# Population Density

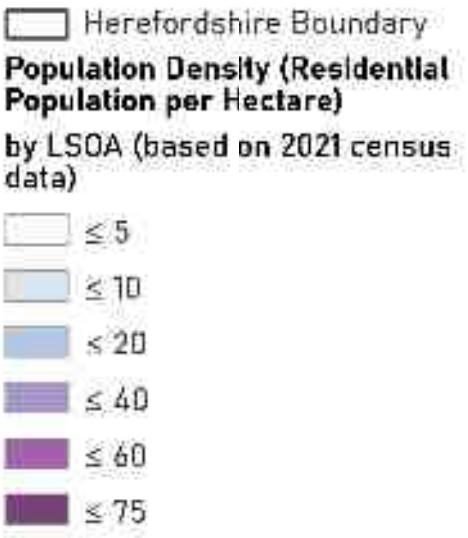
Map 25 on page 127 illustrates how the population is distributed across Herefordshire by LSOA, providing insight into the potential demand for walking and cycling trips.

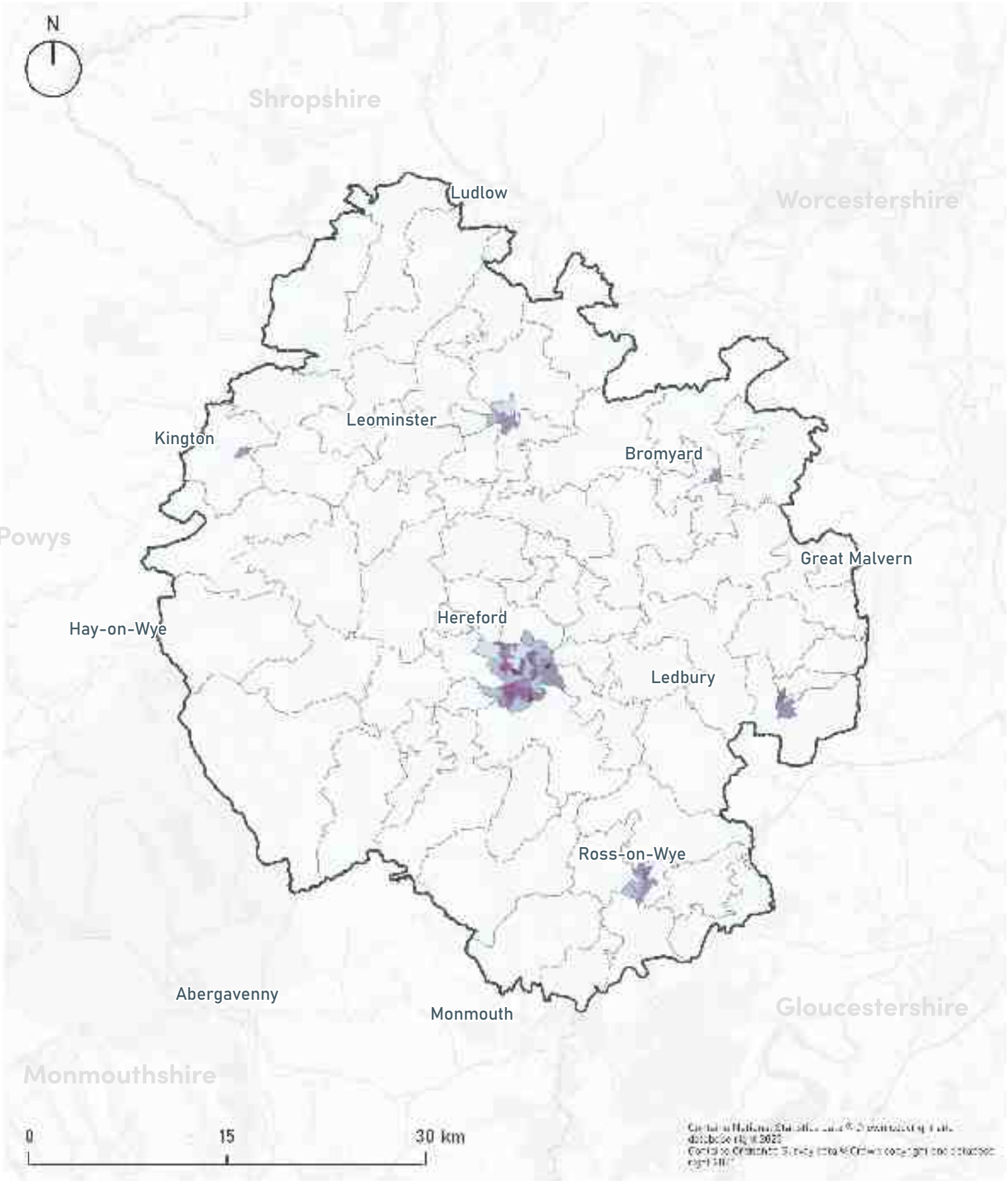
Herefordshire is a predominately rural county, with the 4th lowest population density in England (0.87 persons per hectare).

Overall population density varies considerably across the county. The vast majority of the county's land is rural, with the most densely populated area of the county being in the city of Hereford. All other areas of the county having much lower population densities, with the majority of LSOAs having a population density of less than 5 per hectare.

Map X highlights the sparsity of the county, with small pockets of relatively high population density located in proximity to the city centre and near market towns such as Ross-on-Wye, Leominster, Ledbury and Bromyard.

Whilst Hereford has the highest population density across the county, this is still considerably lower than the estimated current population density of the UK, which is approximately 278 people per square kilometre.






**Map 25** Population density (2021)

# Severance

Understanding the impact of severance is critical for contextualising how pedestrians and cyclists currently move across the county. Severance refers to the physical barriers or obstacles that can make it difficult for pedestrians and cyclists to travel through the area.

Severance can cause physical separation between urban areas and communities, making it difficult for people to access essential services, facilities or destinations, leading to reduced connectivity and inconvenience.

Severance can also create barriers to mobility, with physical barriers making it challenging or unsafe for individuals to cross and access destinations. This can hinder active transportation and limit people's mobility options. It can also act as a psychological barrier, particularly noisy or busy roads which can contribute to feelings of stress, discomfort and reduced sense of safety and well-being.

In the context of this study, there are a range of severance features which contribute to severance:

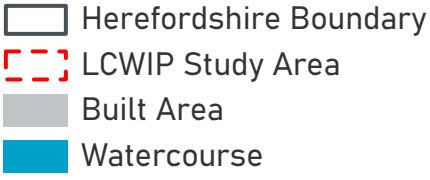
- Natural environment: e.g. watercourses, terrain
- Transport Infrastructure e.g. railway lines
- Road network e.g.  A and B roads

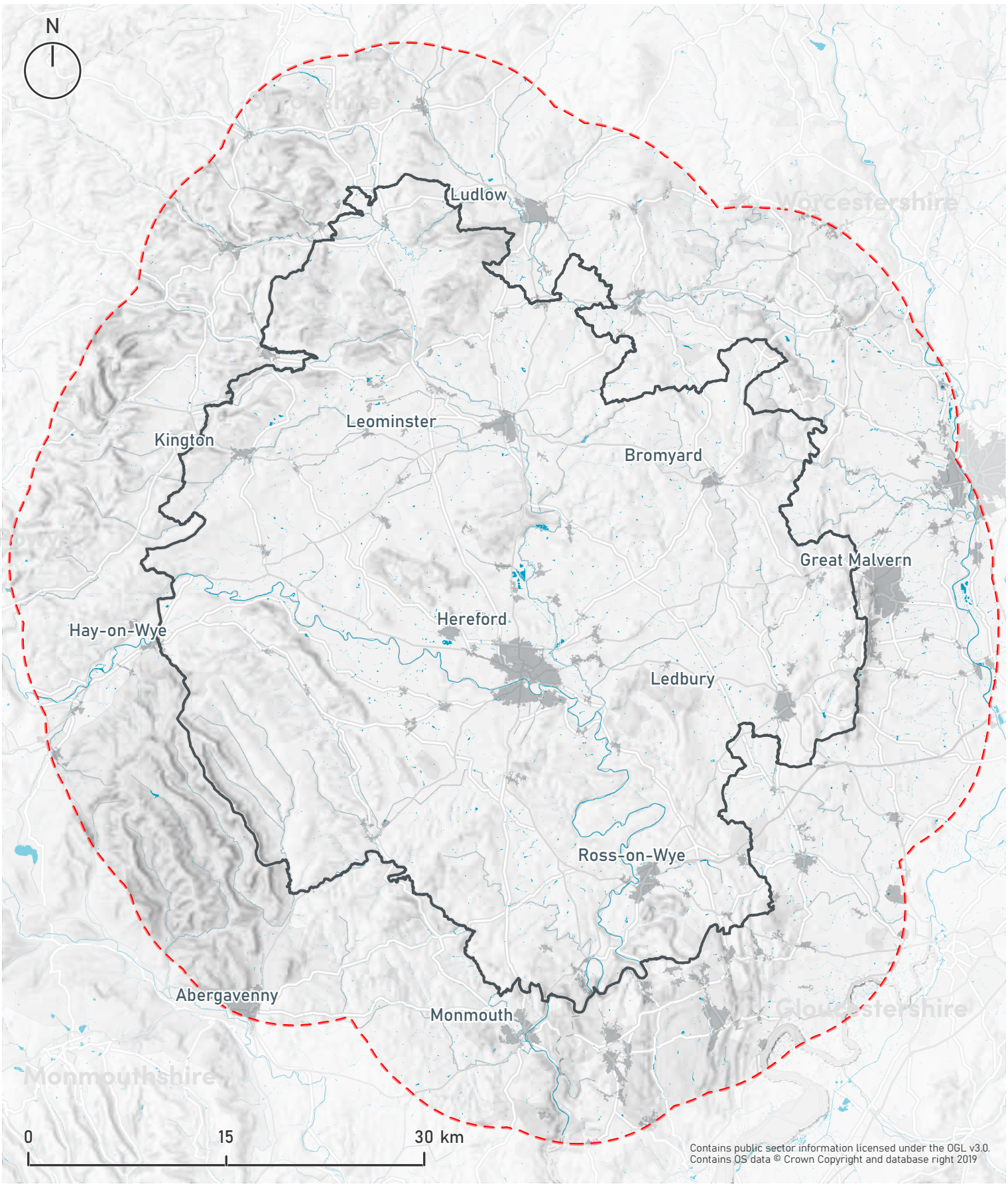
# Severance

## Natural environment

Map 26 on page 131 provides a visual representation of the extensive network of watercourses in Herefordshire, with the River Wye being the prominent and primary feature among them. The source of the Wye is located in the Welsh mountains and runs through several towns and villages in Herefordshire including Hay-on-Wye and Ross-on-Wye. The river also runs through the city of Hereford, providing an attractive feature within the mediaeval city.

Whilst the meandering rivers across Herefordshire provide valuable resources, they also act as severance for many journeys. Rivers across the county create physical barriers that hinder or impede movement between different parts of the landscape, making desire lines tricky to navigate, particularly due to a lack of bridges which route across the river.






**Map 26** Severance: Natural environment

## Public transport network

Map 27 on page 133 builds on Map 26 on page 131 and presents the impact of the railway line that routes through the county.

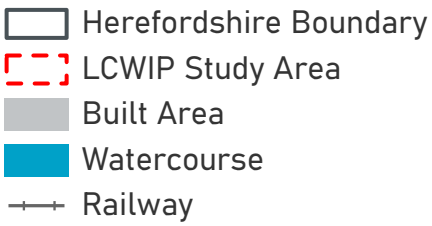
Two railway lines route through the county:

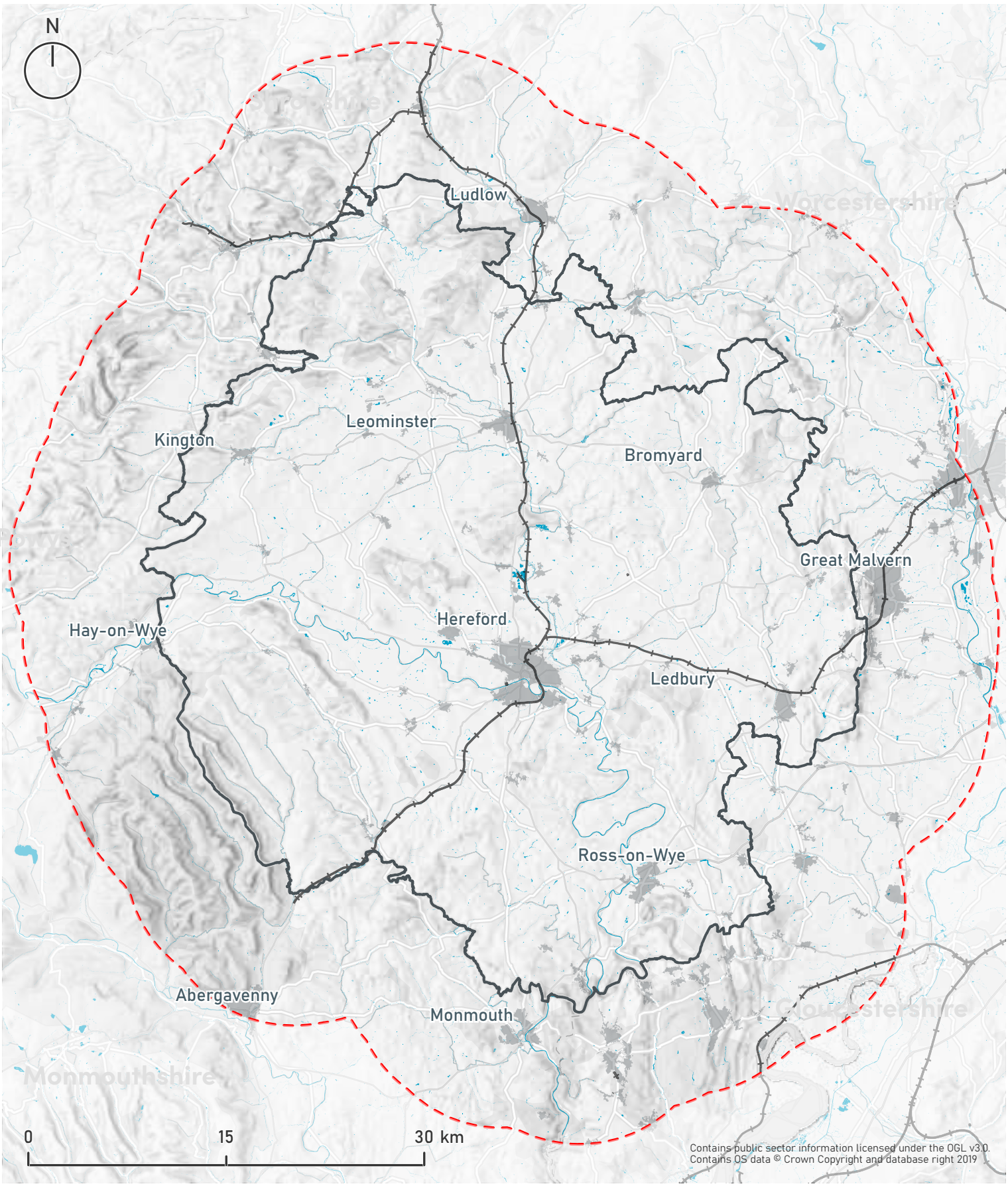
- Cotswold line
- Welsh marshes line

These railway lines traverse urban areas and create divisions, especially in areas where there is a lack of convenient connections, such as accessible bridges for individuals with mobility challenges.

Map 27 on page 133 displays railway routes throughout the county, showcasing on why walking and cycling can be perceived as challenging.

Specifically, the Cotswold line runs from north to south, effectively dividing the county into three distinct sections. The absence of suitable crossing points over the railway line also makes it arduous to navigate for pedestrians and cyclists.






**Map 27** Severance (public transport network)

## Road network

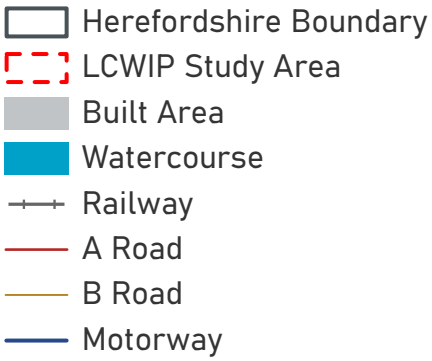
Map 28 on page 135 presents an overview of all severance features across the county.

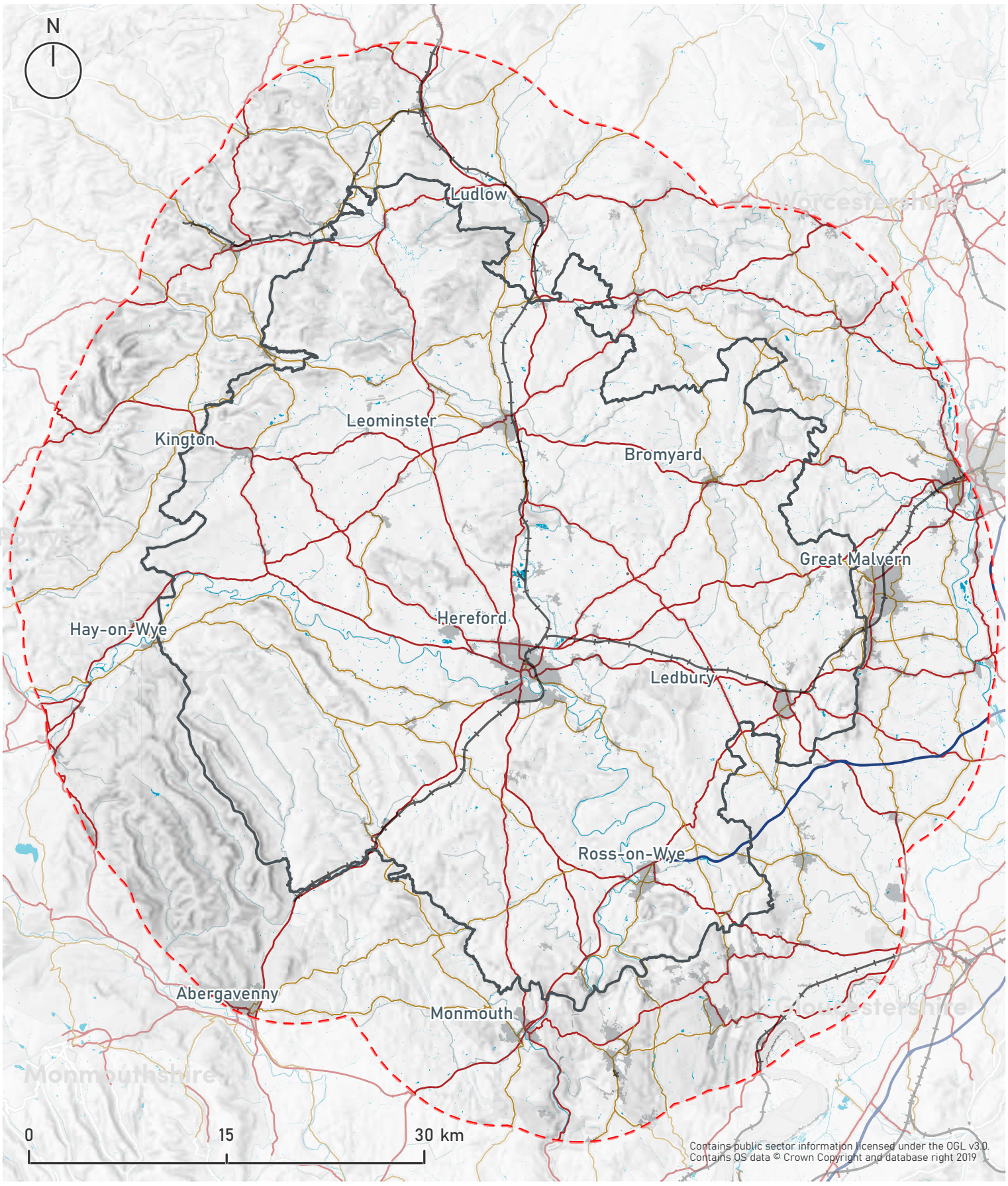
It is essential to consider the road network as a severance feature, especially due to the presence of large, busy roads that can serve as significant barriers for pedestrians and cyclists. The perceived and real risks associated with traveling in close proximity to high volumes of traffic often discourage active modes of transportation.

Busy roads and highways can create physical obstacles, making it difficult for people to safely cross and reach their destinations on foot, using a wheelchair, or cycling. This can impede active travel and limit mobility options for individuals.

Map 28 on page 135 illustrates how the physical landscape, public transport network, and road network collectively contribute to divisions across the county.

Specifically, the heavily trafficked A49, which traverses urban areas like Hereford, Leominster, Ludlow, and Ross-on-Wye from north to south, emerges as a significant severance feature. The limited provision of pedestrian and cyclist crossings, inadequate cycling infrastructure, and absence of footpaths in certain sections make this road unfavourable for active travel.






**Map 28** Severance (road network)

Understanding existing and potential future travel patterns is an important step in developing the LCWWIP networks to ensure they reflect local demand.

Our analysis of travel patterns has combined analysis of commuter patterns (Propensity to Cycle Tool) and non-commuter travel patterns (School Trips, Everyday Trips and Strava analysis .

# Travel demand

# Propensity to cycle

## Overview

The Propensity to Cycle Tool (www.pct.bike) is a nationwide model that identifies where increases in the rates of cycling can be expected through the provision of better infrastructure. It uses Census travel to work data and school travel data and looks at trip distances to see where there may be scope for more short journeys to be undertaken by cycling. It is important to note that one limitation of the PCT is that it uses the 2011 Census and therefore is not based on recent data.

The PCT provides seven scenarios for forecasting future levels of cycling which range in ambition from the 'Government Target' (assumes 6% of commuting trips by bicycle) up to the 'E-Bike' scenario (assumes 22% of commuting trips by bicycle and improved access to e-bikes). The PCT provides two sets of mapping outputs:

- Straight-Line Networks – these plans show direct paths between LSOA Origin-Destination points which gives an overview of the key desire lines for cycling flows
- Applied Networks – applies the straight desire line to the existing road network to provide a more detailed summary of where increased cycle flows would take place on the local network

The PCT tool was used to identify the greatest latent demand for cycle and school commuting. The PCT analysis used the 'E-Bike' scenario, which models the same mode share for cycling as in the Netherlands, adjusting for trip distance and topography and includes improved access to E-Bikes. Using the 'E-Bike' scenario provides a more ambitious and longer-term outlook for cycling flows which is advantageous in network planning as it ensures that the LCWWIP cycle network will provide for assumed future advances in the town's cycle network.

To accommodate for future commuting demand from proposed developments, the population forecasts for each proposed site were incorporated into the PCT forecasts to provide a more accurate reflection of a potential future scenario. The forecast populations were assigned to the nearest available LSOA to each development site.

A limitation of the PCT is its focus on commuting and school trips which tends to produce outputs focussed on key employment and education sites. For the purpose of the LCWWIP, the PCT results were used alongside an analysis of non-commuting and leisure trips to enable the development of a network that covers a wide range of trip purposes.

# Commuting: E-bike scenario (straight lines) MSOA level

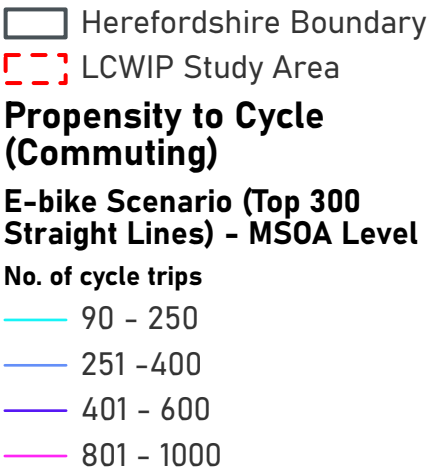
To understand the potential for cycling across the county, the 'E-bike scenario' was used. This models the same mode share for cycling as in the Netherlands, adjusting for trip distance and topography and includes improved access to E-Bikes. This is advantageous for network planning as it ensures that any proposals for improvement to the cycle network will provide for assumed future advances in the county's cycle network. This is shown in Map 29 on page 141.

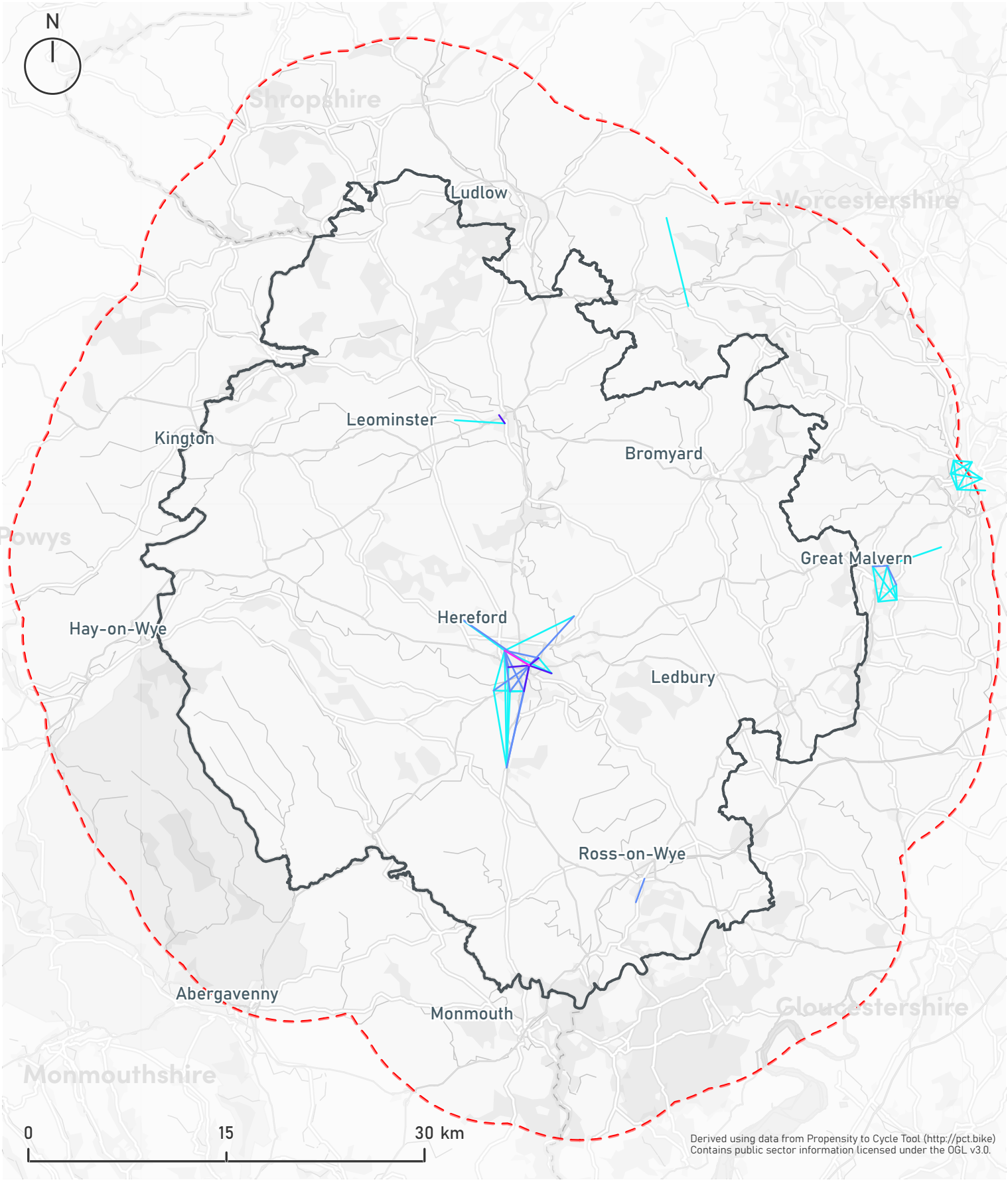
To gain a comprehensive understanding of cycling patterns within the county and the broader study area, the top 300 desire lines were chosen as a representative sample from Middle Super Output Level (MSOA) origin-destination points. These desire lines offer insights into the primary routes taken by cyclists and provide a broader perspective on cycling flows across the region.

This suggests that future commuting demand is likely to be concentrated primarily to/from Hereford city centre and outside the county boundary in Great Malvern and Worcester respectively.

Based on the top 300 desire lines in Map 29 on page 141, the MSOA origin-destination pairs with the highest number of commuters are as follows:

- Herefordshire 010 - Herefordshire 012 (946 commuters)
- Herefordshire 012 - Herefordshire 015 (573 commuters)
- Herefordshire 012 - Herefordshire 013 (535 commuters)
- Herefordshire 011 - Herefordshire 012 (508 commuters)
- Herefordshire 002 - Herefordshire 003 (452 commuters)






**Map 29** PCT 'E-bike' scenario - Top 300 Straight Desire Lines - MSOA level

# Commuting: E-bike scenario (straight lines) LSOA level

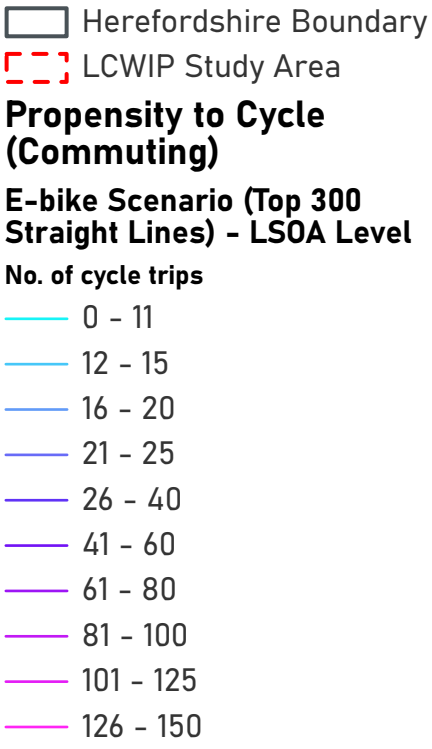
Using MSOA origin-destination points has a limitation as it mainly focuses on commuting flows outside of Herefordshire, specifically in Worcester and Great Malvern. As a result, many straight desire lines may lack relevance for Herefordshire residents, and it may not offer a comprehensive understanding of the overall demand distribution within the county. This is shown in Map 30 on page 143.

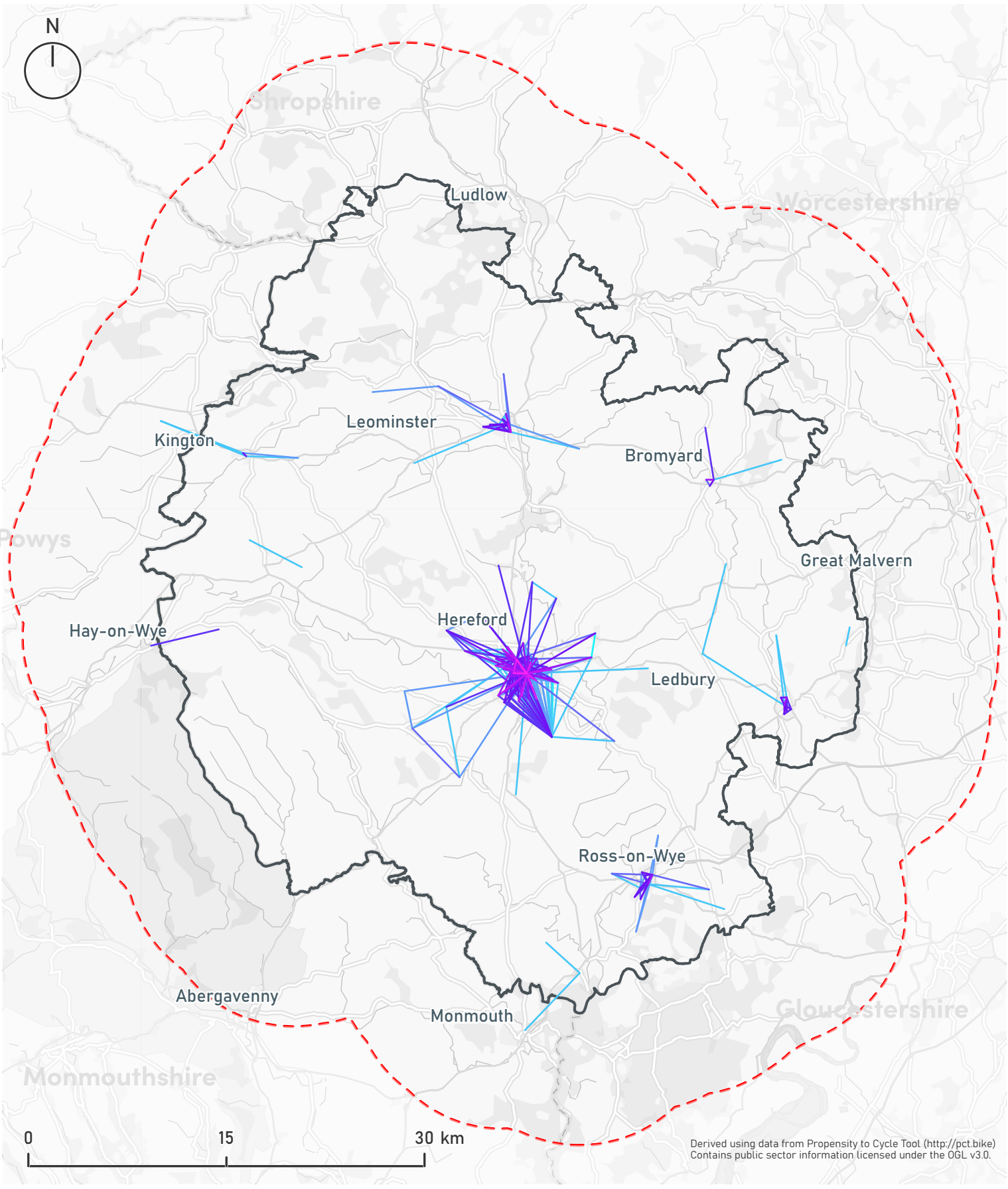
For a comprehensive understanding of cycling flows in the county, the analysis used direct routes between origin-destination points of Lower Super Output Areas (LSOA). Only flows within or starting/ending in Herefordshire were considered, ensuring a well-rounded depiction of cycling patterns specific to the county and providing valuable insights.

Map 30 on page 143 indicates that in addition to the continued concentration of commuting demand to and from Hereford city centre, there are increased commuting desire lines across Herefordshire, particularly in Leominster, Ross-on-Wye, Kington, Bromyard, and Ledbury. .

The top LSOA origin-destination pairs are:

- Herefordshire 012C - Herefordshire 013B (144 commuters)
- Herefordshire 012C - Herefordshire 010B (142 commuters)
- Herefordshire 013B- Herefordshire 010B (110 commuters)
- Herefordshire 013B - Herefordshire 010B (108 commuters)
- Herefordshire 012A - Herefordshire 012C (104 commuters






**Map 30** PCT 'E-bike' scenario - Top 300 Straight Desire Lines - LSOA level

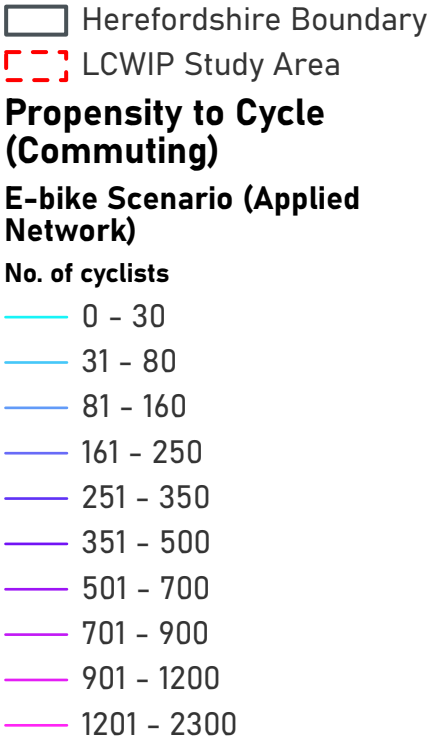
# Commuting: E-bike scenario (applied network)

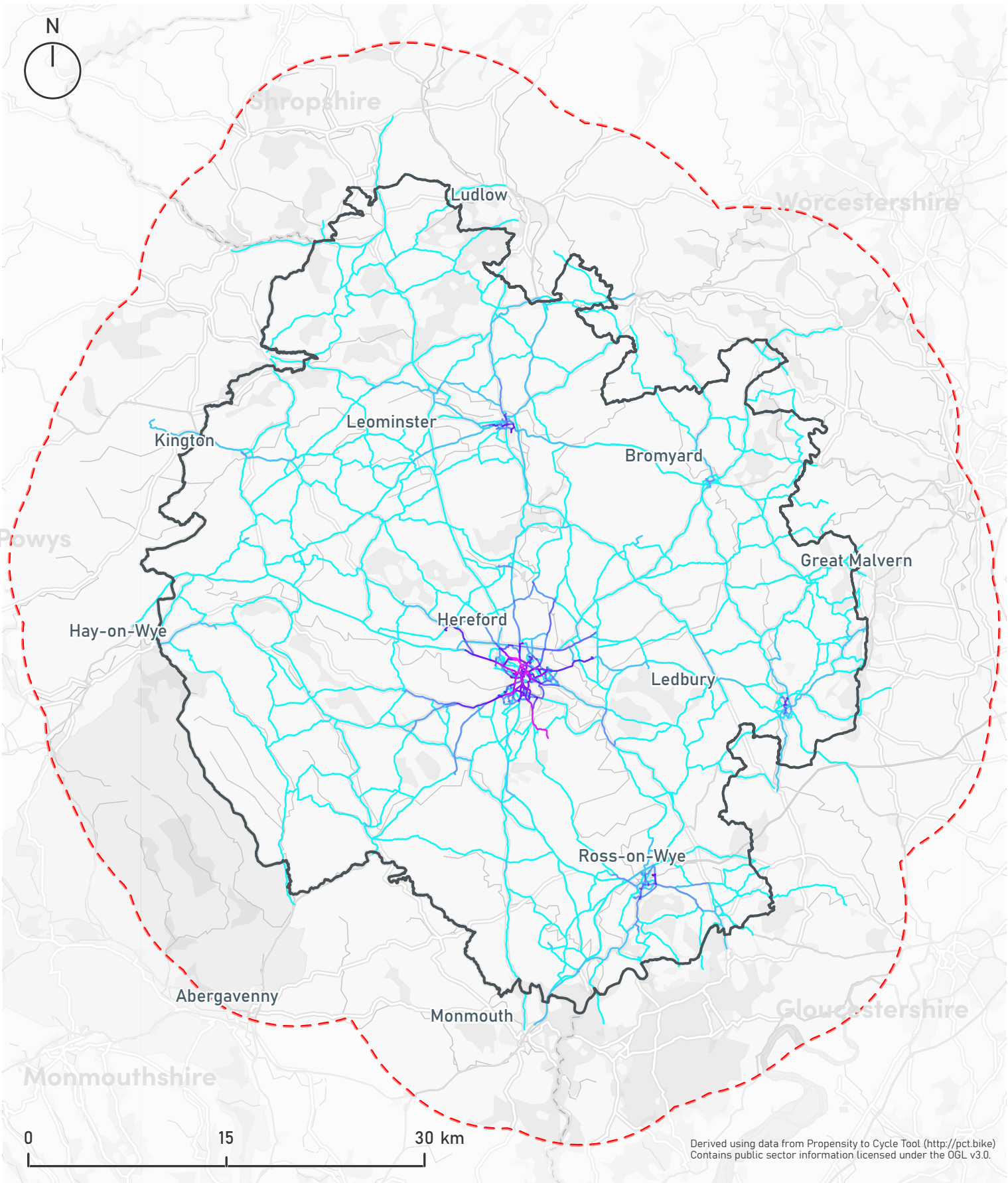
Map 31 on page 145. presents the straight desire lines identified in Map 30 on page 143 and applies these to the existing road network to provide an indication of more applied demand. This helps to provide a more detailed summary of where increases in cycle flows would take place on the local network.

The 'applied network' scenario snaps the straight-line desire lines to the closest applicable road alignment to provide an indication of more applied demand. A limitation of this plan is that it uses the closest road alignment, regardless of the conditions for cycling and therefore should not be treated as an accurate prediction of which routes future demand for cycling will use.

Whilst the applied network outputs are useful, it should be noted that the tool does not consider non-highway routes, such as the tree-free routes which traverse across the county and are known to be well-used by residents.

This map suggests that future demand would be concentrated primarily within Widemarsh which provides key connections to Westfield Industrial Estate, Imperial Business Centre, Holmer School and Hereford Leisure Centre.



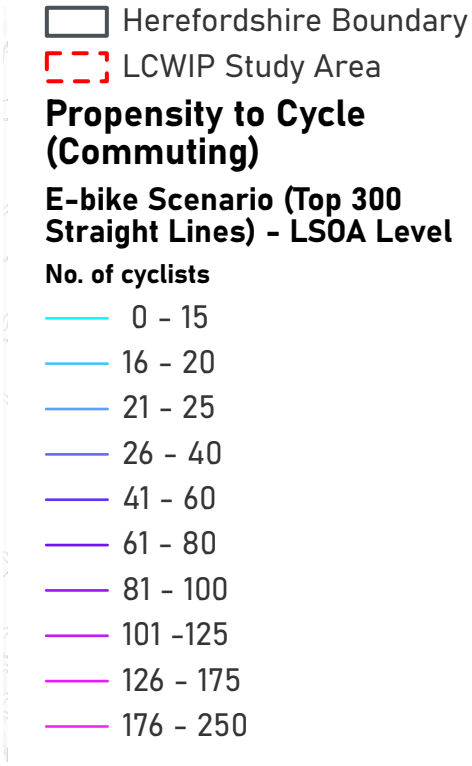


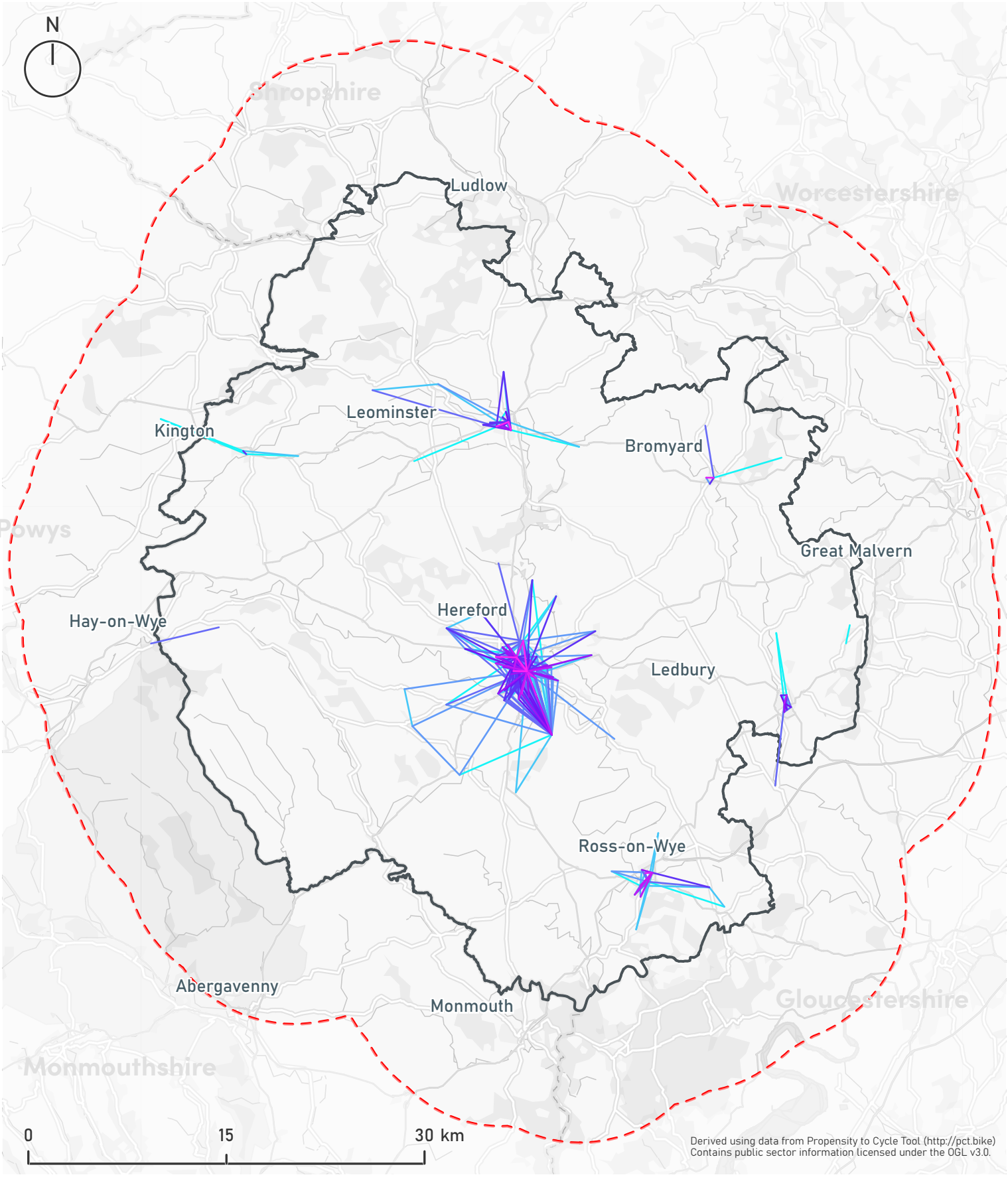

**Map 31** PCT 'E-bike' scenario - Applied Network

# Commuting: E-bike scenario (straight lines) new development flows

To accommodate for future commuting demand from proposed developments, the population forecasts for each proposed site were incorporated into the PCT forecasts to provide a more accurate reflection of a potential future scenario. The forecast populations were assigned to the nearest available LSOA to each development site.

Map 32 on page 147 indicates that desire lines gravitate towards the key development site of Lower Bullingham in Hereford. In addition, greater demand is identified in Leominster and Ross-on-Wye where new developments in these areas will bring forward considerable housing and employment opportunities, likely to bring additional demand for cycling to the region.



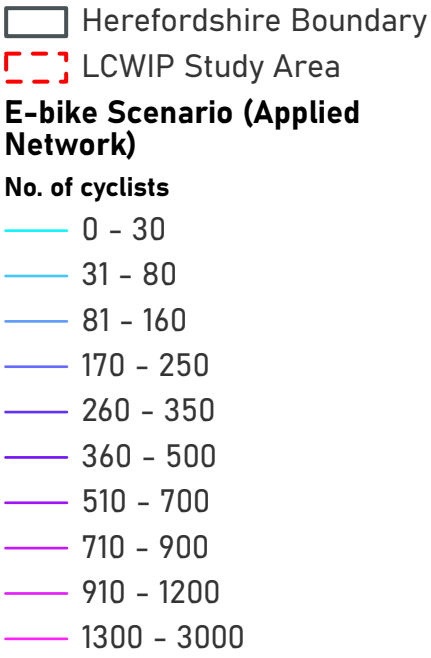


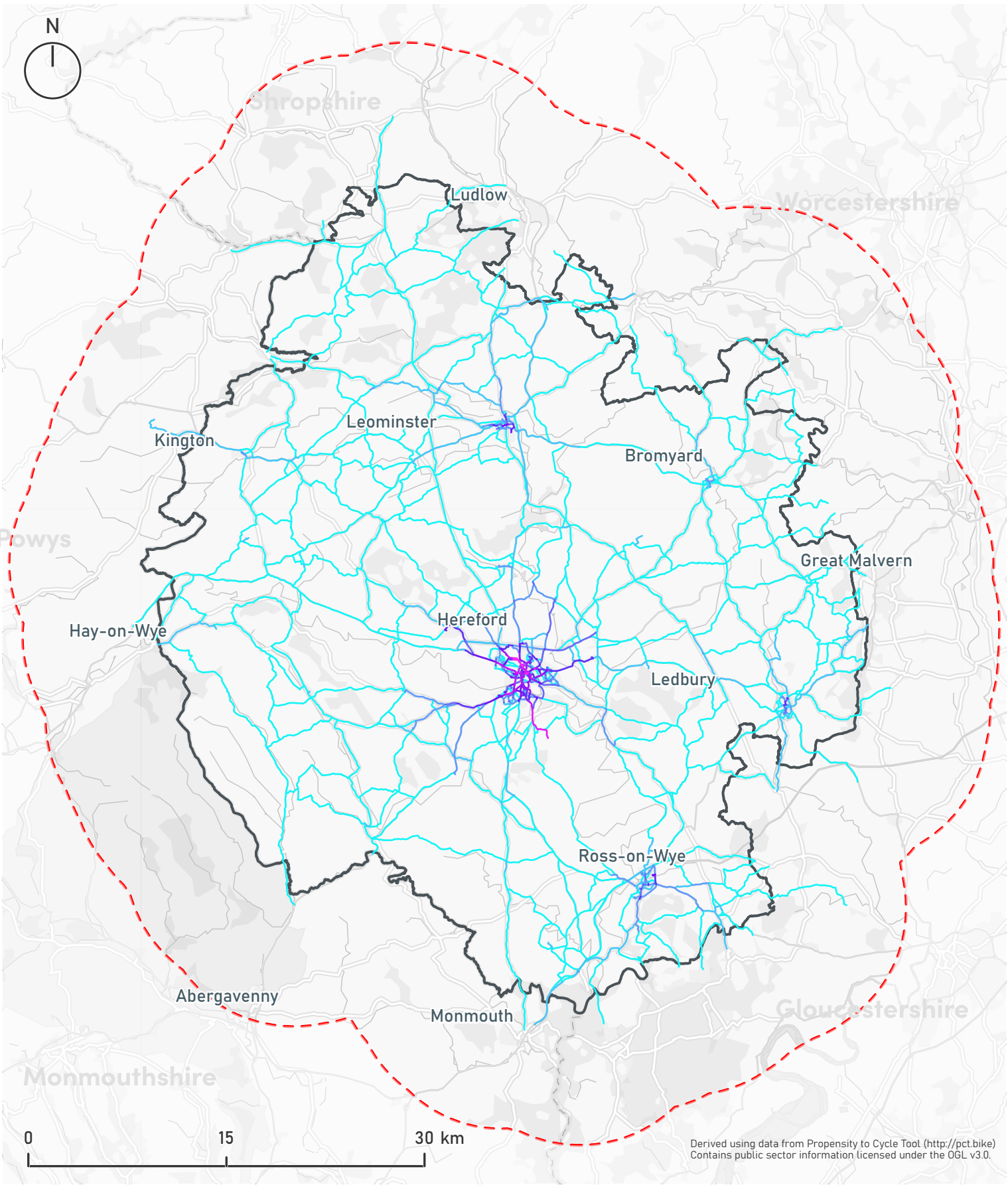

**Map 32** PCT 'E-bike' scenario - Top 300 Straight Desire Lines (updated with development flows)

# Commuting: E-bike scenario (applied network) with new development flows

To accommodate for future commuting demand from proposed developments, the population forecasts for each proposed site were incorporated into the PCT forecasts to provide a more accurate reflection of a potential future scenario. The forecast populations were assigned to the nearest available LSOA to each development site.

Map 33 on page 149. shows that cycling demand continues to follow the same routes currently, with high concentration of cycling potential located in Hereford, with smaller poickets located in Leominster, Ledbury and Ross-on-Wye.






**Map 33** PCT 'E-bike' scenario - Applied Network

# School Travel: Go Dutch scenario (applied network)

The PCT tool also provides a school travel scenario using the travel to school results from the 2011 Census.  The "Go Dutch" scenario assumes that there is the same mode share for cycling trips to school as the Netherlands, which is 41%. The plan highlights the location of several clusters of routes which are anticipated to have significant increases in the number of cycling trips to school.

Map 34 on page 151 presents the school travel results for the 'Go Dutch' scenario. This scenario assumes that there is the same mode share for cycling trips to school as the Netherlands, which is 41%. This highlights the location of several clusters of routes which are anticipated to have significant increases in the number of cycling trips to school. These increases are in Hereford (Bishop of Hereford's Bluecoat School), Ross-on-Wye (John Kyrle High School & Sixth Form School) and Leominster (Earl Mortimer college and sixth form centre).

Herefordshire Boundary

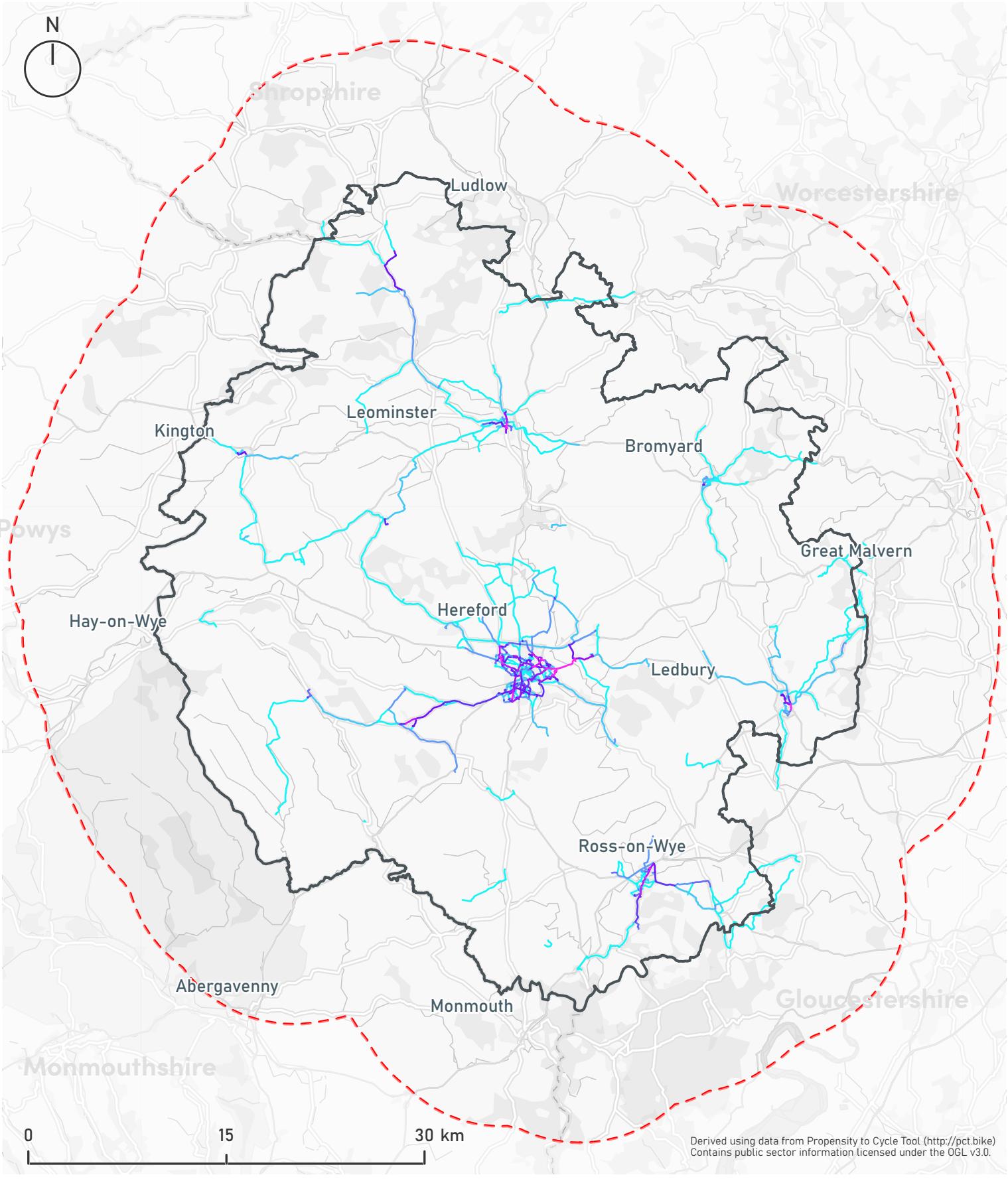
LCWIP Study Area

**Propensity to Cycle Tool (School Travel)**

**Go Dutch Scenario - Applied Network**

**No. of cyclists**

- 0 - 20
- 21 - 40
- 41 - 60
- 61 - 80
- 81 - 100
- 101 - 140
- 141 - 190
- 191 - 250
- 251 - 627




**Map 34** PCT School Travel - 'Go Dutch' Applied Network

# Third party data

To help supplement the PCT results, Strava data was used to provide additional information on trips 'on foot' (including walking, running, hiking etc.) and trips 'on bike'. The Strava data was extracted from the Strava Metro website and is gathered from Strava users recording walking, running or cycling trips on their Strava app.

Strava data is available in batches of three consecutive months, data was therefore obtained for June – August 2022, which represented the three months of data with the highest levels of activity from the previous year. Strava data consists predominantly of leisure and recreational trips, however it also includes commuter trips which generally account for c.5-10% of entries.

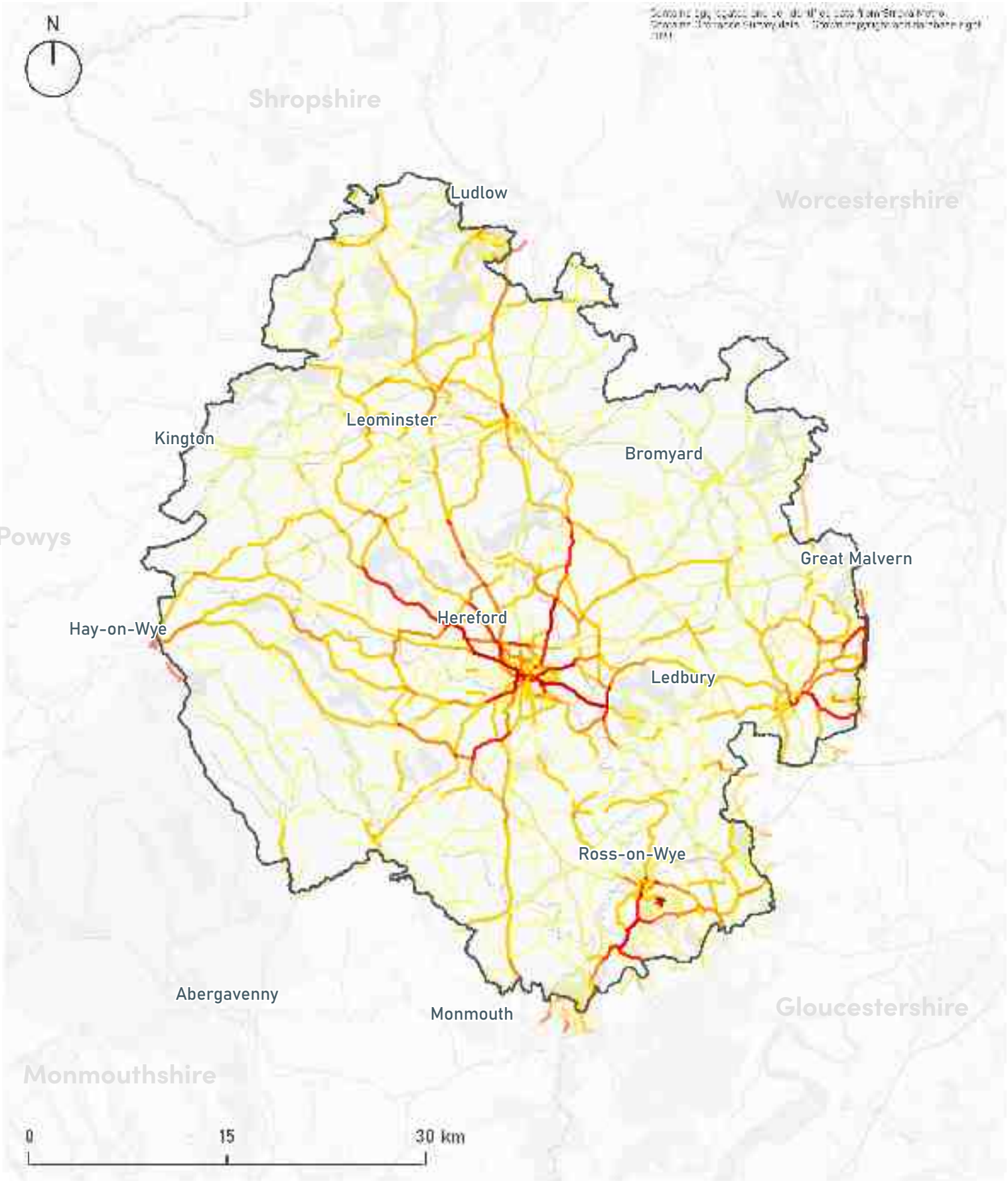
By comparing the patterns of 'on foot' and 'cycling' trips, it is possible to understand where there are similarities and differences in the preferred routes being used in and around Herefordshire.

# Strava data June - August 2022 (Cycling)

Map 35 on page 155 highlights several alignments where daily trip volumes are high. The distribution of cycle routes are predominately focused radiating from Hereford city centre, with routes to the west and east of the city being particularly well used. Cycle volumes are also high in areas to the east of the county, particularly along the B4234 in Walford near Ross-on-Wye and within the Malvern Hills Area of Outstanding Natural Beauty (AONB).

As would be expected, there is also high volumes along NCN 46, particularly along the Great Western Way in Hereford, which provides an off-road cycle route from the south of Hereford.

Interestingly, the volume of daily cycling trips along the NCN route 46 outside of Hereford city are low, particularly around Dewsall Court. Whilst the NCN route 46 navigates through Portway and Dewsall Hall, strava data indicates that cycling trips are instead navigating the alternative rural route which runs perpendicular to NCN 46.




**Map 35** Strava data (June - August 2022)

# Strava data June - August 2022 (run, walk, hike)

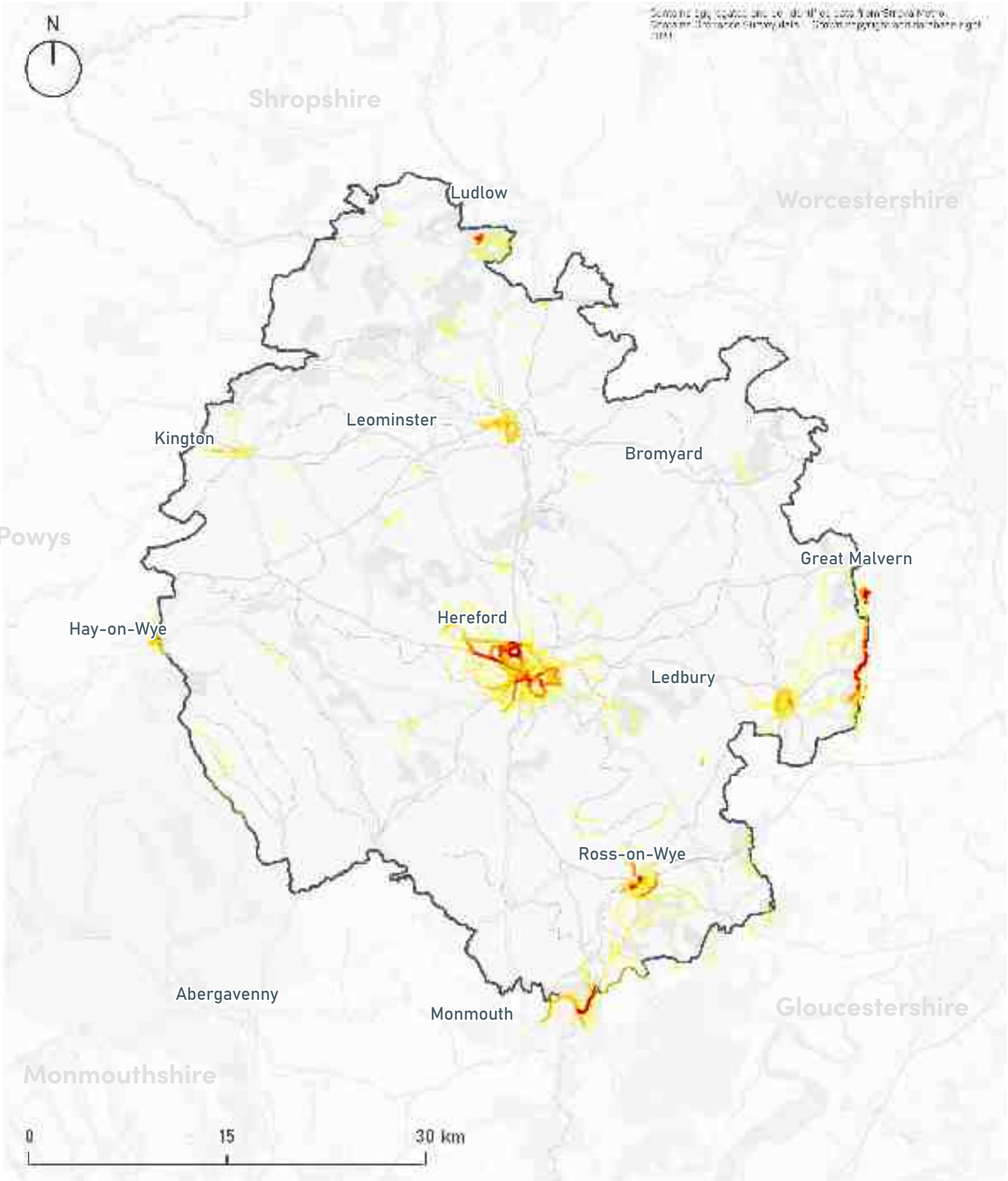
Strava data can also be obtained to analyse the number of walking trips taken within the county.

Map 36 on page 157 shows that perhaps unsurprisingly, the daily walking trips recorded on Strava show a greater preference for traffic-free routes, with comparatively lower trips on the main vehicular routes across the county.

In particular, trips within the Malvern Hills Area of Outstanding Natural Beauty proved to be popular, accounting predominately for leisure walks in the large area of hills, woods and fields.

In addition, a large number of strava foot trips take place in Hereford in close proximity to Halo Golf Course and Hereford Race course, which is a popular spot for dog walking.

Finally, additional high demand for leisure walking trips can be found to the south of the county near Wye Valley Area of Outstanding Natural Beauty, home to extensive network of rivers and woodlands for walking.




**Map 36** Strava data (June - August 2022)

# Everyday trip analysis

## Overview

The PCT outputs provided indicative cycling networks based on commuting and school trips, whilst the Strava data is generally focussed on trips for recreation and/or exercise.

The purpose of the Desire Line Clustering therefore was to provide an additional layer of analysis that focussed on 'Everyday' cycling trips which would include: leisure and recreation, trips to local centres and amenity trips.

Combining the 'Everyday' trips, Strava and PCT outputs provided a comprehensive demand model for developing the LCWWIP network.

Developing the everyday trip analysis consisted of the following steps:

- Identifying origin clusters
- Destination clusters
- Origin - Destination pairs
- Density of everyday desire lines

# Origin clusters

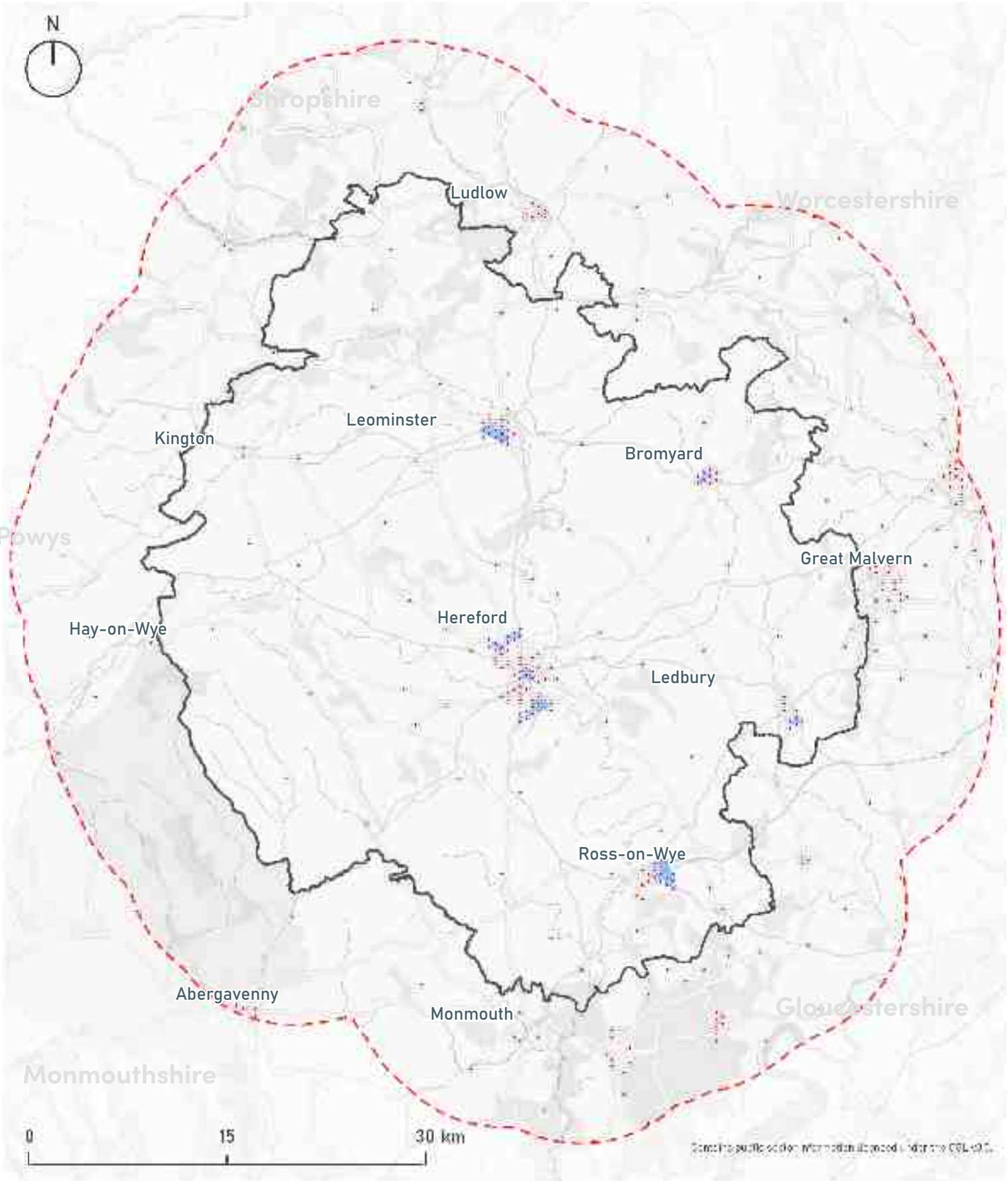
The following series of plans show the methodology for identifying the desire lines for “everyday” cycling trips in the study area.

Origin clusters are existing and future residential areas which are grouped together to simplify analysis, creating ‘clusters’.

A grid system was used to identify origin clusters of LSOA population centroids, and future housing development clusters.

For the purposes of the analysis, all hexagons which currently contain an LSOA population weighted centroid and/or are anticipated to include >100 residential dwellings in the future were included as Origins.

Map 37 on page 161 shows origin the origin clusters established across the county. This shows that the majority of origins are centred around the key settlements of Hereford, Leominster and Ross-on-Wye, with limited origin clusters to the west of the county. In addition, clusters of origins are located outside of Herefordshire boundary, but are located within the LCWWIP study area, particularly near Great Malvern and Worcester.




**Map 37** Origin clusters

# Destination clusters

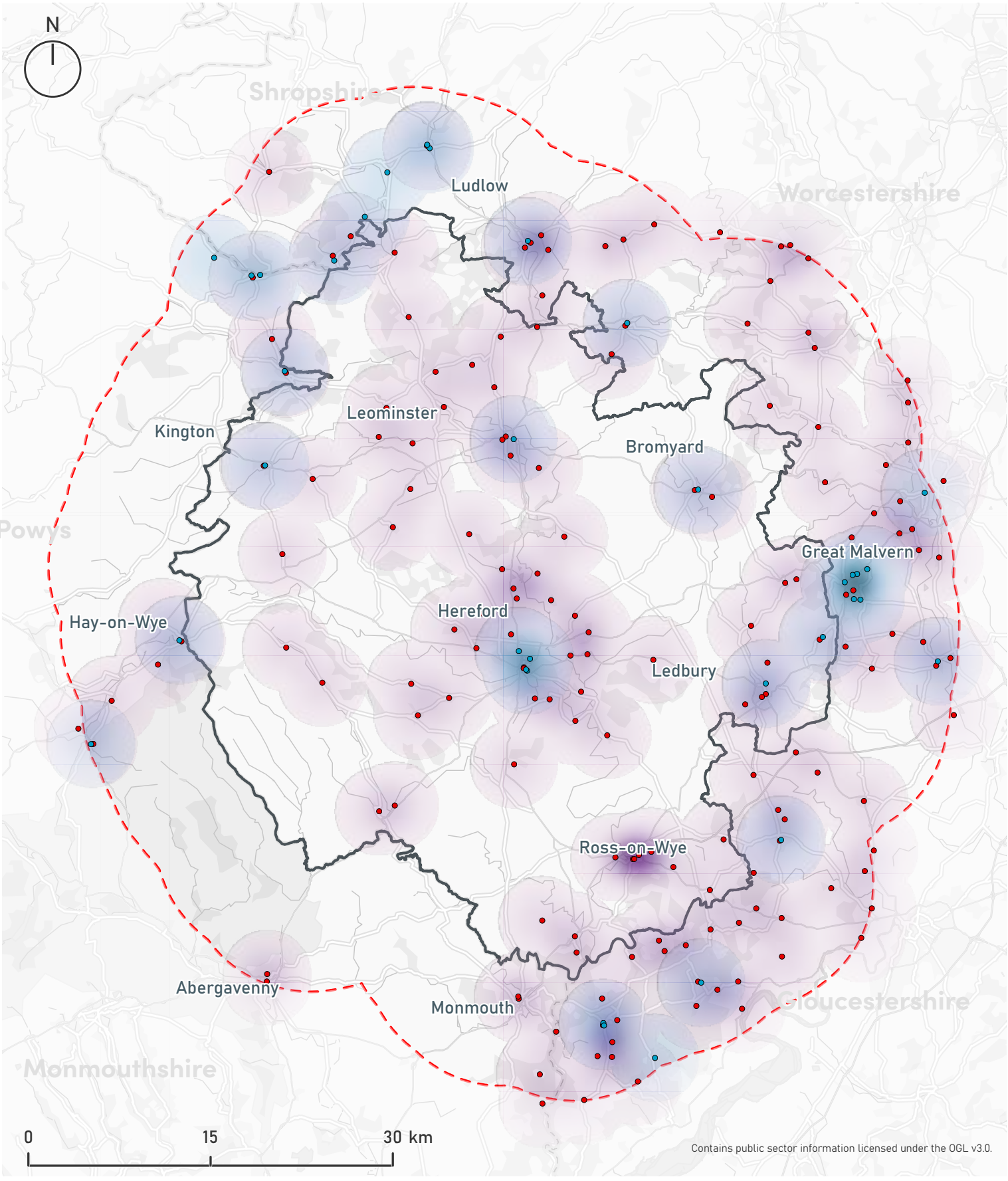
Having identified the starting location of journeys across Herefordshire, destinations were then identified.

Destinations were based on data provided by Herefordshire Council and clustered to highlight the areas with the highest number of destinations.

All destinations were categorised as below:

- Class 1: Town, Village and Local Centres; Key Employment Sites
- Class 2: Bus Stops, Existing and Proposed Schools, Railway Stations, Hospitals, Supermarkets, Leisure Centres and Libraries

Map 38 on page 163 shows that class 1 destinations are clustered sporadically across the county, with a high density of class 1 destinations in Ross-on-Wye. In addition, a high density of class 2 destinations are located in the City Centre. In addition, many class 2 destination clusters are located on the edge of the boundary of Herefordshire, but are located within the LCWWIP study area boundary. This includes destinations near Wye Valley Area of Natural Beauty, the Malvern Hills and Worcester.



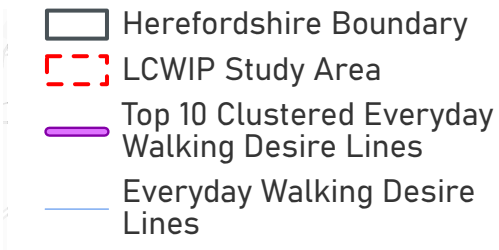

**Map 38** Destination clusters

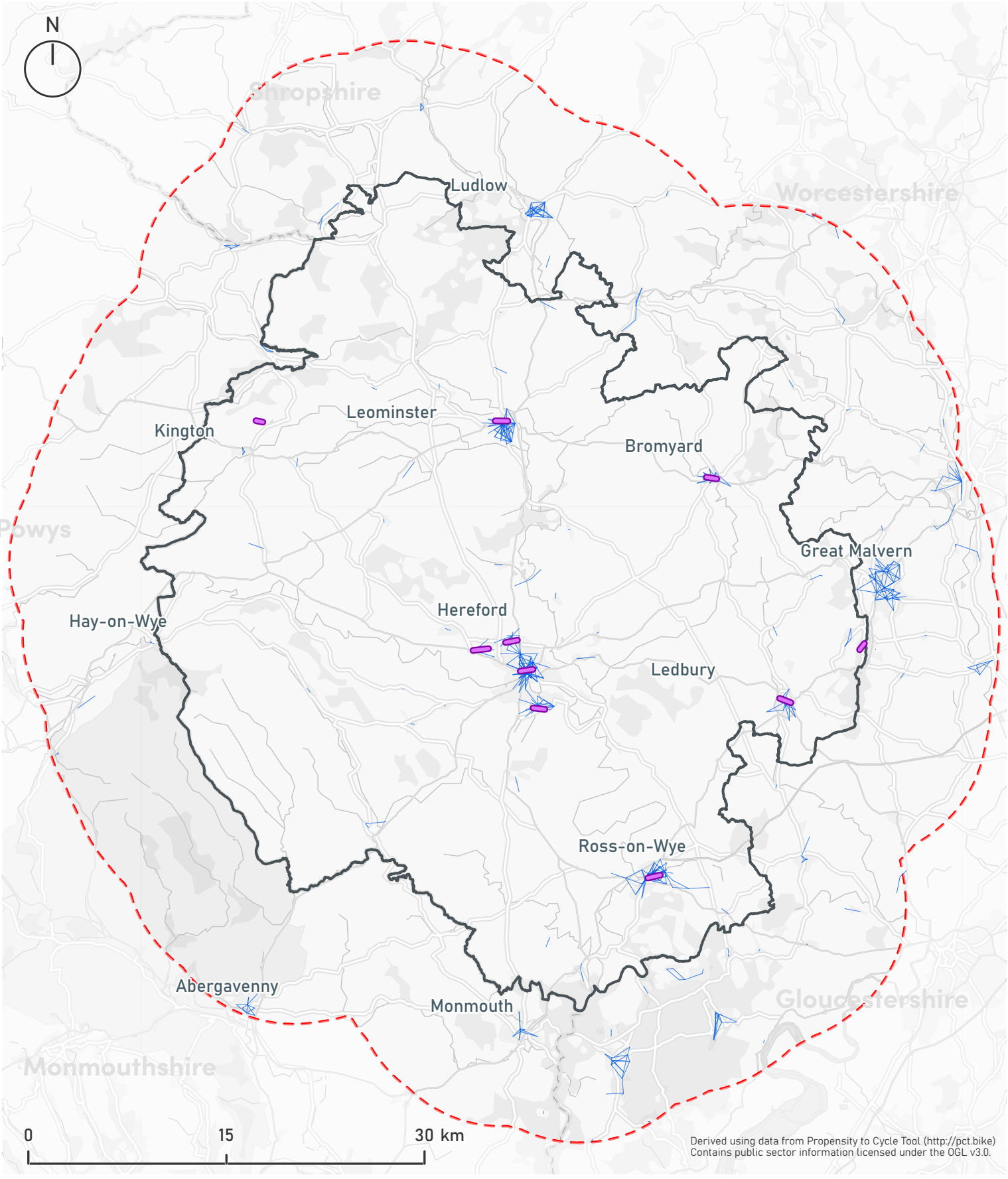
# Origin - Destination pairs for walking and cycling

To understand everyday desire lines for walking across the county, each origin cluster as described in map x were correlated with their closest class 2 destination and all class 1 destinations across the county.

Following this, a density based clustering analysis was used to cluster desire lines into a more refined plan, identifying the top 10 desire line clusters for walking

Map 39 on page 165 shows that most walking desire lines are located within the key towns across the county and most within the city centre. Therefore, as part of the development of this strategic LCWWIP, area based recommendations will be taken forward.






**Map 39** Everyday walking desire lines (up to 1.6km)

# Everyday cycling origin-destination desire lines (up to 5km)

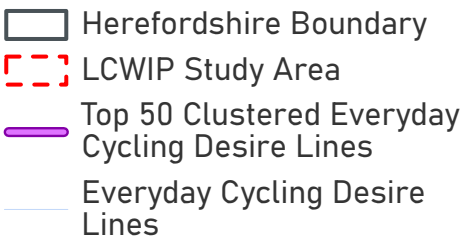
To determine key desire lines for cycling across the county, the spatial relationship for desire lines up to 5km was also analysed. These desire lines reflect the potential of cycling across the county.

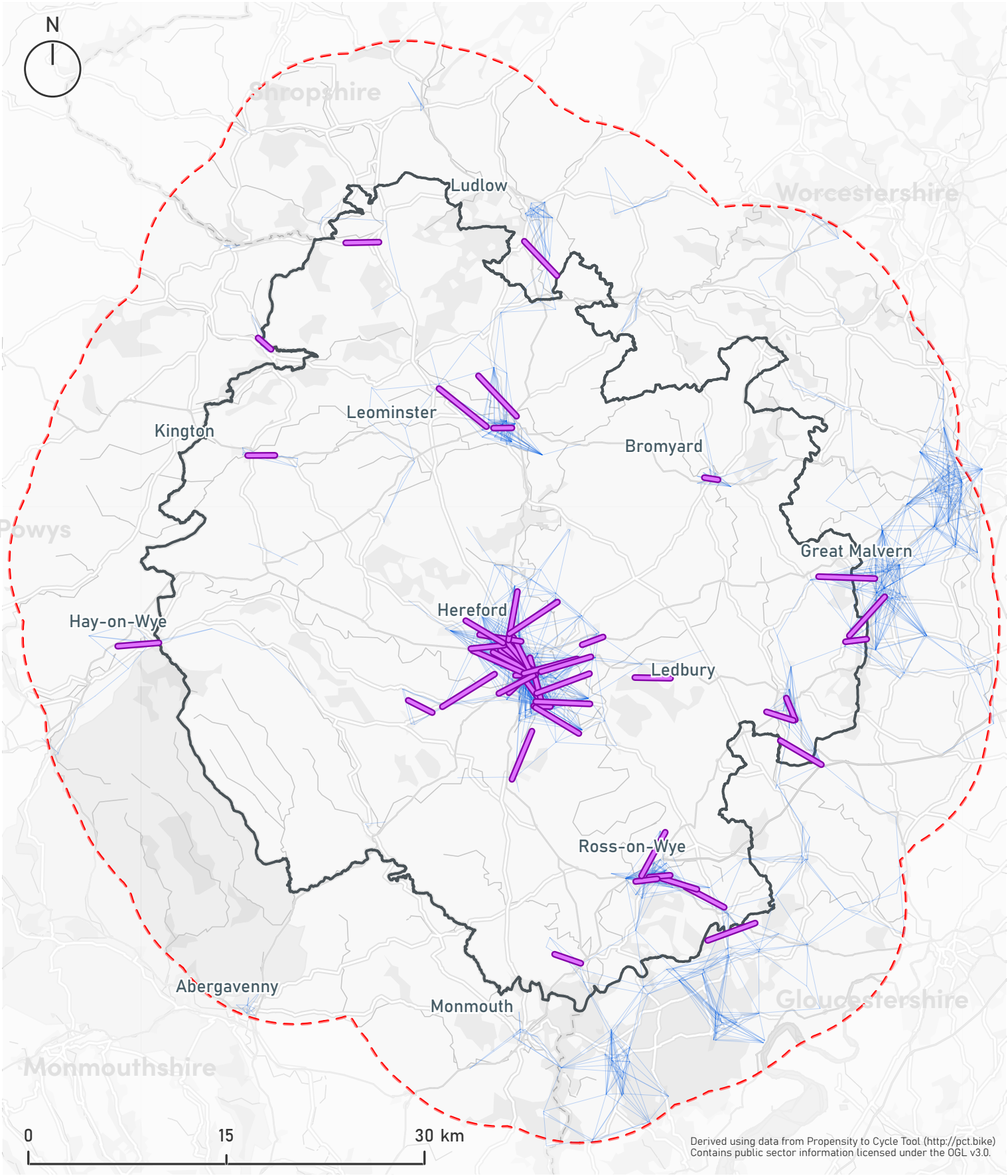
As with the case of map x, desire lines were created from each origin centroid to its nearest Class 2 destination, and then also to all Class 1 destinations in the Study Area (all desire lines >5km were excluded from the analysis). This was based on the assumption that the Class 1 destinations would generate a higher number of trips and that they are also likely to have a larger catchment area of trips from across the study area, compared to Class 2 destinations which would generate more locally based trips.

Following this, a density based clustering analysis was used to cluster desire lines into a more refined plan, identifying the top 50 desire line clusters.

Map 40 on page 167 shows that the majority of the top 50 everyday cycling desire lines up to 5km are clustered primary near the city centre. Alignments for these desire lines are generally east-west movements.

In addition, there are key cycling desire lines across all market towns across the county, including desire lines from Great Malvern into the county boundary.






**Map 40** Cycling up to 5km

# Density of everyday cycling desire lines (5-20km)

To determine key desire lines across Herefordshire, the spatial relationship between origin clusters and destination clusters was analysed.

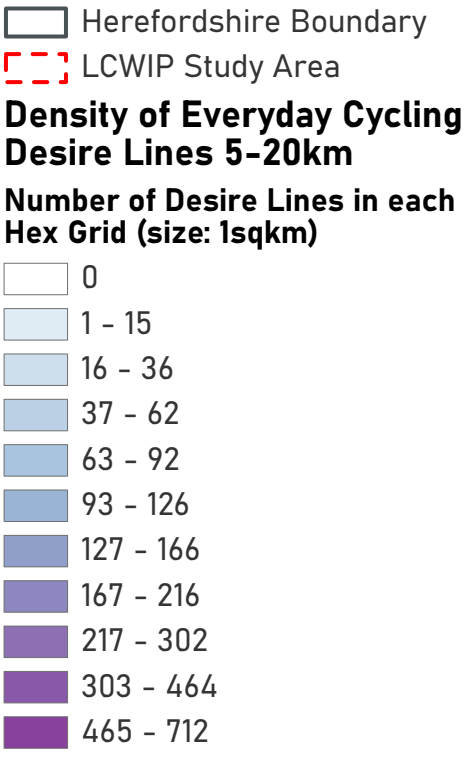
Everyday origin-destination lines were created for cycling journeys between 5km and 20km. This distance was selected due to the rural nature of Herefordshire and the desire to establish a strategic network across market towns, villages and the city centre.

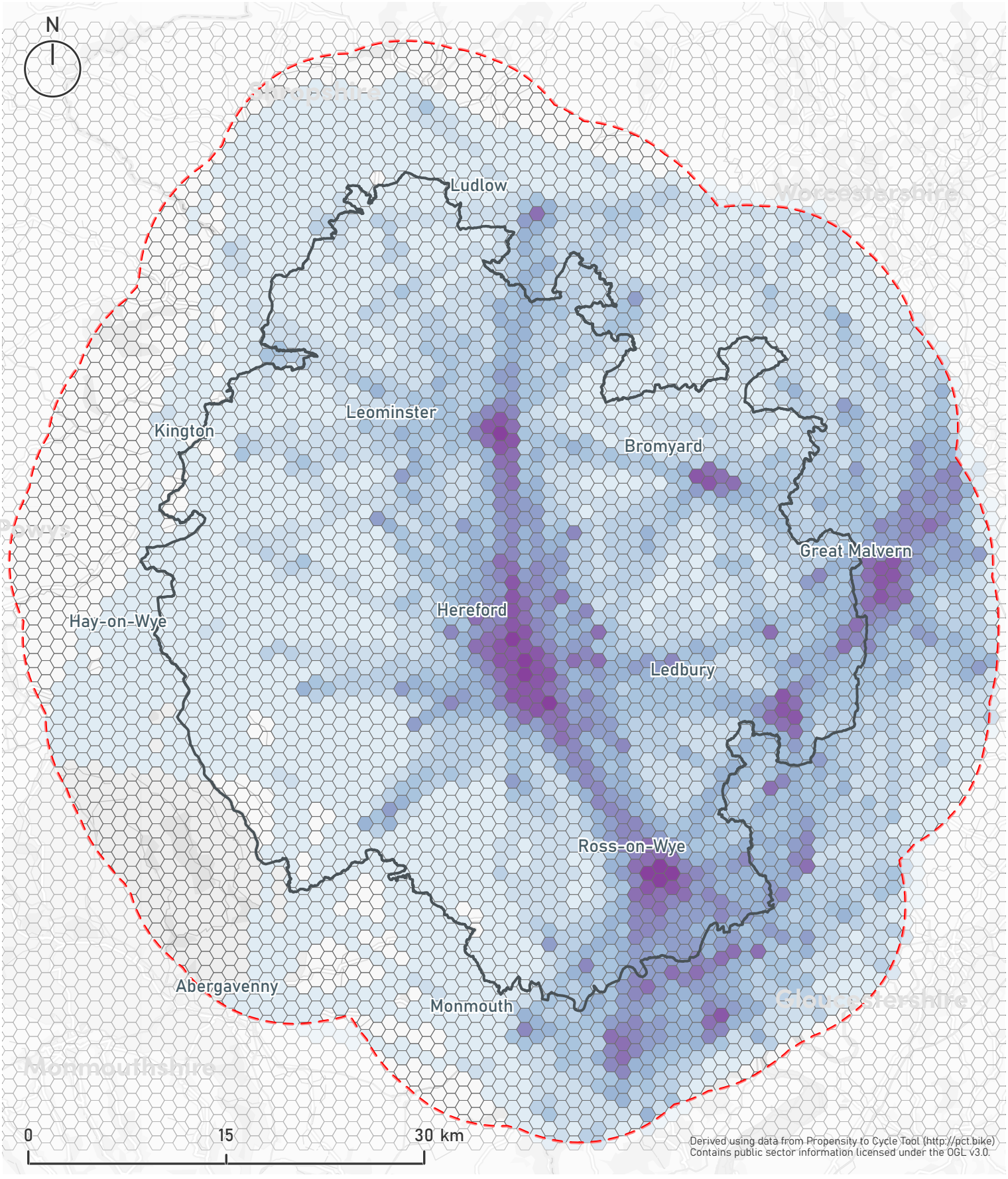
To achieve this, straight lines were drawn between each origin hexagon presented in map x to its nearest class 2 destination and to all Class 1 destinations across the study area.

This was because it was assumed that Class 1 destinations would generate a higher number of trips and that they are also likely to have a larger catchment area of trips from across the study area, compared to Class 2 destinations which would generate more locally based trips.

Following this, these straight lines were 'trimmed' to distances between 5km and 20km to establish the strategic cycling network.

Map 41 on page 169 shows that there are a high number of desire lines which route from the city centre to the north (towards Leominster), south (towards Ross on Wye) and east (towards Great Malvern).





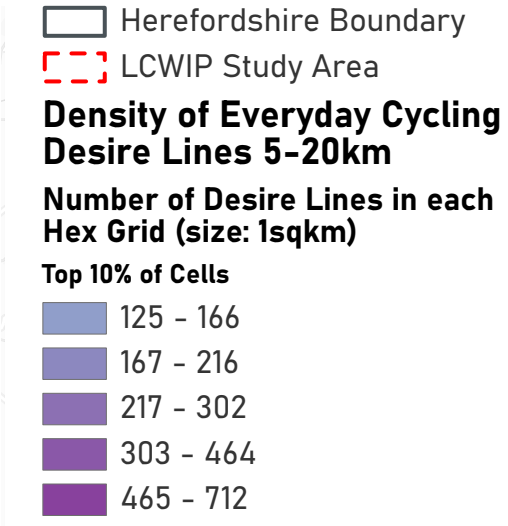

**Map 41** Density of everyday cycling desire lines

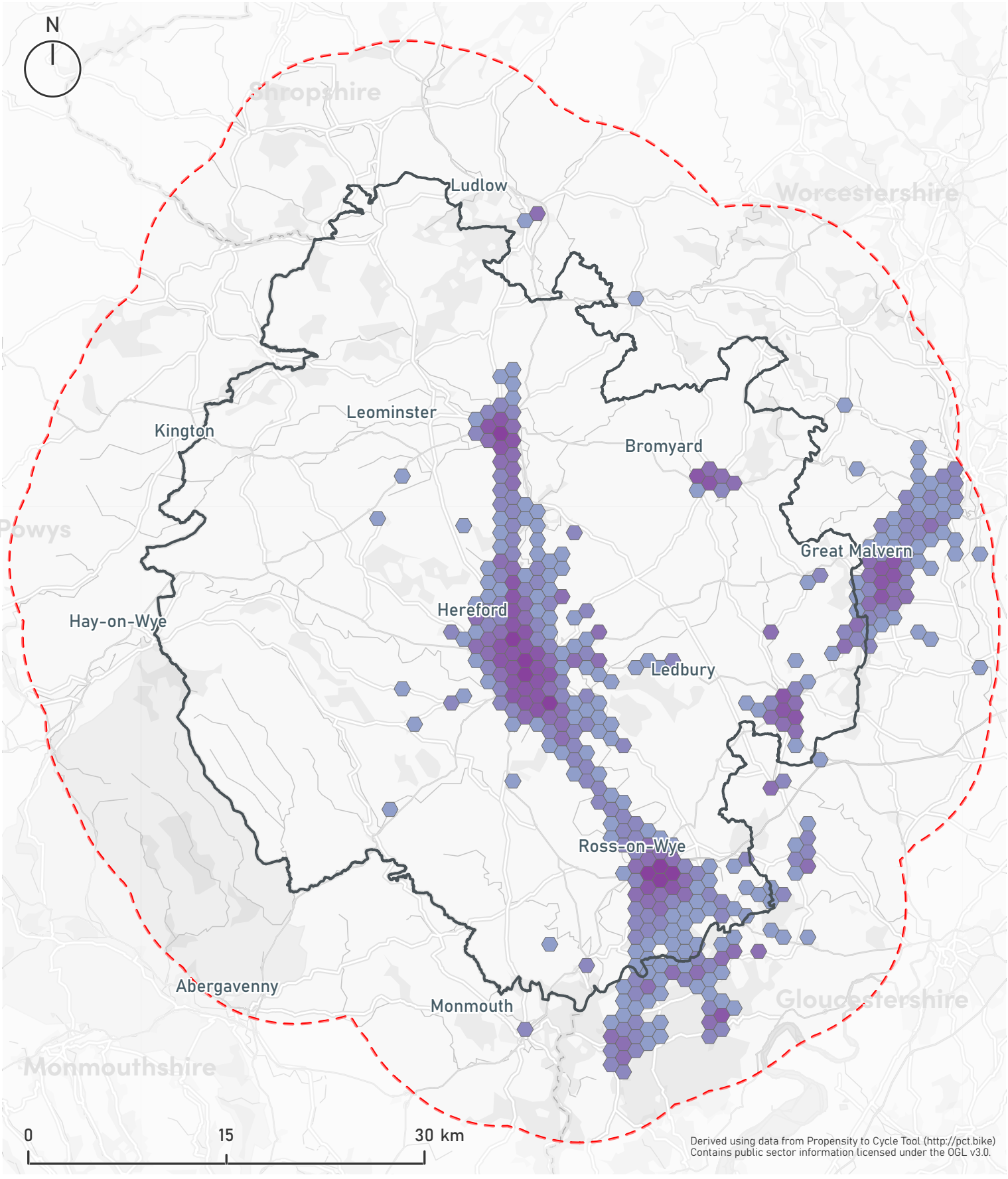
# Density of everyday cycling desire lines (5-20km) (Top 10%)

Having identified all origin-destination desire lines for cycling up to 20km, it was necessary to refine the number of desire lines to a more appropriate number.  This was necessary to reflect areas across the county where there is considerable level of demand.

Therefore, a consolidation exercise of the desire line clusters was established to select only the top 10% of everyday cycling desire lines across the county, helping to identify corridors of everyday demand.

Map 42 on page 171 shows that the top 10% of everyday cycling desire lines between 5 and 20km are strategically located primarily between Leominster, Hereford and Ross on Wye. In addition, there is a cluster of desire lines between Great Malvern, Bromyard and Ledbury, showcasing significant demand within th east of the county. To the west, there is a considerable lack of everyday cycling desire lines.






**Map 42** Density of everyday cycling desirre lines (top 10%)

# Combined demand analysis

To help compare the results from the PCT, Strava and Everyday Trip analyses, a 'combined demand analysis map' was established. This is imperative given that each individual analysis has its limitations, meaning combining the datasets provides a more balanced overview of the three datasets which considers commuting, recreation, and utility trips.

The purpose of this map was to clearly show the analysis of the PCT tool, Strava data and everyday trip analysis, overlaying this data to show where there is high demand for active travel.

To present a strategic network for active travel, a set minimum limit was imposed for each individual analysis. The purpose of this was to ensure that the analysis presents a coherent and strategic picture of demand across the county, ensuring that focus is directed towards the areas where there is the highest demand, establishing a strategic overview of the county. Therefore, the following parameters were used, with only desire lines above this limit being included into the analysis:

**PCT**

- Top 300 PCT desire line

**Strava**

- Links with more than 20 trips per day (walking or cycling)

**Everyday trip analysis -**

- Top 10 desire lines (up to 1.6km)
- Top 50 desire lines (up to 5km)
- Contains top 10% everyday desire line (5km - 20km)

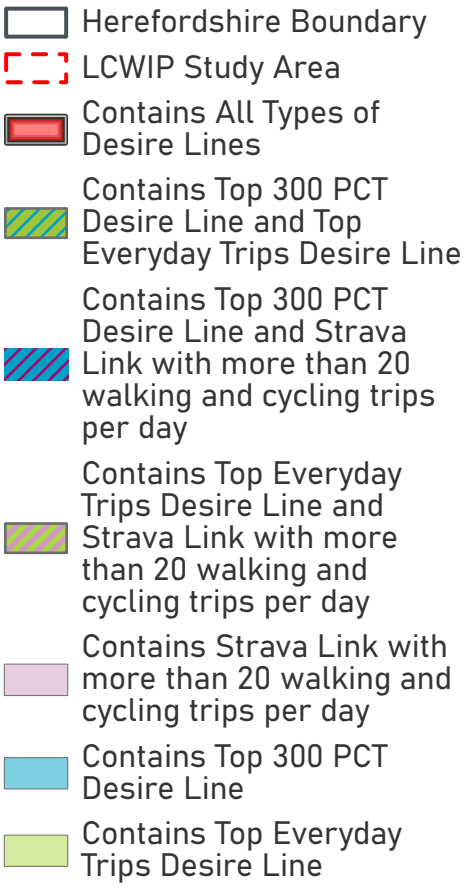
The study area was first split into a grid of hexagons, which were assigned a colour if they contained a certain type of desire line. Hexagons containing all three type of desire lines are shown in **red**.

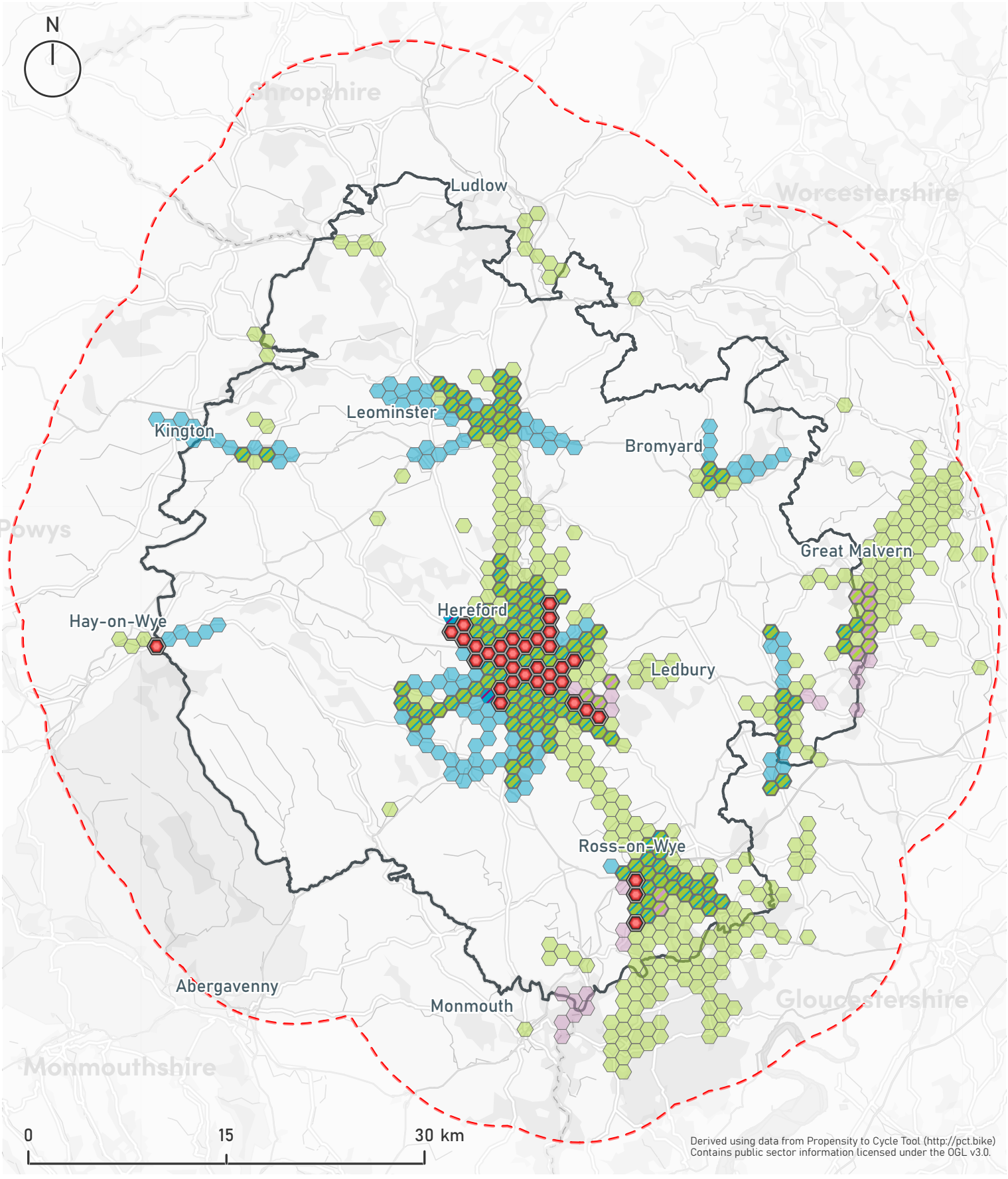
# Combined Demand Analysis

Map 43 on page 175 demonstrates the combined demand analysis for the county. The highest overlap between the three datasets (i.e. desire lines that contain PCT desire lines, Strava links and everyday desire lines) are located primarily within the centre of Hereford, with a direct desire line of all types extending from Hampton Bishop to Credenhill. Within the centre, there is also high demand towards Belmont and Rotherwas Industrial Estate.

Across other key towns across the county, there are pockets of areas where all types of desire lines exist. This includes; Hay-on-Wye and Ross-on-Wye. Other areas of key desire lines (where there are at least two desire lines) include a link between Dymock and Ledbury, Bromyard, Leominster, Kington and Great Malvern.

Finally, desire lines with at least one desire line establish a strategic network of active travel desire lines across the county, including between Hereford and Leominster and near Ross-on-Wye.






**Map 43** Combind Demand Analysis

# Network planning for walking across the county

This chapter will summarise how the network for walking was developed for the county.

# Developing a network for walking

# Core walking zones

The main focus of the infrastructure improvements is to upgrade and extend the quality and coverage of the existing walking network.

Figure 2 on page 180 illustrates how the development of the LCWWIP walking network is based upon the identification of 'Core Walking Zones' (CWZ) which represent areas that are expected to contain key walking trip generators and therefore likely to create higher levels of footfall.

As well as reviewing walking conditions within the CWZ itself, the site audits review conditions on the key walking routes into the CWZ. This ensures that the wider connectivity and permeability of the CWZs is considered during the network development.

For the Herefordshire LCWWIP, a total of five main towns were identified:

- Leominster
- Ledbury
- Kington
- Ross-on-Wye
- Bromyard

An analysis of the density of destinations highlights that these five towns represent the areas where there the greatest clusters of existing walking trip generators and therefore the highest levels of footfall.

Within the five towns, walking routes were identified. These routes were generally considered due to their proximity to key trip generators in each town. Each route consisted of several sections, which were determined based on when the characteristic of the road changed in line with guidance outlined within the DfT Walking Route Audit Tool.

**Figure 2** Core Walking Zone Graphic

This chapter will summarise the auditing process that was undertaken for walking routes across Herefordshire

# Auditing the walking network

# Walking Route Audit Tool (WRAT)

## Methodology

Having confirmed the Core Walking Routes, each route was then audited on site using the Walking Route Audit Tool (WRAT) methodology set out in the DfT LCWWIP process guidance.

Audits were undertaken on site by PJA. Each of the walking routes was audited in person. and auditing results inputted on site into a site app developed specifically for the WRAT.

The Walking Route Audit Tool (WRAT) is divided into several categories for analysis and uses a Red Amber Green (RAG) scoring technique:

1. **Attractiveness**: Considers the impact of maintenance, traffic noise, pollution and fear of crime upon the attractiveness of a route
2. **Comfort**: Reviews the amount of space available for walking and the impact of obstructions upon walking such as footway parking, street clutter and staggered crossings
3. **Directness**: Assesses how closely pedestrian facilities are aligned with the natural desire line and accommodating the crossing facilities are for pedestrians to follow their preferred route
4. **Safety**: Focusses on the impact of vehicle volumes and speeds and interaction with pedestrians
5. **Coherence**: Focuses on the provision of dropped kerb and tactile paving for pedestrians

The categories and specific scoring criteria are outlined in more detail in Figure 3 on page 185.

The guidance for the WRAT recommends that generally walking routes should be recommended for improvements if they score less than 70% overall.

| Audit Categories | 2 (Green) | 1 (Amber) | 0 (Red) |
|---|---|---|---|
| **1. ATTRACTIVENESS - maintenance** | Footways well maintained, with no significant issues noted. | Minor littering. Overgrown vegetation. Street furniture falling into minor disrepair (for example, peeling paint). | Littering and/or dog mess prevalent. Seriously overgrown vegetation, including low branches. Street furniture falling into major disrepair. |
| **2. ATTRACTIVENESS - fear of crime** | No evidence of vandalism with appropriate natural surveillance. | Minor vandalism. Lack of active frontage and natural surveillance (e.g. houses set back or back onto street). | Major or prevalent vandalism. Evidence of criminal/antisocial activity. Route is isolated, not subject to natural surveillance (including where sight lines are inadequate). |
| **3. ATTRACTIVENESS - traffic noise and pollution** | Traffic noise and pollution do not affect the attractiveness | Levels of traffic noise and/or pollution could be improved | Severe traffic pollution and/or severe traffic noise |
| **4. ATTRACTIVENESS - other** | Examples of 'other' attractiveness issues include:<br>- Evidence that lighting is not present, or is deficient;<br>- Temporary features affecting the attractiveness of routes (e.g. refuse sacks).<br>- Excessive use of guardrail or bollards | | |
| **ATTRACTIVENESS** | | | |
| **5. COMFORT - condition** | Footways level and in good condition, with no trip hazards. | Some defects noted, typically isolated (such as trenching or patching) or minor (such as cracked, but level pavers). Defects unlikely to result in trips or difficulty for wheelchairs, prams etc. Some footway crossovers resulting in uneven surface. | Large number of footway crossovers resulting in uneven surface, subsided or fretted pavement, or significant uneven patching or trenching. |
| **6. COMFORT - footway width** | Able to accommodate all users without 'give and take' between users or walking on roads. Footway widths generally in excess of 2m. | Footway widths of between approximately 1.5m and 2m. Occasional need for 'give and take' between users and walking on roads. | Footway widths of less than 1.5m (i.e. standard wheelchair width). Limited footway width requires users to 'give and take' frequently, walk on roads and/or results in crowding/delay. |
| **7. COMFORT - width on staggered crossings/ pedestrian islands/refuges** | Able to accommodate all users without 'give and take' between users or walking on roads. Widths generally in excess of 2m to accommodate wheel-chair users. | Widths of between approximately 1.5m and 2m. Occasional need for 'give and take' between users and walking on roads. | Widths of less than 1.5m (i.e. standard wheelchair width). Limited width requires users to 'give and take' frequently, walk on roads and/or results in crowding/delay. |
| **8. COMFORT - footway parking** | No instances of vehicles parking on footways noted. Clearance widths generally in excess of 2m between permanent obstructions. | Clearance widths between approximately 1.5m and 2m. Occasional need for 'give and take' between users and walking on roads due to footway parking. Footway parking causes some deviation from desire lines. | Clearance widths less than 1.5m. Footway parking requires users to 'give and take' frequently, walk on roads and/or results in crowding/delay. Footway parking causes significant deviation from desire lines. |
| **9. COMFORT - gradient** | There are no slopes on footway. | Slopes exist but gradients do not exceed 8 per cent (1 in 12). | Gradients exceed 8 per cent (1 in 12). |
| **10.COMFORT - other** | Examples of 'other' comfort issues include:<br>- Temporary obstructions restricting clearance width for pedestrians (e.g. driveway gates opened into footway);<br>- Barriers/gates restricting access; and<br>- Bus shelters restricting clearance width.<br>- Poorly drained footways resulting in noticeable ponding issues/slippery surfaces | | |
| **COMFORT** | | | |
| **11.DIRECTNESS - footway provision** | Footways are provided to cater for pedestrian desire lines (e.g. adjacent to road). | Footway provision could be improved to better cater for pedestrian desire lines. | Footways are not provided to cater for pedestrian desire lines. |
| **12.DIRECTNESS - location of crossings in relation to desire lines** | Crossings follow desire lines. | Crossings partially diverting pedestrians away from desire lines. | Crossings deviate significantly from desire lines. |
| **13.DIRECTNESS - gaps in traffic (where no controlled crossings present or if likely to cross outside of controlled crossing)** | Crossing of road easy, direct, and comfortable and without delay (< 5s average). | Crossing of road direct, but associated with some delay (up to 15s average). | Crossing of road associated indirect, or associated with significant delay (>15s average). |
| **14.DIRECTNESS - impact of controlled crossings on journey time** | Crossings are single phase pelican/puffin or zebra crossings. | Crossings are staggered but do not add significantly to journey time. Unlikely to wait >5s in pedestrian island. | Staggered crossings add significantly to journey time. Likely to wait >10s in pedestrian island. |
| **15. DIRECTNESS - green man time** | Green man time is of sufficient length to cross comfortably. | Pedestrians would benefit from extended green man time but current time unlikely to deter users. | Green man time would not give vulnerable users sufficient time to cross comfortably. |
| **16.DIRECTNESS - other** | Examples of 'other' directness issues include:<br>- Routes to/from bus stops not accommodated;<br>- Steps restricting access for all users;<br>- Confusing layout for pedestrians creating severance issues for users. | | |
| **DIRECTNESS** | | | |
| **17.SAFETY - traffic volume** | Traffic volume low, or pedestrians can keep distance from moderate traffic volumes. | Traffic volume moderate and pedestrians in close proximity. | High traffic volume, with pedestrians unable to keep their distance from traffic. |
| **18.SAFETY - traffic speed** | Traffic speeds low, or pedestrians can keep distance from moderate traffic speeds. | Traffic speeds moderate and pedestrians in close proximity. | High traffic speeds, with pedestrians unable to keep their distance from traffic. |
| **19.SAFETY - visibility** | Good visibility for all users. | Visibility could be somewhat improved but unlikely to result in collisions. | Poor visibility, likely to result in collisions. |
| **SAFETY** | | | |
| **20. COHERENCE - dropped kerbs and tactile paving** | Adequate dropped kerb and tactile paving provision. | Dropped kerbs and tactile paving provided, albeit not to current standards. | Dropped kerbs and tactile paving absent or incorrect. |
| **COHERENCE** | | | |

**Figure 3** Walking Route Audit Tool

# Bromyard

## Why Bromyard?

Bromyard is a market town, with a population of approximately 3,800 (Census, 2021). It is located approximately fifteen miles to the north-east of Hereford and is the centre for a number of parishes in the north-east of the county of Herefordshire.

Often referred to as the 'Town of Festivals', the town centre is vibrant, with a range of food, music and craft festivals. The town centre is also home to a variety of independent retail businesses and has a rich history, with the town mentioned in the Domesday book, with a range of Georgian and Victorian buildings.

The town is bisected by the A44, which provides an important route for vehicle traffic and occupies approximately 6,300 motor vehicles per day (DfT, 2023).

The town centre has suffered from a lack of strategic investment for many years, and it is widely acceptable that improving the town's public realm and making it a more attractive destination would benefit the local economy and accelerate future growth within the town centre.

Site observations undertaken in Bromyard highlighted issues with the public realm and difficulties that residents and visitors travelling around the town by walking or wheeling would experience.

Footway conditions observed are poor quality, with evidence of tactile paving either missing or in disrepair.

At grade crossing points across the A44 Bromyard bypass are minimal, with subways/ underpasses providing connectivity across the busy road. However, such underpasses lacked natural surveillance, with minimal lighting, making walking unpleasant, particularly at night.

Many footways are very narrow (less than 1.5m in width) which present difficulties for people walking and wheeling to safely pass each other, posing potential conflict points with motor vehicles.

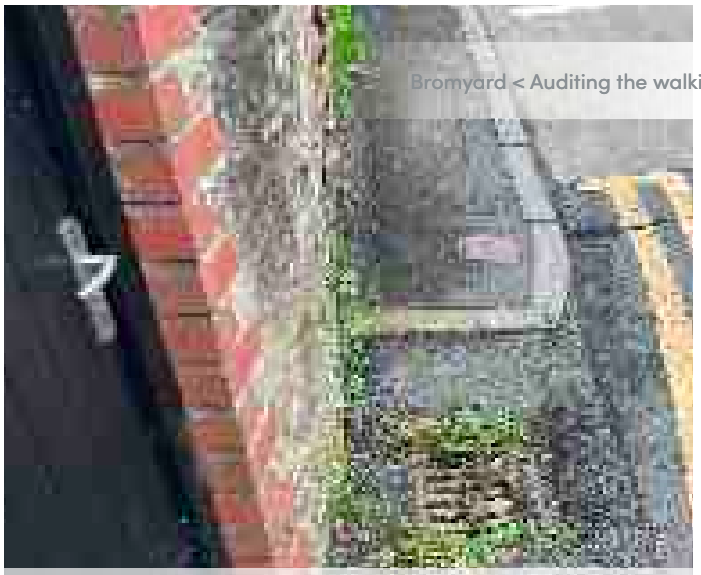


Figure 4 Narrow footways and gutters make walking and wheeling difficult

Figure 5 Wide crossing distances makes walking more difficult

Figure 6 Lack of dropped kerbs is a barrier to access

Figure 7 Subways and underpasses can make walking journeys longer and less safe

Figure 8 Disrepair of surfaces create an unpleasant walking environment

# Results

| Attractiveness | Comfort | Directness | Safety | Cohesion |
|---|---|---|---|---|
| 73% | 76% | 93% | 69% | 14% |

The results for the WRAT are shown in Map 44 on page 189.

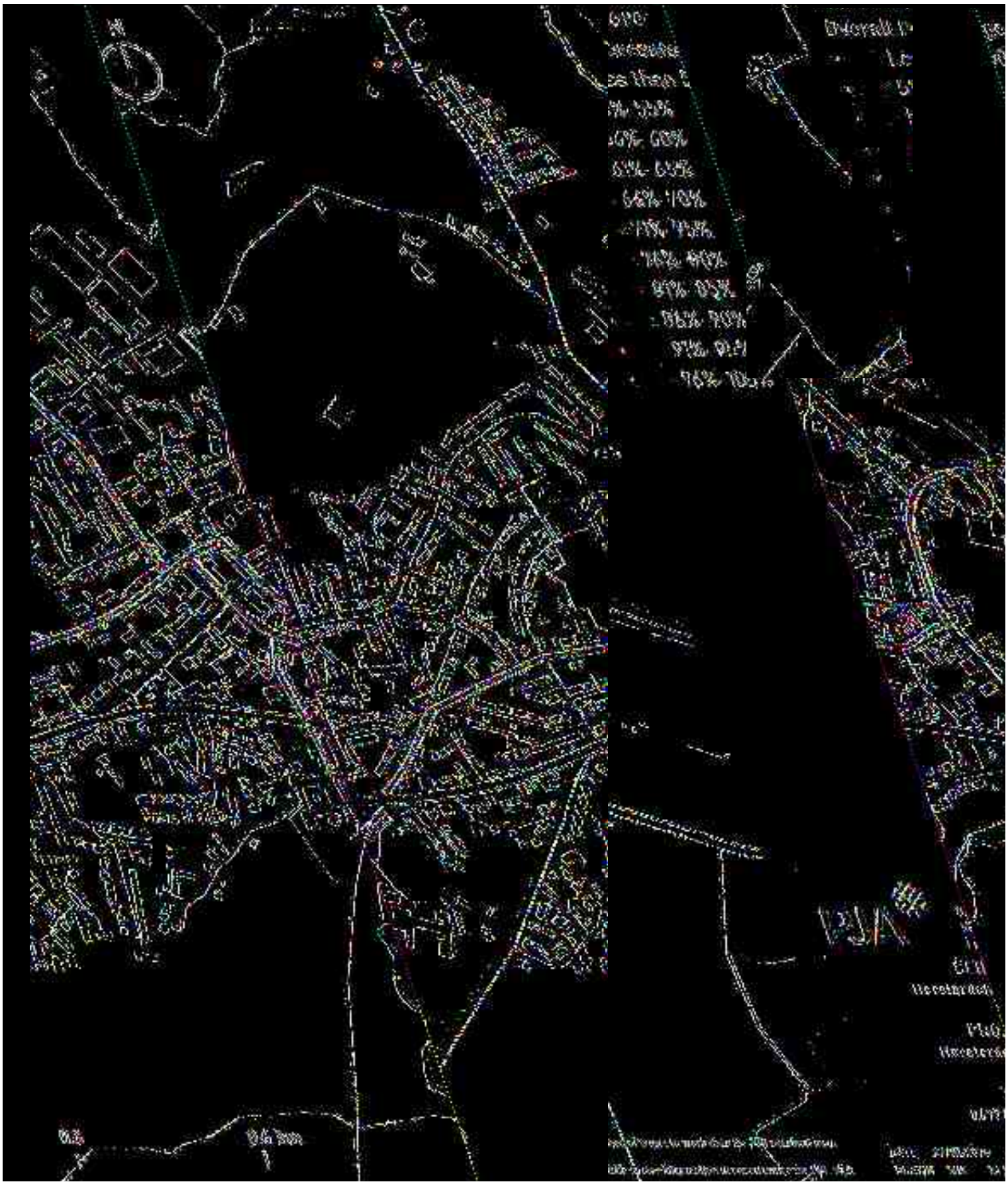
1. **Attractiveness**: Footways in Bromyard are generally well maintained. However, overgrown vegetation is a common occurrence. Additionally, most routes show no evidence of vandalism and there is appropriate surveillance maintained throughout through houses overlooking the street. Traffic noise and pollution are a minor occurrence, generally not impacting the attractiveness of the route.

2. **Comfort**: Most routes are comfortable for pedestrians. Footways are level and in good condition and are able to accommodate most users without give and take. However, some routes within the town centre have excessive gradients and some routes audited experienced poorly drained footways, resulting in noticeable ponding issues.

3. **Directness**: Footways are provided to cater for pedestrian desire lines through being provided adjacent to the road and crossings follow desire lines where available. There are suitable gaps in the traffic where no controlled crossings are present for pedestrians to cross easily, with the exception of the A44 Bromyard bypass (BW-001).

4. **Safety**: The route is fairly safe for most users. Visibility is somewhat difficult for pedestrians due to some bends in the road and traffic speeds were noted as moderate.

5. **Cohesion**: The route is not cohesive for pedestrians as dropped kerbs and tactile paving are either absent or in disrepair for the majority of the route, posing significant safety risks for pedestrians.



**Map 44** Bromyard WRAT results

# Kington

## Why Kington?

Kington is a market town in Herefordshire and is situated west of the county, approximately 3.2km away from the Wales border and 31km from Hereford. The town is surrounded by the A44 road, which used to pass through the town centre but now acts as a bypass to the north.

Kington is the smallest among the five market towns in Herefordshire and has a population of around 2,400 (Census, 2021). The town is notable for its historic grid pattern of streets and back lanes, with the High Street serving as the main retail area, housing various independent stores.

Kington is renowned as a hub for walking activities and has been designated as a “walkers are welcome” town. The town hosts the Kington Walking Festival twice a year, which promotes the community and attracts visitors by showcasing the wide range of leisure walking routes available in the area. Given its rural location, the town centre of Kington plays a crucial role in providing essential services for the local population.

Whilst the town is a popular spot for leisure walking, the town centre itself poses difficulties for people walking and wheeling. Wide junction radii's are evident across the town, given its rural nature. Many junctions pose poor visibility and no crossing facilities, which discourage walking.

Some streets lack footways, with Hergest Road in particular noted as having no footway, despite the road acting as a stepped walking route to Lady Hawkins School. Site observations undertaken highlighted some school drop off along this road, posing conflict between school children and motor vehicles.

Other issues observed include narrow footways next to roads where large vehicles frequently drive past, creating an unpleasant experience for pedestrians.

Footway parking and overgrown vegetation also reduce the available width for pedestrians, which can result in people walking and wheeling being forced to navigate into the road.

Figure 9 Wide crossing distances prioritise cars over pedestrians

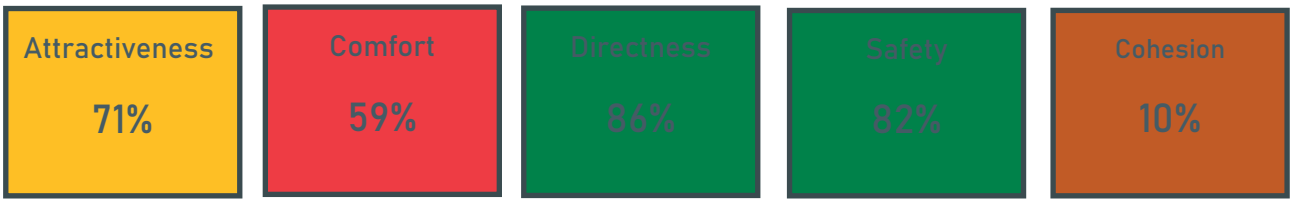
Figure 10 Narrow footways result in pedestrians required to walk in the road.

Figure 11 School street with no footways

Figure 12 Wide junctions with low visibility and no crossing facilities discourage walking

Figure 13 Narrow footways next to Heavy Goods Vehicle

# Results




The results for the WRAT are shown in Map 45 on page 193.

1. **Attractiveness**: Footways in Kington are generally well maintained. However, overgrown vegetation is a common occurrence. Additionally, most routes show no evidence of vandalism and there is appropriate surveillance maintained throughout through houses overlooking the street. Traffic noise and pollution are a minor occurrence, generally not impacting the attractiveness of the route.

2. **Comfort**: Some routes within the town centre have excessive gradients and some routes audited experienced poorly drained footways, resulting in noticeable ponding issues. Footway parking is also evident, which results in narrowing of the footway, leading to some instances of pedestrians required to walk or wheel in the road.

3. **Directness**: The route around Kington is direct. Footways are provided to cater for pedestrian desire lines through being provided adjacent to the road and crossings follow desire lines where available. There are suitable gaps in the traffic where no controlled crossings are present for pedestrians to cross easily.

4. **Safety**: Overall, most routes audited across Kington are safe for most users. Traffic volumes and speeds are moderate for the majority of the route which means pedestrians are in close proximity. Additionally, visibility is somewhat difficult for pedestrians due to some bends in the road.

5. **Cohesion**: The route is not cohesive for pedestrians as dropped kerbs and tactile paving are absent for the majority of the route, posing significant safety risks for pedestrians particularly persons with vision impairments.

**Map 45** Kington WRAT results

# Ledbury

## Why Ledbury?

Ledbury is a market town, with a population of approximately 8,300 (Census, 2021). It is located approximately fourteen miles to the east of Hereford and acts as a key service centre to the surrounding rural area, East Herefordshire and neighbouring Gloucestershire and Worcestershire.

The town centre is covered by a Conservation Area, with many important historic buildings, many of which are listed.

The town is served by a railway station, which provides regular connections to Hereford, Malvern, Worcester, Birmingham and London.

The Ledbury Town Trail bypasses through the town centre. The town trail is a 2 mile access route around the historic town, which was previously a length of the Ledbury-Gloucester railway line, which closed in 1964.

The town is bounded to the west and south east by the A438 Leadon Way. Much of the economic activity is centred around the junction between B4216, High Street and Worcester Road where a range of restaurants and hotels are situated.

The pedestrian experience around the town centre is characterised by narrow footways and limited crossing points. The town centre is heavily trafficked, with 'The Homend' (which provides a north-south connection from the railway station to the High Street) carrying over 6,800 motor vehicles per day.

Despite being a key north-south link, the pedestrian experience is poor. No crossing provision, tactile paving or dropped kerb is provided between the junction of Worcester Road and High Street, which poses challenges for people with mobility issues.

Footway narrowing is further exacerbated by outdoor seating along the footway, which can pose particular challenges for blind or partially sighted pedestrians.

Crossing provision across the town centre is poor, with uncontrolled crossings provided in locations where traffic volumes are likely to be high, which may result in some people not feeling safe crossing the road.

Figure 14 Wide crossing distances prioritise cars over pedestrians

Figure 15 Uneven footways create an uncomfortable environment for wheeling

Figure 16 Narrow footways are a barrier to comfortable walking and wheeling

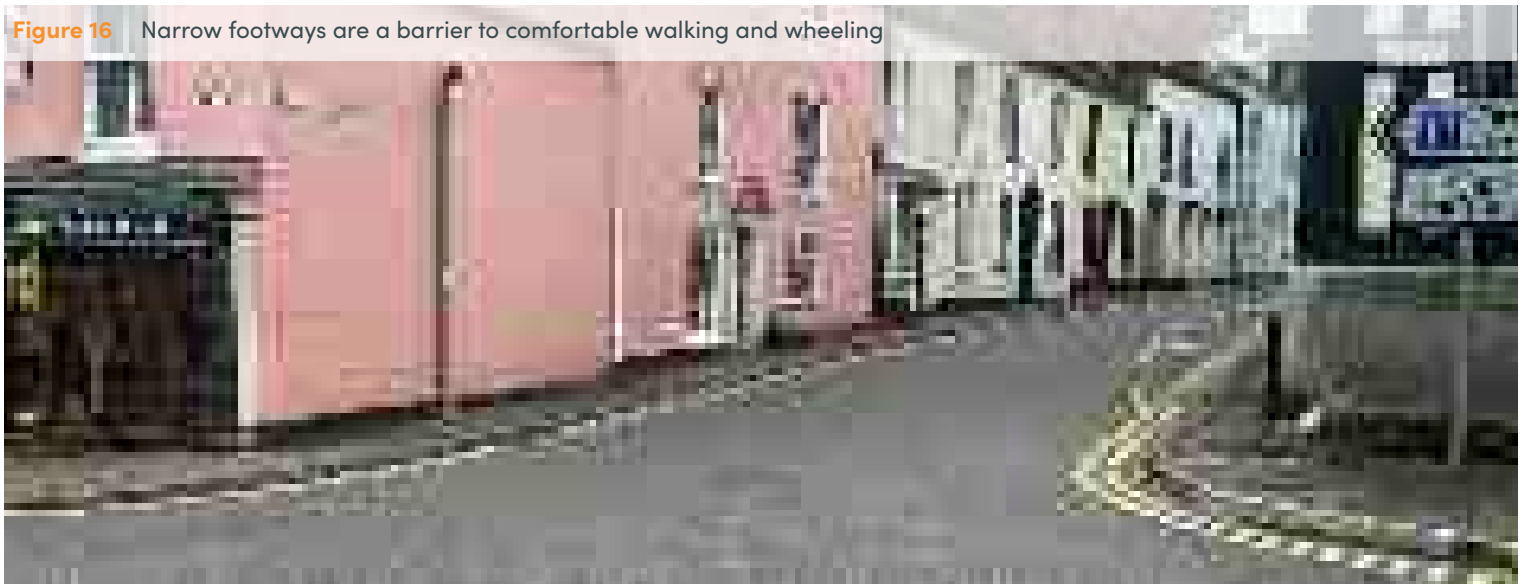
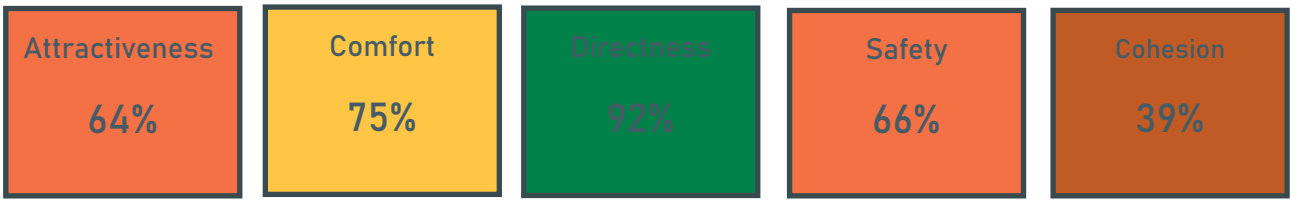


Figure 17 Wide crossing distances prioritise cars over pedestrians

Figure 18 Narrow footways limit oppurtunities to al fresco seating

# Results




The results for the WRAT are shown in Map 46 on page 197.

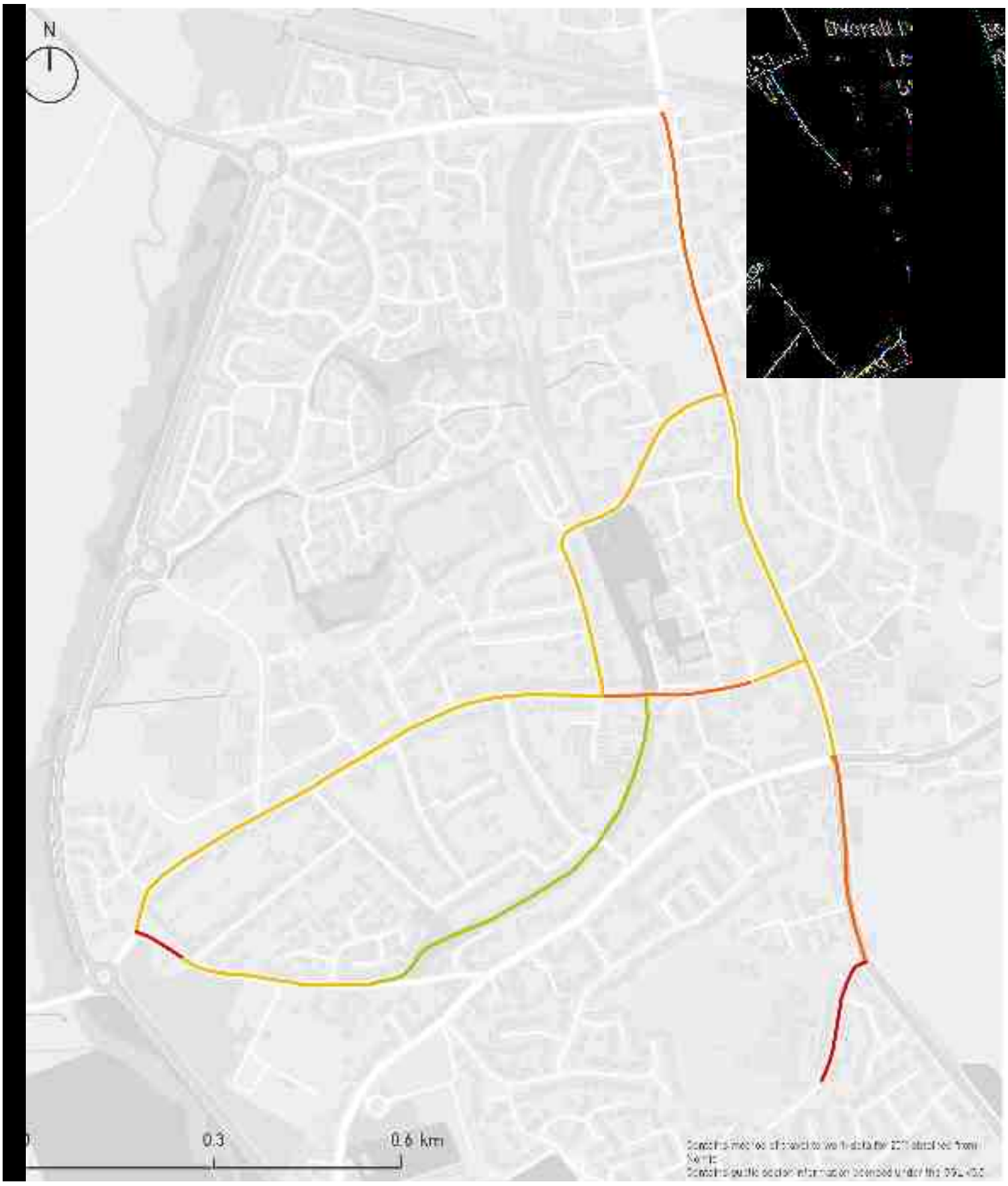
1. **Attractiveness**: Footways in Ledbury are mostly well maintained with a smooth high grip surface and have good levels of natural surveilance. However, evidence of overgrown vegetation is present, which pinch the footway width at certain points.

2. **Comfort**: Most routes are comfortable for pedestrians. Footways are level and in good condition and are able to accommodate most users without give and take. However, some instances of overgrown vegetation were noted and poorly drained footways resulting in ponding were observed.

3. **Directness**: Footways are provided to cater pedestrian desire lines as they are adjacent to the road, with crossings (where provided) being easy and direct.

4. **Safety**: Traffic volumes and speeds across the town are moderate, with pedestrians in close proximity to this traffic due to the narrow footway. Visibility could be somewhat improved, given the layout of the road can lead to difficuluties for pedestrians, particularly near Worcester Road and High Street.

5. **Cohesion**: The route is not cohesive for pedestrians as dropped kerbs and tactile paving are absent for the majority of the route, posing significant safety risks for pedestrians particularly persons with vision impairments.




**Map 46** Ledbury WRAT results

# Leominster

## Why Leominster

Leominster is a typical English market town, with a population of 12,000 (Census 2021). It is located approximately twelve miles to the north of Hereford and is the centre for many parishes in the north of the county, as well as serving several local villages in neighbouring Shropshire.

The town is home to a variety of retail businesses and hosts a regular weekly market. It is strategically located at the crossroads of A49 and A44, with good access to Wales and central locations in the Marches.

The town is compact, with all areas within 2 miles of travel. The centre is advantageous for walking, with it being relatively flat with generous green spaces. Despite this, walking infrastructure is poor, with many pavements being uneven and in disrepair. Public realm across the town centre is also lacking, with minimal street greening and street furniture.

Across the town centre, evidence of poor pedestrian infrastructure was evident. Poor crossing provision was noted, with many people finding it difficult to safely cross the street near West Street.

Narrow and overgrown footways were evident across the town, which considerably reduced footway width and in some instances, made footways inaccessible.

Some footways were underutilised in favour of pedestrian desire lines across unsurfaced areas, showcasing that footways in some instances do not cater to the needs of pedestrians.

Public realm in some instances was in disrepair, with guard railing along footways being damaged and a lack of lighting.

Figure 19 Uneven footways create an uncomfortable environment for wheeling

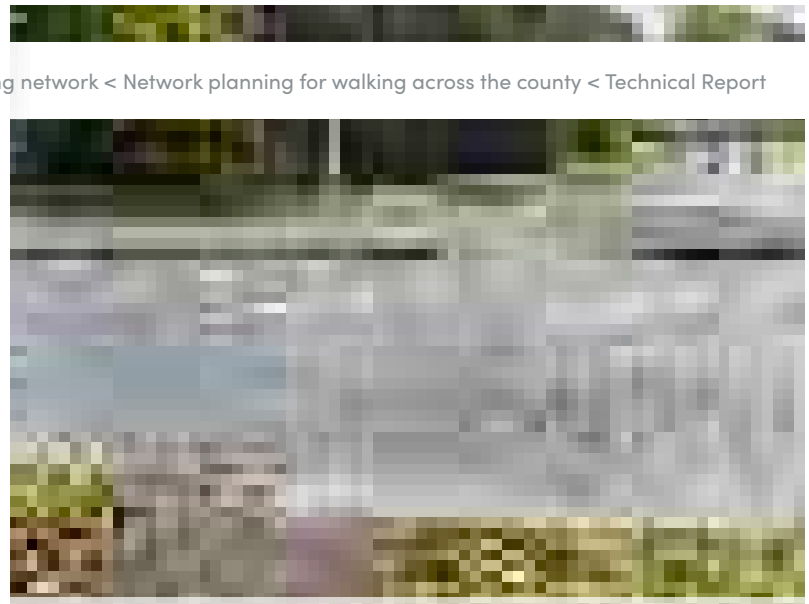


Figure 20 Wide crossing distances prioritise cars over pedestrians

Figure 21 Unpaved paths are a barrier to comfortable wheeling

Figure 22 Overgrown vegetation and lack of lighting create intimidating environments for walking, wheeling and cycling

Figure 23 Street furniture creates an unnatractive environment for walking and wheeling

# Results

| Attractiveness | Comfort | Directness | Safety | Cohesion |
|---|---|---|---|---|
| 70% | 77% | 90% | 71% | 31% |

The results for the WRAT are shown in Map 47 on page 201.

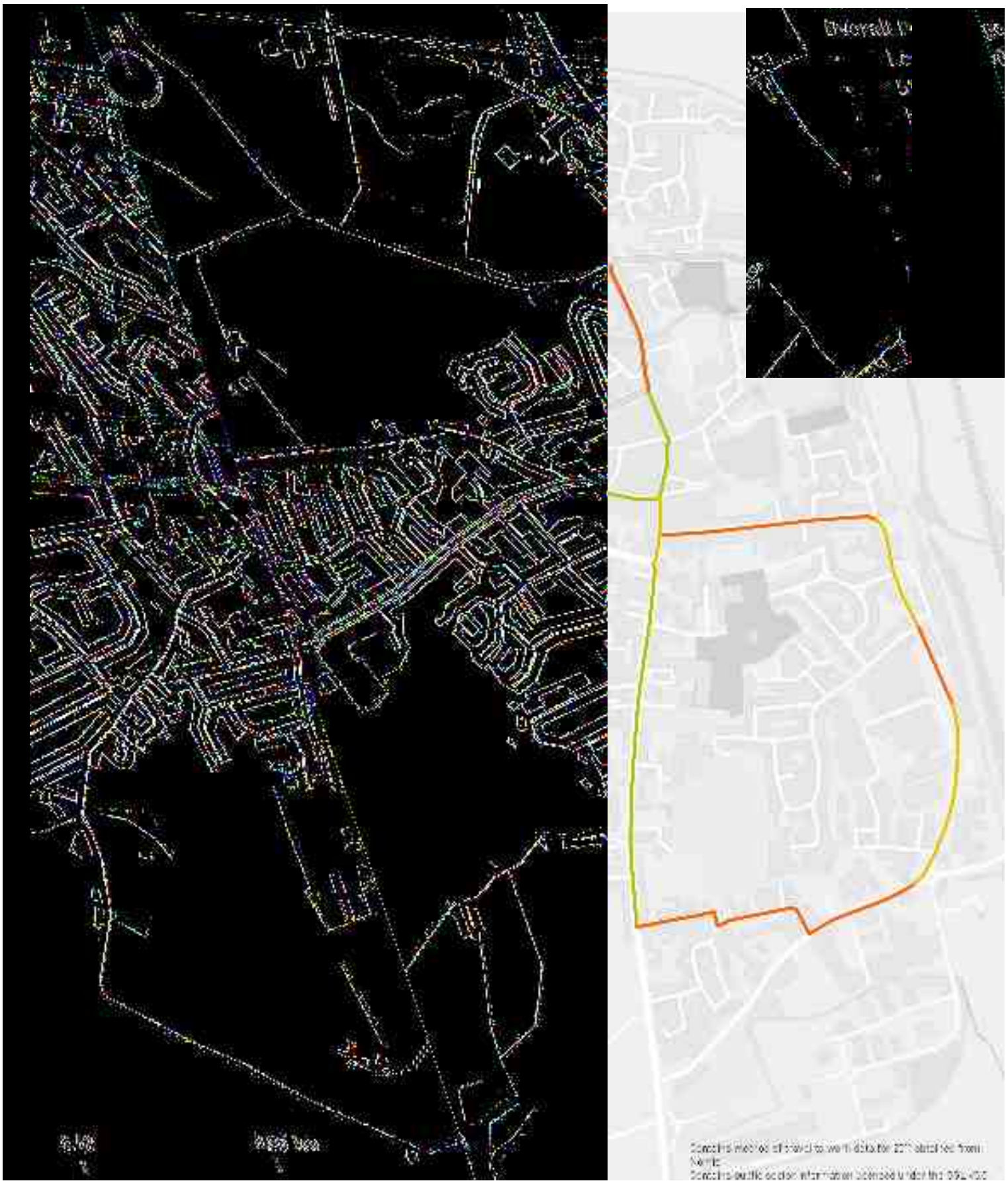
1. **Attractiveness**: Footways in Leominster are mostly well maintained, with some instances of overgrown vegetation and street furniture falling into minor disrepair. Minimal evidence of vandalism, with largely appropriate levels of natural surveillance. Footway lighting could be improved.

2. **Comfort**: Footways are level, but some defects are noted, typically cracked pavements which cause uneven surfaces. footway widths are typically good, with all users able to pass without give and take. Some instances of footway parking are noted in residentail areas.

3. **Directness**: Footways are provided to cater for pedestrian desire lines through being provided adjacent to the road and crossings follow desire lines where available. There are suitable gaps in the traffic where no controlled crossings are present for pedestrians to cross easily.

4. **Safety**: The route is fairly safe for most users. Traffic volumes and speeds are moderate for the majority of the route which means pedestrians are in close proximity.

5. **Cohesion**: The route is not cohesive for pedestrians as dropped kerbs and tactile paving are absent for the majority of the route, posing significant safety risks for pedestrians particularly people with vision impairments.



**Map 47** Leominster WRAT results

# Ross-on-Wye

## Why Ross-on-Wye

Ross on Wye is the second largest market town in Herefordshire, with a population of 11,000. It is located within the Area of Outstanding Natural Beauty and is next to the River Wye.

Ross-on-Wye is strategically well placed on the road network (A40 / M50). It acts as a service centre for the surrounding rural area and connections to the motorway network also make it an important gateway into the county, and a tourist destination in its own right.

Economic activity is centred around Market Place, with High Street home to a range of restaurants and shops.

The town has limited highway capacity, with challenges associated with movement around the town for all modes of transport. In particular, the pedestrian and cyclist experience is poor within the town centre, as well as poor connections out into the surrounding countryside.

Site observations undertaken across Ross-on-Wye indicated some instances of narrow footways, which would result in give and take being required.

Overgrown vegetation was apparent, which reduced also reduced footway width.  Noticeable slippery surfaces were apparent, with evidence of ponding causing some issues for pedestrians.

Evidence of street lighting was missing and coupled with minimal natural surveillance, resulted in isolation and a poor pedestrian experience, particularly at night.

Figure 28 Overgrown vegetation creates an uncomfortable environment for walking, wheeling and cycling

Figure 29 Overgrown vegetation of lighting create intimidating environments for walking, wheeling and cycling

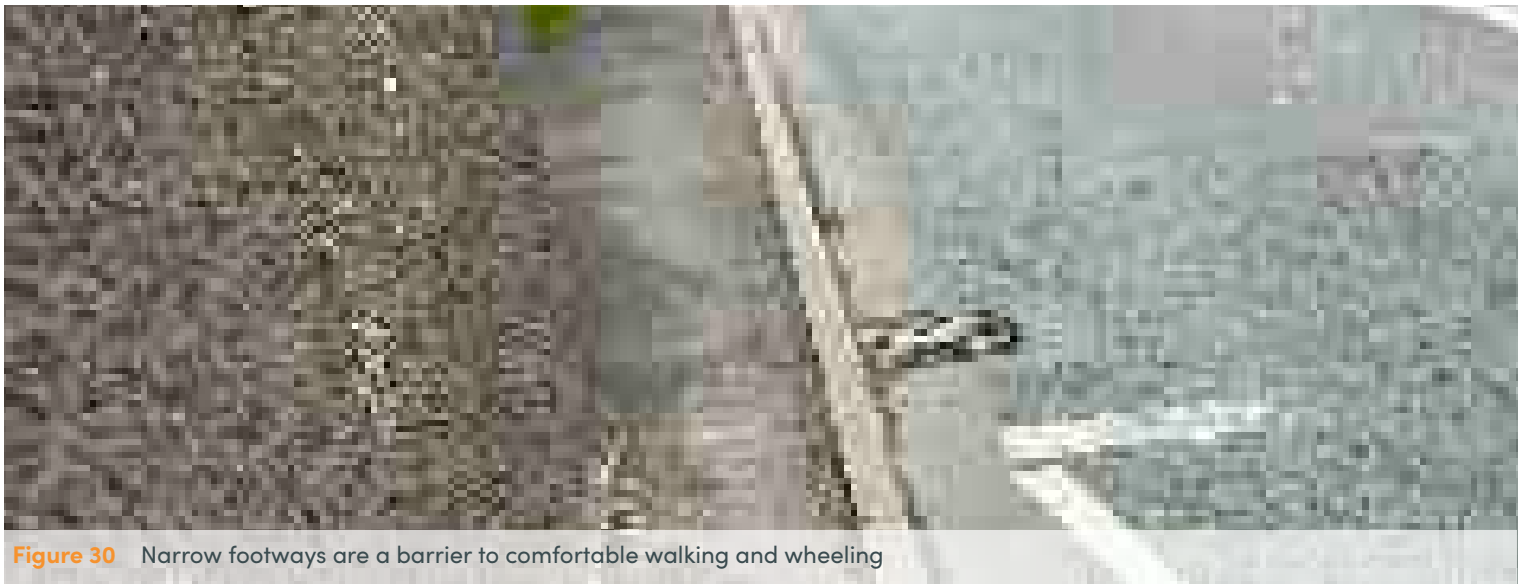


Figure 30 Narrow footways are a barrier to comfortable walking and wheeling

Figure 31 Fallen leaves on footways can be slip hazards

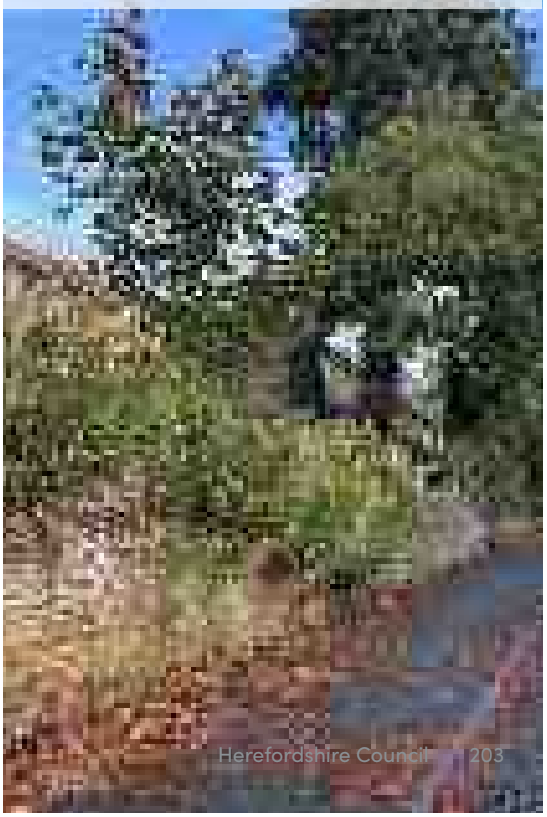
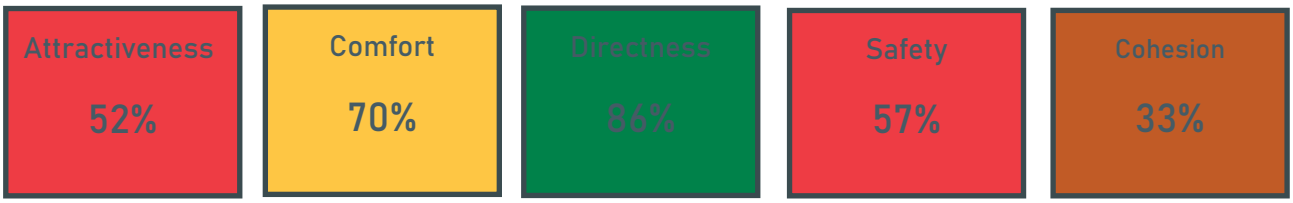


Figure 32 Fallen leaves on footways can be slip hazards

## Results




The results for the WRAT are shown in Map 48 on page 205.

1. **Attractiveness**: Footways in Ross-on-Wye were generally maintained, however overgrown vegetation and street furniture was identified as falling into disrepair. A lack of active frontage and natural surveillance was apparent, with many routes being isolated. There was evidence along some streets that lighting was not present.

2. **Comfort**: Footways are most level across Ross-on-Wye, with some defects noted such as cracked pavers. Footway width in some instances require users to give and take.

3. **Directness**: Footways are provided to cater for pedestrian desire lines through being provided adjacent to the road and crossings follow desire lines where available. There are suitable gaps in the traffic where no controlled crossings are present for pedestrians to cross easily.

4. **Safety**: The route is fairly safe for most users. Traffic volumes and speeds are moderate, which means pedestrians are in close proximity. Additionally, visibility is somewhat difficult for pedestrians due to some bends in the road.

5. **Cohesion**: The route is not cohesive for pedestrians as dropped kerbs and tactile paving are absent for the majority of the route, posing significant safety risks for pedestrians particularly persons with vision impairments.


**Map 48** Ross-on-Wye WRAT results

# Network planning for cycling

This chapter will summarise how the network for cycling was developed for the county.

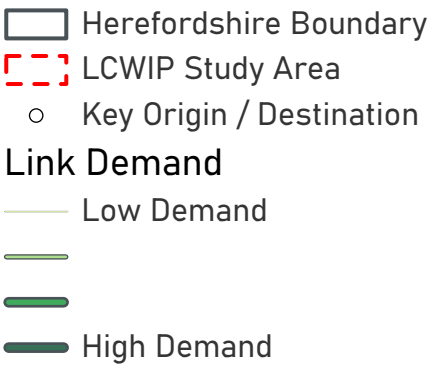
# Developing a network for cycling

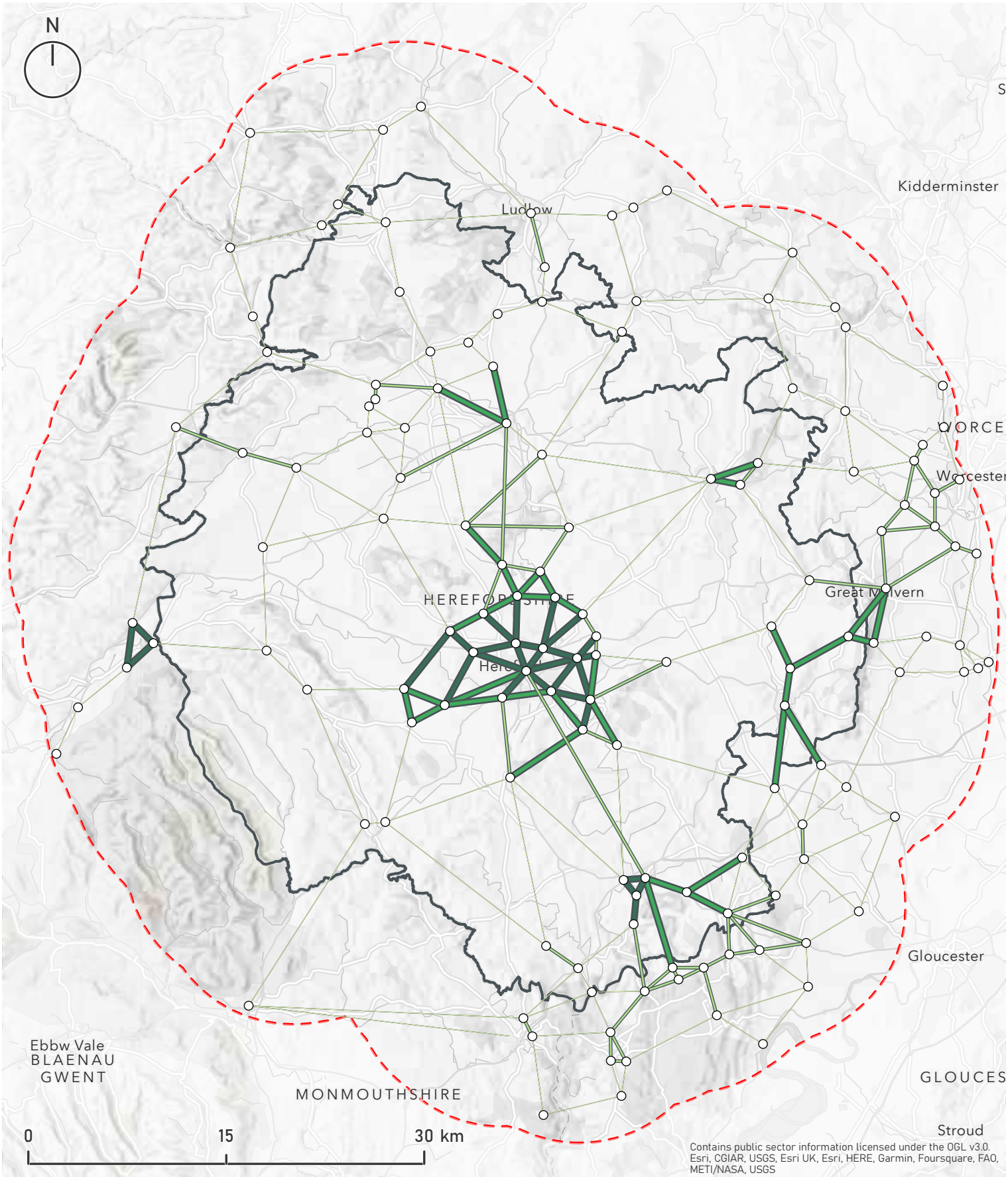
# Key Desire lines

Map 43 on page 175 presents the Combined Demand for cycling across the county in hexagonal format.

To interpret and translate this into desire lines, Map 49 on page 211 illustrates these connections, linking settlements across the cuonty with straight desire lines derived from the combined demand analysis.

Map 49 on page 211 shows that demand is centred within Hereford city, with pockets of high demand for cycling located in the market towns of Ross-on-Wye and Leominster.






**Map 49** Link network acorss Herefordshire

# Route alignments

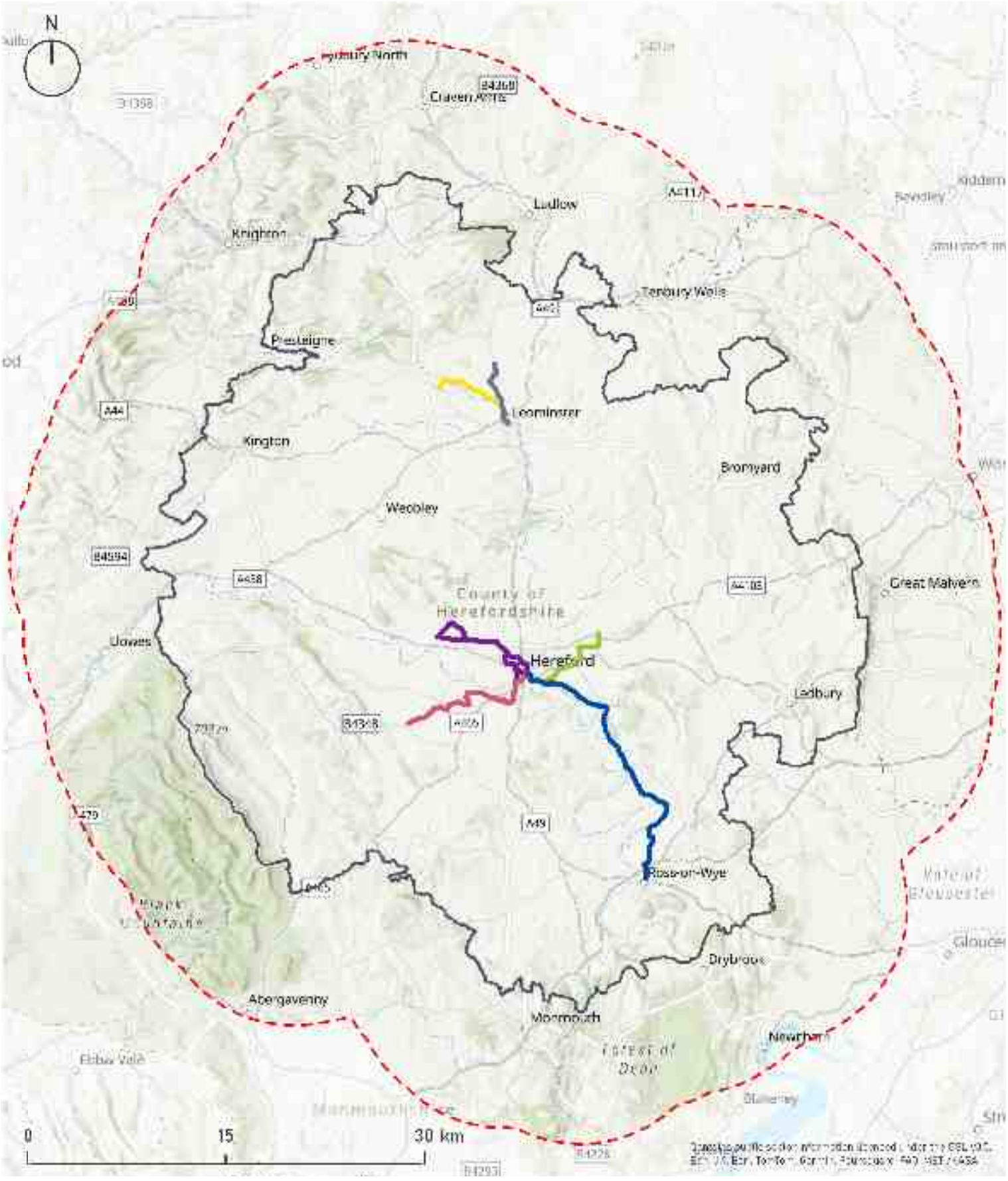
Following the identification of key desire lines, route alignments following the highway network across Herefordshire was undertaken.

Following analysis, six cycle routes, which aligned with key desire lines and the highway network were identified.

These six routes took into account a range of small villages along their alignment, emphasising the importance of viewing the LCWWIP as a coherent network across the county.

The routes identified are listed below:

1. Hereford City Centre to Withington
2. Hereford City Centre to Credenhill
3. Kingstone to Hereford City Centre
4. Leominster to Kingsland
5. Leominster to Luston
6. Ross-on-Wye to Hereford City Centre




**Map 50** Proposed county-wide route alignments

This chapter will summarise the auditing process that was undertaken for cycling routes across Herefordshire

# Auditing the cycle network

# Cycling level of service (CLoS)

Level-of-service assessments on all alignments were completed to review existing conditions for cycling and the scope for providing improving facilities. The Level of Service assessment from the DfT's Local Transport Note 1/20 was used to summarise each inter-urban route and a description of each of the five main factors is described below.

The Level of Service tool uses a simple Red Amber Green (RAG) scoring system to score routes. There are 25 x scoring factors in the assessments spread across the five themes listed below. As part of the audits, consideration was also given to key points that are not considered directly through the LoS assessment, for example the LoS does not consider the general setting of cycle routes and the extent to which they feel welcoming to cycle on. Equally, the inter-urban routes generally scored lower on some criteria due to the inherent nature of the inter-urban routes, particularly criteria related to surveillance, lighting, and the provision of dedicated cycle infrastructure.

**Figure 33** CLoS Extract from LTN 1/20

1. **Cohesion**: Considers how well integrated routes are within wider cycling networks both in terms of the provision of dedicated cycling infrastructure and wayfinding to help improve legibility of routes. The Cohesion factors also consider intra-route cohesion and the consistent provision of cycle infrastructure throughout a route.

2. **Directness**: Compares the directness of cycle routes relative to equivalent vehicle routes, and considers delays caused to cyclists on links and at junctions. The impact of gradients along a route are also included particularly where gradients exceed 2% for a prolonged section. Given the geography of the study area, many routes scored poorly due to gradient.. Alignments that intersected with major junctions also tended to score lower due to the delays caused by trying to cross the junctions.

3. **Safety**: The focus of safety is the extent to which cyclists are exposed to vehicular traffic and how this impact upon the safety of using a route. The safety criteria specifically consider volumes of vehicular traffic, vehicles speeds, carriageway design, and surface quality.

4. **Comfort**: Considers the quality of cycling facilities in terms of surface quality, width of cycling facilities and availability of wayfinding.

5. **Attractiveness**: Assesses the social safety of routes, interaction with pedestrians, impact of any street clutter on cycling, and the availability of cycle parking.

**Why the Cycling Route Selection Tool was not used as part of the auditing process.**

The Cycling Level of Service (CLoS) tool was preferred over the Route Selection Tool (RST) because it provides a more detailed and user-focused assessment of cycling infrastructure. CLoS evaluates safety, comfort, directness, and compliance with LTN 1/20 standards, ensuring high-quality design and user experience. Unlike the RST, which is route-centric and better suited for initial planning, CLoS offers quantifiable scores that support evidence-based decision-making and prioritisation of improvements.

# Hereford to Credenhill

## Why Hereford to Credenhill?

Map 43 on page 175 identified a strong desire from the City Centre to the north-west of Hereford.

Further analysis undertaken established that demand was centred towards Credenhill, a village and civil parish in Herefordshire.

A key characteristic of this route is its close adjacency to key amenities and employment hubs, most notably, RAF Hereford.

This results in the route potentially having a high catchment of individuals who require connections from this area to the city centre, paving the way for an opportunity for individuals to incorporate active modes of transport into their daily commute.

The route is already partially a popular leisure route, with the alignment following off-road sections of Yazor Brook.

Sections of the route are problematic for cyclists, particularly near Stretton Sugwas, with the A4103 and A480 roundabout providing poor provision for cyclists.

The A4103 provides a shared use path adjacent to the carriageway, with a buffer provided in the form of a grass verge between the carriageway and shared use path. It is likely that pedestrian volumes along this route are low, given its rural natural.

Site observations undertaken found certain sections of the route being inaccessible, with instances of unsurfaced loose material providing challenging terrain for cyclists.

Good quality cycle provision is provided on off-road sections near the city centre, but lighting and natural surveillance is an issue.

High traffic volumes witnessed within the city centre present difficulties for cyclists, creating an unpleasant experience for cycling on carriageway.

Figure 34 Unsurfaced trails are barriers to comfortable cycling

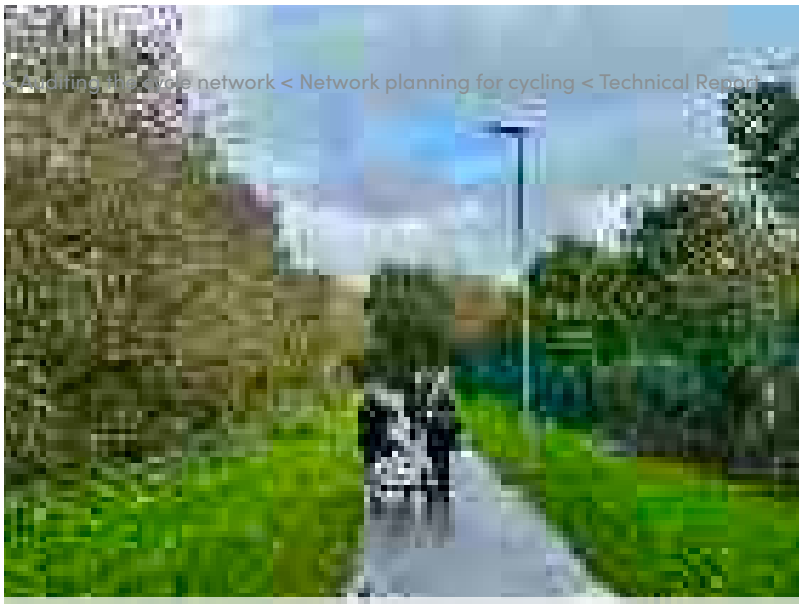


Figure 35 Wide paths allow for use of non conventional cycles

Figure 36 Off-road cycling routes create comfortable environments for cycling

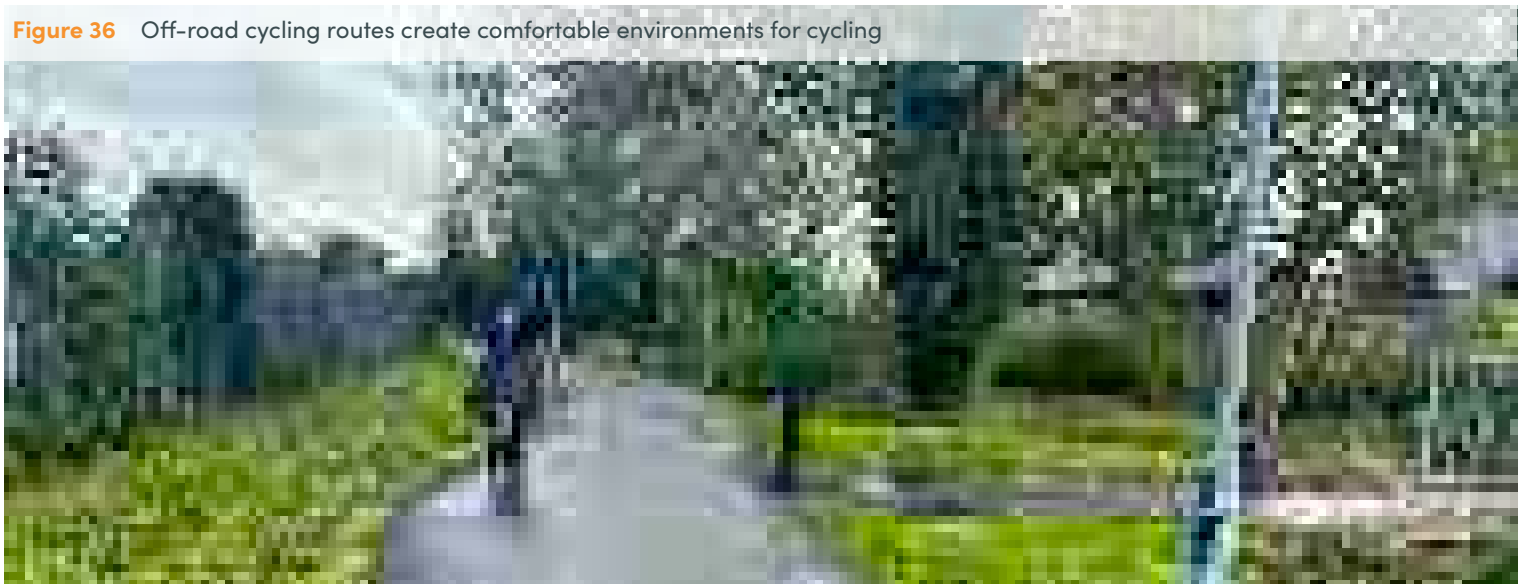


Figure 37 A group of recreational cyclists cycling between Hereford to Credenhill

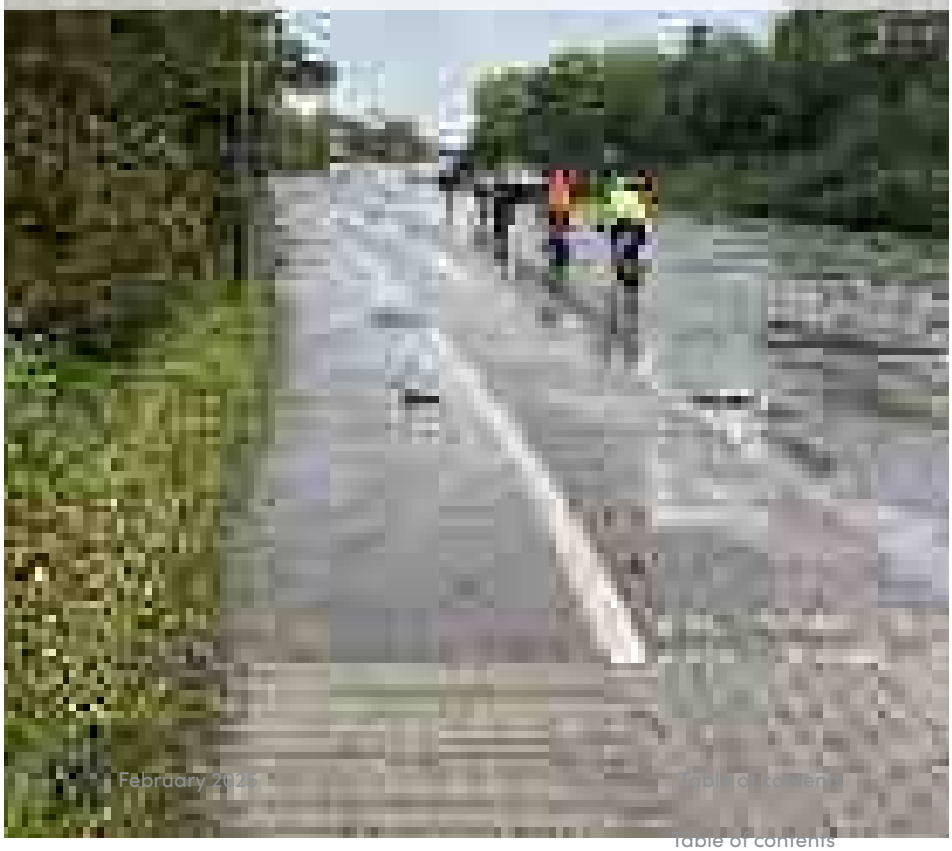


Figure 38 Fast traffic and narrow footways create an intimidating environment for cycling



Table of contents

## CLoS Results


The results for the cycling route are shown in Map 51 on page 221.

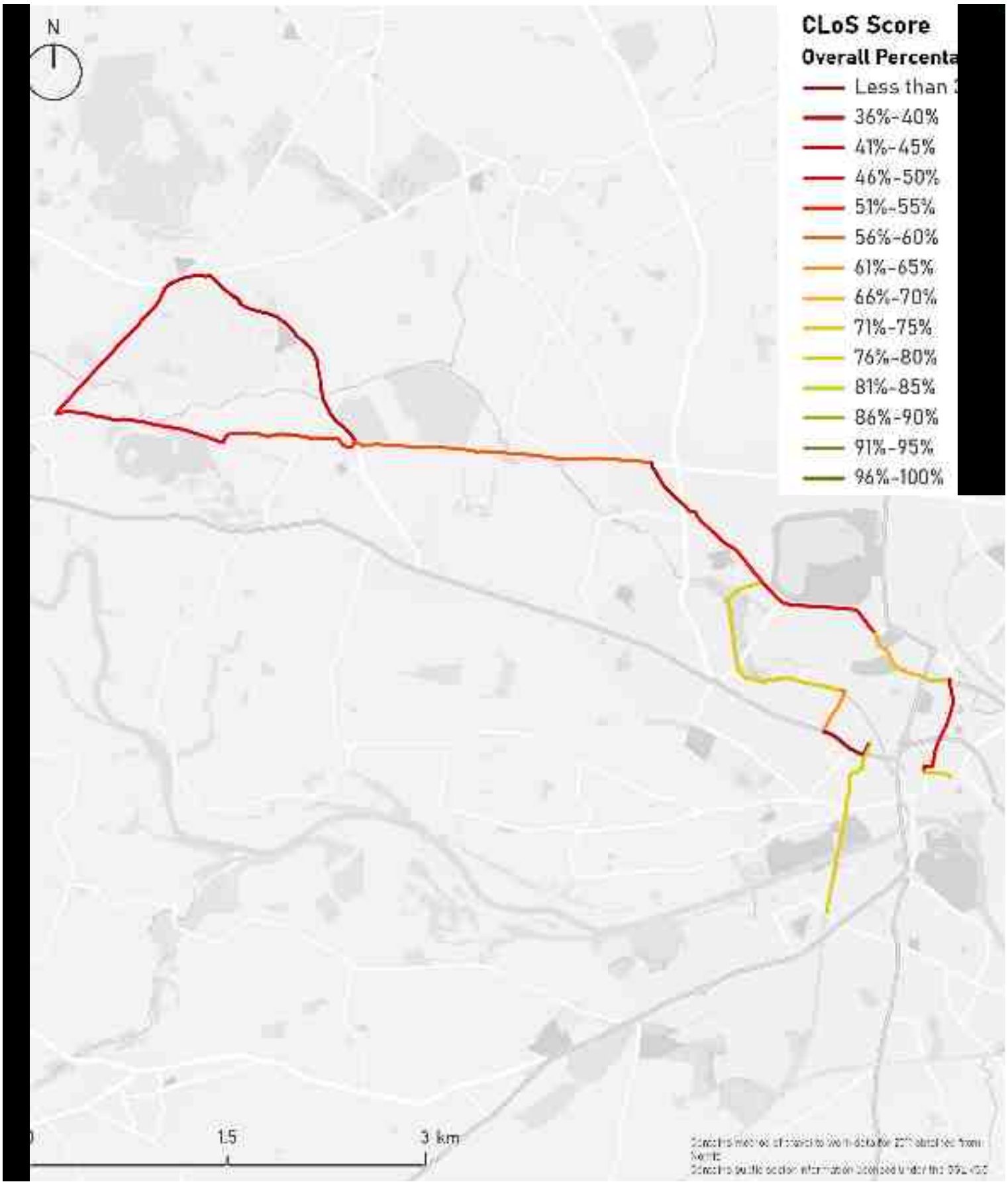
1. **Cohesion**: The route fails to provide a connected experience for cyclists. For the majority of the route, cyclists are not able to easy and safely join and navigate along the route and there are many instances where cyclists routes are 'ended' by signage or by poor junction design.

2. **Directness**: The route is predominantly direct, following the most straightforward path available, with minimal interruptions such as give way or stops. Cyclists face similar delays at junctions as motor vehicles. However, some sections present challenges due to gradients, potentially increasing the time, effort, and discomfort for cyclists.

3. **Safety**: The overall safety of the route is compromised where cyclists share the carriageway with motor vehicles. High speeds near junctions and when sharing carriageway pose a risk, particularly near heavy motor traffic volumes. Despite this, safer designs are prevalent near the city centre, via. off-road sections.

4. **Comfort**: The route generally has poor surface quality, marked by potholes and poor carriageway conditions. Wayfinding is not present for much of the route, which could be improved to aid navigation without relying on maps.

5. **Attractiveness**: The route lacks overall attractiveness, with concerns about social safety due to poor lighting and the route not being overlooked. The absence of cycle parking along the sections is also an issue.




**Map 51** Credenhill to Hereford City Centre cycling results

# Kingstone to Hereford

## Why Kingstone to Hereford?

Kingstone is a civil parish and large village in rural Herefordshire and is situated south-west of Hereford city. The village is home to two schools (Kingstone & Thruxton Primary School and Kingstone High School) as well as a growing residential population as a result of new housing developments over recent years.

The route connects Kingstone to the City Centre by following the B439 to the north-west, passing through the small village of Clehonger before connecting to Belmont via Ruckhall Lane and Belmont Haywood Country Park.

The route continues into the city centre via. the Great Western Way, providing a dedicated off highway route.

Site observations indicated that the B4349 was moderately trafficked, with speeds in excess of 30mph.  The junction between the B4349 and A465 near Belmont also presented difficulties, with no crossing provision for cyclists. The A465 is designated as NCN Route 46, but was heavily trafficked and required cycling on carriageway mixed with traffic, which presented a challenging environment for cyclists.

Wayfinding was partially present along the route, but barriers (e.g. kissing gates) resulted in the disruption of the cycling experience.


**Figure 39** Signage for NCN 46

**Figure 40** Lack of dedicated cycle lanes on country roads create intimidating environments for cycling

**Figure 41** Quiet country roads can be suitable alternatives to busy A and B roads for cycle routes

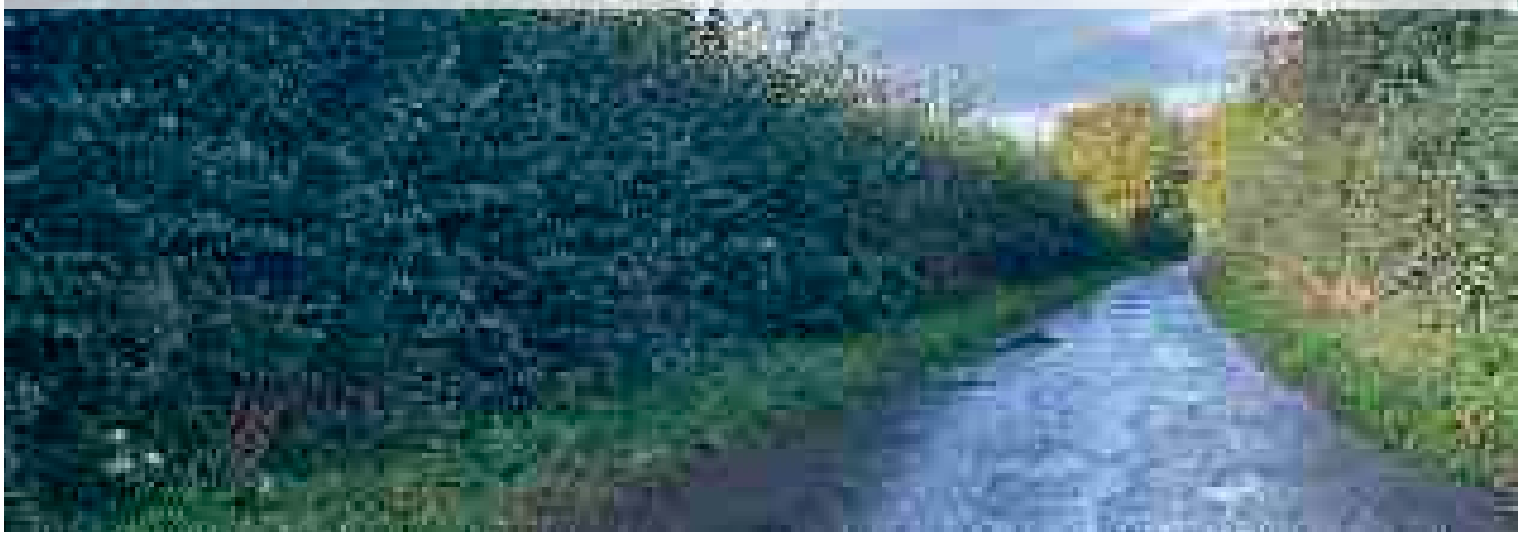
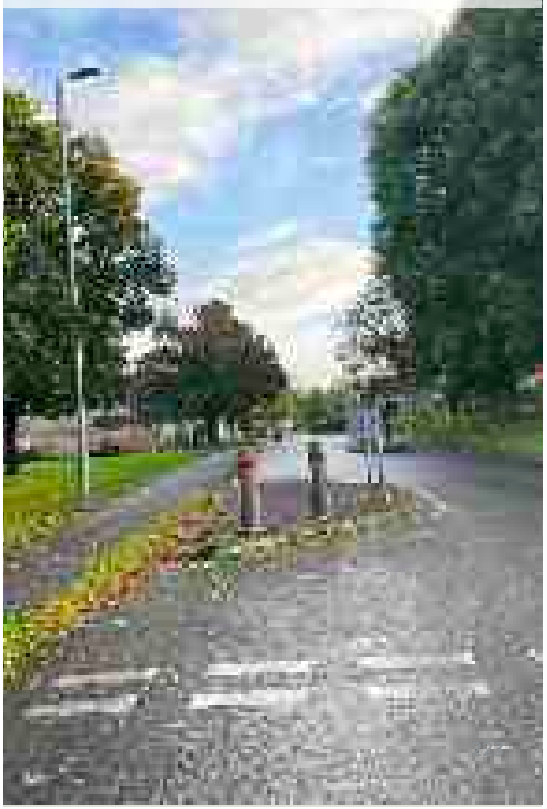


**Figure 42** Barriers pose accessibility issues for non traditional cycles

**Figure 43** Priority giveways without cycle bypass



## CLoS Results

| Cohesion | Directness | Safety | Comfort | Attractiveness |
|---|---|---|---|---|
| 52% | 74% | 49% | 69% | 45% |

The results for the cycling route are shown in Map 52 on page 225.

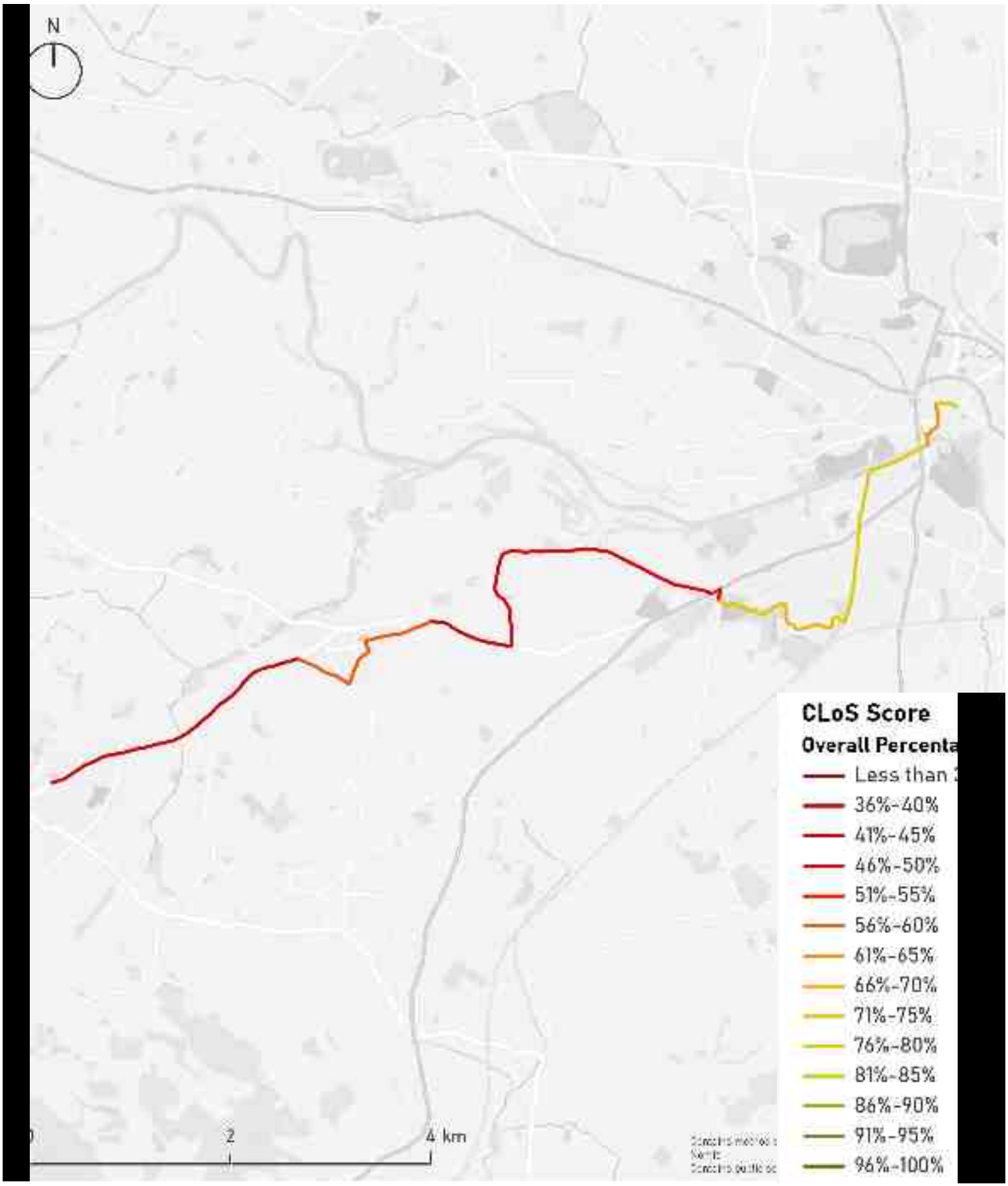
1. **Cohesion**: Overall, the route fails to provide a cohesive cycling experience. Cyclists at certain points are required to dismount, particularly when entering Belmont Haywood Country Park due to the presence of gates. Additionally, wayfinding is minimal along the B4349 which damages the continuity of the route.

2. **Directness**: The route is direct, following the most straightforward path available, with minimal interruptions such as give way or stops. Cyclists face similar delays at junctions as motor vehicles. However, some sections present challenges due to gradients, potentially increasing the time, effort, and discomfort for cyclists.

3. **Safety**: Overall, the route presents safety concerns for cyclists. Motor traffic speed on sections of shared carriageway exceeds 30mph given the speed limit along the A465 and B4349 is 40mph. No segregation is provided along these two primary roads for cyclists, resulting in cyclists sharing the sharing the carriageway with high speed motor vehicles. As the route ventures east towards the city centre (i.e. Great Western Way, Belmont Haywood Country Park) the safety of the route increases given that the route is segregated from motor traffic.

4. **Comfort**: The route generally has a smooth high grip surface, with some minor defects e.g. potholes evident. Widths are generally maintained for cyclists throughout the route, but limited wayfinding is present which results in non-local cyclists being required to refer to maps.

5. **Attractiveness**: The route is mostly unlit, particularly along Ruckhall Lane and the B4349 given that the route follows rural lanes in these areas. Street clutter is minimal and there is a lack of secure cycle parking provided.




**Map 52** Kingstone to Hereford City Centre cycling results

# Withington to Hereford

## Why Withington to Hereford?

Withington is a small village and civil parish in Herefordshire, situated approximatively 5 miles north east of Hereford. It has a growing population and is connected to Hereford via. A4103.

The selected cycling route also connects Lugwardine to the city centre. Lugwardine is situated to the south of Withington and is also a small village, home to two schools (Lugwardine Primary School and St Mary's Roman Catholic High School).

Many of the estimated 800 children who attend both schools travel from nearby locations within Hereford City Centre and Withington. However, given the strategic nature of Hereford Road, connections by walking or cycling are unsuitable for most people, given high traffic volumes, speeds and a lack of segregated cycling facilities.

Therefore, despite the strong desire for travel to this area, active travel for many is not feasible.

Site observations of the current conditions for cycling from Withington to Hereford confirmed that high traffic volumes and speeds along the A438 exist, meaning the current provision for cycling (on carriageway with no segregation) is currently unsuitable for most people.

The low density of alternative routes to access the city centre from Withington and Lugwardine results in limited choice for active travel users.

**Figure 45** Old Eign Hill

**Figure 44** Off-road cycling routes create comfortable environments for cycling

**Figure 46** Traffic control on Eign Road

**Figure 47** Signage for NCN 44 on Nelson Street

## CLoS Results

| Cohesion | Directness | Safety | Comfort | Attractiveness |
|---|---|---|---|---|
| 44% | 71% | 42% | 70% | 45% |

The results for the cycling route are shown in Map 53 on page 229.

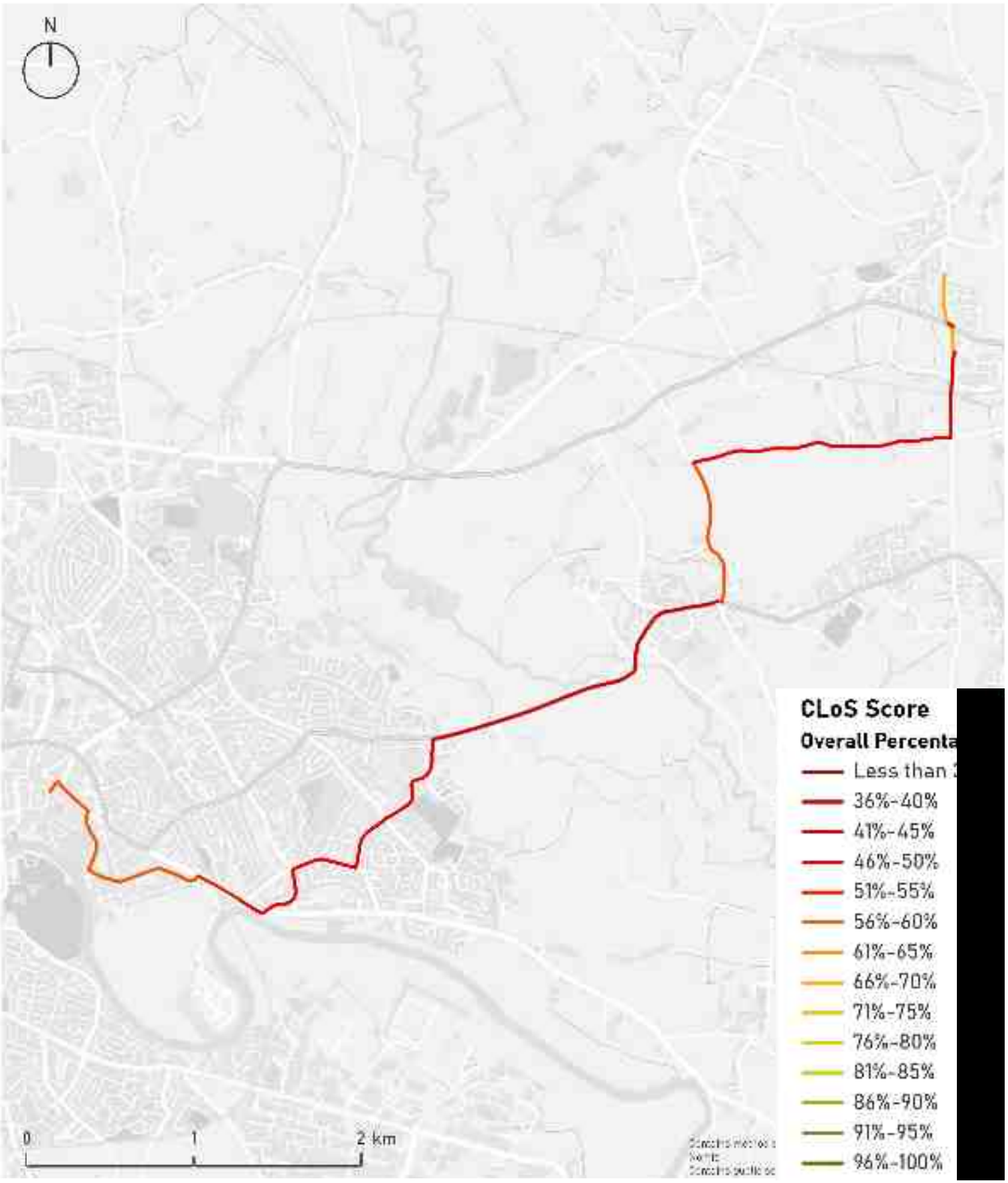
1. **Cohesion**: The route fails to provide a connected experience for cyclists. For the majority of the route, cyclists are not able to easy and safely join and navigate along the route and there are many instances where cyclists routes are 'ended' by signage or by poor junction design.

2. **Directness**: The route is predominately direct, attributed to the lack of alternative options to connect Withington with the city centre. Delays for cyclists at junctions along the route is similar to the delay for motor vehicles given the lack of cycle priority features (e.g. bypass as signals).

3. **Safety**: The overall safety of the route is compromised, particularly along the A438 which is subject to the national speed limit and motor traffic volumes are in excess of 11,000. As cyclists are required to cycle mixed with motor traffic given that there is no segregation, most people would not feel comfortable cycling.

4. **Comfort**: The route generally has a smooth high grip surface which is machine laid. Signage is partially acceptable along the route, but could be improved at key decision points.

5. **Attractiveness**: Most of the route is generally lit, but are not overlooked given their rural nature. Pedestrian comfort level is not impacted as a result of the route as cyclists are required to cycling on carriageway mixed with traffic. No cycle parking is available along the route.




**Map 53** Withington to Hereford City Centre cycling results

# Leominster to Luston

## Why Leominster to Luston?

Luston is a small village situated in north Herefordshire and is located approximately 3 miles north of Leominster on the B4361 road.

The village has a small population of 525 (Census 2021) but is home to a primary school attended by 95 pupils (Luston primary school).

The main route to access Luston from Leominster is via the B4361, which was the previous Leominster to Ludlow road prior to the A49. The A49 has resulted in a reduction in motor traffic utilising the B4361, but still plays a key role in local traffic, particularly through the village and into Leominster.

Despite Luston being approximately 3 miles away from Leominster, active travel options are limited, with the B4361 having no segregated cycling facilities, meaning people are required to cycle on carriageway mixed with motor traffic.

Public transport services in Luston are limited, with buses running irregularly, approximately one every two hours.

Given the limited connections to and from Luston and Leominster, the route audited follows the B4361 and Croft Lane, where traffic volumes are very low (less than 1,000 motor vehicles per day).

**Figure 49** Rainbow Street, Leominster

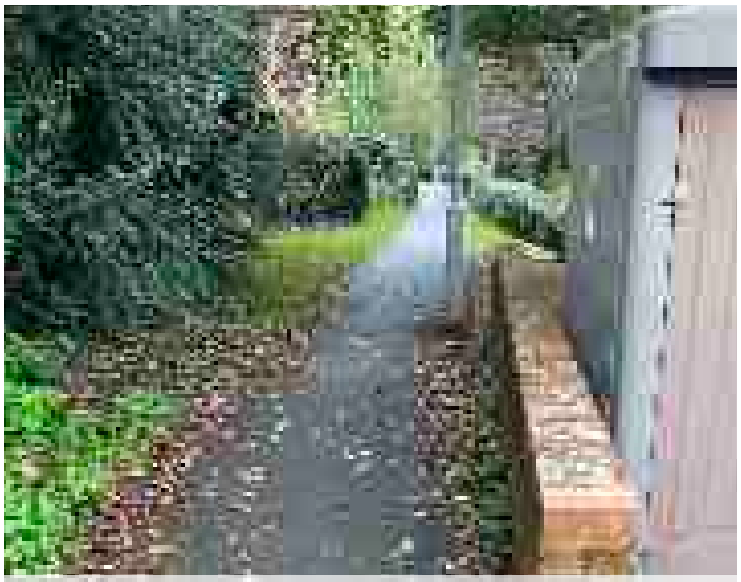


**Figure 48** Narrow paths are may cause conflicts between walkers, wheelers and cyclists

**Figure 50** Large, sweeping junctions encourage high vehicle speeds through junctions

**Figure 51** Hedges can create blind corners on country roads

## CLoS Results

| Cohesion | Directness | Safety | Comfort | Attractiveness |
|---|---|---|---|---|
| 50% | 76% | 45% | 61% | 50% |

The results for the cycling route are shown in Map 54 on page 233.

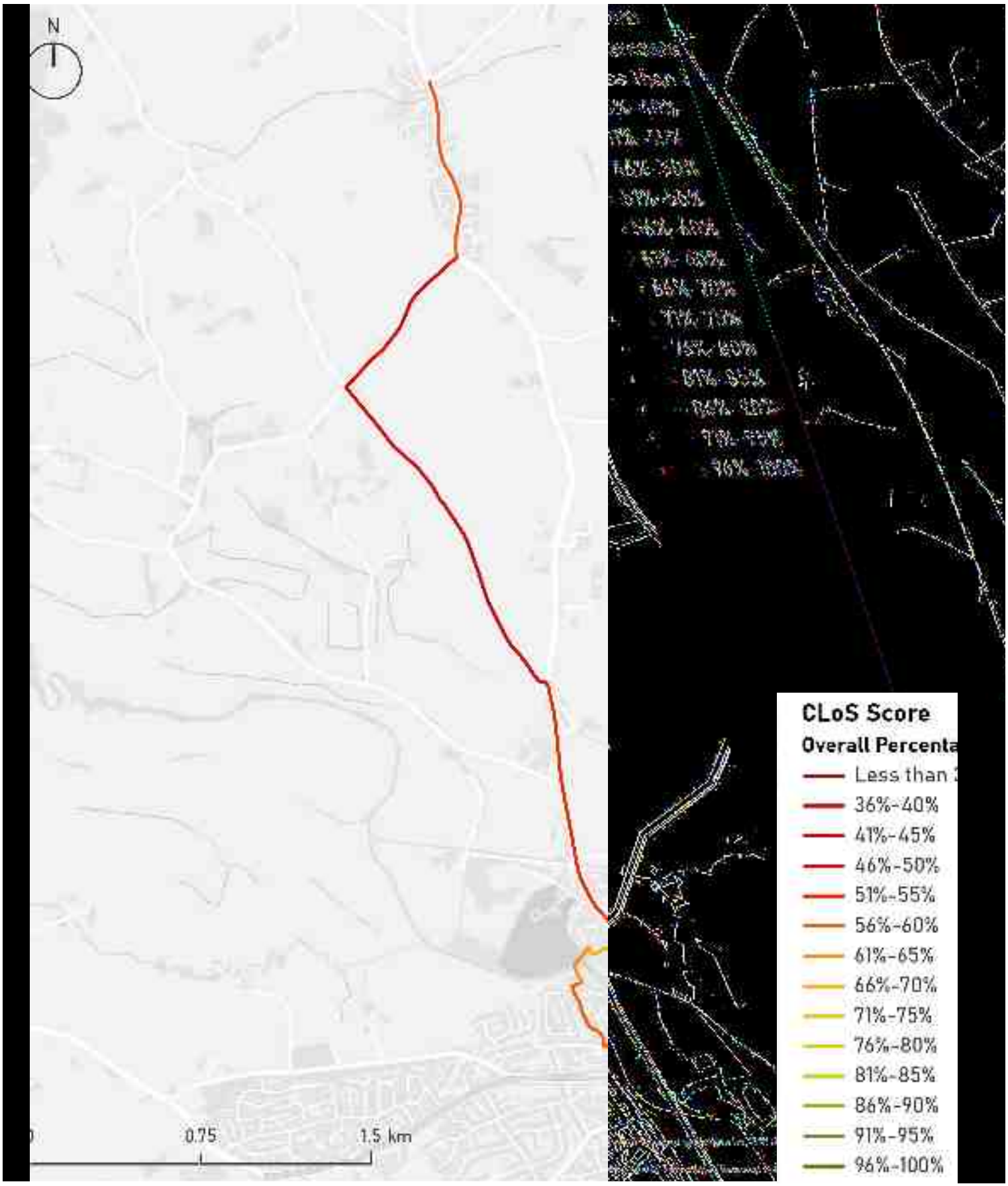
1. **Cohesion**: The route fails to provide a connected experience for cyclists. For the majority of the route, cyclists are not able to easy and safely join and navigate along the route and there are many instances where cyclists routes are 'ended' by signage or by poor junction design.

2. **Directness**: The route is direct, following the most straightforward path available, with minimal interruptions such as give way or stops. Cyclists face similar delays at junctions as motor vehicles. However, some sections present challenges due to gradients, potentially increasing the time, effort, and discomfort for cyclists.

3. **Safety**: Some sections of the route are unsafe. In particular, the connection in Leominster across the A44 fails to provide a safe experience for cyclists, who are forced to navigate across the A44 (with motor traffic volumes in excess of 16,000 vehicles per day) via an uncontrolled crossing. Speed limit along Bridge Street vary from 30mph to 40mph and without any segregation, cyclists are forced to cycle on carriageway mixed with traffic.

4. **Comfort**: The majority of the route is smooth high grip surface and machine laid, with the exception of the off highway section between Oldfields Close and Osborne Place, which whilst away from motor traffic, is poor surface quality.

5. **Attractiveness**: The route lacks overall attractiveness, with concerns about social safety due to poor lighting and the route not being overlooked. The absence of cycle parking along the route is also an issue, with no cycle parking provided.




**Map 54** Leominster to Luston cycling results

# Ross-on-Wye to Hereford

## Why Ross on Wye to Hereford?

Ross-on-Wye is a market town and civil parish in Herefordshire, located to the south-east of Hereford.

Ross-on-Wye and Hereford are both large economic hubs across the county, with a range of small villages and parishes located between both hubs including; Hole-in-the-Wall, Fownhope and Holme Lacy.

The main vehicle connection between Ross-on-Wye and Hereford is the A49. However, cycling along this road is impracticable for most people given high speeds and traffic volumes, resulting in many residents living in Ross-on-Wye, Hereford and in villages in between relying on motor vehicles to travel.

Map 43 on page 175 indicated demand between Ross-on-Wye and the city centre, particularly for 'everyday trips', evidencing the reliance of many smaller settlements have on Ross and Hereford.

The audited route follows Ross Road, which runs adjacent to the River Wye. The route is very lightly trafficked (less than 1,000 motor vehicles per day).. Site observations undertaken confirmed the lightly trafficked nature of Ross Road and also identified the lack of natural surveillance and lighting along the route.

The route continues along the B4224, which provides onward connectivity to the city centre via. Fownhope and Hampton Bishop.

**Figure 53** Wayfinding by the Millennium Bridge, York

**Figure 52** Large, sweeping junctions encourage high vehicle speeds through junctions

**Figure 54** Brampton Road

**Figure 55** Crossing the A40, Ross-on-Wye

## CLoS Results

| Cohesion | Directness | Safety | Comfort | Attractiveness |
|---|---|---|---|---|
| 63% | 75% | 41% | 66% | 50% |

The results for the cycling route are shown in Map 55 on page 237.

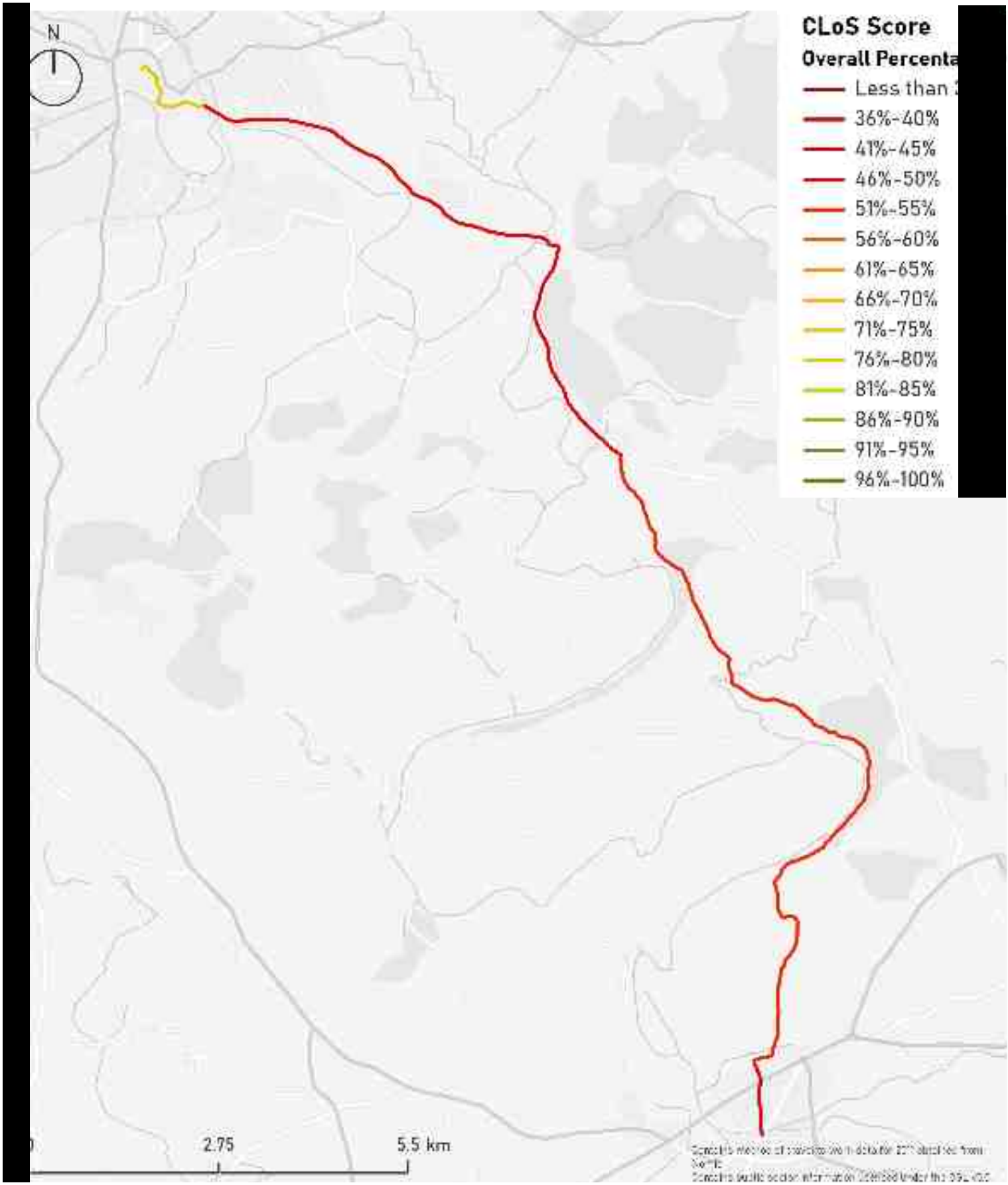
1. **Cohesion**: Overall, cyclists have minimal disruption to their journey, particularly along Ross Road given the route being continuous and are not required to dismount at any stage of the route. Wayfinding could be improved in rural sections of the route.

2. **Directness**: The route is direct, following the most straightforward path available, with minimal interruptions such as give way or stops. Cyclists face similar delays at junctions as motor vehicles. However, some sections present challenges due to gradients, potentially increasing the time, effort, and discomfort for cyclists.

3. **Safety**: Some sections of the route are unsafe. For example, the route follows the B4224 where the speed limit of the road is 60mph, meaning traffic speeds are likely to be in excess of 37mph. As there is no segregated facilities for cyclists, most people would not feel comfortable cycling on carriageway mixed with motor traffic. Side roads for the majority of the route are untreated with conflicting cycle and motor traffic movements.

4. **Comfort**: Overall, the route is mostly machine laid smooth with high grip surface provided. No cycle provision is available along the route and a lack of wayfinding signage is present, meaning people would be required to navigate the route needing to refer to maps.

5. **Attractiveness**: Overall, the route is generally well lit. However, Ross Road which runs adjacent to the River Wye lacks lighting and natural surveillance due to its rural nature which presents potential feelings of poor social safety, particularly at night. No cycle parking is present along the route.




**Map 55** Ross-on-Wye to Hereford City Centre cycling results

# Network planning for walking and cycling in Hereford

This chapter will summarise how the network for walking was developed for the city

# Developing a network for walking and cycling in Hereford

# Hereford city

## Why a network plan for Hereford is needed

### Why develop a network plan for Hereford?

Key desire lines and the combined demand analysis presented in Map 43 on page 175 indicate a strong desire for active travel within the city centre.

During the development of the LCWWIP, Herefordshire Council published a draft Hereford City Masterplan. The masterplan created a vision for the city, which sought to create an integrated transport network, with better provision for active travel and public transport.

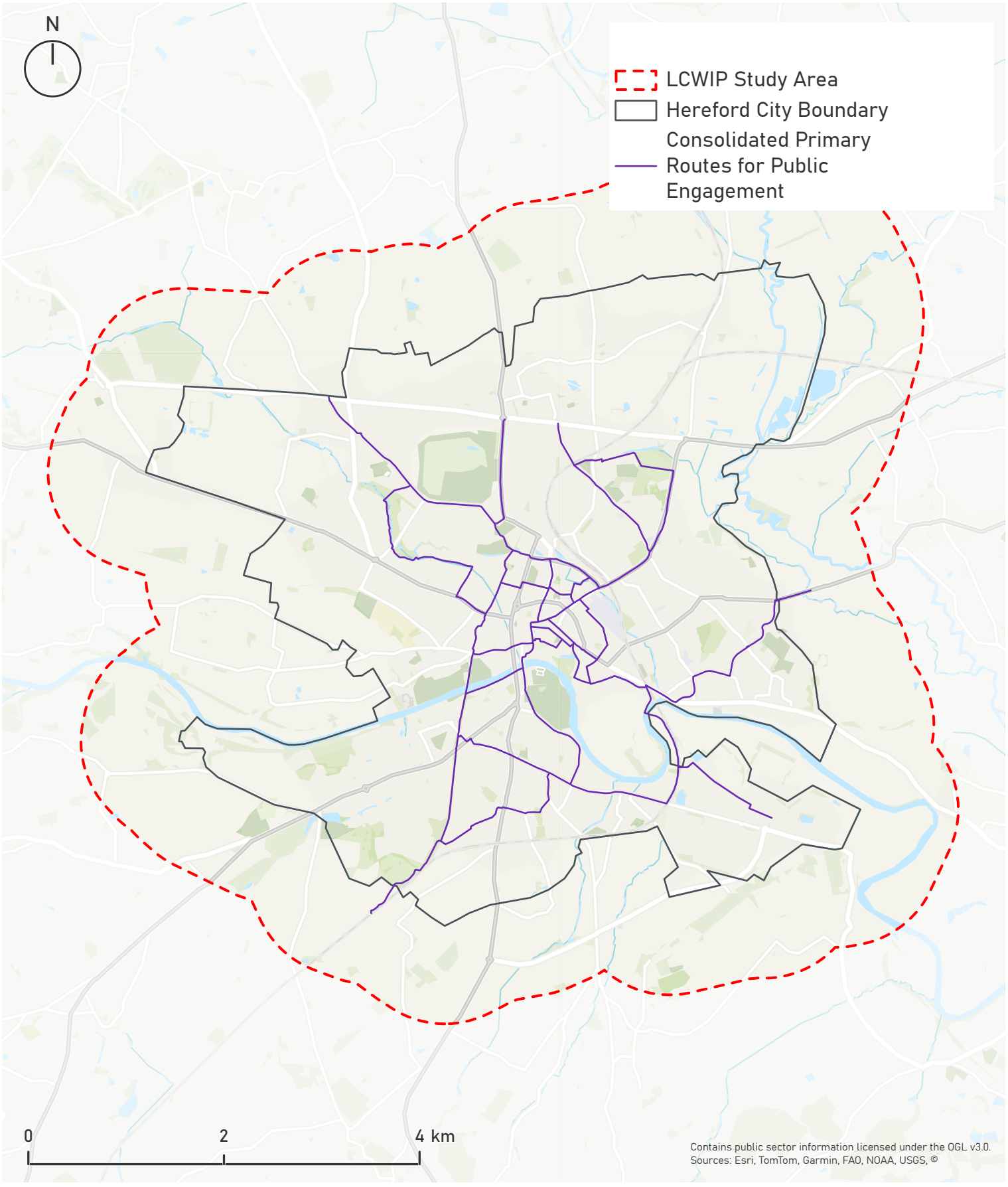
The Masterplan was accompanied by a comprehensive movement strategy which set out a strategic framework for local transport in the city of Hereford.

The strategy also set out a plan for mobility in the city centre, focusing on a network for cyclist movement, developed through analysis completed as part of the Movement Strategy.

### Strategic cycle network

This network consisted of primary and secondary active routes. Primary routes tend to follow main roads, and are typically the most used across Hereford and are designed for trips across the city and to/from neighbouring suburbs. It is anticipated that these routes will be categorised by their potential to enlist high cycle flows of traffic. Conversely, secondary cycle routes help to create a finer network between the primary routes and whilst these routes may have lower levels of cycle flow, they combine to help form part of a holistic strategic cycling network across Hereford.

The initial active travel network developed as part of the Hereford city masterplan can be found in Map 56 on page 243.




**Map 56** Primary and Secondary cycle network developed as part of Hereford City Masterplan

# Adding local knowledge

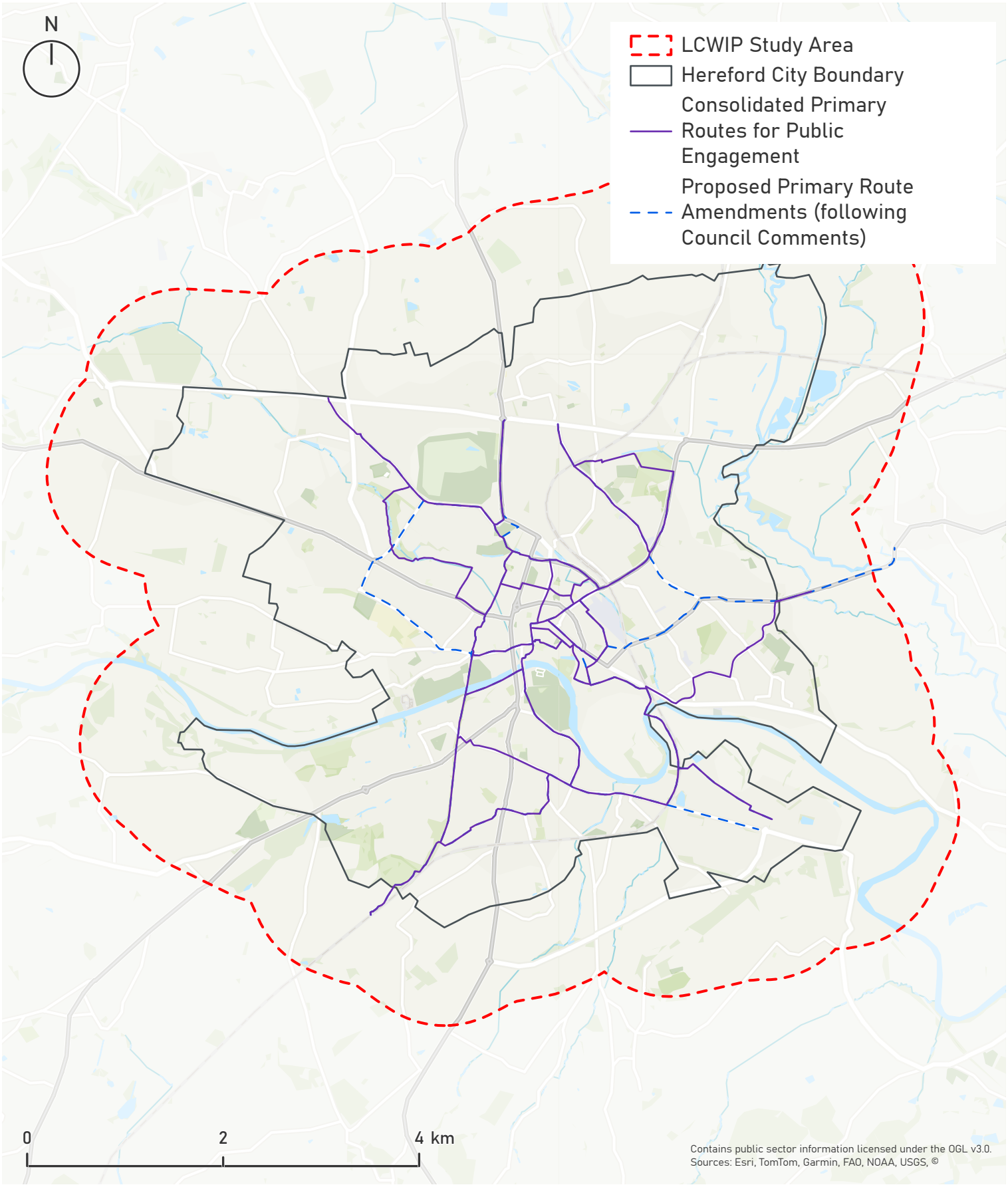
### Officer Engagement

The analysis conducted for the LCWIP was integrated with the masterplan findings to validate the primary and secondary cycle networks, ensuring the proposed routes aligned with those most likely to be used.

The primary and secondary cycle networks were also presented to Herefordshire Council highways officers, who applied their local knowledge and expertise to refine the networks. This involved making adjustments while preserving the core goal of establishing a comprehensive cycle network.

Officers focused primarily on refining the secondary cycle network, identifying optimal route alternatives based on current cycling activity, perceived social safety, and connections to key destinations and residential areas.

Map 57 on page 245 presents the revised primary and secondary cycle network based on officer feedback.




**Map 57** Primary and Secondary cycle network across Hereford city

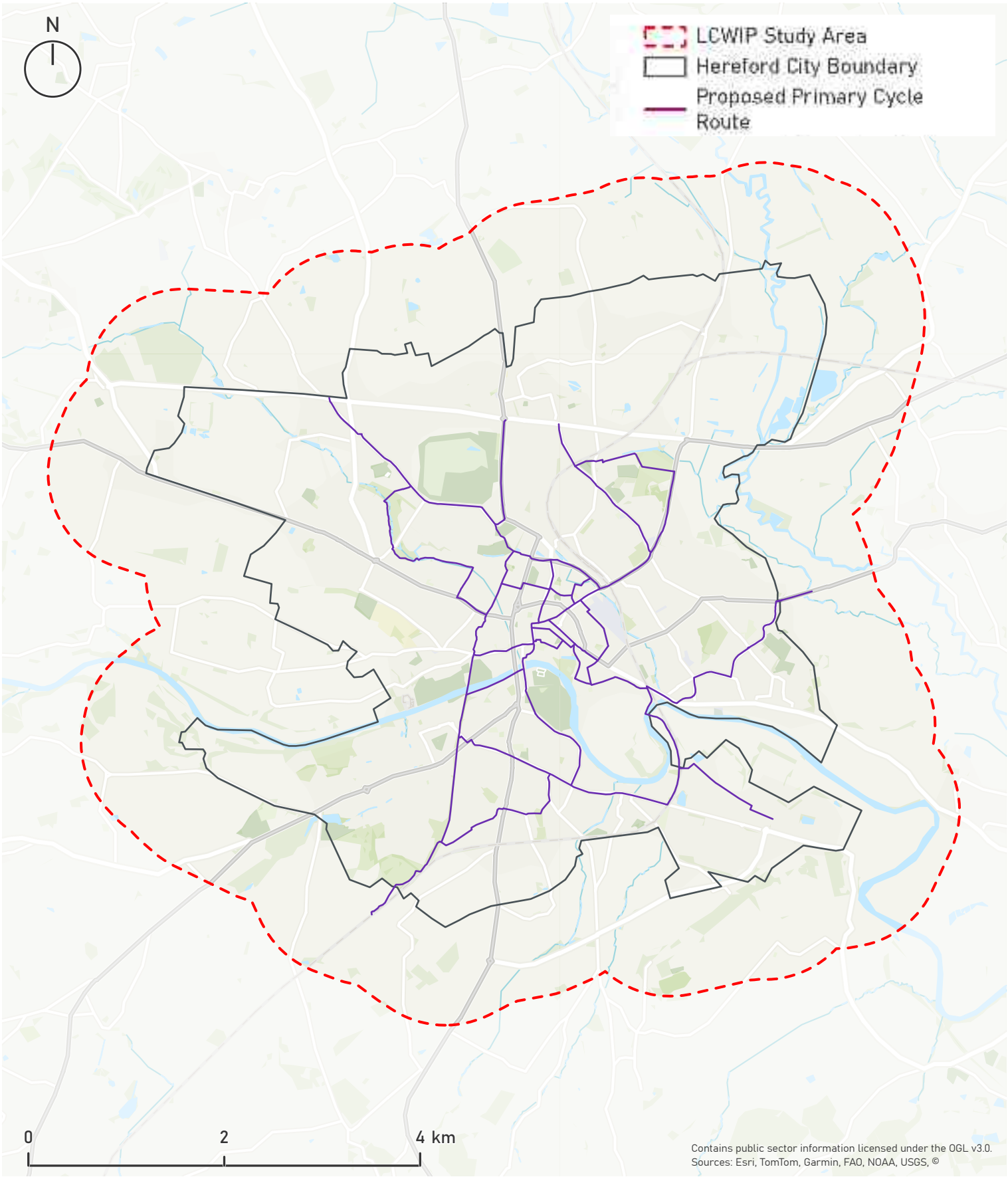
# Consolidating route alignments with complementary measures

Following engagement with officers, further refinement work was undertaken to establish a coherent network for cycling, walking, and wheeling across the city.

This process involved shaping the network based on available infrastructure and filtering out interventions where a suitable alternative route was already available.

Map 58 on page 247 illustrates the refined proposed primary cycle routes across the city, which were presented to key stakeholders for review and feedback.

The network reflects aspirations to create strong north-south connections by making use of the high-quality existing infrastructure of the Great Western Way while also seeking to enhance east-west links through strategically placed crossing points across the A49 where feasible.




**Map 58** Primary cycle network across Hereford city

# Walking, wheeling and cycling in Hereford

Hereford, the cathedral city of Herefordshire, is situated on the banks of the River Wye. It is a vibrant and attractive city with a rich history and a central role in the success of the wider county. The city provides regionally important employment, retail, leisure, and learning opportunities, serving both residents and those from surrounding towns and villages.

Walking, wheeling, and cycling in Hereford presents challenges. Cracked concrete and dislodged brick pavers are common across the city, creating difficulties for pedestrians and those using mobility aids. Narrow footways alongside high traffic volumes, further contribute to an unpleasant experience for pedestrians.

While Hereford boasts over 20 miles of traffic-free paths that enable cycling around the city, gaps in connectivity cause issues. High traffic volumes and speeds, especially along the A49, create substantial barriers to active travel. The absence of safe cycling infrastructure along this key route discourages cycling as a practical option for most people.

Hereford's compact layout offers significant potential for active travel. Its scale supports the opportunity for short trips to be made by bike, while improving walking and cycling conditions would enhance the city's appeal, benefiting both residents and visitors. Given Hereford's strategic importance to the county's economy and its potential to grow tourism, creating a high-quality environment for walking and cycling is essential.

**Figure 56** Narrow footways require users to give way

**Figure 57** Guardrailing can impede on directness

**Figure 58** A 'disappearing' cycle track

**Figure 59** Lack of lighting through structures such as underpasses create intimidating environments for walking, wheeling and cycling

**Figure 60** Cycle lanes separated from motor traffic promotes the uptake of cycling

# Auditing Route Methodology

### Auditing walking, wheeling and cycling routes across Hereford

Due to the comprehensive work undertaken as part of the city masterplan to identify the most suitable walking and cycling routes, auditing the existing conditions through using the WRAT and CLoS was deemed unnecessary. Instead, efforts were directed toward identifying deficiencies across the primary and secondary network based on findings of the movement study and the project team's knowledge of the city.

Elements of both auditing tools were utilised to frame the project teams' understanding of current conditions for walking, wheeling and cycling across the city.

### Junction Assessment Tool (JAT) Assessments

Whilst completing a WRAT and CLoS assessment was deemed unnecessary during the development of primary and secondary routes across the city, it was recognised that there are many junctions across the city where active travel provision is poor.

Most junctions pose the highest safety risk for active travel users. Junctions are also where the relationship between safety, comfort and directness is most complex. Creating safe junctions can help to create a joined up active travel network.

To assess how well a junction provides for walking, wheeling and cycling, a JAT assessment was conducted, examining all potential movements at a junction to identify potential conflicts and identify what measures may be required to reduce them.

Junctions that were assessed are mapped on Map 59 on page 251.