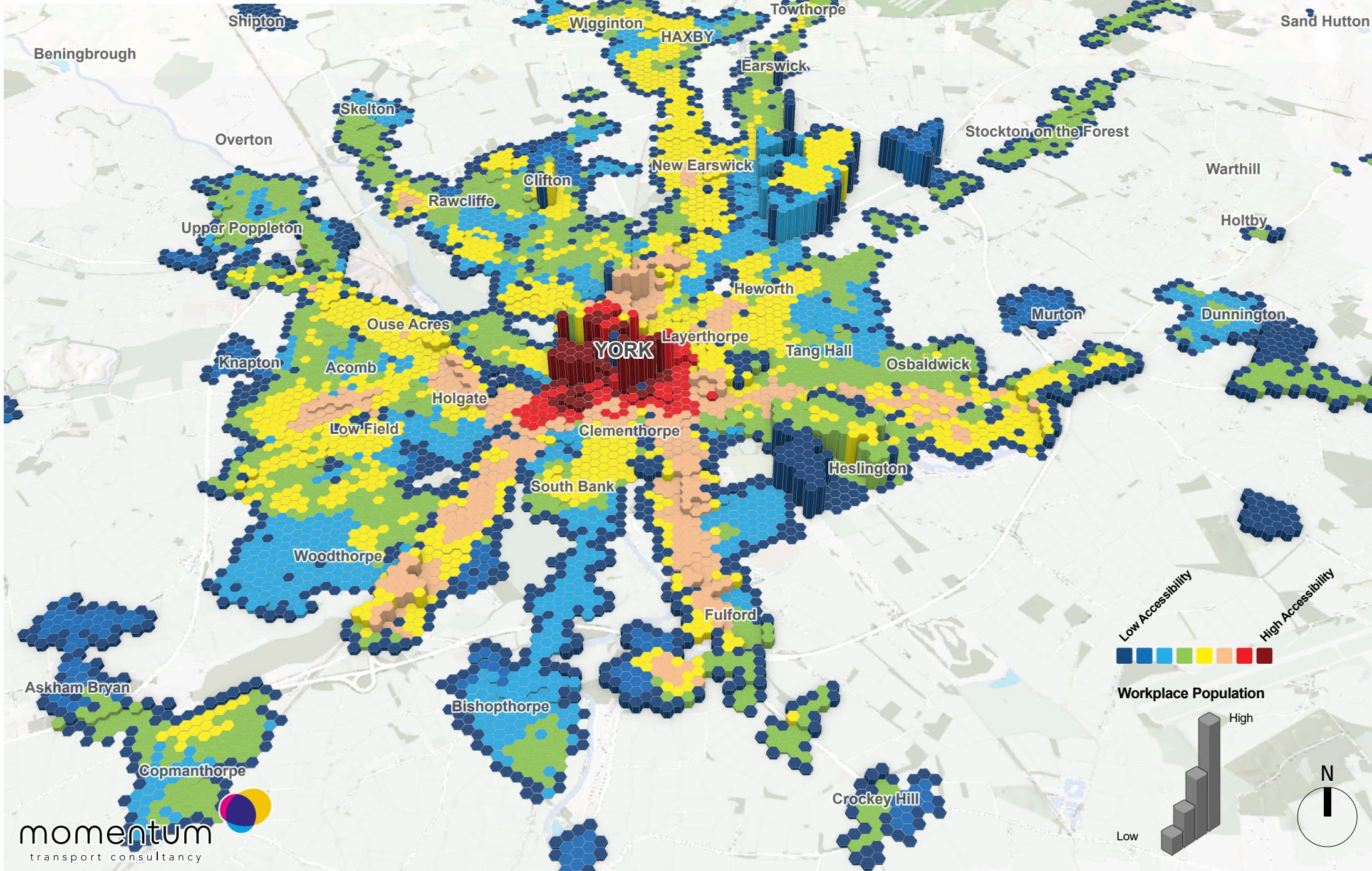


FIGURE 21
PUBLIC TRANSPORT ACCESSIBILITY &
WORKPLACE POPULATION



4. RECOMMENDATIONS

4.1 How these recommendations should be read

- 4.1.1 The purpose of this study is to make recommendations on how York's bus network could become more:
- Accessible – by increasing frequencies or improving routing so that more people have access to a good bus service nearby
 - Efficient – identifying where routes overlap, which means that the potentially very limited financial resources beyond 2025 could be better used elsewhere, or where detours make the route slower, which means fewer people are willing to use it
 - Reliable – looking at how changes to routing and termini could reduce delays
- 4.1.2 These proposed changes have been formulated based on the evidence and analysis provided in this report. They should be read in the context of CYC's goal to reach net zero by 2030, increase bus ridership by 50 per cent by 2030, and the financial uncertainty regarding funding for bus services beyond 2025.
- 4.1.3 This study is advisory only and preliminary to any decision made by CYC. We know that changes to bus services – especially changes to routes and stops – are disruptive to people's travel habits and should be only carried out if there are substantial benefits associated with them. Further financial, economic, feasibility and transport modelling analysis would be carried out to assess feasibility and impacts, and decisions would be informed by extensive stakeholder and public consultation.
- 4.1.4 Due to the lack of sufficiently detailed demand information, the proposed changes focus on overlapping routes and assume that frequencies would not change from the current situation.
- 4.1.5 The financial and passenger impacts of these recommendations should be assessed in detail as part of a follow up study.

4.2 Proposed changes – Subsidised Routes (City Only)

CHANGE A – ROUTE 12

- 4.2.1 One change is proposed on the northern part of route 12, between the City Centre and Monks Cross. The routing of the service would change from Elmfield Avenue – Malton Road – New Lane to Victoria Way – Geldof Road – Skewsby Grove - Whenby Grove – Anthea Drive.

Figure 22 Proposed change on Victoria Way (route 12)

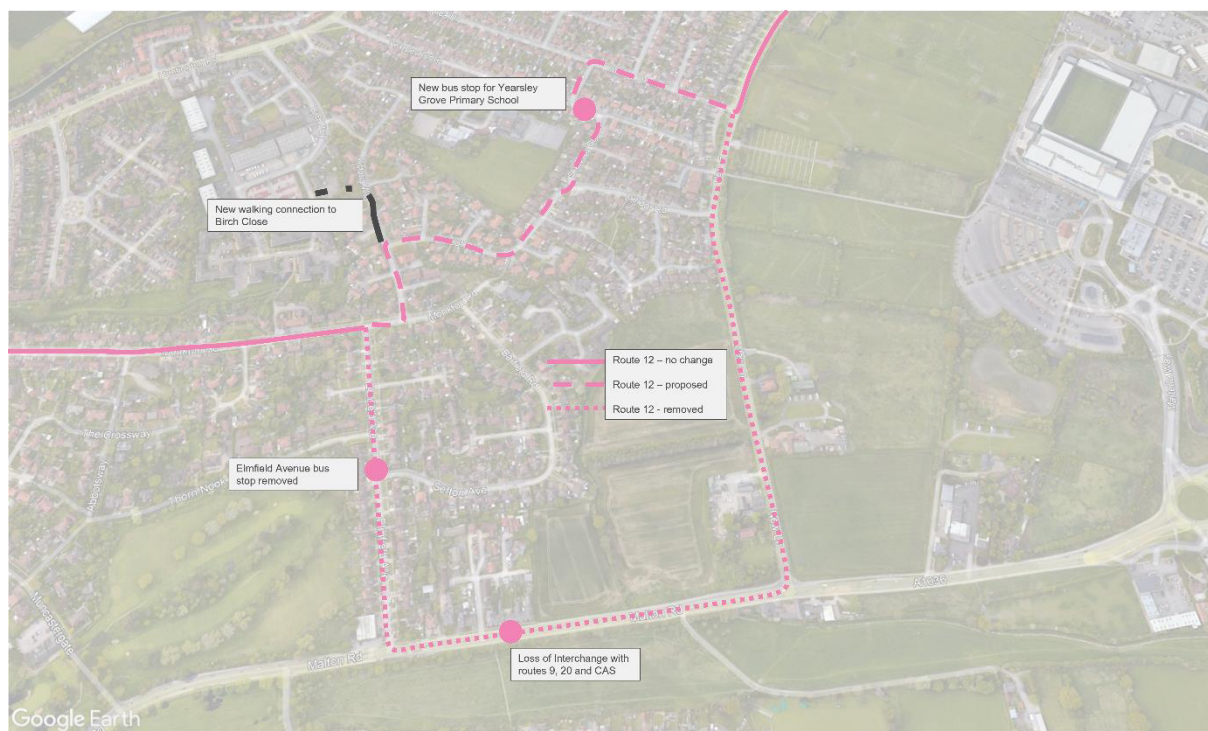


Table 7 Impacts of Victoria Way rerouting (route 12)

Positive	Negative
Route length reduced by 568m	Minor increase of walking distance for residents on New Lane, however the route remains well within walking distance
Serve Yearsley Grove Primary school which currently has no direct bus access	Increased walking distance for Elmfield Road residents (max 190m)
Serve Victoria Way Surgery	Loss of interchange with routes 9, 20 and CAS on Malton Road (available at Monks Cross)
Serve Birch Park employment area if a walking connection can be created between Victoria Way and Birch Close	Loss of direct connection with Straylands Day Nursery

4.2.2 Table 8 shows the impact on route length, which could lead to a time saving on the route.

Table 8 Estimate impact on costs of changes to Route 12

Change ID	Route	Route Length Change (m)
A	12	-568

City of York response:

This recommendation is worthy of consideration, however much of the suggested route has full-width traffic calming measures, which would ideally need to be re-engineered to be suitable for buses to negotiate without generating excessive noise and vibration to nearby residents. Several parts of the proposed route are quite narrow and would require extensive, well-enforced restrictions to on-street parking to be feasible. Suggest significant resident consultation and capital budget needs to be identified before proceeding.

CHANGE B – ROUTE 14

- 4.2.3 Route 14 provides evening services on the southern section of route 12 (Foxwood to City) and northern section of route 13 (City to Haxby).
- 4.2.4 Instead of a separate route, it is proposed for network clarity and legibility to use the support currently provided to route 14 to provide evening services on the northern part of route 13 (extending by 5 hours to 23) and southern part of route 12 (extending by 1 hour to 23).
- 4.2.5 This would ensure that passengers find the same route and service throughout the day and evening.
- 4.2.6 Further, should route 13 require full support from CYC in the future, the routes could be modified to match exactly the current route 14, ensuring the evening services along the corridor are carried out by the same service. In particular, the routes could become:
- Route 12 Foxwood – City – Haxby
 - Route 13 Copmanthorpe – City – Monks Cross
- 4.2.7 These changes would have minimal impact on route lengths and could be carried out at minimal cost to the council.

City of York response:

This is more or less how routes 12 and 13 used to operate a decade or so ago before they were altered by First, which operated both routes commercially at that time. This is the reason service 14 follows different parts of the two current daytime routes. For future consideration with First or subsidised services.

CHANGE C – ROUTES 16 AND 24

- 4.2.8 Routes 16 and 24 serve the Holgate, Acomb and Foxwood areas away from the main commercial streets.
- 4.2.9 For Route 16, it is proposed to remove the Hob Moor loop and that the route remains on Hamilton Drive.
- 4.2.10 It is also proposed to extend Route 16 beyond the Acomb shops to serve the western part of route 24 along Askham Lane, terminating at Cornlands Road Shops or Energise Leisure centre.
- 4.2.11 Route 16 could also pick up the loop south of Acomb that is currently served by route 24. This would create a more direct service to and from the City centre for Acomb and Foxwood residents. Route 24 would terminate at Acomb shops instead.

Figure 23 Proposed changes on Hamilton Drive and Acomb shops (route 16)



Table 9 Impact of proposed changes to route 16

Positive	Negative
Better integration and reduced overlapping with route 24 with overall reduction in mileage	Longest walking distance from Holly Bank Grove to bus route increases to 424m if Hob Moor Drive route removed

City of York response:

The suggestion to merge parts of service 24 with service 16 is worthy of further consideration. The current route allows buses to avoid significant school-time congestion outside Our Lady's Primary School. Removing Holly Bank loop would be unpopular with residents in the area, who form a large percentage of passengers on service 16.

CHANGE D – ROUTES 25 & 26

- 4.2.12 Routes 25 and 26 serve the Fulford area and the A19 corridor (Fulford Road – Selby Road), the City Centre and terminate at Derwenthorpe and South Bank respectively.
- 4.2.13 It is proposed to merge the two routes, divert them along the Tower Street – Nunnery Lane route to retain the connection with the rail station, then proceed along the current route to Derwenthorpe. Without changing the frequencies, this would provide two buses per hour to Derwenthorpe, in addition to the hourly route 20 (see Change F3).
- 4.2.14 It is proposed to support additional services along route 11 between the railway station and South Bank to make up for the removal of route 26.

Figure 24 Proposed changes to routes 25 and 26

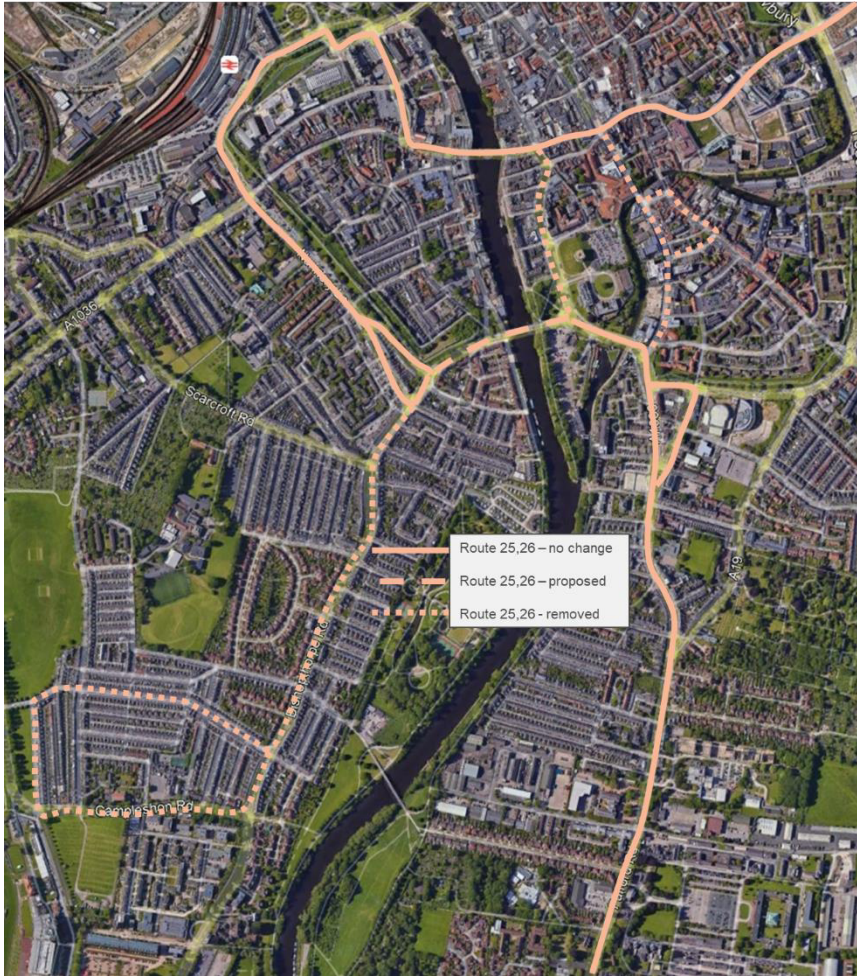


Table 10 Impact of proposed changes in South Bank (route 26)

Positive	Negative
Route length reduced by 1,839m	Reduced service to Southbank
Increased frequency in Dewenthorpe	Subsidy potentially required on route 11 to provide services lost by removing route 26 between South Bank and rail station
Additional direct connections with York Station	

4.2.15 Table 11 shows the impact of these changes in terms of route length.

Table 11 Estimate impact on costs of changes to Routes 25, 26

Change ID	Route	Route Length Change (m)
G	25,26	1,295 (considering additional services on route 11)

City of York response:

Changes to route 25 and 26 are worthy of further consideration

4.3 Proposed Changes – Subsidised Routes (beyond CYC boundary or shared with other Authorities)

4.3.1 The following proposals consider routes that extend beyond the CYC boundary and are jointly supported by CYC, North Yorkshire Council (NYC) and East Riding of Yorkshire Council (ERYC).

4.3.2 It has been assumed that the portion of support provided by the CYC covers the portion of the route within the City of York.

CHANGE E – ROUTES 18 AND 36

4.3.3 These routes serve villages to the south of York, entering the city along the A19 – Selby Road access and via the Designer Outlet. Route 18 has an average headway of 150 minutes between 08:00 and 19:00, and Route 36 has an average headway of 120 minutes between 07:00-19:00. The combined frequency is therefore close to hourly in the common part of the route (City Centre – Designer Outlet – Crockey Hill – Wheldrake).

4.3.4 Between the Designer Outlet, the City Centre and the railway station, these routes are available at all stops. This slows services coming in and out of York.

4.3.5 We considered an option of terminating routes 18 and 36 at Designer Outlet P&R, to improve reliability on the route, as currently delays within CYC would impact the whole route, and create operational efficiency. However we discarded this option, as it would mean that passengers on the 18 and 36 to or from the City Centre would need to change service, and this could lead to additional travel time. We understand that service reliability on Fulford Road is often impacted by traffic congestion, and delays on an outbound P&R service could lead to passengers missing their connection to routes 18 or 36.

4.3.6 We propose an alternative solution to improve reliability and speed along Fulford Road for users of routes 18 and 36. CYC plans to introduce bus priority measures on the A19 – once these are in place, it is proposed that routes 18 and 36 become limited stop within the City, to reduce travel times for passengers from outside York. Passengers along the route would still benefit from other stopping services along the A19.

CHANGE F – ROUTE 21, 22, 23

4.3.7 Route 21 presents similar issues and headway (120 minutes) to routes 18 and 36.

4.3.8 We considered terminating route 21 at Askham Bar P&R to improve efficiency and reliability on these routes but discarded this option due to its detrimental impact on the user experience.

4.3.9 Bus stop priority measures are being implemented along a segment of Tadcaster Road. Once these are in place, route 21 could become a limited stop service between Askham Bar Park & Ride and the City Centre, where passengers can find other stopping services to the City Centre.

- 4.3.10 The loop on Lycett Drive and Middlethorpe Grove could be transferred to route 13, also supported by CYC and providing a higher frequency than route 21.
- 4.3.11 Should bus stop priority measures be implemented on Boroughbridge Road (A59) in future, a similar limited stop service could be provided for routes 22 and 23 between Poppleton and the City Centre.

CHANGE G – ROUTES 37, 412, 747

- 4.3.12 Routes 37 and 747 (the first one extending to the villages west of the city, and the latter to the east) are not supported by CYC, so changes to these routes would not have any cost or financial benefit for the council. Route 412 extends to the villages west of the city and is 50% funded by CYC and 50% by North Yorkshire Council (NYC).
- 4.3.13 We have considered an option to terminate these services at P&R sites – with the CYC segment of the route provided by P&R services, to improve reliability and create efficiencies on these routes. This option was discarded as it would be detrimental to user experience, especially for outbound journeys – as passengers missing their connection would lead to lengthy waiting times at P&R sites.
- 4.3.14 Instead, it is proposed that these lines become limited stop between P&R sites and the City Centre as and when bus priority measures are implemented. This would reduce journey times and create efficiencies on the route.

CHANGE H – CAS ROUTE

- 4.3.15 Within the urban area of York, the CAS route has significant overlap with route 9 (Park & Ride). However, the CAS route is advertised in particular for visitors, and terminating it at the edge of York could have a significant impact on this segment of demand.
- 4.3.16 Further, the routes operates on the Malton Road corridor, where there are no commercial services.
- 4.3.17 Therefore, it is considered that the CAS route has limited opportunities for significant changes. Some possible optimisations are provided below.

Change H1 – Remove Monks Cross Loop

- 4.3.18 The CAS route could avoid accessing the Monks Cross area, instead continuing along Malton Road. It would require an interchange with route 9 to access the area.

Figure 25 Optimisation opportunity on CAS route



Table 12 Impact of the proposed changes on CAS route

Positive	Negative
Route reduced by 2,755m	Forces interchange for Monks Cross, a significant demand attractor

Change H2 – Express Services

4.3.19 In order to reduce the impact on journey times for the out of York passengers on the CAS route, express services with limited stops to the City Centre could be provided, with route 9 (Park & Ride) picking up the stopping services.

4.3.20 Table 13 shows the initial estimate of financial impact of the changes.

Table 13 Estimate impact of changes to CAS route

Change ID	Route	Route Length Change (m)
M	CAS	-2,755

City of York response:

The Monks Cross loop was added to the Castleline service by NYCC around 5 years ago, presumably due to passenger demand. CYC only makes a token contribution of £2k towards the cost of this service. Low priority to change.

4.4 Suggestions for commercial routes, and other contracted services

ROUTES 1, 4 AND 5

- 4.4.1 Routes 1, 4 and 5 are run in the Acomb area by First Bus York on a commercial basis (with some CYC support for early morning and evening services). Routes 1 or 5 could be candidates for night services trials.
- 4.4.2 Route 4 currently terminates at the Central Interchange. Instead, route 4 could be transformed in a circular route terminating at Acomb. From Central Interchange, the northern section of route 4 would run along the A59, taking over route 5 services beyond the Fox Inn bus stop (Poppleton Road – Acomb Road junction).
- 4.4.3 At the western end of the route, route 4 could provide higher frequency regular services to the Carr schools before terminating at the Acomb shops.
- 4.4.4 The route could be run as a circular route (with clockwise and counterclockwise services) or as a standard route, with services arriving to Acomb from the A59 returning via the same route to the City Centre and arriving at Acomb from the south (current route 4). Services arriving from the south would run the full route back to Acomb via the City Centre in the opposite direction.
- 4.4.5 This could also allow re-routing of route 5 along Acomb Road – York Road – The Green (B1224) providing a high frequency service together with route 1, before turning north on Beckfield Lane to terminate at York Business Park (Great North Way), via the Langley Gate development.
- 4.4.6 The new terminus at York Business Park would connect it to the bus network – as it currently doesn't benefit from bus services.
- 4.4.7 It is considered that these changes, with limited impact on bus mileage (except potentially for the extension to Langley Gate / York Business Park) could provide better, more frequent and regular coverage to residents, businesses and services in the Acomb area.

Figure 26 Suggested changes to Routes 4 and 5 in the Acomb Area



City of York response:

The proposed link to Langley Gate, York Business Park and Great North Way is worthy of investigation. For discussion with First.

PROPOSED CHANGES – DEMAND RESPONSIVE TRANSIT

- 4.4.8 The area between roads A59 (Boroughbridge Road – Poppleton Road) and the A1036 (Tadcaster Road) has some of the highest bus mode shares in the city and also significant deprivation. The area covers neighbourhoods such as Acomb, Chapelfields, Knapton, Lowfield, Westfield, Holgate, Foxwood, Woodthorpe and Dringhouses.
- 4.4.9 There are good frequencies of commercial services (1, 4 and 5) serving radial routes between this area and the city centre, as well as several CYC supported services (12, 14, 16, 24) with

lower frequencies (30 to 60 minutes). Additionally, routes 412 (supported by CYC and NYC) and 37 (supported by NYC and ERYC) run through the area.

- 4.4.10 Local amenities, such as shops, leisure facilities, schools, are often located along north-south orbital routes only partially served by bus services.
- 4.4.11 CYC could therefore consider piloting a Demand Responsive Transit service in this area to complement fixed, timetabled routes. This service could include minibuses, but also work in coordination with taxis and Private Hire Vehicles. To further support mobility options, the service could also be integrated with the existing e-scooter and e-bike sharing service.

City of York response:

Limited evidence available from other LTA areas suggests DRT cost per passenger would vastly exceed that of York's existing tendered bus routes. We couldn't see an economic case for significant DRT in a small city with a dense local bus network such as York.

EVENING AND NIGHT BUS SERVICES

- 4.4.12 CYC could pilot a weekend night bus service on one of its cross-City routes, either supporting the extension of a commercial route timetable or using one of the subsidised routes. Route 1 or 5 would be good candidates for this service as they would complement the existing CB1.
- 4.4.13 Following public consultation and the findings of a pilot, an alternative to providing services through the night could be to improving evening service frequencies by increasing the number of evening services during late evenings.

TIMETABLE COORDINATION

- 4.4.14 Coordinating timetables for routes where there is high demand for interchanging would make connecting journeys quicker, especially at times where frequencies are lower.
- 4.4.15 Considering the issues of reliability and delay due to congestion, coordinating high frequency services could be challenging (and would be a lower priority given the waiting times would be lower). But timetable coordination would be particularly effective for interchanges between low frequency routes as they could significantly reduce waiting times at the interchange.

CROSS-CITY ROUTES

- 4.4.16 Subsidised routes 16, 19, 20 (the western part Haxby to City Centre), 24 and commercial route 4 terminate in the City Centre. These could be combined to provide cross-city routes to reduce the need for interchanging.
- 4.4.17 Merging into cross-city routes would also reduce the number of buses turning around and standing at central interchanges. This would reduce loops and circulation spaces required, simplifying the road network and allowing more space for public spaces and sustainable mobility by reducing areas required for vehicular circulation.

City of York response:

Cross-city routing can work well on medium and high-frequency services as long as they have sufficient recovery time in the schedule to cope with congestion pinch points. For lower-frequency routes, cross city routing can compound punctuality issues as well as often making it impossible to provide acceptable departure times in both directions.

PARK & RIDE ROUTES

- 4.4.18 Park & Ride routes are currently run separately from the rest of the network, providing limited-stop services to the City Centre.
- 4.4.19 Consideration could be given to combining these routes with the other subsidised or contracted routes along the main corridors, to improve operational efficiency and improve cross financing between peak and other services.
- 4.4.20 Park & Ride routes could be combined to create cross-city routes, reducing the need for passengers to interchange in the city centre and reducing the operational requirements (bus stands, turnarounds) on the scarce city centre public realm. This in turn could allow to expand public spaces and active travel infrastructure.

City of York response:

Cross city routing would undoubtedly produce operational efficiencies, but analysis suggested that, due to the dispersed nature of bus interchanges across York City Centre, there was a high risk of outbound passengers being unable to board at busy times due to buses already being full of inbound passengers, and a significant risk of delays on one radial having a knock-on impact on two sites rather than one. There was also a lesser risk identified of visitors unfamiliar with York boarding the service in the wrong direction. It is, however, noted that Oxford P&R has operated as a set of cross-city services for a number of years and we will analyse this option again in the upcoming P&R pre-tender exercise times in both directions.

TOWER STREET RIGHT TURN

- 4.4.21 Allowing buses to turn right directly from Tower Street to Piccadilly, instead of using the Skeldergate Bridge roundabout, could save significant mileage overall across the network due to the high number of buses requiring this movement to reach or leave the Piccadilly Interchange or the Clifford's Tower Area.

City of York response:

This recommendation was also identified in an external study looking specifically at improvements to this intersection.

NEW ORBITAL ROUTE

- 4.4.22 A new route could be provided to improve the connectivity of the university area to Fulford via Heslington Lane.
- 4.4.23 The route could start at Grimston Bar P&R, follow Kimberlow Lane, Field Lane and Heslington Lane.
- 4.4.24 The route could terminate at:
- Nunthorpe via A19 and city centre
 - Fulford Cemetery
 - Germany Beck development
 - Fulford Road A19 providing interchange with higher frequency routes along this corridor.
- 4.4.25 If terminating at Nunthorpe or at Fulford Cemetery, the route could allow to remove the southern sections of routes 25, 26. As a minimum, the new route could allow the removal of route 25 and 26 diversions via Heslington Lane and Broadway.

4.4.26 It is unlikely that such route could be run commercially, so it could represent an additional cost for CYC.

Table 14 Possible new southern orbital route



City of York response:
Something broadly similar (route 27) operated until 2016 but was withdrawn and replaced with service 25 due to very low passenger demand.

5. SUMMARY

- 5.1.1 This study has been carried out to provide the CYC with an initial optioneering exercise on opportunities to improve network performance and efficiency, and to respond to expected reductions in bus support budgets in the coming years (2025).
- 5.1.2 Information on bus support in York has been provided by the CYC, together with information on routes and patronage. Additional information from the GTFS and Census 2021 data has been used to complete the assessment.
- 5.1.3 The study initially considered the extent, combined frequencies and operational hours across the network. These were combined with data on deprivation, residential and workplace densities from the Census, to identify priority areas for bus improvements (such as areas of low accessibility and high density or deprivation). These include:
- Heslington (university campus and student residences)
 - New Earswick
 - Dunnington
 - Derwenthorpe
 - Clifton and Rawcliffe
 - Poppleton
 - Bishopthorpe
 - Woodfield and Foxwood
 - Copmanthorpe
 - Low Field and Woodthorpe
 - Tang Hall
- 5.1.4 Additionally, an initial analysis of ease of interchange has been carried out. This is based on the average time between timetabled services through the central interchanges (Exhibition Square, Central Interchange, Piccadilly Interchange, Rail Station Interchange, Stonebow Interchange) across corridors and main attractors, where a direct route is not available.
- 5.1.5 The results show that over 54% of interchanges require a wait time of 10 minutes or more, which can make interchanging unattractive. Improved timetable coordination and more cross-city routes (removing as many routes as possible terminating in the city centre) would reduce the need to change service, and make connections swifter.
- 5.1.6 Finally, a detailed assessment of supported routes has been carried out to identify opportunities to reduce overlapping, improve efficiency and consider possible costs savings. These are presented in Table 16 below.
- 5.1.7 The analysis shows that by removing overlapping or redundant routes (or sections of routes) there could be savings of just under £200,000 per year, which could ease the issue of upcoming funding gaps or be used to improve other services within the city. The financial analysis should be reviewed in detail as part of follow-up studies.
- 5.1.8 In addition to removing overlapping routes, services serving rural communities around CYC could become limited stop within CYC once bus priority measures are implemented. This would reduce travel time and create efficiencies for these services. CYC provides significant support on some of these routes, and the efficiencies could allow CYC to redeploy some of its subsidy to other routes.

Table 15 Summary of proposed changes to the York Bus network

City Routes (CYC only)			
Route	Change ID	Description	Impact / Priority
12	A	The routing of the service would change from Elmfield Avenue – Malton Road – New Lane to Victoria Way – Geldof Road – Skewsby Grove - Whenby Grove – Anthea Drive	Medium
14	B	Merge southern part with route 12, and northern part with route 13	High
16, 24	C	Removing the Hob Moor loop, extension of route 16 beyond Acomb shops to serve the western part of route 24 along Askham Lane, terminating at Cornlands Road Shops or Energise Leisure centre. Route 16 could also pick up the loop south of Acomb that is currently served by route 24	High
25, 26	D	Merge routes, divert via rail station, remove section to Nunthorpe. Increase service on route 11	Medium

Longer Routes (CYC, NYC, ERYC)				
Route	Change ID	Description	Impact / Priority	
18,36	E	Remove section beyond Designer Outlet P&R	High	
21, 22, 23	F	Limited stop service within CYC	High	
37,412,747	G	Limited stop service within CYC.	Low	
CAS	M	M1	Remove Monks Cross loop	Low
		M2	Limited stop service to city centre (route 9 providing stopping service)	

Proposals for Commercial Services

Route	Description	Impact / Priority
4	Extend from city centre via A59 to Carr schools and Acomb shops	Medium
5	Divert via B1224 – Beckfield Lane to terminate at Langley Gate and York Business Park	High

Other proposals

ID	Description	
DRT	Provide a DRT service and other last mile transport options in the Acomb area to complement fixed route services	Medium
Night Bus	Extend trials of night buses on key commercial or supported routes. Routes 1, 13 or 5 could complement current CB1 service	Medium
Timetable	Improve timetable coordination to reduce interchange times in the city centre	Low
Cross City Routes	Combine routes currently terminating in the city centre to provide cross city services and reduce interchange requirements and times	Low
Park & Ride Routes	Consider merging to create cross city routes and/or merge with current services on key corridors for efficiency	Low
Tower Street	Allow buses to turn right directly on Piccadilly instead of using Skeldergate Bridge roundabout	Medium
New Orbital Route	Consider provision of new route Grimston Bar P&R – University – Fulford terminating either at Nunthorpe via City, Fulford, Germany Beck or Fulford Cemetery	Low

APPENDIX A: LIST OF BUS SERVICES

Table 16 Service frequency by route, number of stops and hour of last service

Route number	Route	Number of stops	P&R	Early morning peak hour frequency	Daytime frequency	Evening peak hour frequency	Hour of last service	Number of services on a weekday (6am-12am)	Number of Saturday services	Number of Sunday services
1	Chapelfields - City - Wigginton	82	No	2.4	3.5	2.8	11PM	54	50	29
2	Rawcliffe Bar - City	9	Yes	2.3	4.9	4.2	11PM	62	56	42
2A	Rawcliffe Bar - City	23	Yes	0	0	0	11PM	6	6	9
3	Askham Bar - City	11	Yes	3.5	4.7	3.5	8PM	63	59	39
4	Acomb - City	50	No	2.8	3.5	2.8	12AM	55	45	40
5	Strensall - City - Acomb	117	No	1.3	1.8	1.8	12AM	27	29	17
5A	Strensall - City - Acomb	116	No	1.1	1.6	0.9	12AM	28	26	15
6	Clifton Moor - City - University Campus East	94	No	2.1	3.5	2.7	12AM	53	42	26
7	Designer Outlet - City	25	Yes	3.3	4.6	4.2	11PM	68	61	47
8	Grimston Bar - City	13	Yes	2.8	4.3	3.9	10PM	60	56	42

Route number	Route	Number of stops	P&R	Early morning peak hour frequency	Daytime frequency	Evening peak hour frequency	Hour of last service	Number of services on a weekday (6am-12am)	Number of Saturday services	Number of Sunday services
9	Monks Cross - City	17	Yes	2.8	4.9	3.7	10PM	67	65	48
10	Poppleton - City - Stamford Bridge	88	No	1	1.6	1.5	11PM	25	26	12
11	Bishopthorpe - City - Heworth	72	No	1	1.1	1.2	11PM	22	20	0
12	Foxwood - City - Monks Cross	94	No	0.9	1	1	11PM	16	16	0
13	Copmanthorpe - City - Haxby	103	No	0.4	1.7	1	11PM	37	18	0
14	Foxwood - City - Haxby	111	No	0	0	0.2	5PM	5	5	0
16	Acomb - Hamilton Drive - City	32	No	0.2	1.2	0.5	6PM	14	11	0
18	York - Holme-on-Spalding-Moor	44	No	0.2	0.4	0.4	12AM	5	6	0
19	Skelton - Burton Stone Lane - City	138	No	0	0.5	0	6PM	10	10	0
20	Rawcliffe - Clifton Moor - Monks Cross - Heworth/Osbaldwick	132	No	0.1	0.7	0.5	7PM	16	15	0
21	York - Colton	67	No	0	0.5	0.2	7PM	6	6	0
22	York - Boroughbridge - Ripon - Knaresborough - Harrogate	45	No	0.1	0.4	0.6	7PM	6	6	0
23	York - Boroughbridge - Ripon - Knaresborough - Harrogate	41	No	0.1	0.1	0	12AM	2	2	0

Route number	Route	Number of stops	P&R	Early morning peak hour frequency	Daytime frequency	Evening peak hour frequency	Hour of last service	Number of services on a weekday (6am-12am)	Number of Saturday services	Number of Sunday services
24	Acomb - City	46	No	0	1	1	7PM	22	22	0
25	Fulford - City - Foss Islands - Derwenthorpe	58	No	0.1	1	0.8	12AM	12	11	0
26	Fulford - City - South Bank	56	No	0.4	1	1	12AM	23	23	0
29	York - Linton-on-Ouse - Easingwold	56	No	0.1	0.2	0	6PM	5	5	0
30	York - Alne - Easingwold - (Thirsk)	62	No	0.2	0.5	0.4	11PM	10	7	5
31X	York - Easingwold - Kirkbymoorside	36	No	0	0.2	0	7PM	6	8	0
36	York - Wheldrake - Elvington - Sutton-on-Derwent	56	No	0	0.3	0	12AM	7	7	0
37	York - Askham Bryan - Tadcaster	45	No	0	0.2	0	5PM	2	3	0
40	York - Huby - Easingwold	54	No	0.5	0.6	0.7	11PM	16	14	7
42	York - Cawood - Selby	33	No	0.4	0.6	1	8PM	8	12	0
59	Poppleton Bar - City	13	Yes	0.8	3.9	2.3	7PM	43	43	18
C1	Campus West - Halifax College - York Sport Village	12	No	0	2	3.5	10PM	41	0	0
C2	Wentworth College - York Sport Village	6	No	0	1.5	0	6PM	17	0	0

Route number	Route	Number of stops	P&R	Early morning peak hour frequency	Daytime frequency	Evening peak hour frequency	Hour of last service	Number of services on a weekday (6am-12am)	Number of Saturday services	Number of Sunday services
66	York Sport Village - Rail Station	33	No	1.7	2.1	2.6	12AM	38	30	25
67	University of York - City	35	No	0	1.8	0.7	7PM	19	13	9
196	Allerthorpe to York	68	No	0	0.1	0	12AM	1	0	0
197	York Station - York Racecourse	4	No	0	0	0	12AM	0	19	0
200	Askham Bar - James Street	58	No	0.7	0	0	8AM	2	2	0
412	York - Wetherby	74	No	0.2	0.2	0.4	7PM	5	0	0
415	York - Selby via A19	33	No	2.2	3.9	3.5	12AM	55	49	24
747	Pocklington to York	46	No	0.1	0.3	0.1	6PM	5	5	0
840	Leeds - York - Malton - Whitby	91	No	0.4	0.8	0.6	8PM	14	13	5
843	Leeds - York - Malton - Scarborough	91	No	1	1	1.2	12AM	20	21	15
CAS	York - Sheriff Hutton - Castle Howard	44	No	0	0.3	0.2	7PM	8	8	0
X46	York - Pocklington - Beverley - Hull	41	No	0.9	1	1	8PM	20	16	7
X47	York - Pocklington - Beverley - Hull	41	No	0.4	0.8	0.8	9PM	14	15	5