Bromsgrove District Council

District Plan Review

Strategic Transport Assessment

Workstage 3(a) Report

December 2021

a company of Royal HaskoningDHV

District Plan Review

Strategic Transport Assessment

Workstage 3(a) Report

Version 2-0

December 2021

Produced by:

For:

Bromsgrove District Council

Contact:

Steph Norris

Integrated Transport Planning Ltd.
1st Floor, 1 Broadway
Nottingham
NG1 1PR
UNITED KINGDOM

0115 824 8250
norris@itpworld.net
www.itpworld.net

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Client	Bromsgrove District Council
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Project Director	Geoff Burrage
Project Manager	Stephanie Norris
Quality Manager	Neil Taylor
Additional Team Members	Jenny Paxton, Francesca Smith
Sub-Consultants	n/a
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Appendix A – Bromsgrove Site Assessment Tool (Excel Spreadsheet)

Executive Summary

The Study

Bromsgrove District Council (BDC) and Worcestershire County Council (WCC) jointly commissioned ITP in May 2021, to carry out a Strategic Transport Assessment (STA) to inform the Bromsgrove District Plan Review.

The assessment progress so far is set out below:

- Workstage 1: Preparation of a Transport Evidence Base (TEB) which draws together all available evidence on existing transport provision and movements within the District, the transport issues, and the infrastructure measures to mitigate the impact. The TEB has a focused spatial remit, looking at transport connections within the District and to neighbouring settlements to provide a deeper analysis and understanding of the mobility trends, opportunities, and network constraints within the District.
- Workstage 2: Define an assessment criterion to assess each option area with regards to current and future transport connectivity. This criterion is detailed within Chapter 3 of this report.
- Workstage 3(a): Apply the assessment criteria to six broad option areas to provide a high-level assessment of transport connectivity. It is the findings from Workstage 3(a) that are summarised within Chapters 4 – 6 of this report.

The Assessment Framework

The assessment considers existing and potential provision of transport connections to/from the six option areas identified in the earlier stages of the Local Plan review process. It considers metrics including:

- Average commuter travel mode split
- Proximity to current sustainable transport services and infrastructure
- Access to jobs, healthcare and education by public transport
- Proposed local transport schemes
- Patterns of existing high-volume movement flows
- Proximity to existing population

It does not take into consideration the scale of development that could be located on any of these sites, this will be accounted for at a latter stage of the assessment, similarly, it does not

consider the wider influencers such as utilities or land availability; these are part of separate workstreams (to be completed by others).

The Results

The rating of each option area against the metric has been driven by available data sources and sense checked against local knowledge of the area and stakeholder information. Where external datasets have been used, these are clearly referenced within this report.

Each option area and metric have been considered in turn within this report, with rationale behind each high, medium and low rating given. This provides a high-level view of the characteristics of a particular option and identifies areas where investment might be more necessary to create sustainable area, in relation to transport and travel patterns, in future.

The analysis presented within this report has identified the option areas in and around Bromsgrove Town (Option 1) and the edge of the south Birmingham conurbation (Option 5) as showing more characteristics of a sustainable area, in transport terms, based on existing connectivity.

A set of broad recommendations has been developed for each option area; these aim to improve the area's sustainable transport potential based on the outcomes of the metric level analysis.

The conclusions and recommendations from this report will inform the next stage of study. This will include additional land use assessments, undertaken by BDC, to inform a more focused assessment of area suitability and sustainable transport opportunities.

1. Introduction

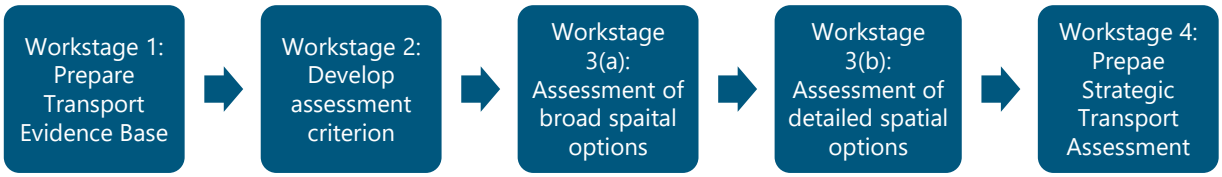
Purpose of the Report

1.1 Bromsgrove District Council (BDC) and Worcestershire County Council (WCC) jointly commissioned ITP in May 2021, to carry out a Strategic Transport Assessment (STA) to help inform the Bromsgrove District Plan Review. A review is required to:

- Ensure remaining allocations from the Bromsgrove District Plan are delivered and provide land for new identified development needs up to 2040.
- Explore spatial options to assist the Greater Birmingham and Black Country Housing Market Area to meet any identified housing shortfall.
- Extend the Plan period to 2040, whilst considering longer term growth post 2040.

1.2 Figure 1-1 sets out the process for the Strategic Transport Assessment (STA). The first stage of the STA was the development of a Transport Evidence Base (TEB) which brought together all available evidence on existing transport provision and movements within the District, the transport issues, and the infrastructure measures to mitigate the impact. The information in the TEB has been used to inform the second stage of the STA, the development of assessment criteria and scoring metrics to assess the potential of different option areas for accommodating growth across the District on transport terms. This report has been produced to present a review of broad spatial options for the District in relation to sustainable transport (Workstage 3a). This will inform further work and ultimately feed into the Local Plan preparation.

Figure 1-1: Strategic Transport Assessment Process



Structure of the Report

1.3 The remainder of this report is structured as follows:

- **Section 2** sets out the six strategic growth option areas;

- **Section 3** defines the eight metrics used in the assessment framework and the thresholds used to define a Red, Amber or Green (RAG) rating for each one;
- **Section 4** presents the assessment results for metric and option area, providing the rationale for the rating;
- **Section 5** summarises the results; and
- **Section 6** sets out the main conclusions from this stage of assessment, the recommendations and the next steps to progress the study.

2. Assessment Framework

2.1 This section sets out the principles and aims of the assessment which explores the existing and potential provision of transport connections to/from the option areas. The assessment does not take into consideration the scale of development that could be located on any of these sites, nor does it consider wider influencers such as utilities or land availability; these are part of separate workstreams (to be completed by others).

Option Area Overview

2.2 BDC has identified six general spatial options where growth could be located within the District which have been assessed in the STA. These are listed in Table 2-1 and mapped in Figure 2-1.

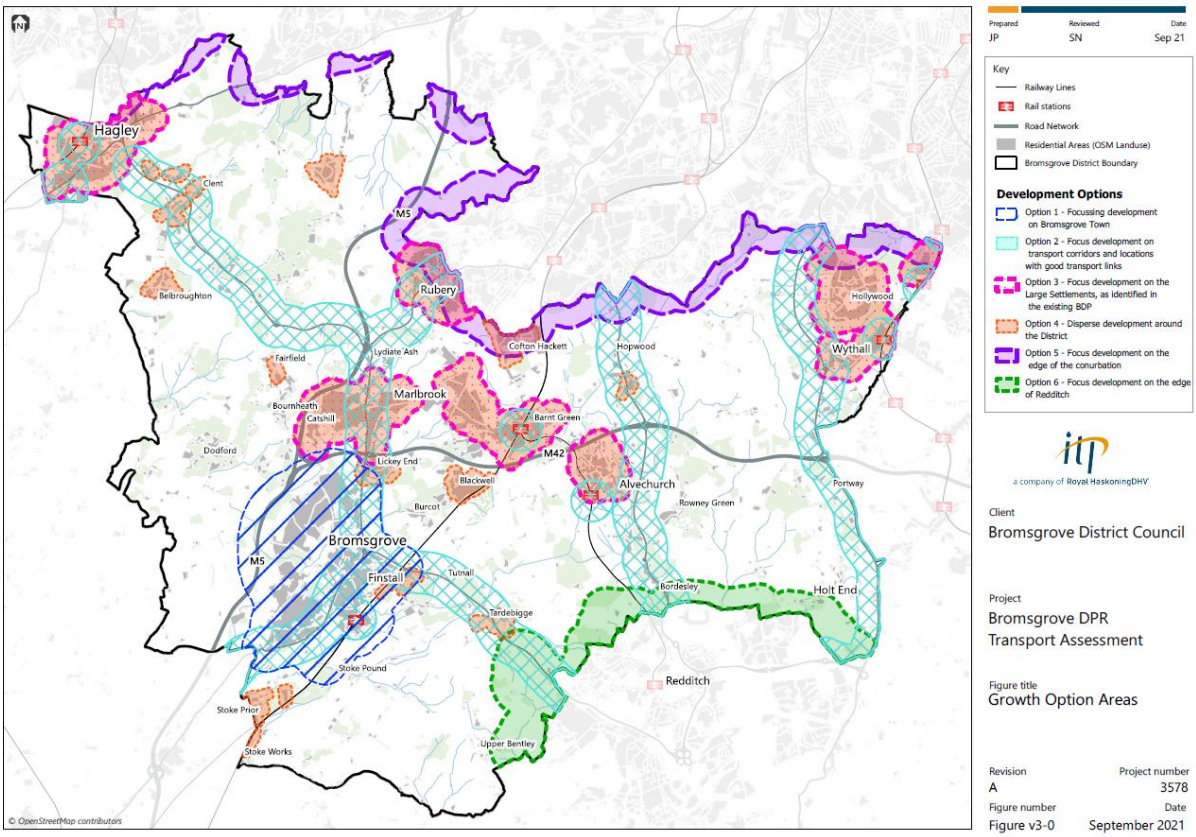
2.3 These general growth option areas range from town centre locations, to edges of neighbouring urban areas and collections of more rural settlements. It is unlikely that one option area in isolation will offer the required level of housing, it is more likely that a combination of spatial options will be progressed and therefore a comparative exercise has been undertaken reviewing all spatial options to address the possibility that more than one option is required.

2.4 In addition, some of these areas include several separate and distinct sub-areas. Growth in any of these general option areas will be subject to further analysis as to specific locations, based on assessments wider than transport provision.

Table 2-1: Description of spaital option areas

Option	Description
1	Focussing Development on Bromsgrove Town
2	Focussing Development on transport corridors and locations with good transport links
3	Focussing development on the Large Settlements, as identified in the existing BDP (excluding Bromsgrove Town)
4	Dispersing development around the District
5	Focussing development on the edge of the conurbation
6	Focussing development on the edge of Redditch

Figure 2-1: Spaital options map



3. Assessment Methodology

Assessment Metrics

3.1 Table 3-1 sets out the rationale for the inclusion of each of the eight metrics used in the assessment framework.

Table 3-1: Assessment framework metrics

Metric Description	Purpose of metric
Metric 1: Average commuter travel mode split from within each growth option area	This metric was included as it provides a good proxy for the relative sustainability of existing commuter patterns
Metric 2: Proximity to current sustainable transport services and infrastructure that serve key settlements	This metric uses a qualitative geospatial assessment of how well-connected each option area is to existing sustainable transport infrastructure and services
Metric 3: Access to jobs by public transport	These metrics provide an estimate of travel time for potential journeys that can be made from within each option area from public transport and/or walking modes to key facilities.
Metric 4: Access to healthcare by public transport	
Metric 5: Access to education by public transport	
Metric 6: Proximity to planned local transport schemes	While earlier metrics look at the existing transport provision, this metric was included to ensure consideration was given to the locations of planned transport improvements.
Metric 7: Proximity to high volume origin – destination movement flows	This metric takes a longer-term view of potential mode-shift for an option area. It seeks to identify locations where high trip volumes to/from key areas could provide opportunities for sustainable travel options to be delivered and encourage mode shift
Metric 8: Proximity to settlements of scale	This metric uses a qualitative geospatial assessment to review how close each option area is to existing settlements to understand the potential to accommodate shorter trips (those more likely to be able to be made sustainably) to key everyday facilities such as retail and services.

Metric Data Sources and Analysis Approach

3.2 This section lists the information sources used and analysis undertaken for each metric. It has been recorded in a way that is sufficiently detailed that it could be recreated by anyone with access to the original dataset.

3.3 It is noted that any growth in development will bring investment in infrastructure. The metrics below have been selected to identify how sustainable transport provision is distributed across the District and, to an extent, the surrounding area. Those that score better against these metrics will have a better foundation to build on for future transport investment to accommodate more sustainable growth. Those that score more poorly do not necessarily represent unsustainable locations for growth, however they reflect a poorer baseline provision. To achieve sustainable outcomes in these locations will likely require more substantive support for infrastructure and services and / or growth of a sufficient scale to fund such infrastructure and a mix of on-site uses to capture day to day trips. A heavier infrastructure burden will likely affect viability and therefore deliverability of development and therefore the assessment sets an important marker for more detailed consideration if spatial options progress to the next stage of sifting.

Metric 1: Average commuter travel mode split

3.4 Using the Census 2011 'QS701EW - Method of travel to work' data, the proportion of those driving a car or van to work has been calculated for each Census output area within Bromsgrove District[11]. Those 'not in employment' and those who 'work mainly at or from home' have been removed from the total population (aged 16-74).

3.5 This metric assigns the Census output areas to each option area within the Bromsgrove District Council boundary, based on location of the population weighted centroid (Figure 3-1). An average proportion was taken from the combined output areas to determine the overall metric rating for each option area. Please see Appendix A for more detail on Census analysis for this metric.

3.6 It is noted that the Census data is now 10 years old, and therefore may not fully reflect current nor future travel patterns. Should more accurate data become available, BDC will consider reassessing the results for this metric. Census 2021 data should be considered in the context of the COVID-19 pandemic, when the survey was undertaken, and thus is unlikely to reflect the longer-term situation accurately.

[11] https://www.nomisweb.co.uk/query/select/getdatasetbytheme.asp?collapse=yes

At the time of the production of this study it is concluded that the data used is sufficient to provide a robust enough data set to enable a credible and proportionate assessment to be undertaken.

Thresholds

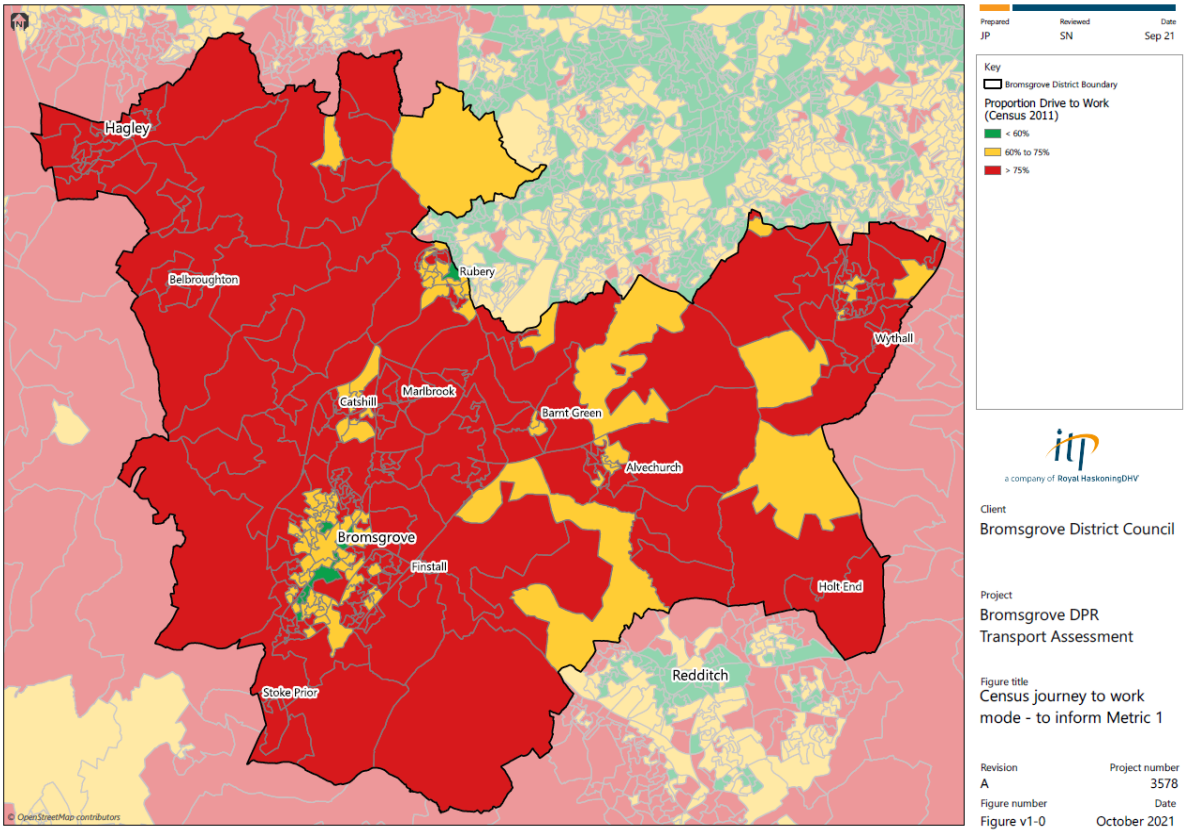
3.7 The Metric 1 thresholds were determined through a benchmarking analysis, which looked at the Census 2011 data for the Local Authority District and neighbouring districts. The data show that in 2011 the average proportion of people who said they drive to work in the West Midlands was 68%, this compares to 78% in Bromsgrove. This was used as a benchmark to represent the baseline situation, whereby all output areas below 78% are considered below average with fewer people driving to work than the local average.

3.8 The upper threshold, to define a green rating, has been selected to represent an aspirational proportion of driving to work. This reflects the proportions in other West Midlands local authorities such as Birmingham, Coventry and Sandwell which achieve a lower proportion of commuters driving to work.

Table 3-2: Metric 1 thresholds

Green	Amber	Red
Less than or equal to 60% travel to work driving a car or van	60% to 78% drive to work in a car / van	78% or more drive to work in a car / van

Figure 3-1: Metric 1 output areas drive to work %



Metric 2: Proximity to current sustainable transport services and infrastructure that serve key settlements

3.9 Uses geospatial analysis to determine the proportion of the option area that is within a crow fly distance threshold from existing transport options.

- **Bus**: Using 2020 cumulative one way AM peak hour bus frequency - obtained from Basemap Datacutter and assigned to the road network
- **Rail**: Using 1.5km buffer around centroids of rail stations in Bromsgrove and immediate surrounding area.
- **Cycle**: Using National Cycle Route information within Bromsgrove and local cycle routes, as identified in the Transport Evidence Base (TEB). This does not consider quality or infrastructure on the route.

3.10 These services are shown geographically in Figure 3-2Figure 3-2.

Thresholds

3.11 The Chartered Institution of Highways & Transportation recommends, in 'Buses in Urban Developments' (2018), a maximum walking distance of 500m to a core bus corridor with two or more high-frequency services[2]. This threshold has been used to buffer around the existing bus routes and calculate an area of coverage.

3.12 While it is understood this does not necessarily represent a walking distance and that a shorter distance is recommended for less frequent routes / town centres, it is considered a reasonable threshold for this high-level stage of analysis and has been applied consistently across all spatial options.

3.13 The inclusion of a percentage coverage by all (including low frequency) bus routes highlights where opportunities exist to reach more of the option area by increasing bus frequency on those routes.

3.14 Using average walking (3 mph or 5 km/h) and cycling (9 mph or 14 km/h) speeds derived from the DfT's 2019 statistics[3] a distance of 1.5 km to a rail station reflects a six-minute cycle or a 20-minute walk. 2019 has been taken as the most recent data unaffected by COVID, but average speeds only vary slightly. This reflects peoples'

[2] Buses in Urban Developments, CIHT 2018 https://www.ciht.org.uk/media/4459/buses_ua_tp_full_version_v5.pdf
[3] Walking and cycling statistics, England: 2019 report, National Statistics https://www.gov.uk/government/statistics/walking-and-cycling-statistics-england-2019

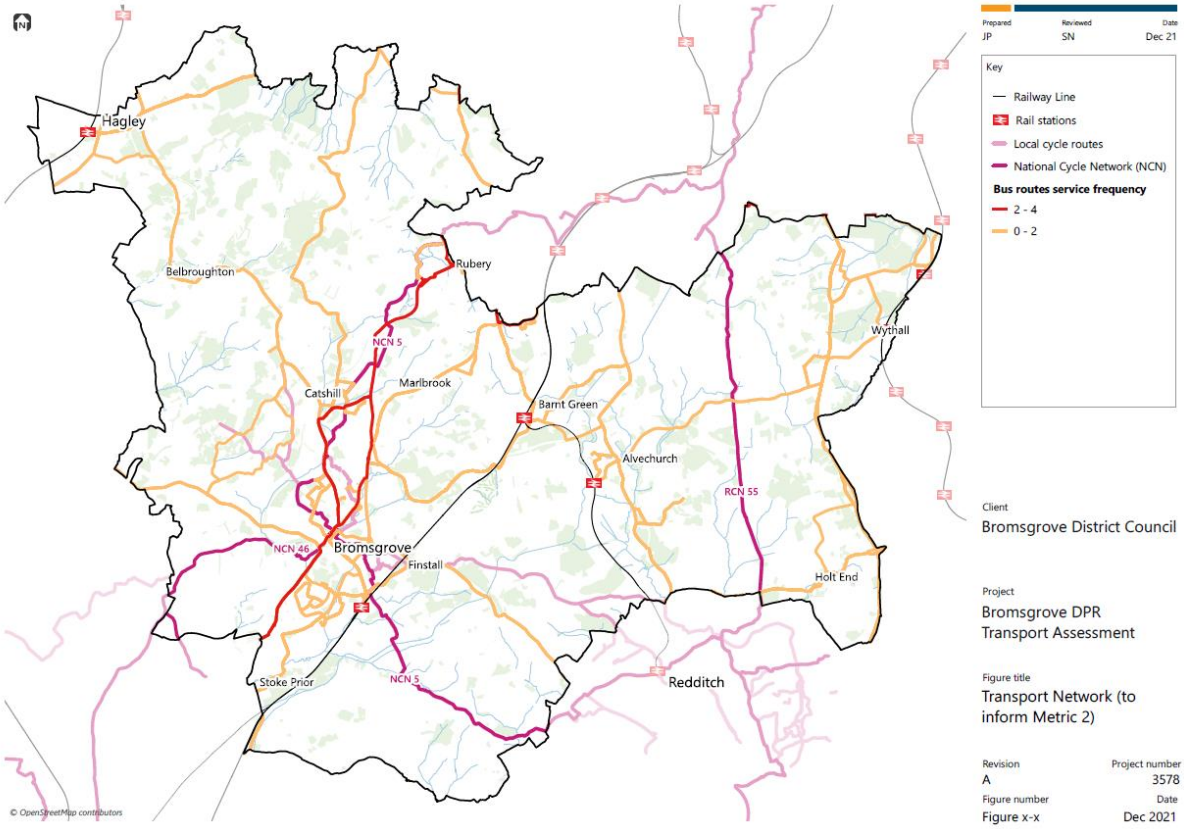
willingness to travel further to get to rail services which offer a higher perceived quality or importance[4].

Table 3-3: Metric 2 thresholds

Green	Amber	Red
At least 30% of option area is within: • 1.5km of a rail station • 500m of a high frequency bus route (>3bph one direction) • AND at least 30% of the option area is within 400m of a strategic cycle route	At least 30% of option area is: • within 1.5km of a rail station • within 500m of a bus route	Less than 30% of the option area is within: • 1.5km of a rail station • 500m of a bus route

[4] Planning for Walking, CIHT 2015 https://www.ciht.org.uk/media/4465/planning_for_walking_-_long_-_april_2015.pdf

Figure 3-2: Bus, Rail and Cycle Network



Metric 3: Access to jobs by public transport

3.15 For this metric accessibility was determined through use of TRACC accessibility analysis software to estimate the journey time by public transport from origins within the option areas to a strategic employment location.

3.16 The model inputs included:

- **Origins** - A 200m grid of points was created across the Bromsgrove District.
- **Destinations** – Strategic employment sites within Bromsgrove and adjoining authorities, as shown in Figure 3-3Figure 3-3. These were used to represent key locations likely to attract significant numbers of commute trips. It is noted that, in reality, employment opportunities are more widely distributed across the area, but the analysis reflects the high-level nature of this study.
- **Public transport network** –Traveline data from October 2019 provided the timetable information for any bus, coach or national rail services within Bromsgrove District and on the periphery of the administrative boundary.
- **Road network** – Open Roads data for 2019.

3.17 The key parameters shaping the model runs were:

- The journey to the nearest destination must be able to be made by public transport between 06:00 – 09:00 on a weekday.
- Considers a 500m walk to the nearest bus stop to the origin point.
- Considers total journey time.

3.18 The journey time results for each origin point are shown in Figure 3-4Figure 3-4.

3.19 Origin points from which journeys by public transport were not possible based on the parameters of the model run (as defined within the TRACC software), were removed. This was considered as the most consistent way of appraising spatial options as the results demonstrate the level of connectivity that existing communities have in each option area. It has been assumed that any new growth sited within these option areas could expect a similar provision.

3.20 Scoring for the option area was determined by the proportion of origin points within the option area, that could reach a strategic employment site within 30 minutes travel time.

Metric 3: Thresholds

3.21 The assessment criteria for this metric were designed to reflect the *relative* performance of each option. As none of the spatial options score particularly well due to the relatively low number of employment locations included, the RAG ratings needed to be able to differentiate between the spatial options based on the data available to make the assessment framework a useful tool. The thresholds, therefore, are a function of the data available and how each option performs.

3.22 They do not define which spatial options are sustainable and which are not. They are reporting on how each option performs relative to the others.

Table 3-4: Metric 3 thresholds

Green	Amber	Red
A high proportion (>60%) of the option area is within 30 mins travel time by public transport to identified employment sites	A medium proportion (>40% but less than 60%) of the option area is within 30 mins travel time by public transport to identified employment sites	A low proportion (<40%) of the option area is within 30 mins travel time by public transport to identified employment sites

Figure 3-3: Strategic employment sites

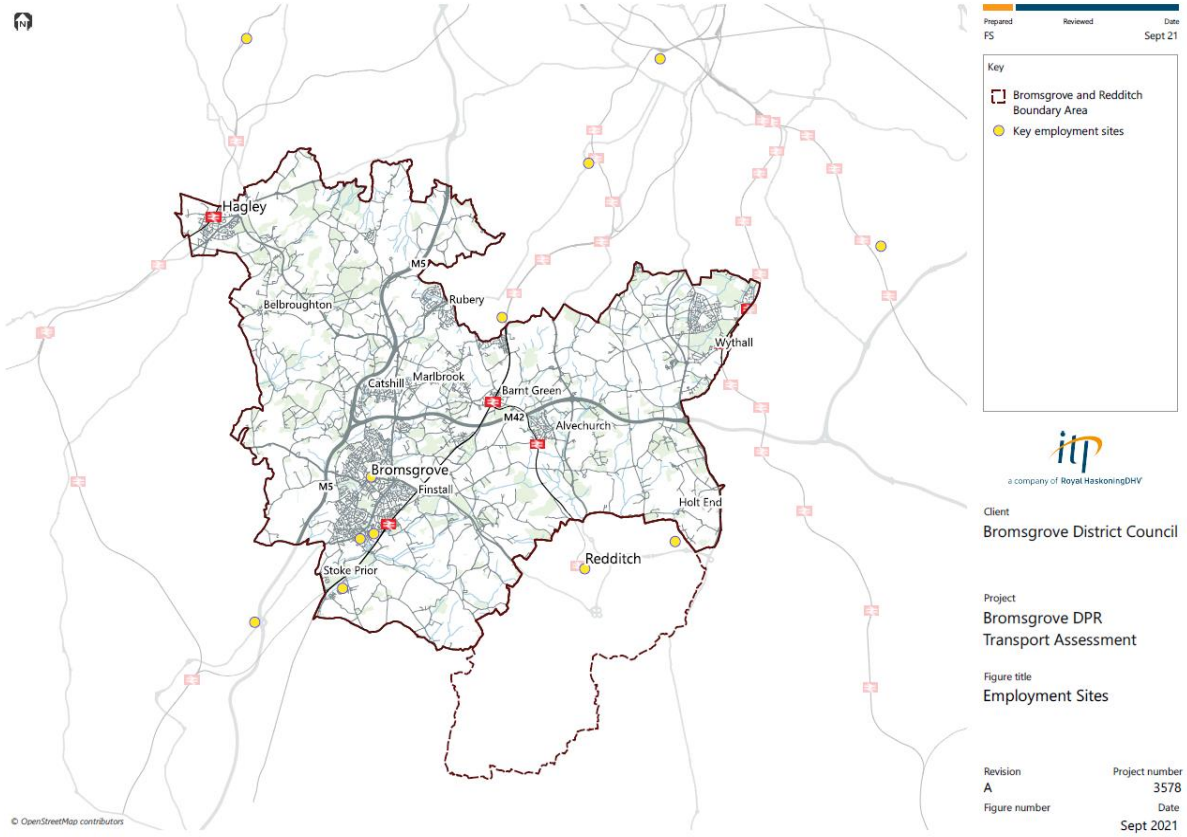
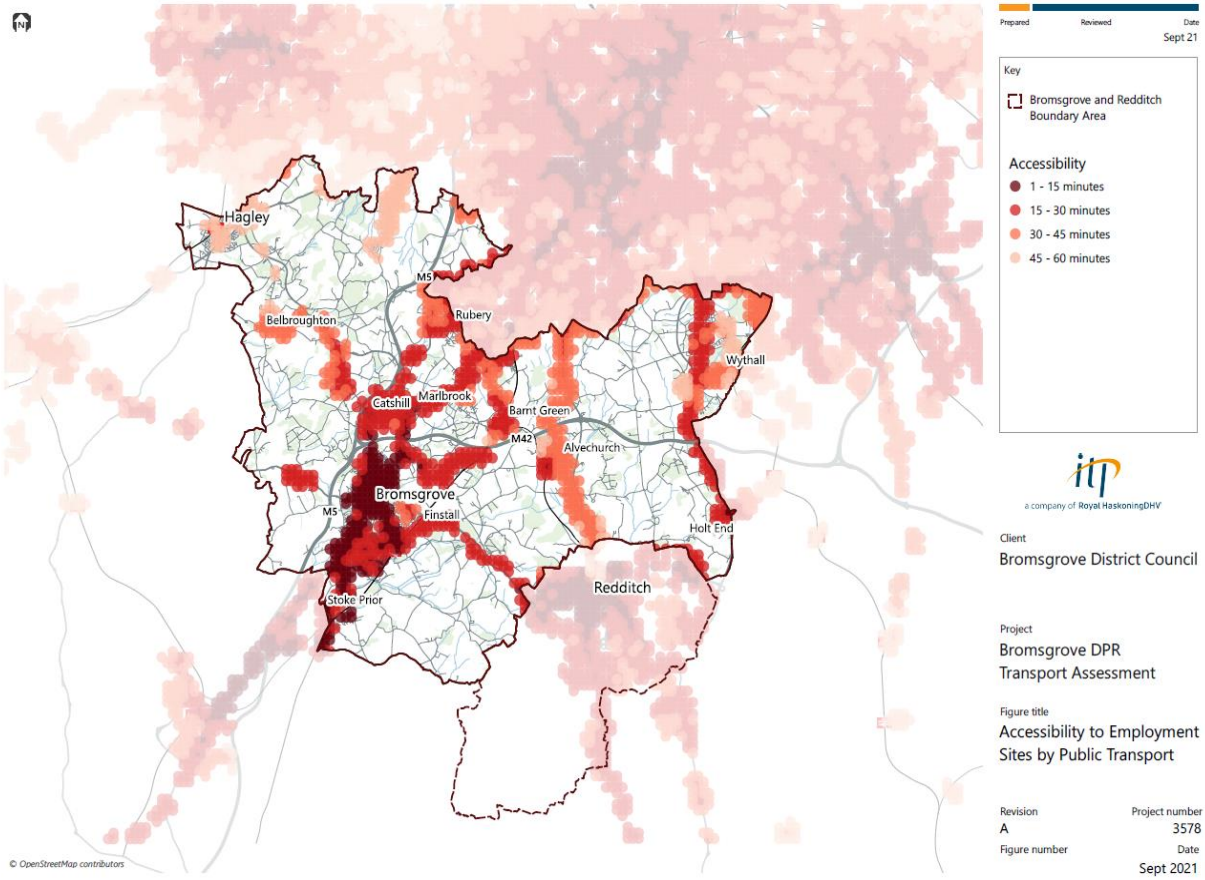


Figure 3-4: Public transport journey times to strategic employment sites



Metric 4: Access to healthcare by public transport

3.23 For this metric public transport accessibility was determined through use of TRACC accessibility analysis software to estimate the journey time by public transport from origins within the option areas to a healthcare facility.

3.24 The model inputs included:

- **Origins** - A 200m grid of points was created across the Bromsgrove District.
- **Destinations** – Hospitals and General Practices (GP) surgeries, were defined within Bromsgrove, Redditch and around the edge of the Bromsgrove District Boundary (see Figure 3-5).
- **Public transport network** –Traveline data from October 2019 provided the timetable information for any bus, coach or national rail within Bromsgrove District and on the periphery of the administrative boundary.
- **Road network** – Open Roads data for 2019.

3.25 The key parameters shaping the model runs were:

- The journey to the nearest destination must be able to be made by public transport between 06:00 – 09:00 on a weekday.
- Considers a 500m walk to the nearest bus stop to the origin point.
- Considers total journey time.

3.26 The journey time results for each origin point are shown in Figure 3-6Figure 3-6.

3.27 Origin points from which journeys by public transport were not possible based on the parameters of the model run (as defined within the TRACC software), were removed. This was considered as the most consistent way of appraising spatial options as the results demonstrate the level of connectivity that existing communities have in each option area. It has been assumed that any new growth sited within these option areas could expect a similar provision.

3.28 It assumed that no new major healthcare facilities will materialise in the period to 2040 as a result of the delivery of the additional housing allocation which is to be accommodated. The assessments are therefore on the basis that no new locations for healthcare facilities are known to be planned.

3.29 Scoring for the option area was determined by the proportion of origin points within the option area, where journeys by public transport were considered possible, that could reach a healthcare site within 30 minutes travel time.

Metric 4: Thresholds

3.30 The assessment criteria for this metric were designed to reflect the relative performance of each option. The thresholds, therefore, are a function of the data available and how each option performs.

3.31 The 'amber'/'green' threshold for this metric has been set very high given the abundance of healthcare sites across the District and the relative performance of the option areas. The spatial options that are rated as 'green' have a very high score, and there is a separation of 10% between the lowest 'green' rated option and the 'amber' option.

3.32 They do not define which spatial options are sustainable, and which are not. They are reporting on how each option performs relative to the others.

Table 3-5: Metric 4 thresholds

Green	Amber	Red
A high proportion (>90%) of the option area is within 30 mins travel time by public transport to healthcare sites	A medium proportion (>80 but less than 90%) of the option area is within 30 mins travel time by public transport to healthcare sites	A low proportion (<80%) of the option area is within 30 mins travel time by public transport to healthcare sites

Figure 3-5: Healthcare sites

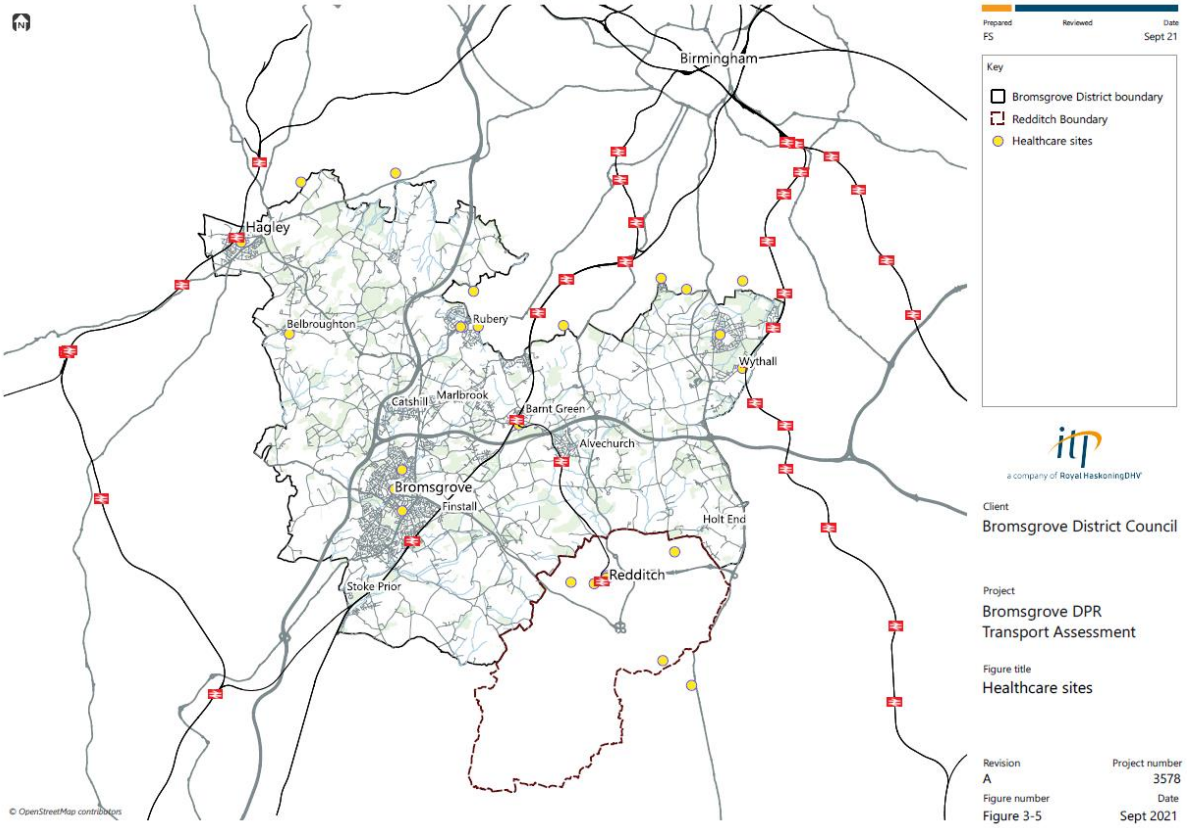
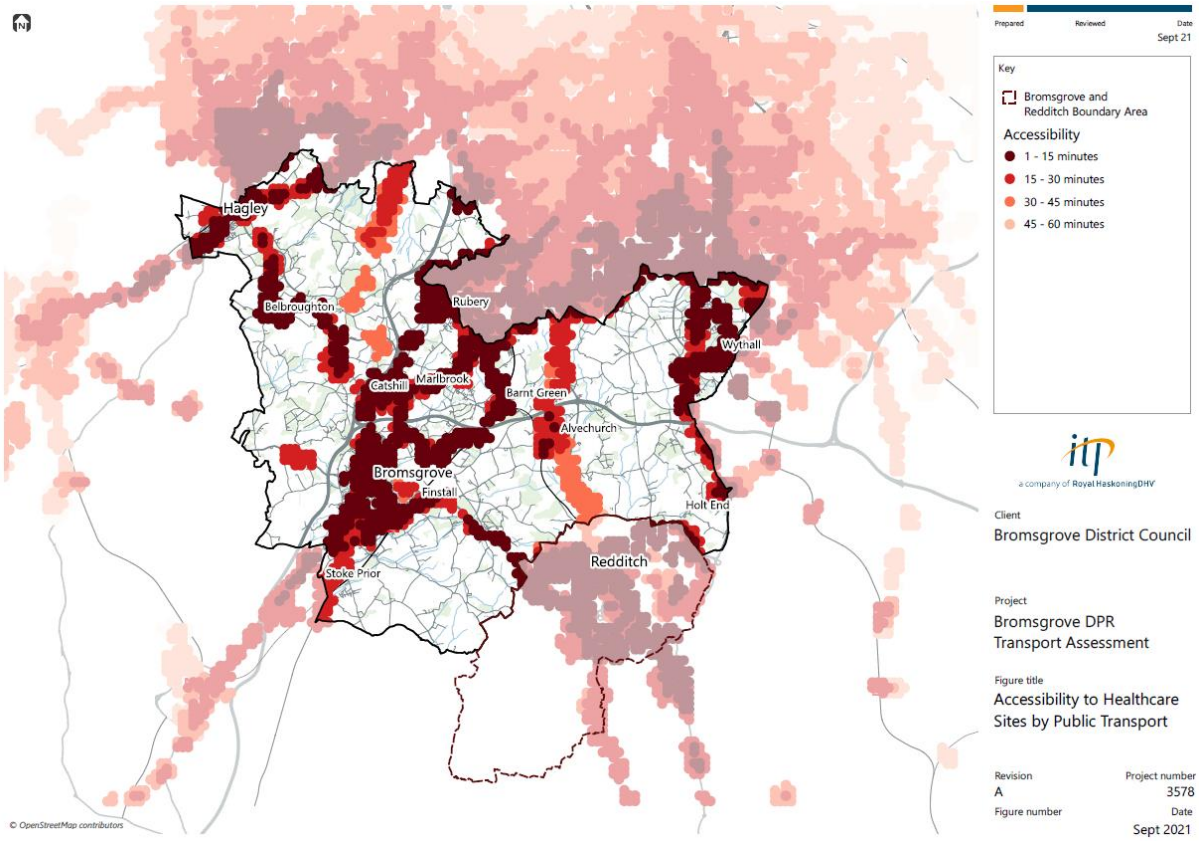


Figure 3-6: Public transport journey time to healthcare sites



Metric 5: Access to education by public transport

3.33 For this metric public transport accessibility was determined through use of Visography TRACC software to estimates the journey time by public transport.

3.34 The model inputs included:

- **Origins** - A 200m grid of points was created across the Bromsgrove District.
- **Destinations** – Primary, middle and secondary schools within Bromsgrove, as well as schools in adjacent local authorities in relatively close proximity to Bromsgrove District (see Figure 3-7)
- **Public transport network** –Traveline data from October 2019 provided the timetable information for any bus, coach or national rail within Bromsgrove district and on the periphery of the administrative boundary.
- **Road network** – Open Roads data for 2019.

3.35 The key parameters shaping the model runs were:

- The journey to the nearest destination must be able to be made by public transport between 06:00 – 09:00 on a weekday.
- Considers a 500m walk to the nearest bus stop to the origin point.
- Considers total journey time.

3.36 The journey time results for each origin point are shown in Figure 3-8.

3.37 Origin points from which journeys by public transport were not possible based on the parameters of the model run (as defined within the TRACC software), were removed. This was considered as the most consistent way of appraising spatial options as the results demonstrate the level of connectivity that existing communities have in each option area. It has been assumed that any new growth sited within these option areas could expect a similar provision.

3.38 It assumed that no new education facilities will materialise in the period to 2040 as a result of the delivery of the additional housing allocation which is to be accommodated. The assessments are therefore on the basis that no new locations for education facilities are known to be planned.

3.39 Scoring for the option area was determined by the proportion of origin points within the option area, where journeys by public transport were considered possible, that could reach an education site within 30 minutes travel time.

Metric 5: Thresholds

3.40 The assessment criteria for this metric were designed to reflect the relative performance of each option. The thresholds, therefore, are a function of the data available and how each option performs.

3.41 They do not define which spatial options are sustainable and which are not. They are reporting on how each option performs relative to the others.

Table 3-6: Metric 5 thresholds

Green	Amber	Red
A high proportion (>90%) of the option area is within 30 mins travel time by public transport to the nearest school	A medium proportion (>80% and <90%) of the option area is within 30 mins travel time by public transport to the nearest school	A low proportion (less than 80%) of the option area is within 30 mins travel time by public transport to the nearest school

Figure 3-7: Education sites

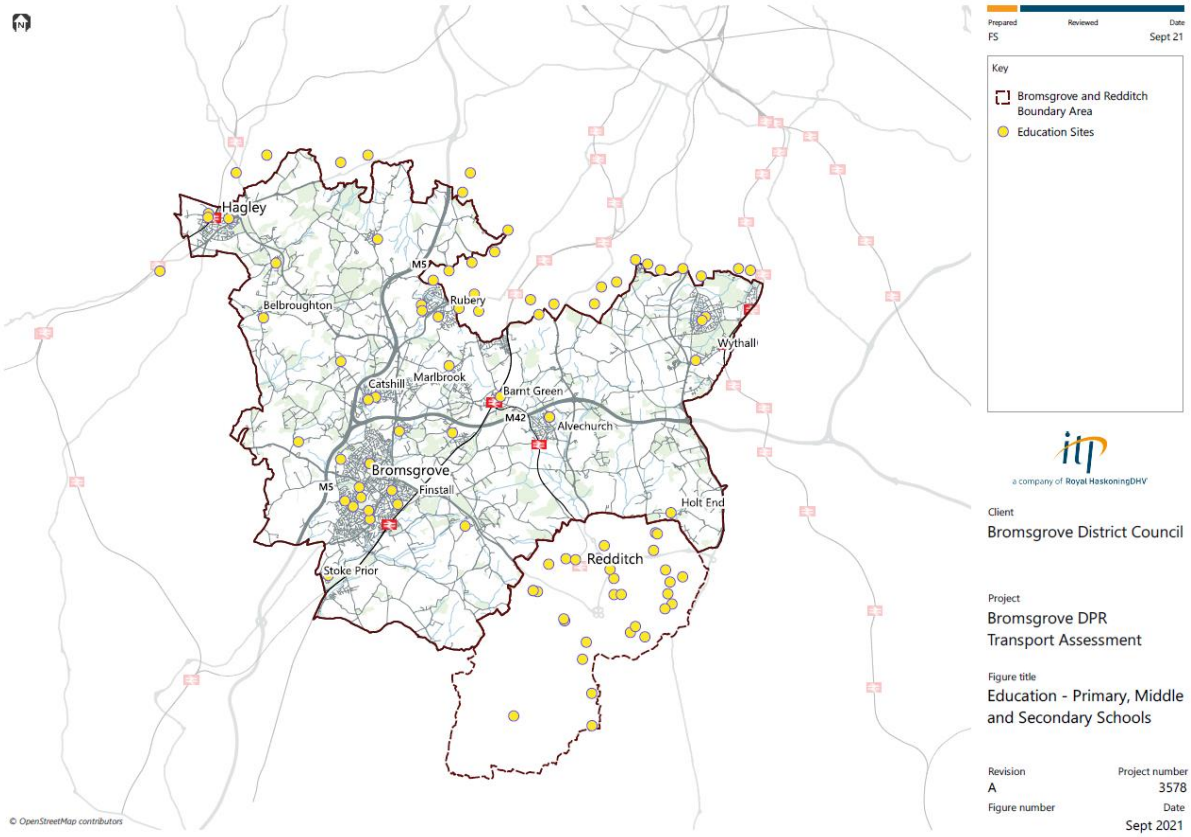
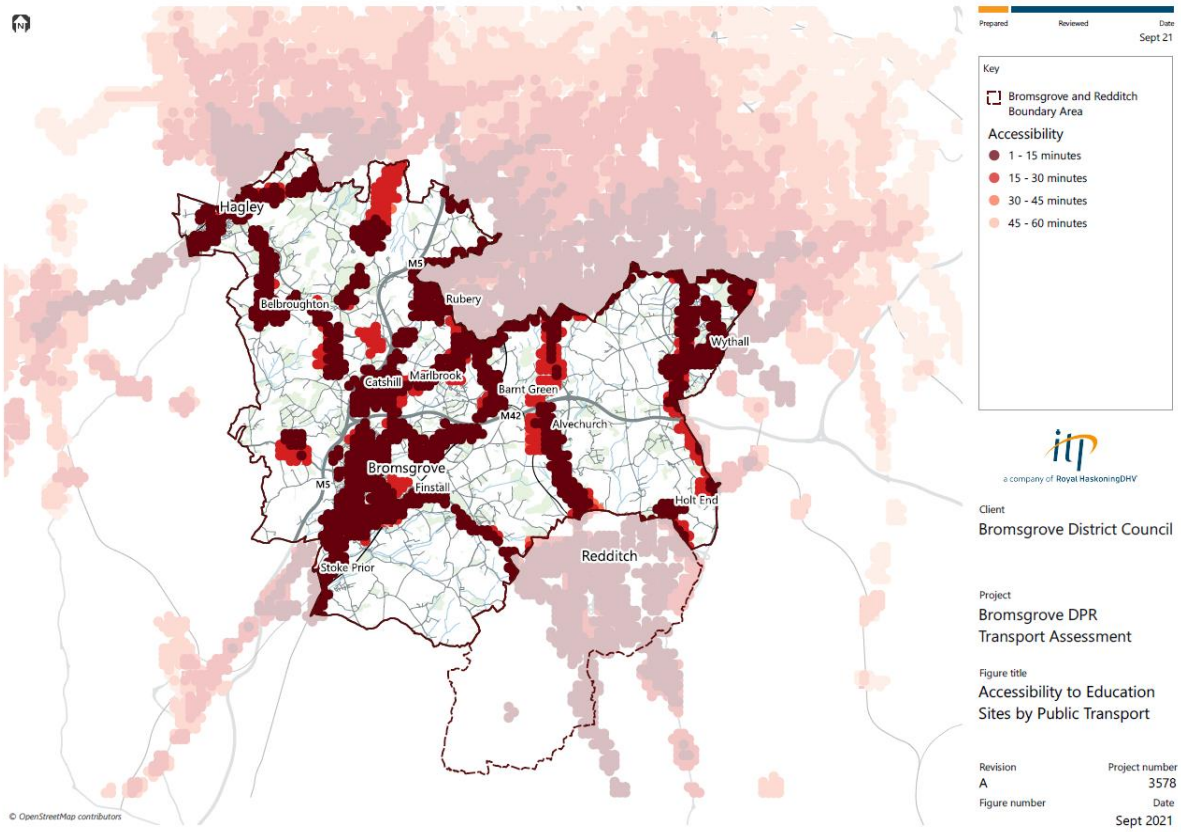


Figure 3-8: Public transport journey time to education sites



Metric 6: Proximity to proposed local transport schemes

3.42 This metric assesses the proposals for transport schemes across the District and surrounding area, to understand if there are any major transport improvements which have an impact on movement. These include strategic schemes as agreed with the project team and shown in Figure 3-9Figure 3-9; it uses information from the:

- Bromsgrove Transport Improvements (Bromsgrove package), LTP4
- North East Strategic Transport (NEST), LTP4
- North East Active Travel (NEAT), LTP4
- Major Road Network (MRN) schemes,
- Forthcoming transport improvements, Infrastructure Delivery Plan (IDP, 2014) over £1m
- Information from stakeholders in neighbouring authority areas.

Metric 6: Threshold

3.43 The ratings are determined by counting the number of proposed transport schemes within 400 metres of a development location. For Options 5 and 6, which were clipped to the District boundary, an additional 1km buffer around the option area was included to better reflect the facilities, opportunities and connections that exist across district boundaries.

3.44 Schemes have been included in the count for the metric, in agreement with the project team, where schemes are considered to have a notable impact on transport, particularly sustainable transport, in the area.

Table 3-7: Metric 6 thresholds

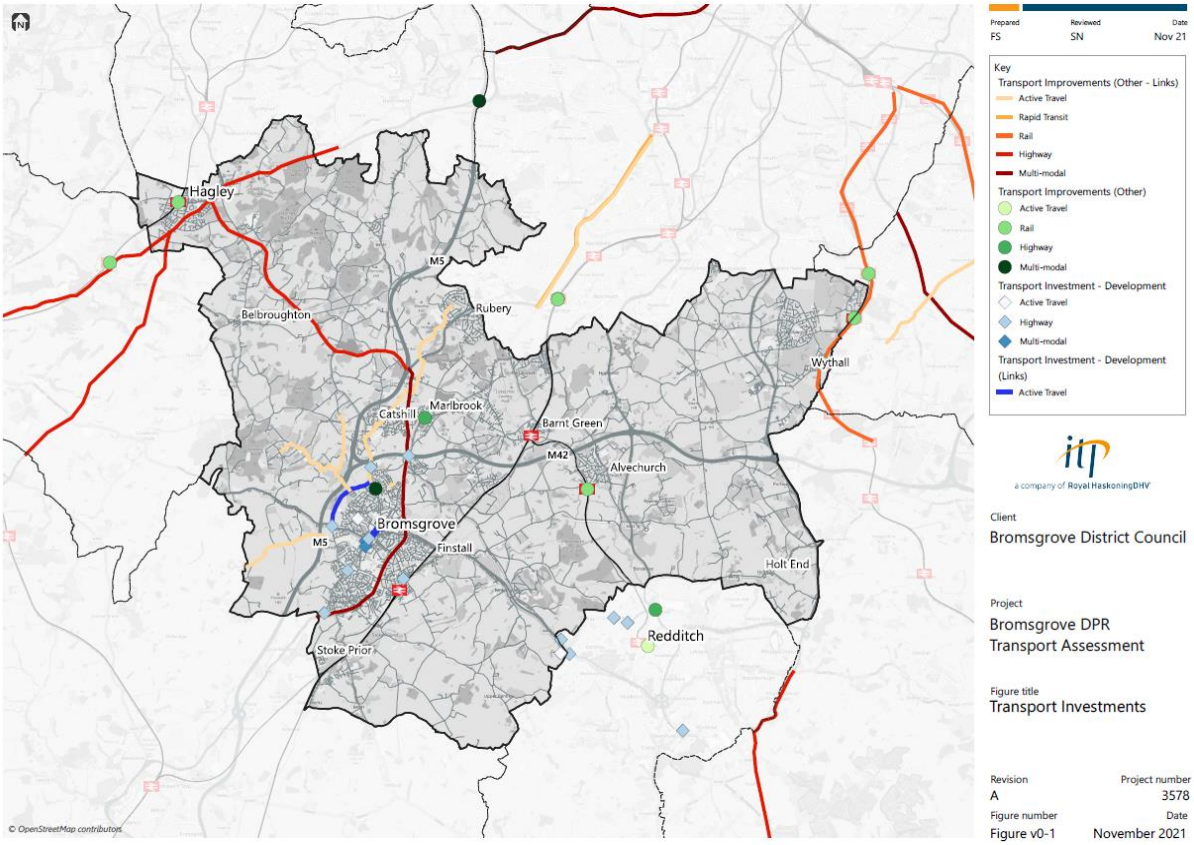
Green	Amber	Red
In the vicinity of 20 or more identified proposed transport schemes	In the vicinity of 10 to 19 identified transport schemes	In the vicinity fewer than 10 identified transport schemes

Metric 6: Potential Future stage

3.45 The analysis set out above has been agreed with the project team as appropriate for this stage of analysis. However, future, more detailed assessments could look in more depth to the proposed investments – weighting them by factors such as status (proposed or committed), funding status (required or secured), financial cost,

expected scale of impact or mode of transport benefitting (where active mode and sustainable travel investments have a larger influence).

Figure 3-9: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M5
Rubery
Wythall
Catshill
Marlbrook
Barnt Green
M42
Alvechurch
Bromsgrove
M5
Finstall
Holt End
Redditch
Stoke Prior
© OpenStreetMap contributors
Prepared
FS
Reviewed
SN
Date
Nov 21
Key
Transport Improvements (Other - Links)
Active Travel
Rapid Transit
Rail
Highway
Multi-modal
Transport Improvements (Other)
Active Travel
Rail
Highway
Multi-modal
Transport Investment - Development
Active Travel
Highway
Multi-modal
Transport Investment - Development (Links)
Active Travel
a company of Royal HaskoningDHV
Client
Bromsgrove District Council
Project
Bromsgrove DPR
Transport Assessment
Figure title
Transport Investments
Revision
A
Project number
3578
Figure number
Figure v0-1
Date
November 2021

Metric 7: Proximity to high volume origin – destination movement flows

3.46 TomTom telematics data (2019) and Census (2011) origin and destination (OD) data has been used to identify where there could be a sufficient number of movements to create the 'critical mass' needed to support the introduction of new public transport services or sustainable transport infrastructure. This metric excludes any data for 'through-trips' where both the origin and destination for the movement is outside the District.

3.47 The TomTom OD data provides detailed information about trip dynamics for those drivers using a connected device whilst driving to/from the District in October 2019. Data for movements that have an origin and/or destination within the Bromsgrove District have been visualised as straight-line movements in GIS and overlaid with the Strategic Road Network (SRN) and Major Road Network (MRN) to identify the high frequency movement corridors. Any trips with an origin or destination outside the BDC boundary are 'cut' at the edge of the District. This means that whilst it is possible to determine which road was used to enter/exit the District, it is not possible to determine the final origin or destination location if outside the District.

3.48 Census (2011) journey to work OD data shows popular start and end points for journeys to and from the District. While there are limitations of this dataset, namely it's age and focus on commuting trips only, it is considered a useful source for the purpose of this study.

3.49 By overlaying the TomTom and Census OD data with the SRN and MRN, a qualitative picture has been built (Figure 3-10) considering existing car journeys (TomTom), key end to end movements (Census) and the transport network that supports these.

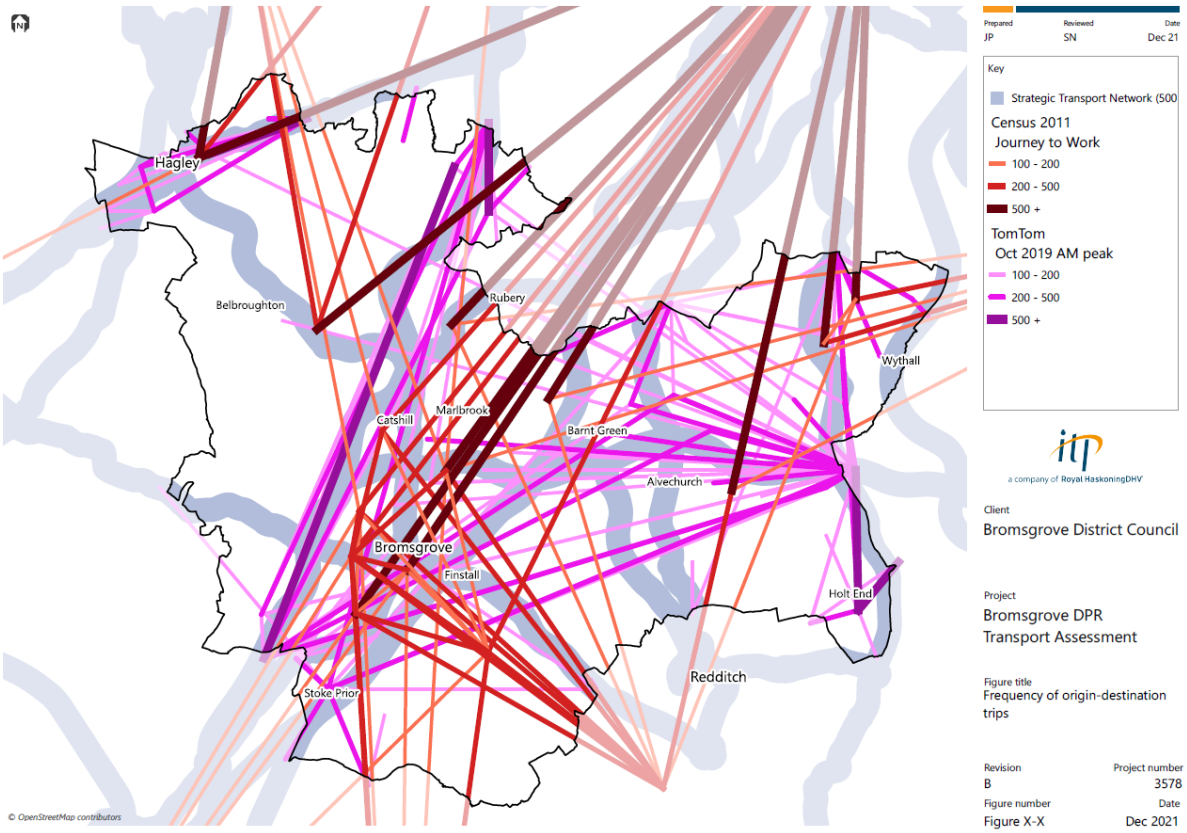
Threshold: Metric 7

3.50 Spatial options have been rated based on their location in relation to key demand corridors and the potential opportunities available to capture some of these journeys (both existing and those coming from new development) with more sustainable modes of travel.

Table 3-8: Metric 7 thresholds

Green	Amber	Red
High degree of potential to align growth with existing demand movements	Some potential to align growth with existing demand movements	Limited potential to align growth with existing demand movements

Figure 3-10: Metric 7 output map



Metric 8: Proximity to settlement of scale

3.51 Metric 8 is a qualitative geospatial assessment which considers the proximity of existing settlements to each option area, and the scale of these settlements. This reflects the existing facilities surrounding an area, assessing the potential for supporting shorter distance trips which are more likely to be able to be made by sustainable modes. Figure 3-11 illustrates settlements and population clusters used to inform this metric.

3.52 Settlements both within Bromsgrove and the surrounding area have been considered in relation to the facilities and services they provide. Table 3-8 sets out the key settlements considered and their levels of attractiveness for new residents to access the facilities they need.

Table 3-9: Key settlements

Larger key settlements offering a range of facilities to attract trips	Medium key settlements with some facilities to attract trips
Bromsgrove Town	Northfield
Redditch Town	Longbridge
Stourbridge	Halesowen
Shirley / Solihull	Droitwich Spa

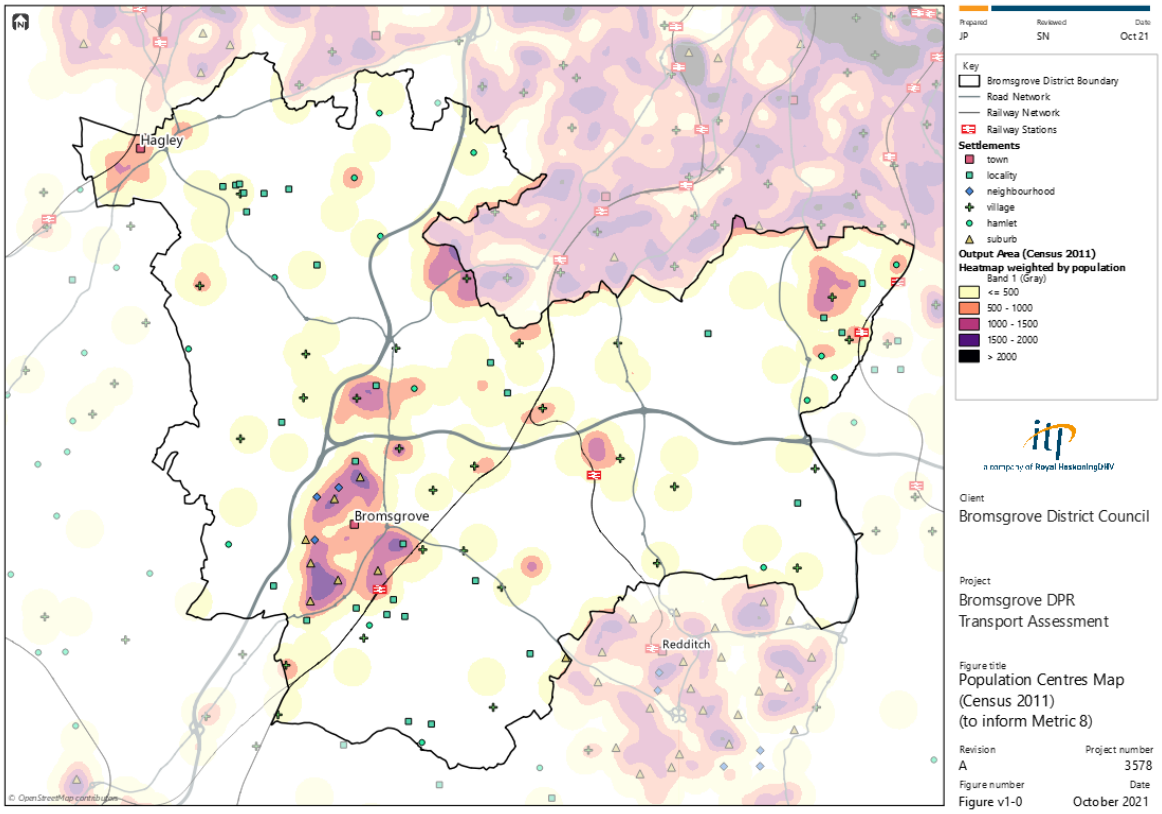
Thresholds: Metric 8

3.53 The thresholds set out in Table 3-10 rate those option areas in close proximity to a large urban centre higher (green rating) than those that are in close proximity to a medium urban centre (amber rating) or where the option area isn't close to an urban centre (red rating).

Table 3-10: Metric 8 thresholds

Green	Amber	Red
Option are lies in close proximity to an existing large scale urban centre (as defined in Table 3-9)	Option lies in close proximity to an existing medium scale urban centre (as defined in Table 3-9)	Majority of the option area does not lie in close proximity to a medium scale urban centre (as defined in Table 3-9)

Figure 3-11: Metric 8 output map



Metric Summary

3.54 Table 3-11 summarises the metrics and thresholds for the Red, Amber, Green (RAG) thresholds that make up the assessment framework.

Table 3-11: Assessment metrics

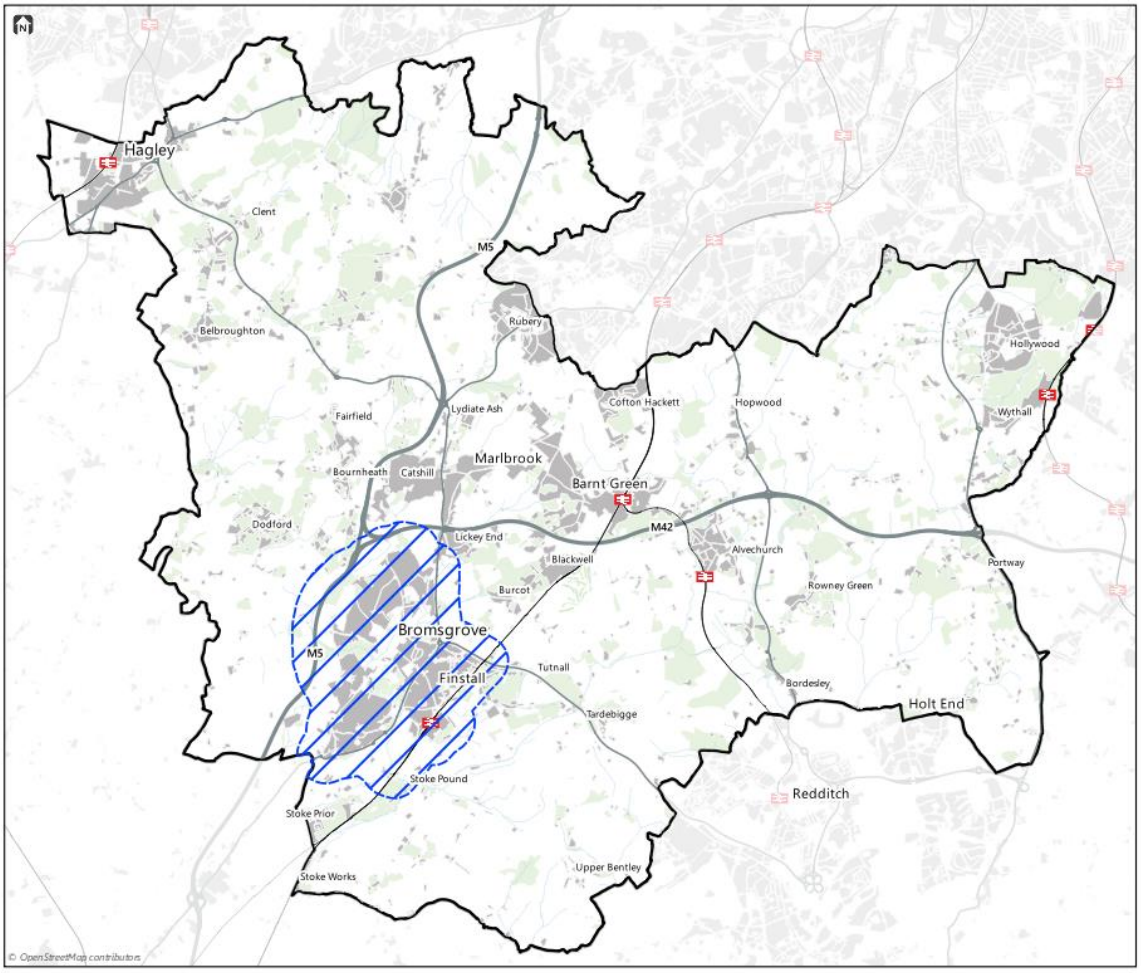
Metric		Red/Amber/Green measure	Green	Amber	Red
1	**Average commuter travel mode split from within each growth option area (from 2011 Census).**	Average car driver mode split, derived from Method of Travel to Work question in the Census, 2011, excluding 'work from home' and 'not working' categories. Thresholds (based on identifiable gaps between groupings of areas) defined based on an average calculated across the closest matching combination of Output Areas based on population weighted centroids relative to the shape of each growth option scenario	Less than or equal to 60% travel to work driving a car or van	60% to 78% drive to work in a car / van	78% or more drive to work in a car / van
2	**Proximity to current sustainable transport services and infrastructure that serve key settlements**	Qualitative geospatial comparison of each growth option in relation to current sustainable transport routes	At least 30% of option area is within: - 1.5km of a rail station - 500m of a high frequency bus route (>3bph one direction) AND at least 30% of the option area is within 400m of a strategic cycle route	At least 30% of option area is: - within 1.5km of a rail station - within 500m of a bus route	Less than 30% of the option area is within: - 1.5km of a rail station - 500m of a bus route
3	**Access to jobs by public transport**	Ability to access priority employment sites (both within Bromsgrove District and in neighbouring areas) within each growth option scenario by public transport.	A high proportion (>60%) of the option area is within 30 mins travel time by public transport to identified employment sites	A medium proportion (>40% but less than 60%) of the option area is within 30 mins travel time by public transport to identified employment sites	A low proportion (<40%) of the option area is within 30 mins travel time by public transport to identified employment sites
4	**Access to healthcare (hospitals and General Practices) by public transport**	Ability to access healthcare (both within Bromsgrove District and in neighbouring areas) from within each growth option scenario by public transport	A high proportion (>90%) of the option area is within 30 mins travel time by public transport to healthcare sites	A medium proportion (>80 but less than 90%) of the option area is within 30 mins travel time by public transport to healthcare sites	A low proportion (<80%) of the option area is within 30 mins travel time by public transport to healthcare sites
5	**Access to education (schools) by public transport**	Ability to access schools (both within Bromsgrove District and in neighbouring areas) from within each growth option scenario by public transport	A high proportion (>90%) of the option area is within 30 mins travel time by public transport to the nearest school	A medium proportion (>80% less than 90%) of the option area is within 30 mins travel time by public transport to the nearest school	A low proportion (less than 90%) of the option area is within 30 mins travel time by public transport to the nearest school
6	**Proximity to planned local transport schemes**	Qualitative geospatial comparison of each option area in relation to proposed future transport schemes identified in relevant plans or by key local authority stakeholders	In the vicinity of 20 or more identified proposed transport schemes	In the vicinity of 10 to 19 identified transport schemes	In the vicinity fewer than 10 identified transport schemes
7	**Proximity to high volume origin – destination movement flows**	Qualitative geospatial comparison of high-volume Origin–Destination person movement flows within/through each growth option scenario area(s), based on visualised O-D flows (for all travel modes and journey purposes)	High degree of potential to align growth with existing demand movements	Some potential to align growth with existing demand movements	Limited potential to align growth with existing demand movements
8	**Proximity to settlement of scale**	Qualitative geospatial assessment of option area and OSM residential land use.	Option area lies in close proximity to an existing significant scale urban centre with a range of retail / services	Option area lies in close proximity to an existing medium scale urban centre with some retail / services	Majority of the option area does not lie in close proximity to a medium scale urban centre

4. Assessment Results

Option Area 1: Focussing Development on Bromsgrove Town

4.1 Option Area 1 comprises the area within Bromsgrove District that surrounds the town of Bromsgrove. As shown in Figure 4-1, it stretches to the M42 / Catshill Interchange in the north, Finstall in the east and Stoke Pound in the south.

Figure 4-1: Option Area 1



Metric 1: Average commuter travel mode split

4.2 The average drive to work proportion of output areas within Option 1 is 74.2%, this is the lowest percentage of all the option areas. This reflects the nature of Bromsgrove as a town centre and the public transport provision in the area.

Table 4-1: Metric 1 – Option 1 results

Test	Percentage	RAG rating
Average drive to work proportion of output areas within the option area	74.2%	Amber

Metric 2: Proximity to current sustainable transport services and infrastructure that serve key settlements

4.3 Option 1 performs the best of the six spatial options for this metric, reflecting the area's position as District centre, with bus and rail links as well as a growing provision of cycle network. A set of all 'green' ratings here should not be read as an ideal situation, where no additional provision is required, instead it reflects the level of coverage within the option area relative to the other spatial options assessed in this study.

Table 4-2: Metric 2 – Option 1 results

Connection		% of area covered	RAG rating
Rail	Within 1.5km of rail station (from centroid)	32%	Green
Bus	Within 500m of high frequency bus route	56%	Green
	Within 500m of any bus route	83%	
Cycle	Within 400m of National and Local Cycle Network	55%	Green
Overall Metric 2 rating			**Green**

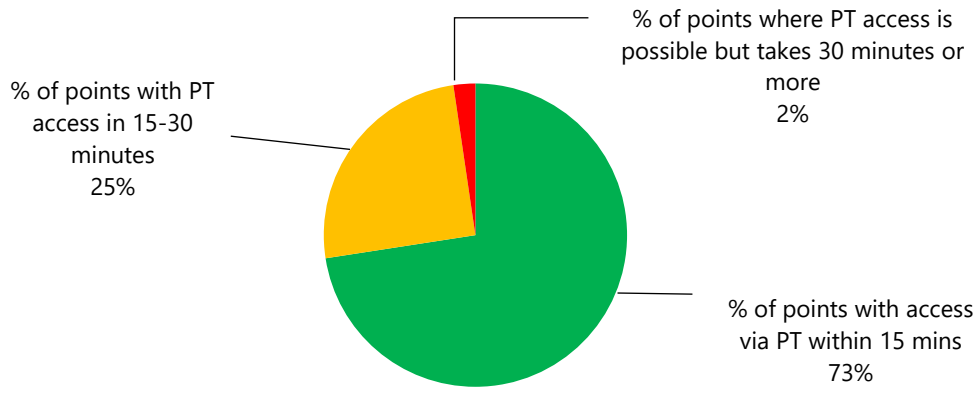
Metric 3: Access to jobs by public transport

4.4 Option 1 performs the best of the six option areas for access to strategic employment sites by public transport, with 98% of the origin points being able to access employment within 30 minutes. It also has the highest proportion of points able to access employment within 15 minutes.

4.5 Figure 4-2 shows the results for this metric and option area.

4.6 Three of the strategic employment locations are included within the boundary Option 1, as well as numerous bus links and the rail station, providing wider connections to other strategic employment sites.

Figure 4-2: Metric 3 – Public Transport Access to Strategic Employment Sites - Option 1

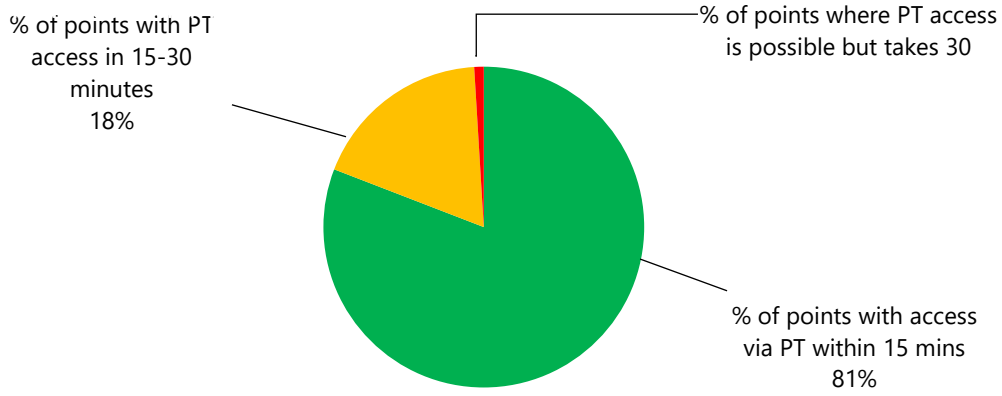


Metric 4: Access to healthcare by public transport

4.7 Option 1 has better accessibility to healthcare sites within the parameters of the accessibility mode than other spatial options. 99% of the origin points could access a healthcare facility within 30 minutes.

4.8 Figure 4-3 shows the results for this metric and option area

Figure 4-3: Metric 4 – Public Transport Access to Healthcare - Option 1



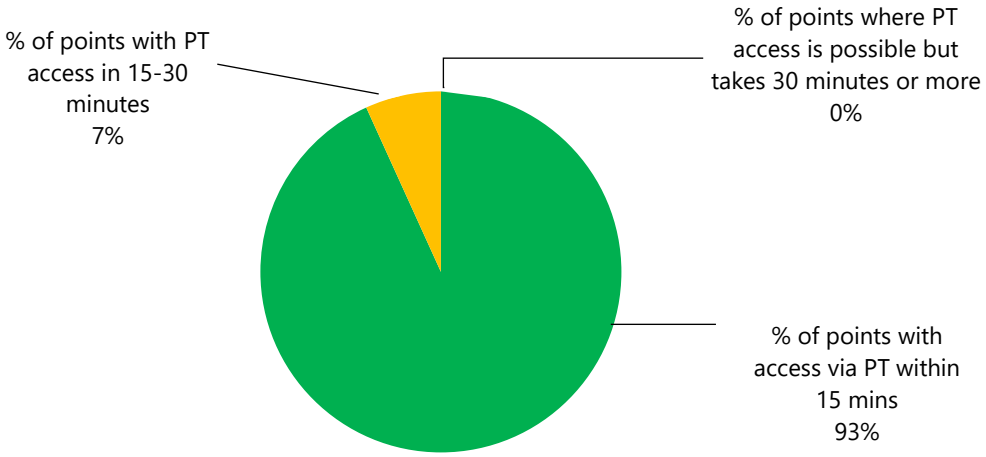
Metric 5: Access to education by public transport

4.9 This option performs well in relation to access to education by public transport, with 100% of the origin points being able to access an education site within 30 minutes. Option 1 has been categorised as a 'green' rating for this metric.

4.10 Figure 4-4 shows the results for this metric and option area.

4.11 There are a cluster of schools included within the area, as well as numerous bus link and the rail station providing wider connections to other schools.

Figure 4-4: Metric 5 – Public Transport Access to Education - Option 1



Metric 6: Proximity to planned local transport schemes

4.12 Proposed investments within in the Option 1 area, that were identified at the time of the study include:

- Multimodal Bromsgrove transport schemes such as Broad Street/Stourbridge Road Junction, St John Street / Hanover Street / Kidderminster Road Junction and Worcester Road/Rock Hill Key Corridor of Improvement and the Major Road Network A38 BREP
- Highway schemes from the Bromsgrove IDP (2014), such as B4184 (New Road / Finstall Road), A448 (Market Street) / B4184 Market Place - signalise junction, M42 Junction 1 / A38 - Close off access to existing signalised roundabout from B4096, A448 (Kidderminster Road) / Whitford Road, B4091 (Stourbridge Road) / Barnsley Hall, A38 (Worcester Road/Redditch Road) / B4094 and B4091 (Rock Hill) / Fox Lane
- Active travel schemes from the Bromsgrove - Strategic Active Travel Network, North East Active Travel programme and Upland Grove Park Bromsgrove Link

4.13 Option 1 has been rated as 'green' for this metric as there are 23 schemes within the option area. Many of these (11) are active travel schemes, with 5 multi modal and 7 highway schemes.

Metric 7: Proximity to high volume origin – destination movement flows

4.14 There is a large volume of movements to/from Bromsgrove town which result in a 'green' rating for this metric for Option 1. The census data suggest the town is a key origin/destination point within the District and the TomTom data show high volume flows concentrated along key transport corridors connecting to Bromsgrove.

Metric 8: Proximity to settlement of scale

4.15 Option 1 includes Bromsgrove Town within the boundary of the option area, this is the main population cluster within the District.

4.16 The heatmap of output areas (Figure 3-11) shows that population is clustered around Bromsgrove Town. A range of facilities is on offer within Bromsgrove, with a pedestrianised High Street providing varied retail and services. For this reason, Option 1 has received a 'green' rating for metric 8.

Option 1 Summary

4.17 Option 1 has the most 'green' metric ratings of all the options; its existing status as the main urban centre means a good level of transport connectivity, particularly sustainable options, already exist. Table 4-3 summarises the resulting categories for Option 1.

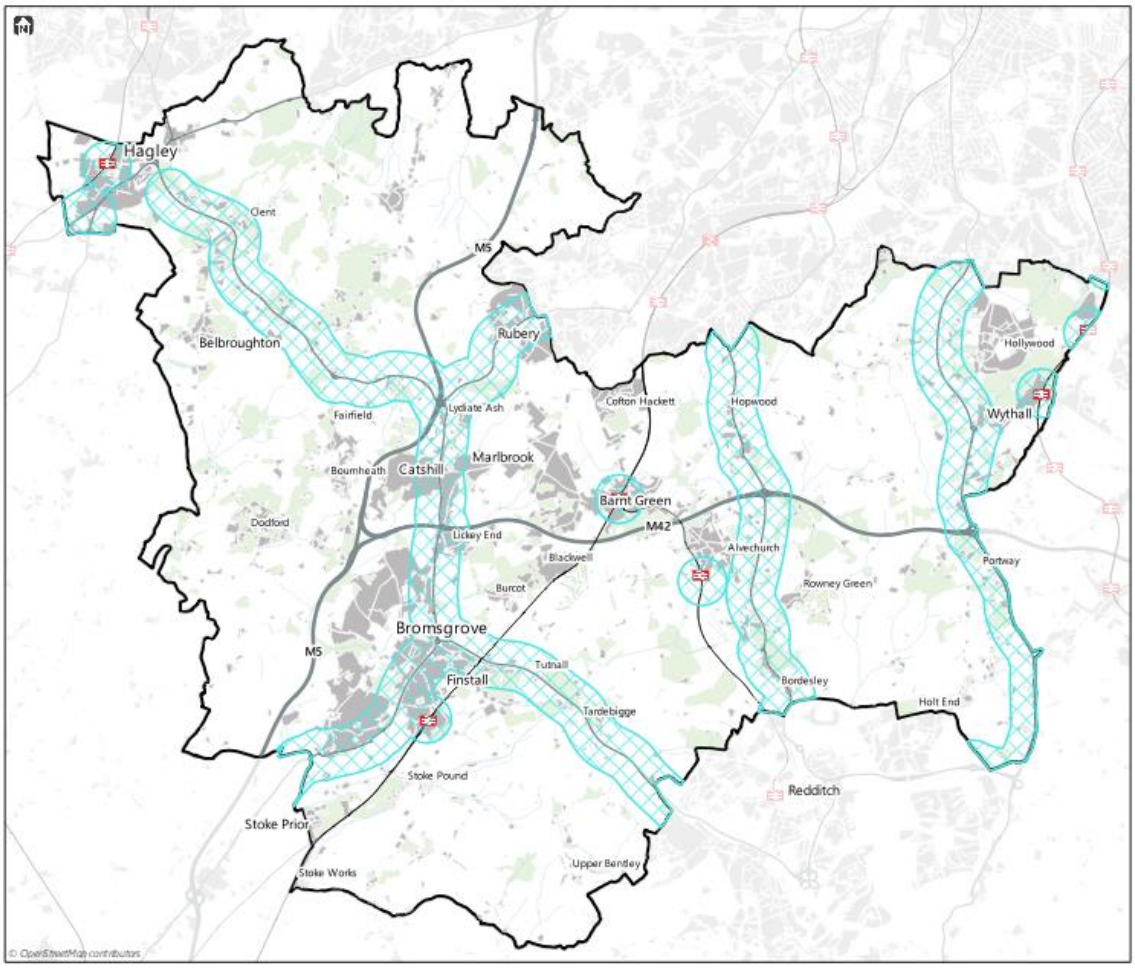
Table 4-3: Option 1 metric rating summary

Metric	Rating for Option 1
Metric 1: Average commuter travel mode split from within each growth option area	Between 60% and 75% of the commuting population drive by car / van
Metric 2: Proximity to current sustainable transport services and infrastructure that serve key settlements	More than 30% of the option area has a good public transport offering in addition to national and local cycle routes
Metric 3: Access to jobs by public transport	More than 60% of the option area can access a strategic employment site within 30 minutes
Metric 4: Access to healthcare by public transport	More than 90% of the option area can access a healthcare site within 30 minutes
Metric 5: Access to education by public transport	More than 90% of the option area can access education within 30 minutes
Metric 6: Proximity to planned local transport schemes	More than 20 proposed transport schemes in the area
Metric 7: Proximity to high volume origin – destination movement flows	The option area has a high degree of potential to align growth with existing demand flows, with high volume flows crossing the area as well as starting/ending journeys
Metric 8: Proximity to settlement of scale	The option area is in close proximity to Bromsgrove, a town centre with a range of day-to-day facilities

Option Area 2: Development along transport corridors and locations with good transport links

4.18 Option 2 comprises the area within Bromsgrove District that lies along key major road corridors or around the rail stations with the District.

Figure 4-5: Option 2



Metric 1: Average commuter travel mode split

4.19 This option has been given a 'red' rating for this metric, reflecting that over 78% of the area's commuters drive to work. This reflects the geography of this option, largely being defined by areas around the major road network, which are predominantly rural.

Table 4-4: Metric 1 – Option 2 results

Test	Percentage	Rating
Average drive to work proportion of output areas within the option area	78.2%	Red

Metric 2: Proximity to current sustainable transport services and infrastructure that serve key settlements

4.20 Option 2 has been defined by the transport network, encompassing the Major Road Network (MRN) local rail stations. As a proportion, most of the option area follows the MRN and the majority of the land surrounding this is rural. As this analysis focuses on sustainable transport provision and therefore assesses proximity and coverage by public transport and active mode networks, it does not necessarily align with major road corridors, which is reflected in the findings from this metric.

4.21 Only 23% of the option area is within 1.5km from a rail station, and while the majority of the area is served by a bus service, only a limited amount of these services are high frequency (in the morning peak). Cycle routes are also limited within this option area. This option has been given an overall rating of 'red' for its existing sustainable transport provision.

Table 4-5: Metric 2 – Option 2 results

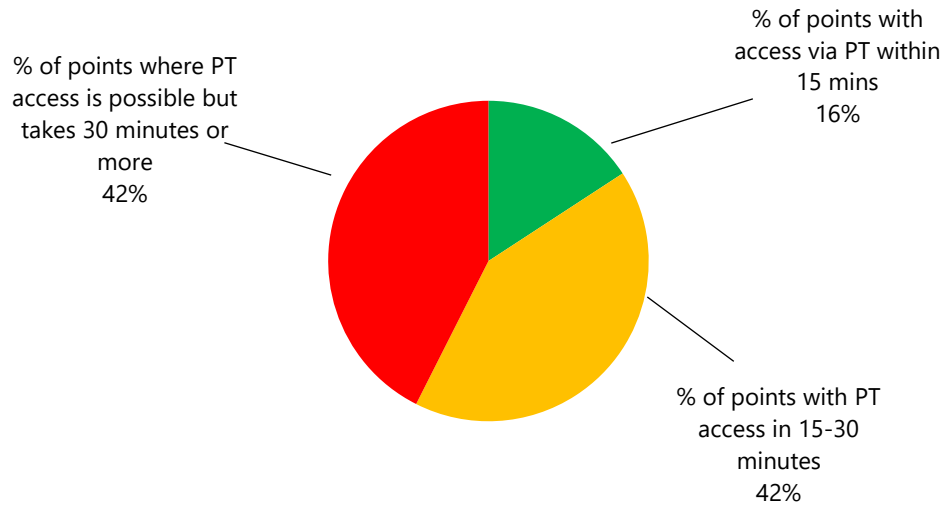
Connection		% of area covered	RAG rating
Rail	Within 1.5km of rail station (from centroid)	23%	Red
Bus	Within 500m of high frequency bus route	17%	Amber
	Within 500m of any bus route	82%	
Cycle	Within 400m of National or Local Cycle Network	21%	Red
Overall Metric 2 rating			**Red**

Metric 3: Access to jobs by public transport

4.22 57% of origin points within Option 2 are within 30 minutes of employment, which is mid-range in comparison to other options. 16% of all origins are within 15 minutes travel time of an identified strategic employment site. Figure 4-6 shows the results

for this metric and option area and Option 2 has been rated as 'amber' for this metric.

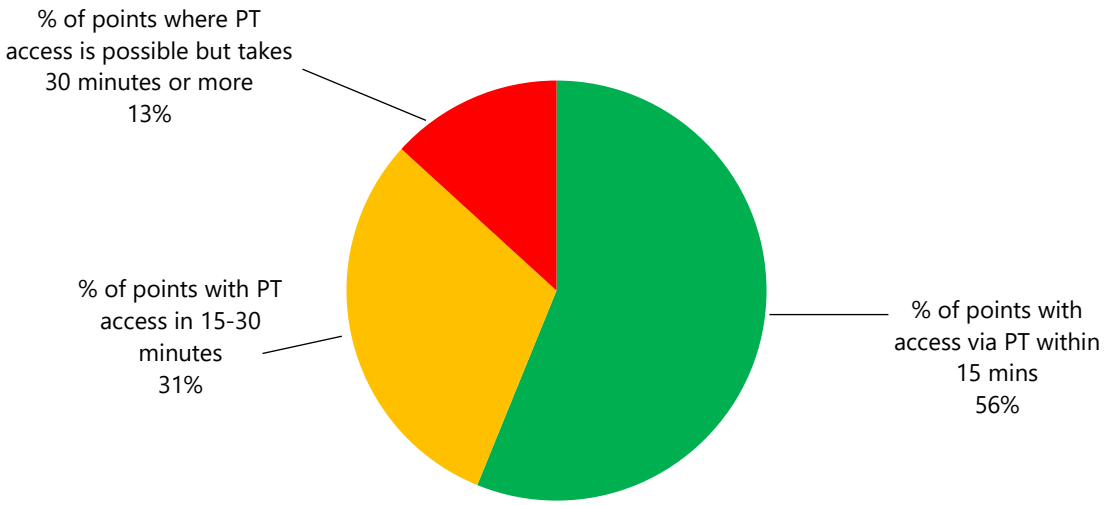
Figure 4-6: Metric 3 - Public Transport Access to Strategic Employment Sites - Option 2



Metric 4: Access to healthcare by public transport

4.23 87% of the origins are within 30-minutes of their nearest healthcare site and 56% are over 30 minutes away by public transport. This results in an 'amber' rating for Option 2 and Figure 4-7 shows the results for this metric and option area.

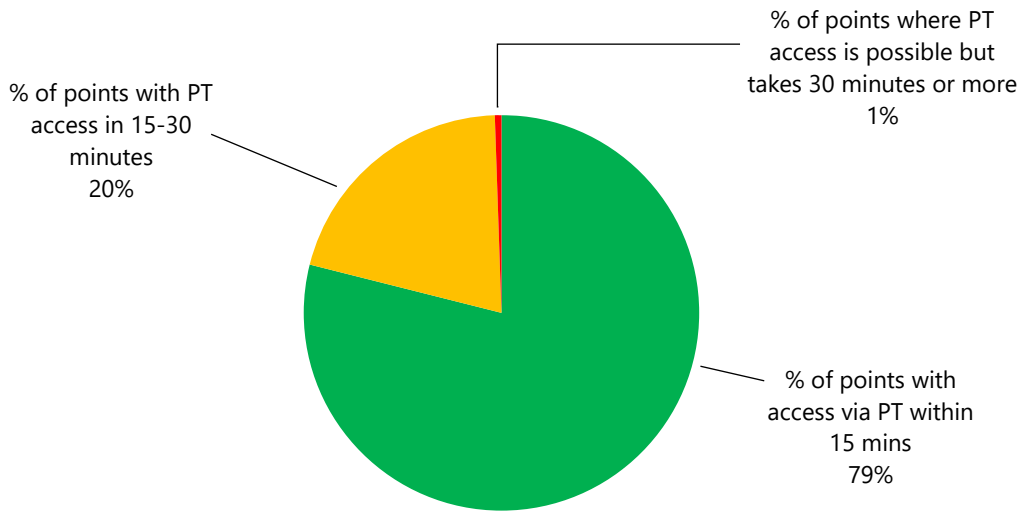
Figure 4-7: Metric 4 - Public Transport Access to Healthcare - Option 2



Metric 5: Access to education by public transport

4.24 All options areas have been given a 'green' rating for this metric. Option 2 shows that 99% of the origin points have a public transport journey time of fewer than 30 minutes from their nearest education site, with the majority with journeys below 15 minutes. Figure 4-8 shows the results for this metric and option area. Option 2 has been rated as 'green' for this metric.

Figure 4-8: Metric 5 – Public Transport Access to Education - Option 2



Metric 6: Proximity to planned local transport schemes

4.25 Proposed investments within in the Option 2 area, that were identified at the time of the study include:

- Multimodal transport schemes such as the Broad Street/Stourbridge Road Junction, St John Street / Hanover Street / Kidderminster Road Junction, Worcester Road/Rock Hill Key Corridor of Improvement an MRN A38 BREP scheme
- Highway schemes from the Bromsgrove IDP (2014), such as Birchfield Road / Foxlydiate Lane, Bromsgrove Highway / Brockhill Drive, B4184 (New Road / Finstall Road), A448 (Market Street) / B4184 Market Place, M42 Junction 1 / A38, A38 (Worcester Road/Redditch Road) / B4094 and MRN schemes on the A456/A450/A491 corridor

- Public transport schemes include rail improvements to existing rail stations at Alvechurch, Hagley and Wythall as well as enhancements to the snow hill line and access improvements from the Solihull connected plan
- Active travel schemes from the Bromsgrove IDP, such as links to local cycle network route 5, the North East Active Travel programme and Upland Grove Park Bromsgrove Link

4.26 Option 2 has been rated as 'green' for this metric as there are 29 schemes within the option area. Many of these (10) are highway schemes, with eight active travel schemes, six rail / public transport schemes and five multi modal schemes.

Metric 7: Proximity to high volume origin – destination movement flows

4.27 This option has been assigned a 'green' rating for its proximity to high volume origin – destination movement flows. This considers the varied prevalence of movements within the option area, with the area between Hagley and Bromsgrove showing fewer movements. Whereas areas in the centre and east of the District are more aligned to existing movements and patterns overlying some of the key movement corridors.

Metric 8: Proximity to settlement of scale

4.28 Option 2 skirts Bromsgrove Town to the east and other larger settlements. However, most of the settlements within Option 2 are smaller villages, which are widely dispersed across the option area with few built up areas of population density. Therefore, this option has been categorised as 'red' within the framework.

Option 2 Summary

4.29 This option performs well against several criteria considering the area's proximity to key corridors and existing movements. However, given the nature of the area's location around corridors rather than existing settlements, the current facilities and potential for sustainable transport options are relatively poor.

Table 4-6: Option 2 metric rating summary

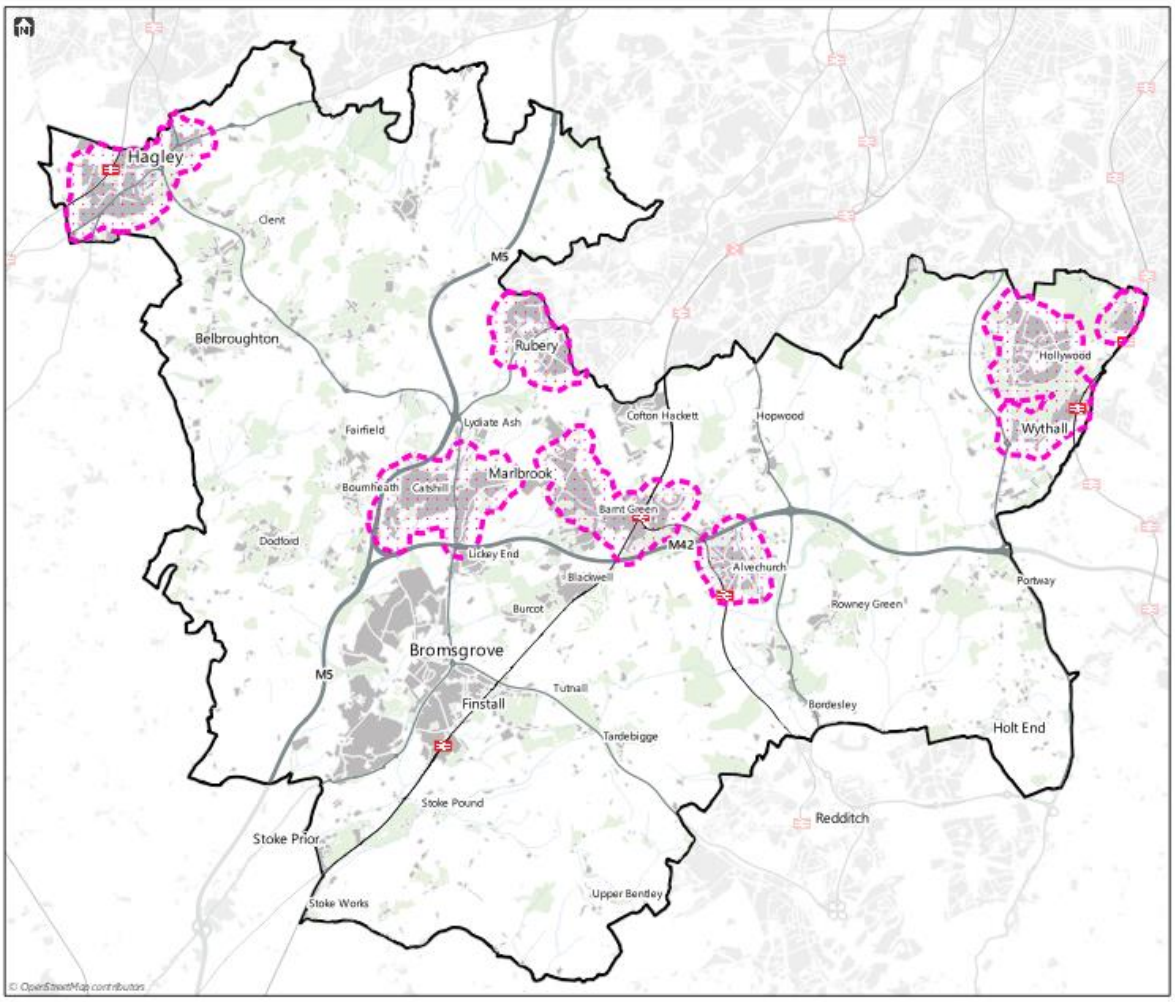
Metric	Rating for Option 2
Metric 1: Average commuter travel mode split from within each growth option area	Option area has a high proportion (78%) of commuters who drive a car / van to work, reflecting the geography of this option, largely being defined by access to the major road network

Metric 2: Proximity to current sustainable transport services and infrastructure that serve key settlements	A limited proportion of the option area has coverage by high frequency bus / rail services and lacks coverage from cycle networks.
Metric 3: Access to jobs by walking and public transport	57% of the option area can access a strategic employment site within 30 minutes using public transport
Metric 4: Access to healthcare by public transport	87% of the option area can access a healthcare site within 30 minutes using public transport
Metric 5: Access to education by public transport	99% of the option area can access education within 30 minutes using public transport
Metric 6: Proximity to planned local transport schemes	More than 20 proposed transport schemes in the area
Metric 7: Proximity to high volume origin – destination movement flows	The option area aligns with some key movement corridors within the District, such as areas in the centre and east of the District, for example parts of the major road network such as the A441 and the A435
Metric 8: Proximity to settlement of scale	The majority of the option area does not incorporate any existing settlements of scale.

Option Area 3: Development in large settlements

4.30 Option Area 3 is comprised of several areas within Bromsgrove District around the district's large settlements, as identified in the existing BDP.

Figure 4-9: Option 3



Metric 1: Average commuter travel mode split

4.1 This option has been given a 'red' rating for this metric, reflecting that 78.6% of the area's commuters drive to work. This reflects the geography of this option around several distinct settlements.

Table 4-7: Metric 1 – Option 3 results

Test	Percentage	Rating
Average drive to work proportion of output areas within the option area	78.6%	Red

Metric 2: Proximity to current sustainable transport services and infrastructure that serve key settlements

4.2 Option 2 has the highest coverage of all the options by rail, with the majority of the area within 1.5km of a rail station. It also has one of the highest scores for bus coverage but is limited to an 'amber' bus rating due to the low frequency (up to three per hour) of these services. The cycle network is also limited within this option area. Therefore, the option has been assigned an overall 'amber' rating for this metric.

Table 4-8: Metric 2 – Option 3 results

Connection		% of option	RAG rating
Rail	Within 1.5km of rail station (from centroid)	56%	Green
Bus	Within 500m of high frequency bus route	29%	Amber
	Within 500m of any bus route	87%	
Cycle	Within 400m of National Cycle Network	17%	Red
		Overall Metric 2 rating	**Amber**

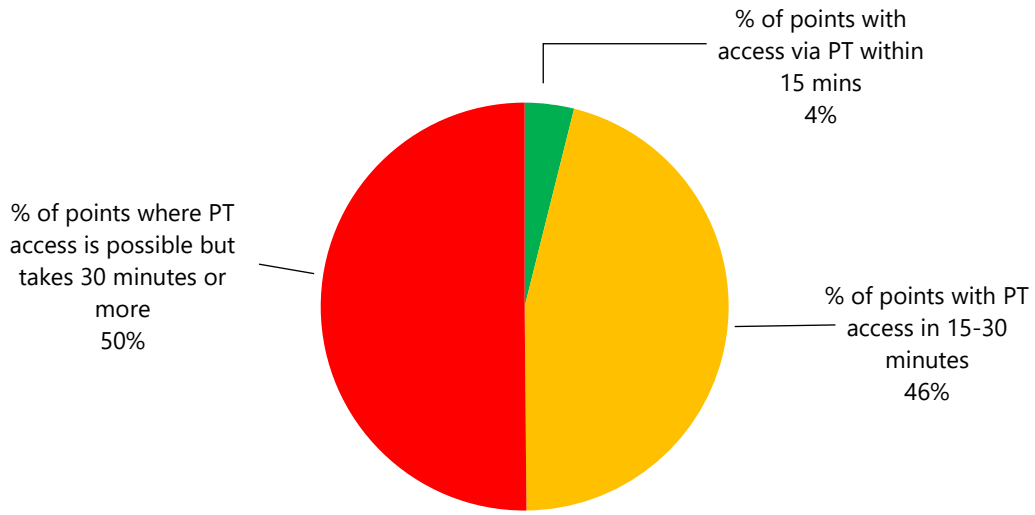
Metric 3: Access to jobs by public transport

4.3 Of the origin points within Option 3, 50% were within 30 minutes by public transport of a strategic employment site, which places it within the 'amber' category. With the amber category defined as accessibility between 40% and 60%, Option 3 sits right in the centre of this, equidistant from the 'red' and 'green' categories.

4.4 Figure 4-10 shows the results for this metric and option area.

4.5 It is noted that only a small proportion of the origin points (4%) can access strategic employment sites within 15 minutes and a large proportion (50%) have a journey of over 30 minutes by public transport.

Figure 4-10: Metric 3 – Public Transport Access to Strategic Employment Sites - Option 3

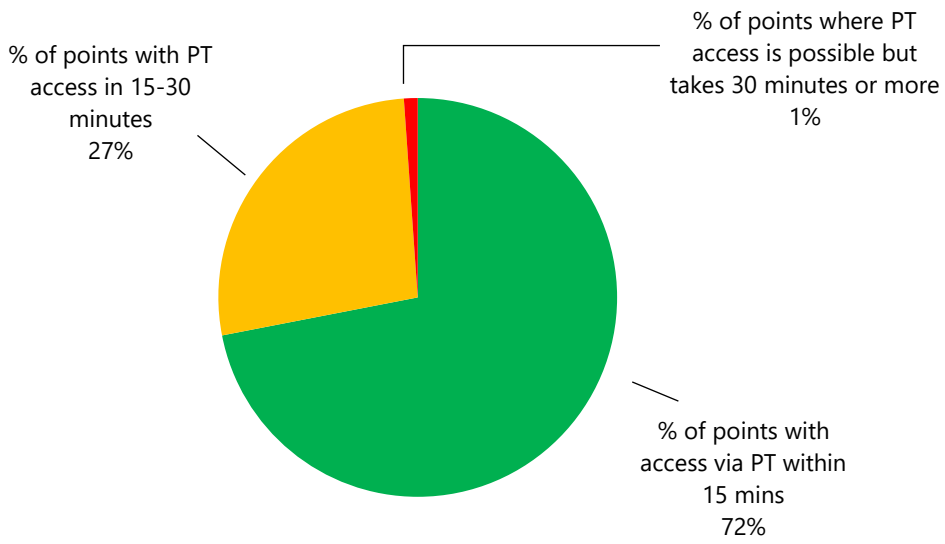


Metric 4: Access to healthcare by public transport

4.6 This option has been rated as 'green' for public transport access to healthcare sites. With 99% of the origins being able to access their nearest facility within 30 minutes and over 70% within 15 minutes, this is one of the top performing options for this metric.

4.7 Figure 4-11 shows the results for this metric and option area

Figure 4-11: Metric 4 – Public Transport Access to Healthcare - Option 3

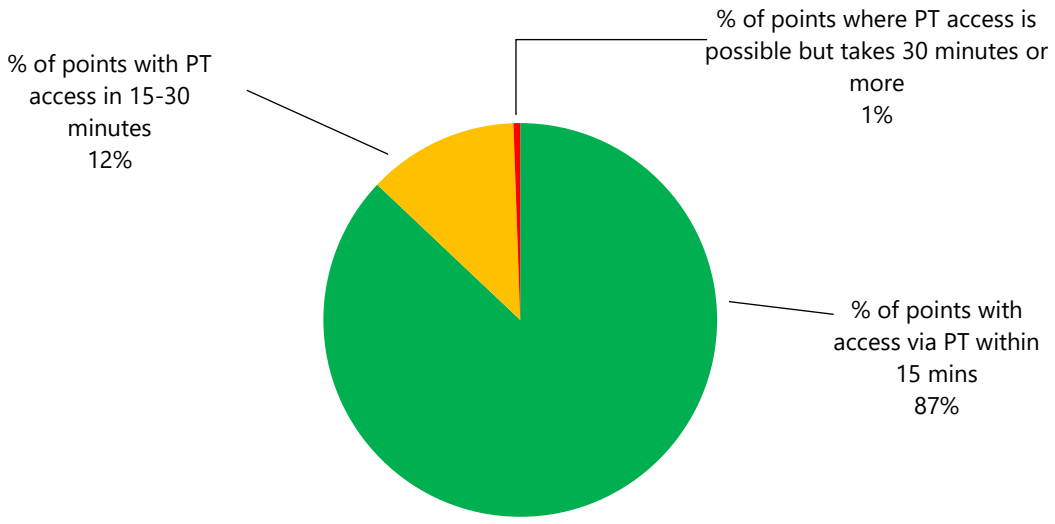


Metric 5: Access to education by public transport

4.8 99% of the origin points for Option 3 can access education sites by public transport within 30 minutes and 87% can do so within 15 minutes. All options have been given a 'green' rating for this metric.

4.9 Figure 4-12 shows the results for this metric and option area.

Figure 4-12: Metric 5 – Public Transport Access to Education - Option 3



Metric 6: Proximity to planned local transport schemes

4.10 Proposed investments within in the Option 3 area, that were identified at the time of the study include:

- Multimodal transport schemes such the MRN A38 BREP scheme.
- Highway schemes from the Bromsgrove IDP (2014), such as M42 Junction 1 / A38 and B4091 (Stourbridge Road) / Barnsley Hall, and MRN schemes on the A456/A450/A491 corridor.
- Public transport schemes include rail improvements to existing rail stations at Alvechurch, Hagley and Wythall as well as enhancements to the snow hill line and access improvements from the Solihull connected plan.

4.11 Option 3 has been rated as 'amber' for this metric as there are 13 schemes within the option area. There is an equal number (six) of public transport and highway schemes and one multi modal scheme.

Metric 7: Proximity to high volume origin – destination movement flows

4.12 The prevalence of movements in this Option 3 is varied, with the area to west of the District, between Hagley and Bromsgrove, showing fewer movements and areas in the centre and east of the District more aligned to existing high volume movements.

4.13 The option does not contain an area with a high concentration of origin/destination points (as with Bromsgrove Town Centre) and therefore an 'amber' rating has been applied.

Metric 8: Proximity to settlement of scale

4.14 The option area includes a range of settlements, including larger and smaller villages. These are largely clustered around the medium to low population density locations of the District, which have limited retail offerings and range of services to support more localised trips. Therefore, this option has been assigned a 'red' rating.

Option 3 Summary

4.15 This option performs moderately overall, although existing infrastructure and proximity to facilities is varied, resulting in less sustainable transport outcomes currently, particularly to access strategic employment opportunities.

Table 4-9: Option 3 metric rating summary

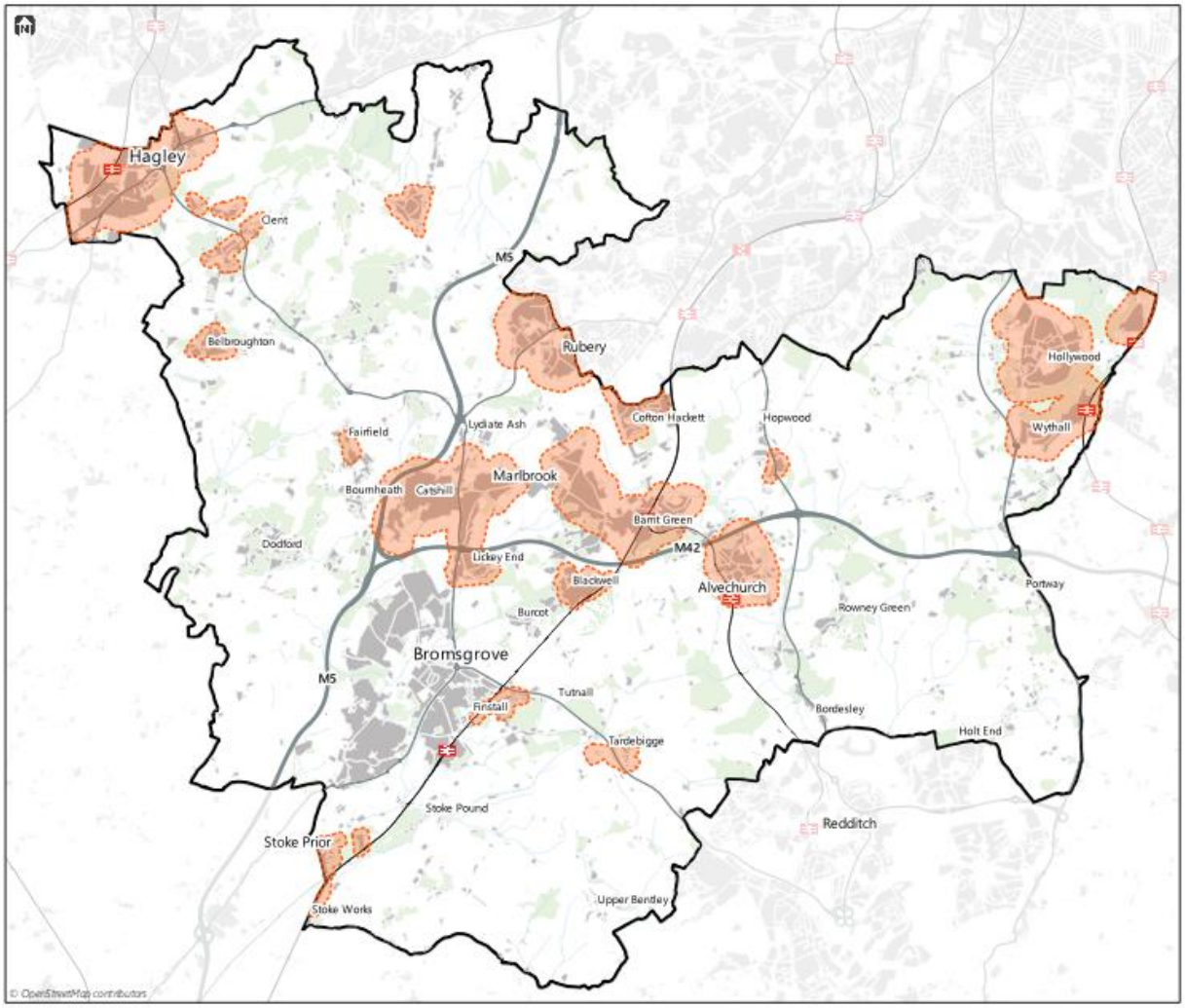
Metric	Rating for Option 3

Metric 1: Average commuter travel mode split from within each growth option area	The option area shows over 75% of commuters drive a car or van to work, reflecting the geography of this option around smaller settlements
Metric 2: Proximity to current sustainable transport services and infrastructure that serve key settlements	The option area shows limited high frequency bus and cycle route connections, while rail coverage is more prevalent.
Metric 3: Access to jobs by public transport	50% of the option area has access to strategic employment sites within 30 minutes by public transport.
Metric 4: Access to healthcare by public transport	99% of the option area has access to a healthcare site within 30 minutes by public transport.
Metric 5: Access to education by public transport	99% of the option area has access to an education site within 30 minutes by public transport.
Metric 6: Proximity to planned local transport schemes	There are between 10 and 19 proposed transport schemes in the vicinity of the option area
Metric 7: Proximity to high volume origin – destination movement flows	The option includes areas in the centre and east of the District which are aligned to some existing high-volume movements but contains limited concentrations of origin/destination points
Metric 8: Proximity to settlement of scale	The option area includes limited population clusters with a range of facilities to support shorter more sustainable trips.

Option Area 4: Dispersed development

4.16 Option Area 4 is comprised of several areas within Bromsgrove District around the District's large settlements (mirroring option 3), with a number of additional smaller settlements considered.

Figure 4-13: Option 4



Metric 1: Average commuter travel mode split

4.1 The option has one of the poorest performances against this metric. With around 80% of commuters driving a car or van to work, this option has been given a 'red' rating for this metric. This reflects the geography of this option with the area including smaller settlements across the District, where more sustainable forms of transport are limited/unattractive.

Table 4-10: Metric 1 – Option 4 results

Test	Percentage	Category
Average drive to work proportion of output areas within the option area	79.5%	Red

Metric 2: Proximity to current sustainable transport services and infrastructure that serve key settlements

4.2 This option has been assigned an overall 'amber' rating for this metric. This is due to the high coverage by rail (in the larger settlements) but limited high frequency bus and cycle route provision in the area.

Table 4-11: Metric 2 – Option 4 results

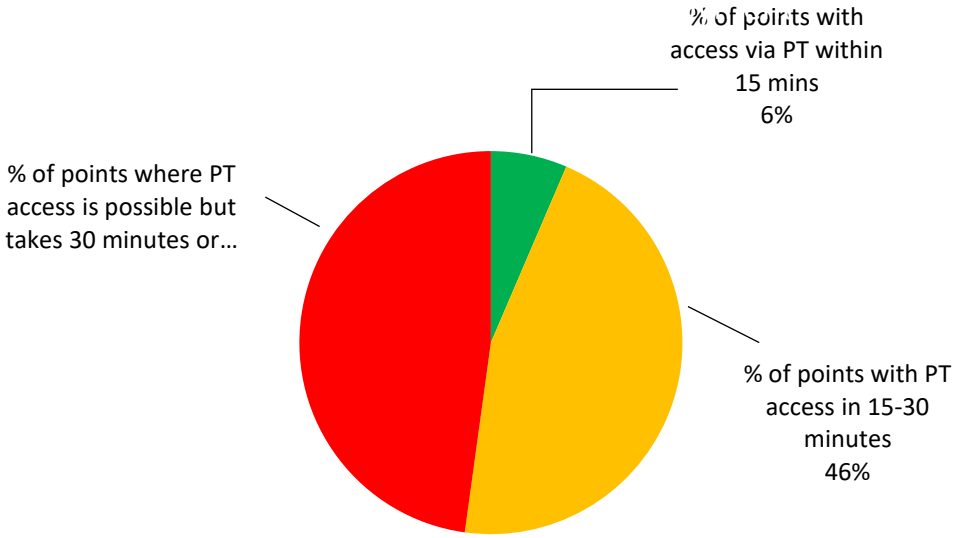
Connection		% of area covered	RAG rating
Rail	Within 1.5km of rail station (from centroid)	46%	Green
Bus	Within 500m of high frequency bus route	26%	Amber
	Within 500m of any bus route	88%	
Cycle	Within 400m of National Cycle Network	21%	Red
Overall Metric 2 rating			**Amber**

Metric 3: Access to jobs by public transport

4.3 Around half of the option area can reach their nearest strategic employment site within 30 minutes travel time. However, only 6% can do so within 15 minutes. This option has an 'amber' rating for this metric.

4.4 Figure 4-14 shows the results for this metric and option area.

Figure 4-14: Metric 3 – Public Transport Access to Strategic Employment Sites - Option 4

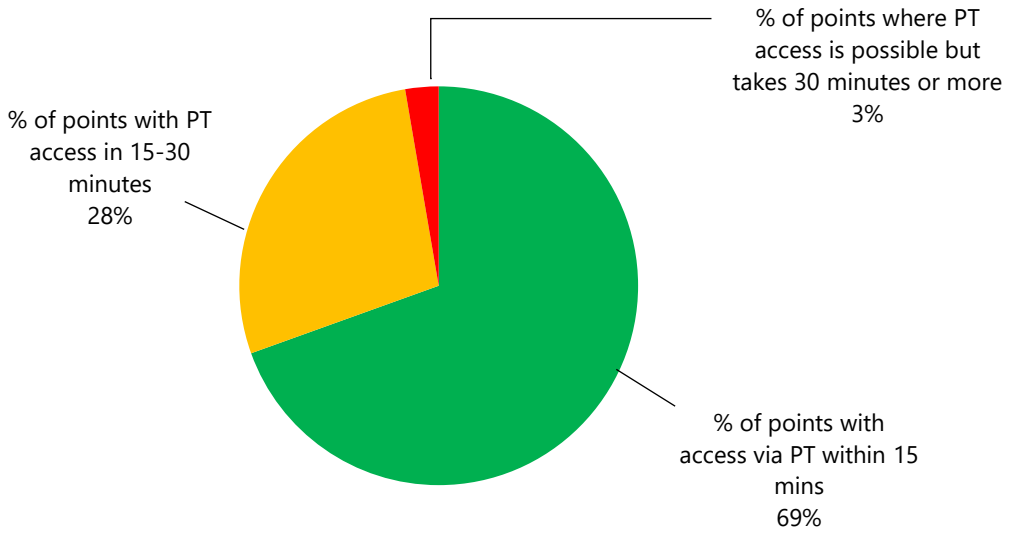


Metric 4: Access to healthcare by public transport

4.5 97% of the origin points in this option area are within 30 minutes travel time of a healthcare site by public transport and 70% can access within 15 minutes. This option has a 'green' rating for this metric.

4.6 Figure 4-15 shows the results for this metric and option area.

Figure 4-15: Metric 4 – Public Transport Access to Healthcare - Option 4

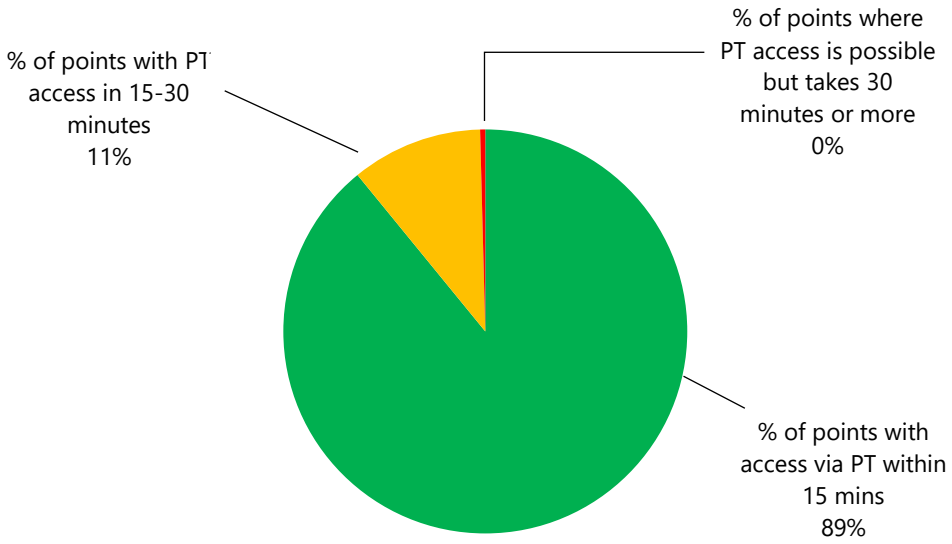


Metric 5: Access to education by public transport

4.7 100% of the origin points are within 30 minutes travel time of the nearest education site using public transport, with around 90% able to access within 15 minutes. This option has a 'green' rating for this metric.

4.8 Figure 4-16 shows the results for this metric and option area. However, it is worth noting that the majority (89%) of the area shows journey times below 15 minutes, which suggests a particularly good level of accessibility.

Figure 4-16: Metric 5 – Public Transport Access to Education - Option 4



Metric 6: Proximity to planned local transport schemes

4.9 Proposed investments within in the Option 4 area, that were identified at the time of the study include:

- Multimodal transport scheme, the MRN A38 BREP.
- Highway schemes from the Bromsgrove IDP (2014), such as M42 Junction 1 / A38 and B4091 (Stourbridge Road) / Barnsley Hall, and MRN schemes on the A456/A450/A491 corridor.
- Public transport schemes include rail improvements to existing rail stations at Alvechurch, Hagley and Wythall as well as enhancements to the Snow Hill line and access improvements from the Solihull connected plan.
- Active transport schemes, the Redditch – Bromsgrove cycle link (NEAT8) and the Upland Grove Park Bromsgrove Link.

4.10 Option 4 has been rated as 'amber' for this metric as there are 15 schemes within the option area. There is an equal number (six) of highway and public transport (rail) schemes, two active mode schemes and one multi modal.

Metric 7: Proximity to high volume origin – destination movement flows

4.11 The alignment of this option to existing high volume movements is similar to option 3. The additional smaller settlements within this option align with fewer movements of significant volume. As with Option 3, the area does not contain an area with a high concentration of origin/destination points (as with Bromsgrove Town Centre) and therefore an 'amber' rating has been assigned to this option.

Metric 8: Proximity to settlement of scale

The option area includes a large number of settlements dispersed across the District. They include larger and smaller villages from the existing BDP hierarchy and several smaller localities and hamlets. Some of these are clustered, but many are small individual settlements with a limited retail / services offering that would support more localised trips. Therefore, this option has been categorised as a 'red' rating.

Option 4 Summary

4.12 This option performs moderately overall, although as per Option 3 existing infrastructure and proximity to facilities is relatively varied, resulting in less sustainable transport outcomes currently.

Table 4-12: Option 4 metric rating summary

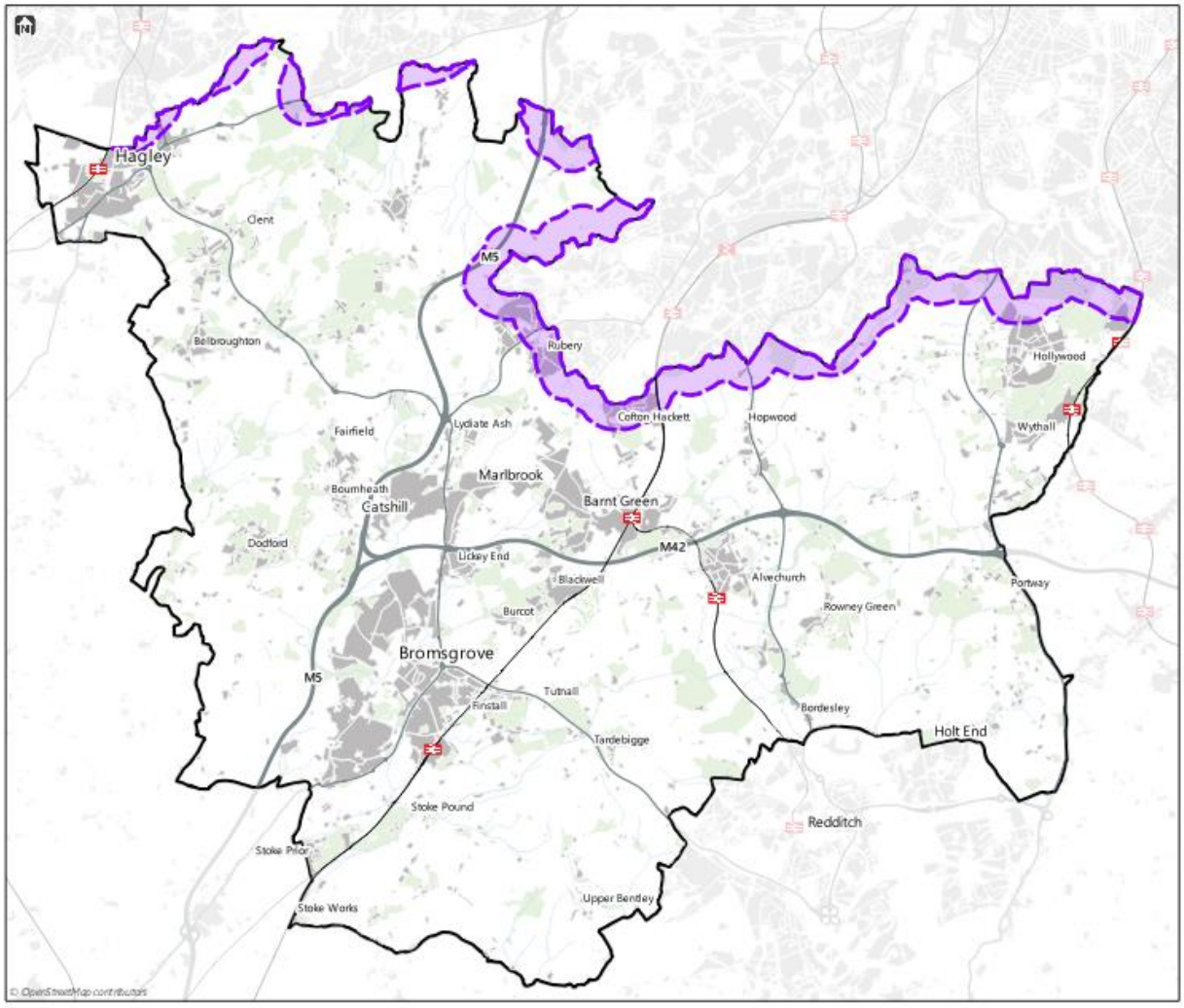
Metric	Rating for Option 4
Metric 1: Average commuter travel mode split from within each growth option area	More than 75% of commuters drive a car or van to work, reflecting the geography of this option with the area including smaller settlements across the District
Metric 2: Proximity to current sustainable transport services and infrastructure that serve key settlements	The option area shows limited high frequency bus and cycle route connections, while rail coverage is more prevalent.

Metric 3: Access to jobs by walking and public transport	Around 50% of the option area has access to strategic employment sites within 30 minutes by public transport.
Metric 4: Access to healthcare by public transport	95% of the option area has access to a healthcare site within 30 minutes by public transport.
Metric 5: Access to education by public transport	100% of the option area has access to an education site within 30 minutes by public transport.
Metric 6: Proximity to planned local transport schemes	Between 10 and 19 proposed transport schemes in the vicinity of the option area
Metric 7: Proximity to high volume origin – destination movement flows	The smaller settlements within this option align with few movements of significant volume
Metric 8: Proximity to settlement of scale	The option includes small individual settlements with a limited retail / services offering

Option Area 5: Development on the edge of the conurbation

4.13 Option Area 5 comprises the area within Bromsgrove District that lies on the edge of the West Midlands conurbation; it covers most of the District's northern border, stretching from Hagley in the northwest to Hollywood in the northeast.

Figure 4-17: Option 5



Metric 1: Average commuter travel mode split

4.14 The average drive to work proportion of output areas within Option 5 is 76.3%. This reflects the nature of the area on the outskirts of the West Midlands conurbation.

Table 4-13: Metric 1 – Option 5 results

Test	Percentage	Category

Average drive to work proportion of output areas within the option area	76.3%	Amber

Metric 2: Proximity to current sustainable transport services and infrastructure that serve key settlements

4.15 This option area has been categorised as 'red'. It has limited (<15%) coverage within 1.5km of a rail station and while almost 30% of the area is within 500m of a high frequency bus route, overall bus coverage is only 50%, lower than most other options. Prevalence of cycle routes in the option area are also limited. The option has been categorised as a 'red' rating overall for this metric.

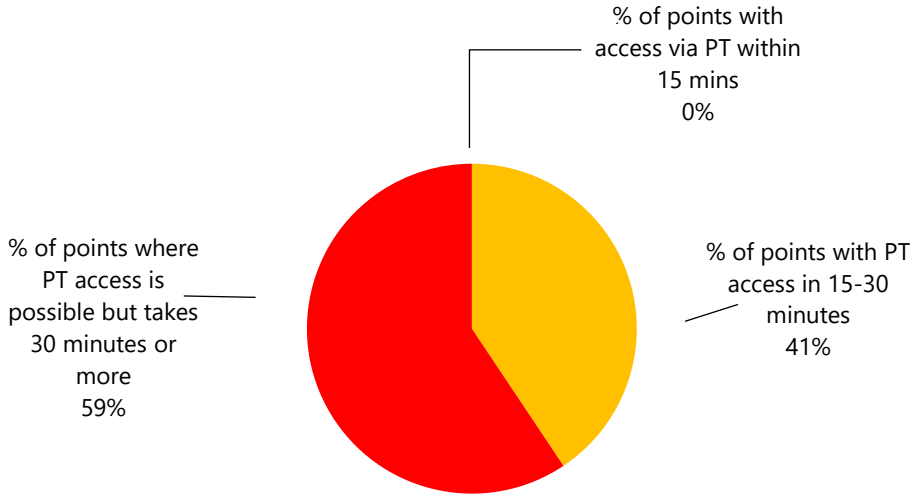
Table 4-14: Metric 2 – Option 5 results

Connection		% of area covered	RAG rating
Rail	Within 1.5km of rail station (from centroid)	13%	Red
Bus	Within 500m of high frequency bus route	29.8%	Amber
	Within 500m of any bus route	51%	Amber
Cycle	Within 400m of National Cycle Network	19%	Red
Overall Metric 2 rating			**Red**

Metric 3: Access to jobs by public transport

4.16 41% of origin points can access a strategic employment site within 30 minutes by public transport. This option sits close to the 'red'/'amber' threshold. None of the origin points can access a strategic employment site by public transport within 15 minutes. This option area has been assigned an 'amber' rating for this metric. Figure 4-18 shows the results for this metric and option area.

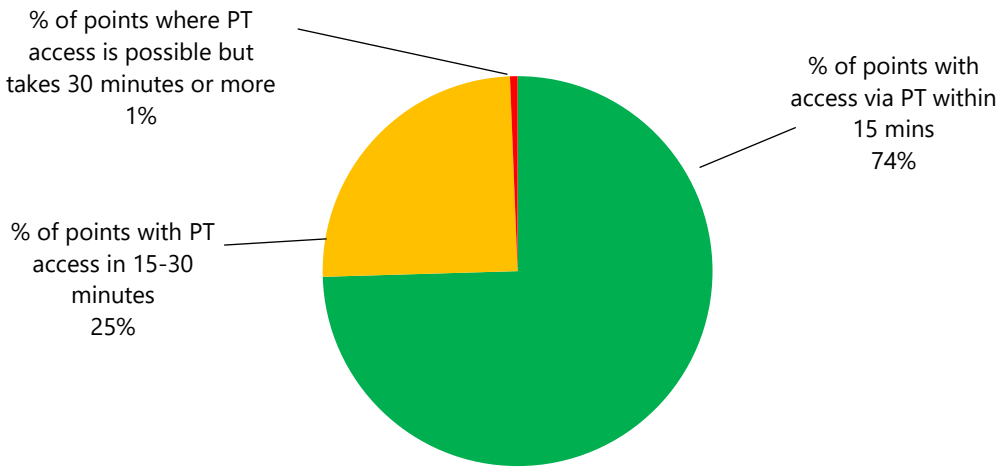
Figure 4-18: Metric 3 – Public Transport Access to Strategic Employment Sites - Option 5



Metric 4: Access to healthcare by public transport

4.17 99% of origin points in this area can access the nearest healthcare site within 30 minutes by public transport, with 75% able to access within 15 minutes. This option has been assigned a 'green' rating for this metric. Figure 4-19 shows the results for this metric and option area.

Figure 4-19: Metric 4 – Public Transport Access to Healthcare - Option 5



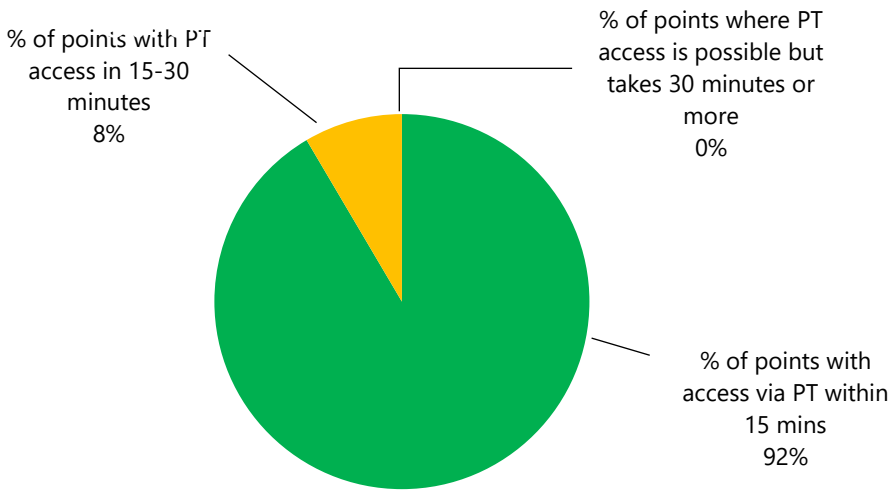
Metric 5: Access to education by public transport

4.18 100% of origin points in this area can access the nearest education site within 30 minutes, with 92% able to access within 15 minutes. This option has been assigned a 'green' rating for this metric.

4.19 Figure 4-20 shows the results for this metric and option area.

4.20 It is worth noting that the majority (92%) of the area shows journey times below 15 minutes, which suggests a particularly good level of accessibility and 0% of journeys are over 30 minutes.

Figure 4-20: Metric 5 – Public Transport Access to Education - Option 5



Metric 6: Proximity to planned local transport schemes

4.21 Proposed investments in the vicinity of the Option 5 area, that were identified at the time of the study include:

- Multi modal transport improvements relating to the Longbridge West development site
- Highway schemes on the MRN, A456/A450/A491 corridor
- Active travel schemes, along A38 towards Longbridge and new strategic cycle route between Dickens Heath and Solihull Town Centre
- Public transport schemes include rail improvements to Longbridge rail station, enhancements to the Snow Hill line, access improvements from the Solihull

connected plan and bus rapid transit scheme, A38 SPRINT between Longbridge and Birmingham

4.22 Option 5 has been rated as 'amber' for this metric as there are 13 schemes in the vicinity of the option area. Many of these (seven) are public transport schemes, with three highway schemes, two active mode and one multi modal scheme.

Metric 7: Proximity to high volume origin – destination movement flows

4.23 Option 5 captures a high degree of high-volume movements to the north of the District, including the TomTom movement along the M5, A441, A435 and A456 corridors as well as Census movements into Birmingham. Considering this, it has been assigned a 'green' rating for this metric.

Metric 8: Proximity to settlement of scale

4.24 This option area includes a number of settlements within 1km, including Stourbridge, Halesowen and Solihull/Shirley. Additional areas within the conurbation such as Longbridge and Northfield are also close by, offering access to a range of existing facilities, including a varied retail and services offering. This helps to support shorter, more sustainable journeys, although investment may be required to support sustainable travel choices to these areas. This option has been assigned an 'green' rating for this metric.

Option 5 Summary

4.25 This option performs moderately well overall, although existing sustainable travel choices are relatively poor.

Table 4-15: Option 5 metric rating summary

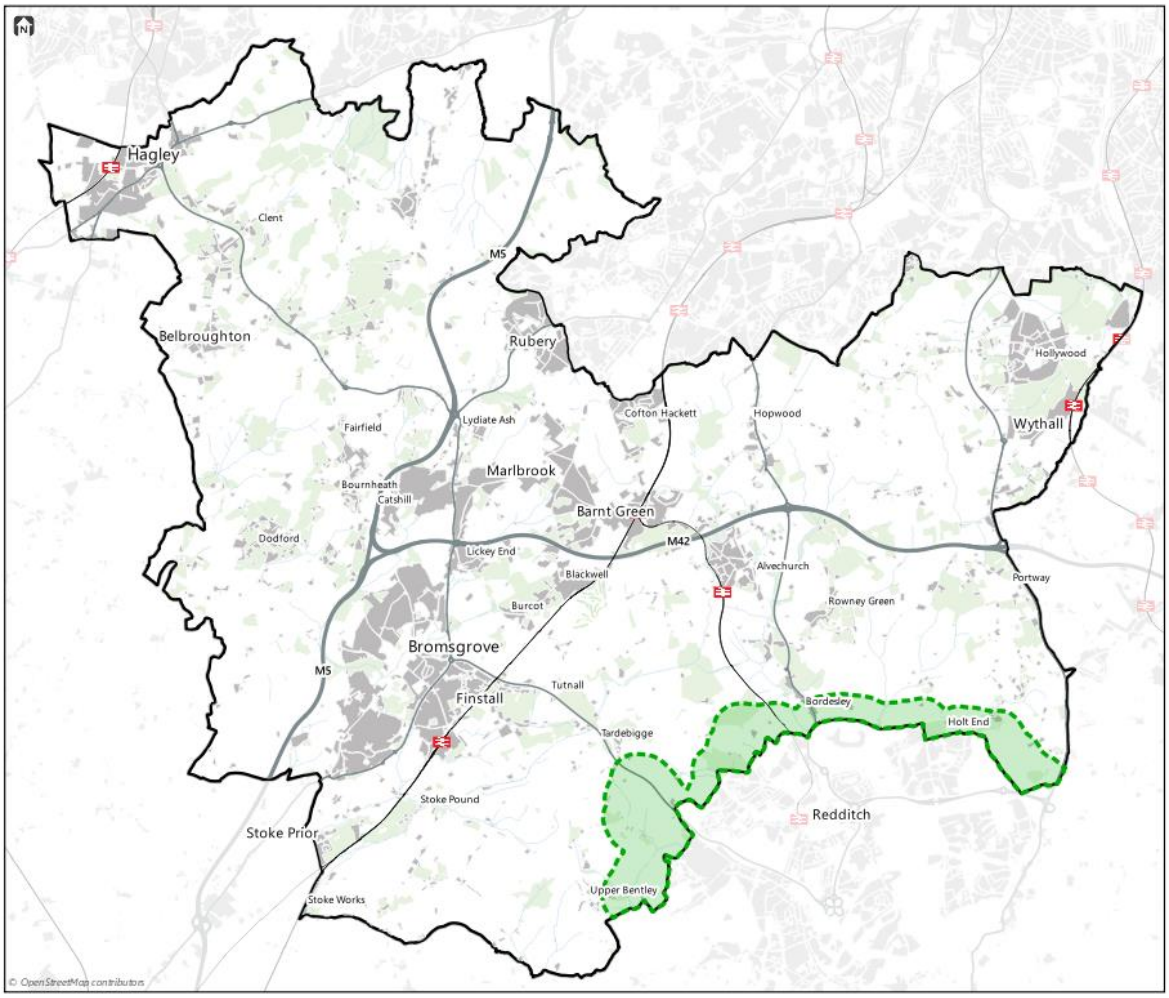
Metric	Rating for Option 5
Metric 1: Average commuter travel mode split from within each growth option area	The commuting mode choice of communities within and surrounding this option area suggest a slightly better than average car mode proportion for the area
Metric 2: Proximity to current sustainable transport services and infrastructure that serve key settlements	The option area shows limited rail, bus and cycle route connections.

Metric 3: Access to jobs by walking and public transport	Around 40% of the option area has access to strategic employment sites within 30 minutes by public transport.
Metric 4: Access to healthcare by public transport	99% of the option area has access to a healthcare site within 30 minutes by public transport.
Metric 5: Access to education by public transport	100% of the option area has access to an education site within 30 minutes by public transport.
Metric 6: Proximity to planned local transport schemes	Between 10 and 19 proposed transport schemes in the vicinity of the option area
Metric 7: Proximity to high volume origin – destination movement flows	The option area aligns with high volume existing movements along major movement corridors, particularly those into Birmingham.
Metric 8: Proximity to settlement of scale	The option area lies on the boundary of the more densely populated conurbation, with a range of facilities within a reasonable proximity to support shorter more sustainable trips.

Option Area 6: Development on the edge of Redditch

4.26 Option Area 6 comprises the area within Bromsgrove District that lies to the north of the Redditch urban area.

Figure 4-21: Option 6



Metric 1: Average commuter travel mode split

4.27 The option has one of the poorest performances against this metric. With over 80% of commuters driving a car or van to work, this option has been given a 'red' rating for this metric.

Table 4-16: Metric 1 – Option 6 results

Test	Percentage	Category

Average drive to work proportion of output areas within the option area	82.9%	Red

Metric 2: Proximity to current sustainable transport services and infrastructure that serve key settlements

4.28 Option 6 scores poorly in relation to this metric. The option area lies around the edge of the existing urban area and thus does not benefit greatly from the radial bus corridors. Only a very small section of the option area lies within 1.5km of Redditch station, with the furthest part of the area over 5km away. Sections of the National Cycle Network (NCN) connect the east and west of the option area to the centre of Redditch.

Table 4-17: Metric 2 – Option 6 Results

Connection		% of area covered	RAG rating
Rail	Within 1.5km of rail station (from centroid)	0%	Red
Bus	Within 500m of high frequency bus route	0%	Red
	Within 500m of any bus route	21%	Red
Cycle	Within 400m of National Cycle Network	34%	Amber
Overall Metric 2 rating			**Red**

4.29 It is considered that significant growth in this area would present an opportunity to establish new bus services and/or extend existing services to benefit new communities as well as existing ones to the north of Redditch.

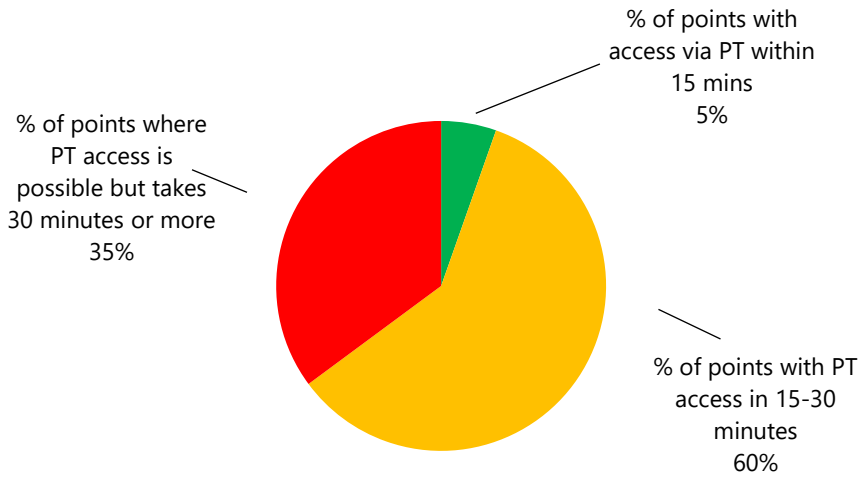
Metric 3: Access to jobs by public transport

4.30 65% of origin points within the option area have a journey time of up to 30 minutes by public transport. This is one of the better performing options for this metric and as such has been assigned a 'green' rating.

4.31 Figure 4-22 shows the results for this metric and option area.

4.32 35% of the origins are over 30 minutes journey by public transport to their nearest strategic employment site, this is lower than many of the options that are categories within the 'amber' rating, such as Options 2, 3, and 5.

Figure 4-22: Metric 3 – Public Transport Access to Strategic Employment Sites - Option 6

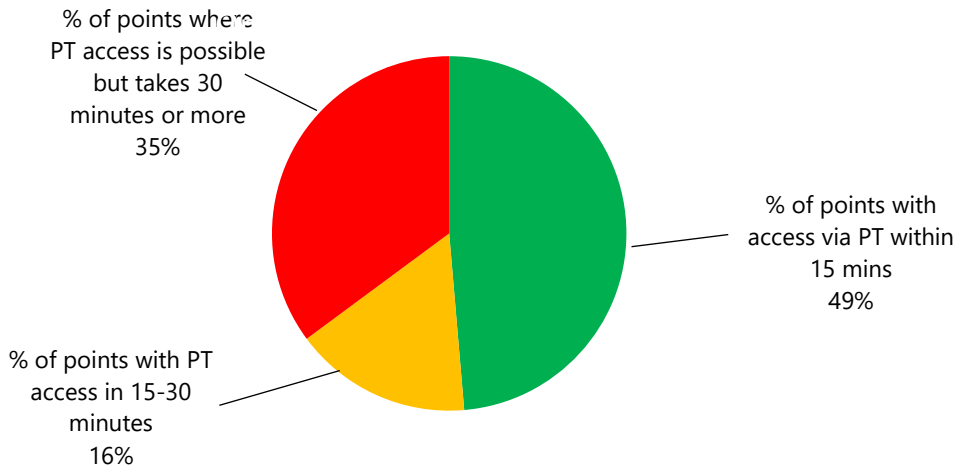


Metric 4: Access to healthcare by public transport

4.33 65% of origin points can reach the nearest healthcare site within 30 minutes by public transport, with 49% able to access within 15 minutes. This option has been assigned a 'red' rating for this metric.

4.34 Figure 4-23 shows the results for this metric and option area. While the proportion of coverage is similar to metric 3, the resulting RAG rating differs due to the relative performance of other options and the likely expectations / willingness of people to travel further to work than to their nearest GP.

Figure 4-23: Metric 4 – Public Transport Access to Healthcare - Option 6

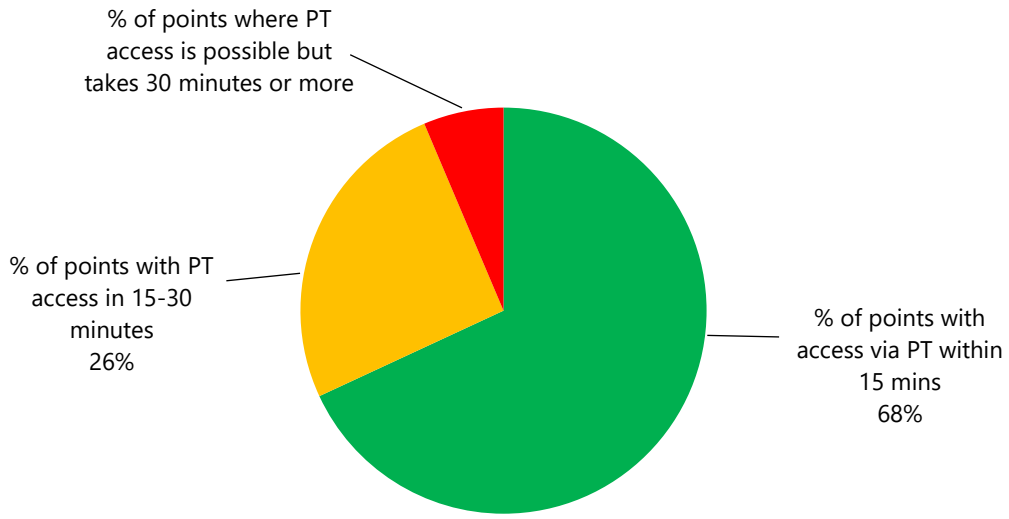


Metric 5: Access to education by public transport

4.35 94% of origin points can access the nearest education site within 30 minutes by public transport, with 68% able to access within 15 minutes. This option has been assigned a 'green' rating for this metric.

4.36 Figure 4-24 shows the results for this metric and option area.

Figure 4-24: Metric 5 – Public Transport Access to Education - Option 6



Metric 6: Proximity to planned local transport schemes

4.37 Proposed investments in the vicinity of the Option 6 area, that were identified at the time of the study include:

- Highway schemes from the Bromsgrove IDP (2014), such as Birchfield Road / Foxlydiate Lane, Brockhill Drive (B4184) / Hewell Road, Bromsgrove Highway / Brockhill Drive, Hewell Road / Windsor Road and Alvechurch Highway (A441) / Middlehouse
- MRN highway scheme A435 / A441
- Active transport schemes, the Redditch – Bromsgrove cycle link (NEAT8) and the Upland Grove Park Bromsgrove Link

4.38 Option 6 has been rated as 'red' for this metric as there are eight schemes within the vicinity of the option area. Many of these (six) are highway schemes, with two active mode schemes.

Metric 7: Proximity to high volume origin – destination movement flows

4.39 There are a number of high-volume movements between the Redditch and Bromsgrove urban areas as well as some from Redditch heading north, through the eastern part of Bromsgrove District. This option aligns with these high-volume movements and therefore has been assigned a 'green' rating for this metric.

Metric 8: Proximity to settlement of scale

4.40 The option area lies close (approximately 1.5km to 5km crow fly distance) to Redditch Town Centre, which is a large population cluster just on the border of Bromsgrove District with a range of existing facilities. This helps to support shorter, more sustainable journeys. This option has been assigned a 'green' rating for this metric.

Option 6 Summary

4.41 This option performs moderately overall, due to good access to jobs and education by public transport and proximity to Redditch and higher volume OD movements. although existing sustainable travel choices are relatively poor.

Table 4-18: Option 6 metric rating summary

Metric	Rating for Option 6
Metric 1: Average commuter travel mode split from within each growth option area	The commuting mode choice of communities within this option area suggest a poorer than average car mode proportion for the area
Metric 2: Proximity to current sustainable transport services and infrastructure that serve key settlements	This option is significantly limited in existing provision of rail or high frequency bus.
Metric 3: Access to jobs by public transport	More than 60% of the option area is within 30 mins travel time by public transport to strategic employment sites
Metric 4: Access to healthcare by public transport	Less than 80% of the option area is within 30 mins travel time by public transport to healthcare facilities

Metric 5: Access to education by public transport	More than 90% of the option area is within 30 mins travel time by public transport to the nearest education site
Metric 6: Proximity to planned local transport schemes	In the vicinity of few than 10 transport schemes
Metric 7: Proximity to high volume origin – destination movement flows	This option area captures the existing high prevalence of movements between Redditch and Bromsgrove urban areas
Metric 8: Proximity to settlement of scale	Area lies close to Redditch Town Centre which offers a range of day-to-day facilities

5. Summary

5.1 Table 5-1 summarises the resulting category for each option and each metric within the framework.

Table 5-1: Assessment framework results

No.	Metric Name	Option 1 - Focussing Development on Bromsgrove Town	Option 2 - Focus Development on transport corridors and locations with good transport links	Option 3 - Focus development on the Large Settlements, as identified in the existing BDP	Option 4 - Disperse development around the District	Option 5 - Focus development on the edge of the conurbation	Option 6 - Focus development on the edge of Redditch
1	Average commuter travel mode split from within each growth option area	A	R	R	R	A	R
2	Proximity to current sustainable transport services and infrastructure that serve key settlements	G	R	A	A	R	R
3	Access to jobs by public transport	G	A	A	A	A	G
4	Access to healthcare (hospitals and General Practices) by public transport	G	A	G	G	G	R
5	Access to education (schools) by public transport	G	G	G	G	G	G
6	Proximity to planned local transport schemes	G	G	A	A	A	R
7	Proximity to high volume origin – destination movement flows	G	G	A	A	G	G
8	Proximity to settlement of scale	G	R	R	R	G	G

6. Conclusions, Recommendations & Next Steps

Conclusions

6.1 The analysis presented within this report provides a high-level view of the transport and movement characteristics of each spatial options. It has identified two option areas that show more potential to deliver sustainable growth, in transport terms. These represent the areas in and around Bromsgrove Town and the edge of the south Birmingham conurbation.

6.2 This analysis has not considered the form of any potential growth within the spatial options and in particular scale, which is an influence on sustainable travel outcomes. This is because larger scale growth can provide more day to day facilities on site, reducing travel demand, while providing higher levels of funding for off-site sustainable transport infrastructure.

6.3 A set of broad recommendations has been developed for each option area; these aim to improve the area's sustainable transport potential based on the outcomes of the metric level analysis.

Recommendations

6.4 Based on the metric rating results, considerations for sustainable transport improvements for each spatial option are outlined below. These will be built on in future stages of the study, where the spatial options are refined further, enabling more detailed recommendations to be made.

Option 1 - Focussing Development on Bromsgrove Town

6.5 While this option performs well in relation to other spatial options there is still considerable scope for improvement, which could include:

- Increasing existing sustainable mode share by reallocating road space within the town towards active and sustainable modes to connect new and existing communities.
- Supporting improved public transport access to jobs by ensuring the area, and new developments are well connected to strategic employment sites.

- Supporting the delivery of proposed transport schemes, particularly the active mode and multi modal schemes along key movement corridors.
- Supporting a range of retail and leisure facilities to ensure Bromsgrove Town continues to be a key trip attractor, supporting more local (sustainable) trips within the District.

Option 2 - Focus Development on transport corridors and locations with good transport links

6.6 This option area has an above average level of car dependency (relative to the District average). The spatial option contains a diverse range of locations, which will have varying transport and movement characteristics. Whilst some of the spatial option incorporates existing settlements, a significant portion covers more rural areas, which have limited existing sustainable travel connections and would require significant investment and focused growth, potentially at scale, to achieve sustainable outcomes.

6.7 There are likely to be areas within the spatial option that perform better than the option as a whole for example, the north-east of the option area near Wythall, the centre of the option area covering Bromsgrove town and extending down toward Redditch; and the north-west of the option area around Hagley. This should be considered when developing refined locations for further analysis.

6.8 Potential interventions to improve sustainable outcomes include:

- Improving sustainable connectivity to existing local rail stations within the spatial option (Bromsgrove, Barnt Green, Alvechurch, Wythall and Hagley) and integrating travel options to make journeys involving rail more attractive.
- Improving the frequency of existing bus services – over 80% of the area is within 500m of a bus route, but less than 20% are near a high frequency service. This could be particularly beneficial on routes that connect any development area to employment opportunities and healthcare.
- Extending the local cycle network to connect development areas within this option to other settlements / routes and/or transport hubs.
- Supporting schemes to reduce car use for short, local trips along key movement corridors (such as the A441 and A435) to create modal shift towards more sustainable modes this could include better provision for inter and intra-urban cycle networks as well as priority for buses to improve the attractiveness of these options relative to using the car.

Option 3 - Focus development on the Large Settlements, as identified in the existing BDP

6.9 This option area has an above average level of car dependency (relative to the District average) and therefore would require significant investment and focused growth potentially at scale to achieve sustainable outcomes. The potential to connect to larger settlements should be capitalised on.

6.10 Potential interventions to improve sustainable outcomes include:

- Improving sustainable connectivity to existing local rail stations within the spatial option (Barnt Green, Alvechurch, Wythall and Hagley) and integrating travel options to make journeys involving rail more attractive.
- Improving frequency of existing bus services – over 85% of the area is within 500m of a bus route, but less than 30% are near a high frequency service. This could be particularly beneficial around locations such as Hagley, Wythall, Alvechurch or Barnt Green, where existing bus services are more infrequent.
- Focusing sustainable transport schemes on routes that connect any new development to employment opportunities could be particularly beneficial.
- Extending local cycle network or National Cycle Network route 5 to connect any development areas within this option to other settlements / routes and/or transport hubs.
- Supporting schemes to reduce car use for short, local trips along key movement corridors such as the A435 towards the conurbation/Wythall and the A38 around Catshill into Bromsgrove and Rubery towards the conurbation, to create modal shift towards more sustainable modes, this could include better provision for inter and intra-urban cycle networks as well as priority for buses on surrounding routes to improve the attractiveness of these options relative to using the car.

Option 4 - Disperse development around the District

6.11 This option area has an above average level of car dependency (relative to the District average) and therefore would require significant investment to achieve sustainable outcomes. Given the dispersed nature of the option, with relatively few existing settlements, it is likely that focused growth at significant scale and with strong connections to larger towns, would be needed.

6.12 Potential interventions to improve sustainable outcomes include:

- Improving sustainable connectivity to existing local rail stations within the spatial option (Barnt Green, Alvechurch, Wythall and Hagley) and integrating travel options to make journeys involving rail more attractive.
- Improving frequency of existing bus services – over 85% of the area is within 500m of a bus route, but less than 30% are near a high frequency service. Improving frequency of bus services in areas where existing bus services are more infrequent, and settlements that do not benefit from rail services currently could be particularly beneficial
- Focusing sustainable transport schemes on routes that connect any new development to employment opportunities could be particularly beneficial.
- Extending local cycle network and/or national cycle route 5 to connect any development areas within this option to other settlements / routes and/or transport hubs.
- Improving sustainable connections between smaller settlements to larger nearby settlements to reduce car use for short trips, particularly those with existing longer distance transport. This could include new/improved cycle connections between Blackwell and Barnt Green, Clent and Hagley.
- Supporting schemes to reduce car use for short, local trips along key movement corridors such as the A435 towards the conurbation/Wythall and the A38 around Catshill into Bromsgrove and Rubery towards the conurbation, to create modal shift towards more sustainable modes, this could include better provision for inter and intra-urban cycle networks as well as priority for buses on surrounding routes to improve the attractiveness of these options relative to using the car.

Option 5 - Focus development on the edge of the conurbation

6.13 This option area has average existing levels of car dependency (relative to the District average) and but would require further investment to achieve sustainable outcomes. Its proximity to the conurbation is a significant opportunity and a likely focus for improvements.

- Increase frequency and extent of existing bus services to serve any new development sites.
- Focus improvements for active and sustainable modes to nearby centres outside the District, such as into Birmingham, Stourbridge, Shirley, Solihull or Longbridge, aligning with key high volume movement corridors wherever possible in order to capture shorter trips by non-car modes.

- Support local, cross boundary cycle route improvements. This could include providing connections with proposed schemes such as the A38 Birmingham – Longbridge improvements and/or A456 Major Road Network scheme.

Option 6 - Focus development on the edge of Redditch

6.14 This option area has an above average level of car dependency (relative to the District average) and has the highest levels of car dependency of all spatial options assessed. Significant investment would be required to achieve sustainable outcomes but its proximity to Redditch is a significant opportunity and a likely focus for improvements.

- The data show a clear need to provide public transport options with any potential development in this area. Extending existing bus services, as well as increasing their frequency would address this gap.
- These should connect the development along key movement corridors, both into Redditch and Bromsgrove.
- Any development should maximise the potential of the national and local cycle routes crossing through this option area, by providing extensions and additional connections.
- Where these support connections to employment opportunities and healthcare these could be particularly beneficial.

Next Steps

6.15 The next stage of the STA (Workstage 3(b)) will build on these findings, overlaying input on land availability from BDC, to assess, in more detail the potential of particular sites within the borough.

6.16 Workstage 3(b) will involve:

- Formal agreement of assessment methodology with BDC
- **Assessment of transport impacts**: Application of the agreed assessment process with a tighter focus upon specific spatial options (these could be specific site and/or clusters)
- **Assessment of additional improvements:** More refined assessment of identified transport network improvements for each site/cluster. Including identifying an outline package of transport improvements that are realistically deliverable and could support the potential allocations of new homes under consideration

- **Assessment of transport accessibility impacts:** sites/clusters combinations of spatial options will be assessed in respect of their accessibility to key facilities, services and destinations by sustainable transport options.

6.17 Workstage 3(b) will be finalised with presentation of the assessment findings for review and feedback. Workstage 4, will form the final stage of the Bromsgrove STA study and will be the completion of a final STA report which will feed into the preparations for the next Local Plan.

Integrated Transport Planning Ltd
Charles House
148 Great Charles Street
Birmingham
B3 3HT UK
+44 (0)121 285 7301

Integrated Transport Planning Ltd
Build Studios
203 Westminster Bridge Road
London
SE1 7FR UK
+44 (0)7498 563196

Integrated Transport Planning Ltd
1 Broadway
Nottingham
NG1 1PR UK
+44 (0)115 824 8250

www.itpworld.net

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