SLR Consulting Limited

Rugby Borough Council

RBC LP Initial Site Analysis

SLR Project No.: 431.000286.00019

19 February 2025

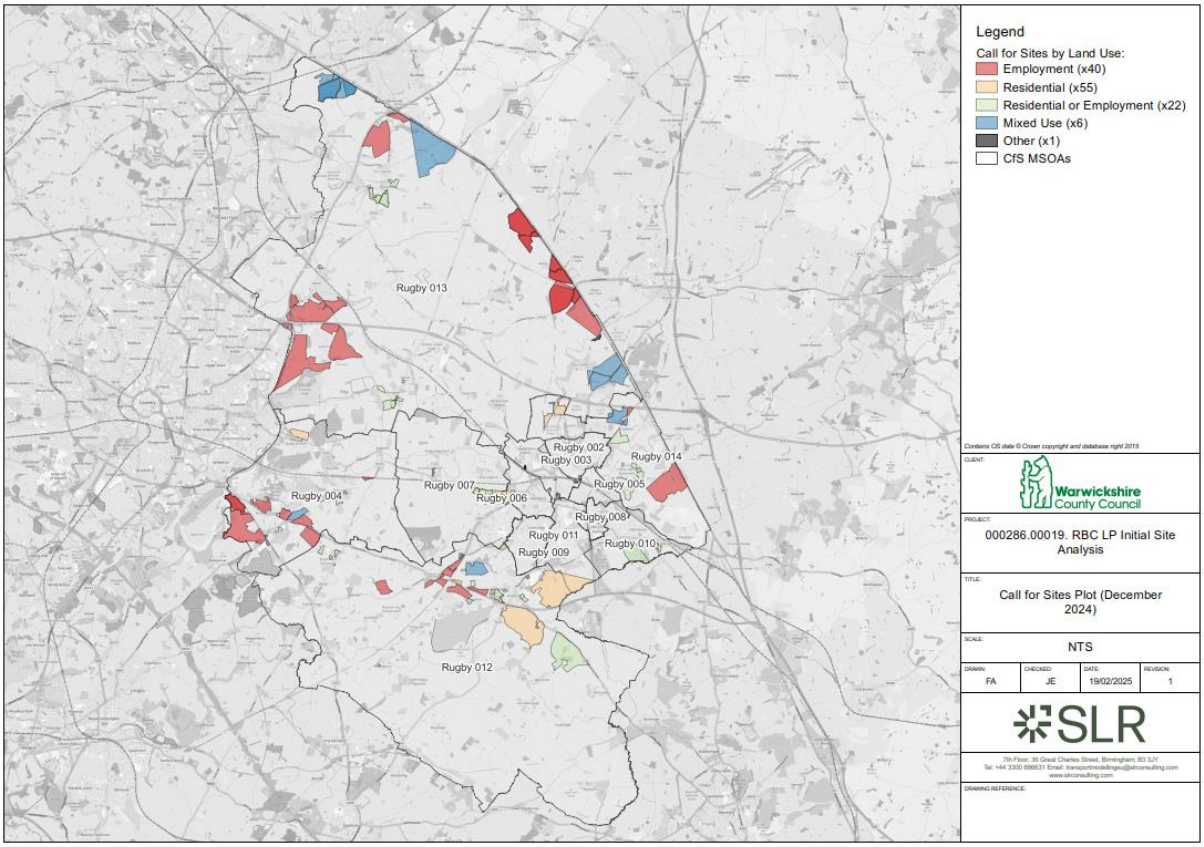
Revision: 02

RE: ANALYSIS METHODOLOGY NOTE

1.0 Introduction

1.1 SLR have been commissioned by Warwickshire County Council (WCC) and Rugby Borough Council (RBC) to undertake an initial assessment of the transport network implications resulting from the delivery of development sites identified by RBC through the Local Plan 'Call for Sites' process.

Figure A: Identified Sites and MSOA Boundaries



1.2 RBC wish to consider the suitability of each of the proposals with regards to the potential impacts on the operation of the transport network. RBC originally provided a list of 323 sites to consider. During the course of the commission some of the sites were ruled out for other reasons and so the list of sites assessed was filtered to 124. These sites and Middle Super Output Area (MSOA) boundaries within Rugby District are illustrated in **Figure A.**

1.3 The work completed and outlined within this technical note forms part of an initial sift of the site proposals and, as such, is a precursor to more detailed analysis to be undertaken to identify the infrastructure requirements likely to be promoted through the Local Plan via the Infrastructure Delivery Plan (IDP).

1.4 The objective of this exercise is to undertake an initial appraisal of the proposed site locations to aid RBC in identifying any sites, proposed to date, which may be constrained by existing transport choice and highway capacity issues prior to them being considered for allocation within the Plan. This has been completed by identifying:

- The existing levels of accessibility to different modes of transport across the study area alongside the development locations;
- How this accessibility may be improved by measures WCC has already identified through the Bus Service Improvement Plan (BSIP); and
- Congestion hot spots on the existing highway network alongside the proposed areas for development.

1.5 This technical note details the methodology adopted for this assessment as well as the high-level results for each key stage.

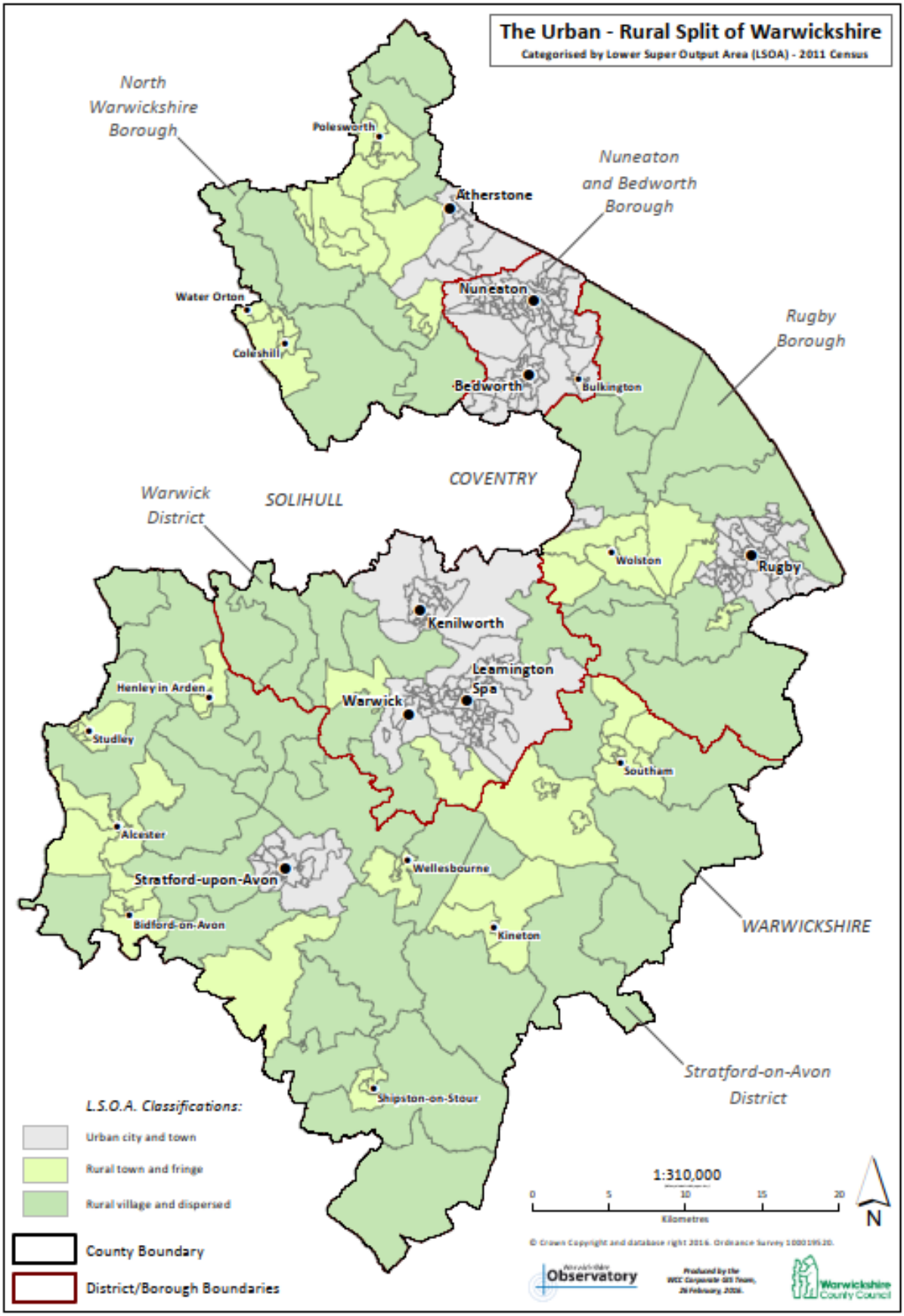
2.0 Initial Site Processing

2.1 As this analysis is a precursor to more detailed work to follow (i.e. through the strategic transport assessment), the 124 sites were initially assigned to Middle Super Output Area (MSOA) regions within Rugby District. This was to ensure that the assessment methods proposed could identify the broad characteristics of the areas anticipated for future development in a simple manner which ensured the level of detail produced, i.e. data tables and maps, could be considered manageable.

2.2 RBC identified a need, in certain circumstances, for a more granular understanding of site characteristics where possible and therefore the sites were further disaggregated to the Lower Super Output Area (LSOA) regions for certain assessments.

2.3 The MSOA and LSOAs assessed have been broken down further by Urban-Rural classification. The following figure shows the urban-rural split by LSOA in Warwickshire which has been made available on WCC's website, aligning with data published by the Office of National Statistics (ONS) recently updated in February 2024. This has been the basis of the MSOA and LSOA Urban-Rural classification.

Figure B: Urban-Rural LSOA Classification Warwickshire



2.4 **Table A** below lists the MSOAs and LSOAs considered throughout the assessment and the number of sites that lie within each:

Table A: Site Assignment

MSOA	LSOA	Number of Sites	Classification
Rugby 002	Rugby 002G	3	Urban City and Town
Rugby 003	Rugby 003A	1	Urban City and Town
	Rugby 003B	2	Urban City and Town
	Rugby 003C	3	Urban City and Town
	Rugby 003D	3	Urban City and Town
Rugby 004	Rugby 004A	1	Rural Town and Fringe
	Rugby 004C	3	Rural Town and Fringe
	Rugby 004D	1	Rural Town and Fringe
	Rugby 004E	13	Rural Town and Fringe
Rugby 007	Rugby 007E	3	Urban City and Town
	Rugby 007J	5	Urban City and Town
Rugby 010	Rugby 010B	2	Urban City and Town
	Rugby 010C	1	Urban City and Town
Rugby 012	Rugby 012B	4	Rural Village and Dispersed
	Rugby 012C	1	Rural Village and Dispersed
	Rugby 012D	4	Rural Village and Dispersed
	Rugby 012E	2	Rural Village and Dispersed
	Rugby 012F	6	Rural Village and Dispersed
	Rugby 012G	11	Rural Village and Dispersed
Rugby 013	Rugby 013A	14	Rural Village and Dispersed
	Rugby 013B	14	Rural Village and Dispersed
	Rugby 013C	13	Rural Village and Dispersed
	Rugby 013D	3	Rural Village and Dispersed
Rugby 014	Rugby 014A	1	Rural Village and Dispersed
	Rugby 014B	4	Rural Village and Dispersed
	Rugby 014D	4	Rural Village and Dispersed
	Rugby 014E	2	Rural Village and Dispersed

2.5 The methodology adopted for this assessment is best presented in three key stages, each of which have resulted in data tables score and rank each MSOA, LSOA and site, to determine which sites, based on our analysis, are more likely to be exposed to increased transport choice through the locale of development and/or less likely to be constrained by congestion, both of which may assist in determining which sites should be allocated through the Local Plan.

2.6 The following sets out each of the stages undertaken alongside the resulting outputs, by stage, thereafter.

Stage 1 – Existing Multi-Modal Accessibility Analysis

2.7 The analysis of existing accessibility levels for each area utilised Mobile Network Data (MND) and TRACC, a multi-model transport accessibility software, to identify how accessible Rugby town and the surrounding areas are using different transport modes.

2.8 MND is travel pattern data procured by WCC for the 2022/23 period, capturing the origin-destination of all trips which intersect the study area, i.e. Warwickshire County, inclusive of trips that:

- Starts and ends within the study area;
- Starts within the study area but ends outside;
- Starts outside the study area and finished within; and
- Starts and ends outside the study area but passes through the study area.

2.9 This data can be disaggregated by the origin, destination, trip purpose, time period and mode of transport. It is available at both MSOA and LSOA level and therefore has been processed for both.

2.10 TRACC is a multi-model transport accessibility analysis software which was developed by Basemap Ltd cooperatively with the Department for Transport (DfT), various local authorities, and transport planners. TRACC was used to calculate Public Transport Accessibility Levels (PTAL) scores for the area and 'Origin-Destination' travel times to and from the MSOA centroids via existing bus services within Rugby District.

Stage 2 – Potential Public Transport Improvement Accessibility Analysis

2.11 WCC have key strategies around enhancing choices around active and sustainable transport within the County. This includes the Bus Service Improvement Plan (BSIP) and the Local Cycling and Walking Improvement Plan (LCWIP) which set out a high-level strategy for how these measures may be improved through future enhancements.

2.12 The second stage of the assessment consisted of the inclusion of future enhancements, such as those identified within the BSIP, within the TRACC accessibility analysis to identify how accessibility around the Borough will improve through delivery of these measures.

2.13 Following the inclusion of the BSIP measures within the TRACC software, the PTAL and O-D calculations were re-run to provide outputs comparable to Stage 1 which can be compared directly to determine where accessibility has improved as a direct result of the inclusion of these measures.

2.14 As this assessment is a precursor to more detailed analysis, only the BSIP measures have been included at this stage. The inclusion of LCWIP measures would likely improve

accessibility within the region on a smaller and more localised scale and therefore would not be as easily interpreted at this stage. Inclusion at this stage would not be as helpful given the assessment seeks to clarify the broad characteristics of the areas proposed for future development.

Stage 3 – Highway Congestion Review

2.15 In addition to the accessibility appraisal set out within Stage 1 and Stage 2, SLR has also assessed how the wider transport network functions. The DfT Inrix data has been used to classify 'problem' areas based on the ratio of speeds/ observed within the peak hours relative to the off-peak periods when one may expect congestion levels to be lower.

2.16 Identifying the area, by disaggregating into key regions such as town centres, edge of town, out of town and rural, also provides a loose indication of how many road users may be affected by the issues currently (which in turn will likely increase in the future).

2.17 Further details regarding the methodology of each stage are presented in the following sections of this technical note:

3.0 Stage 1 - Existing Multi-Modal Accessibility Assessment

3.1 Current accessibility conditions were assessed using MND and TRACC as follows:

Mobile Network Data (MND) Analysis

3.2 SLR has used the most recently acquired MND from WCC for the 2022/23 period to conduct an initial review of travel patterns. This analysis focused on assessing the proportion of different modes of travel and the average distance travelled at the MSOA level. The data was then further disaggregated to the LSOA level for more detailed insights, allowing for a more granular understanding of local travel behaviours and distances.

3.3 The MND analysis for Rugby 003, an urban area capturing the town centre, and Rugby 012, an MSOA classified as rural and dispersed, is presented in **Figures C and D** overleaf. The figures show the proportion of journeys complete which are classified as highways, 'slow mode' (walk or cycle) or rail, alongside the average distances travelled for each mode.

3.4 In the examples provided, there is a higher proportion of travel by rail and active (slow) modes in the urban-classified MSOA of Rugby 003, compared to Rugby 012, which is more rural and shows a greater reliance on highway travel. This aligns with the expectation that built-up areas with better infrastructure and accessibility for sustainable travel tend to have a higher modal share for those modes. In urban areas, the presence of public transport options and infrastructure for walking or cycling encourages greater use of sustainable modes compared to rural areas, where road travel is more dominant due to limited alternatives.

Figure C: MND Travel Mode and Average Journey Distance – Rugby 003

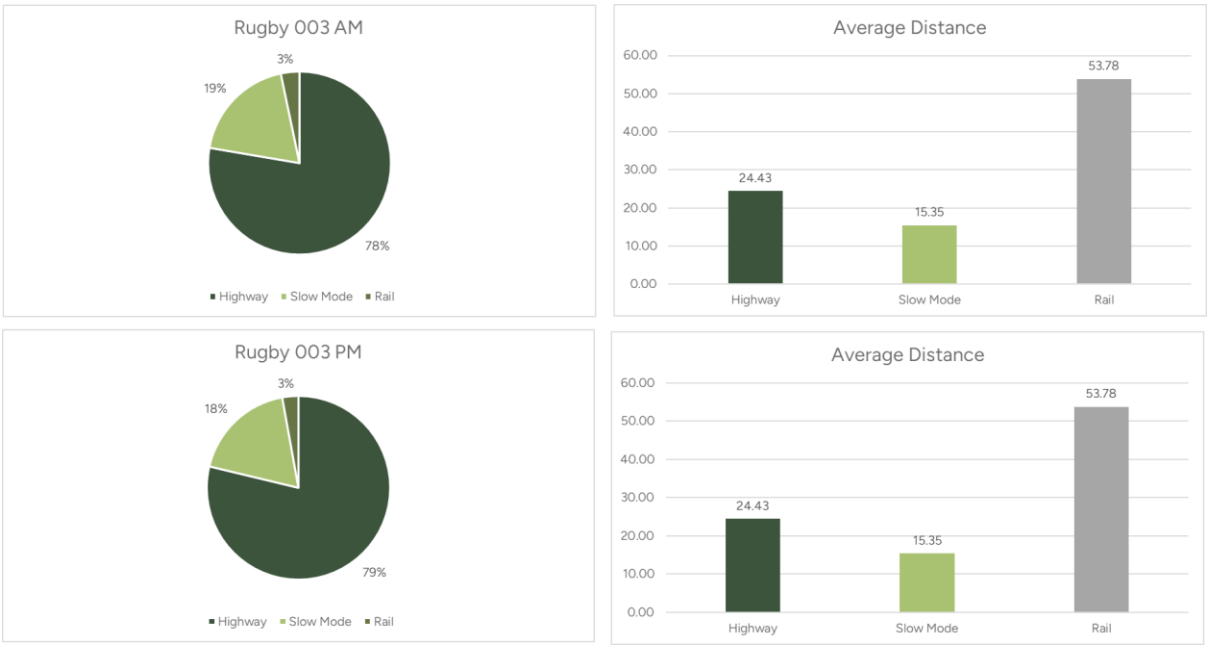
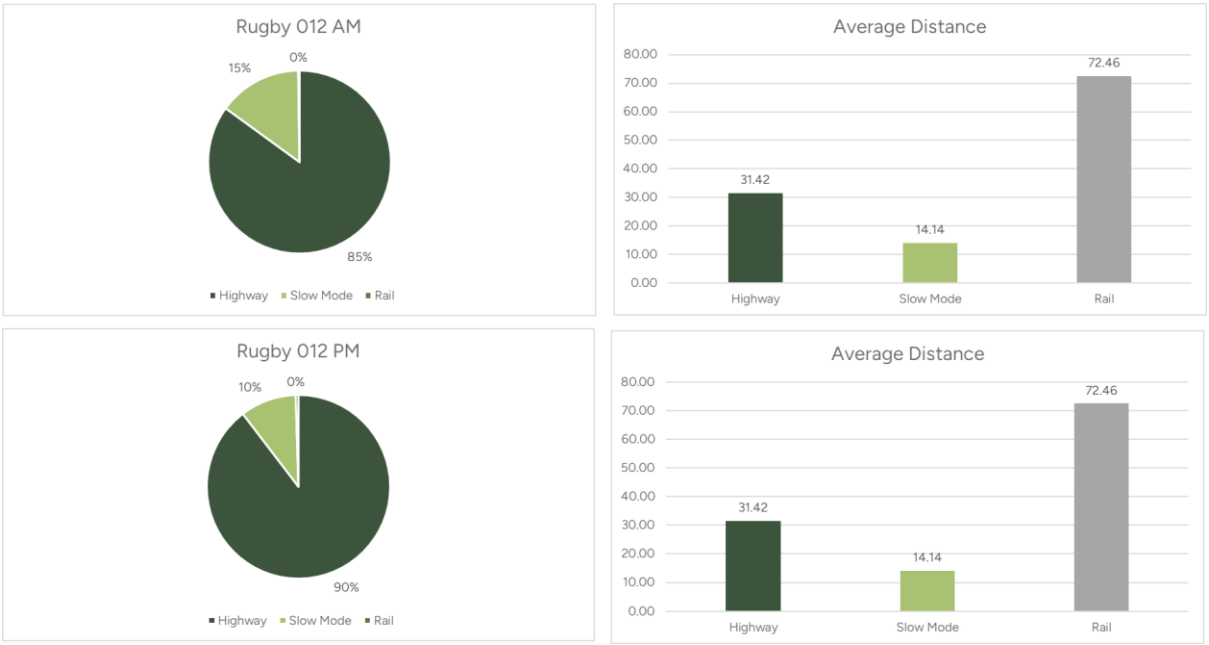


Figure D: MND Travel Mode and Average Journey Distance – Rugby 012



3.5 As noted previously, the MSOAs and LSOAs assessed via MND were classified into Urban City and Town, Rural Town and Fringe, and Rural Village and Dispersed. The distribution of travel modes by classification was summarised for both the AM and PM periods. This approach provided insights into how travel patterns vary across different types of areas, highlighting the modal share for each classification.

3.6 **Figure E and F** present the percentage modal share by urban rural land type for AM and PM periods respectively.

Figure E: Modal Share by Land Classification AM

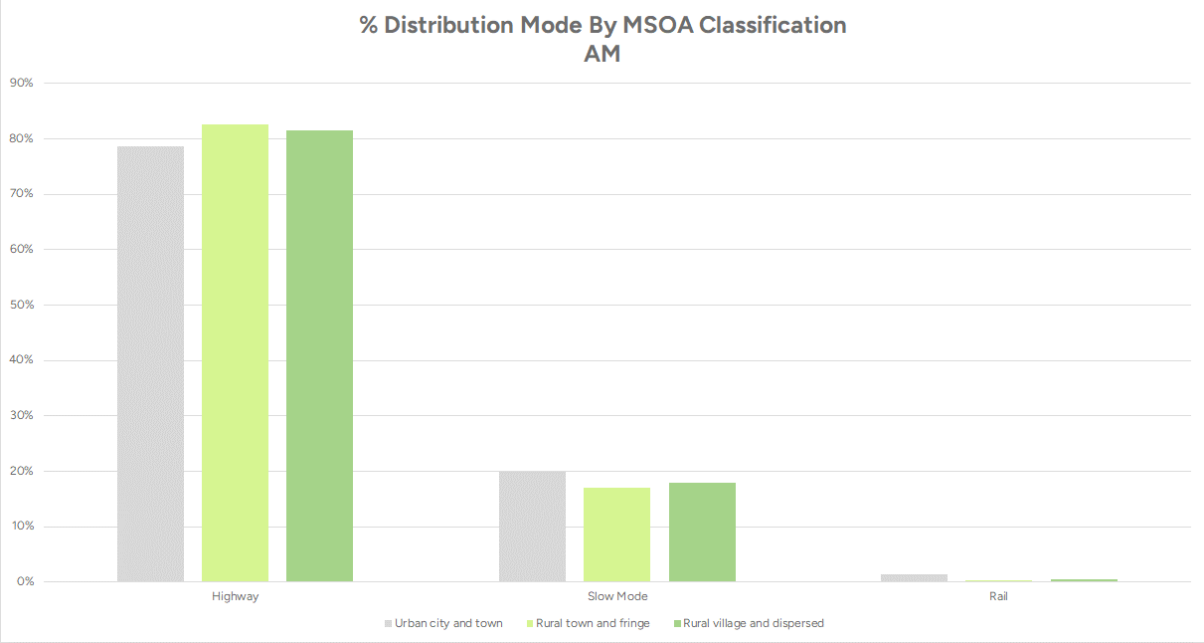
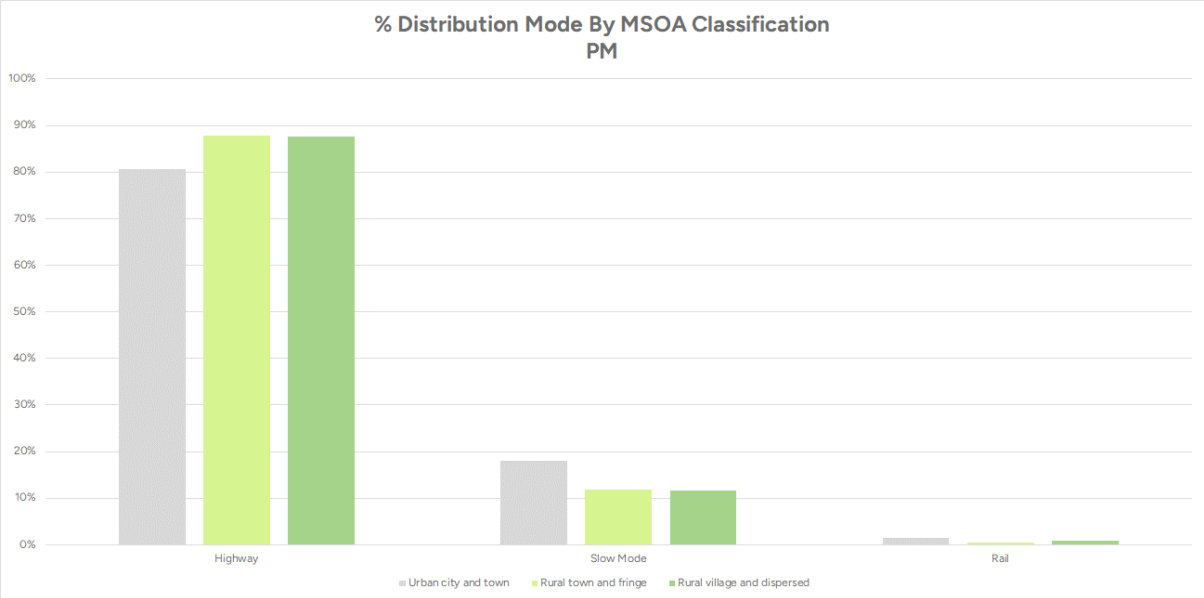


Figure F: Modal Share by Land Classification PM



3.7 The modal share analysis further indicates a higher proportion of active and rail travel in the urban areas, reflecting greater availability of infrastructure supporting sustainable travel modes in those areas.

Public Transport Accessibility Level (PTAL) Analysis

3.8 Public Transport Accessibility Level (PTAL) scores provide a way of grading areas based on a measure of the accessibility of a location to the public transport network, taking into account walk access time and service availability.

3.9 Each PTAL grid square represents the distance to the nearest public transport node and service frequency at those nodes. The result is a grade from 1 to 6 (including sub-divisions 1a, 1b, 6a and 6b), where a PTAL of 1a indicates extremely poor access to the location by public transport, and a PTAL of 6b indicates excellent access by public transport.

3.10 Using the TRACC software PTAL scores across Rugby District have been calculated using public transport data from Q2 (April to June) 2024. The output illustrates area coverage by score for AM and PM periods in **Figures G and H** respectively.

3.11 The PTAL figures indicate that currently there is increased accessibility with proximity to the town centre and along key routes that provide direct access to the urban area, for instance, along the A426, A4071 and A428. This is likely due to high frequency of bus routes and stops which are captured along these corridors.

Figure G: Baseline PTAL AM

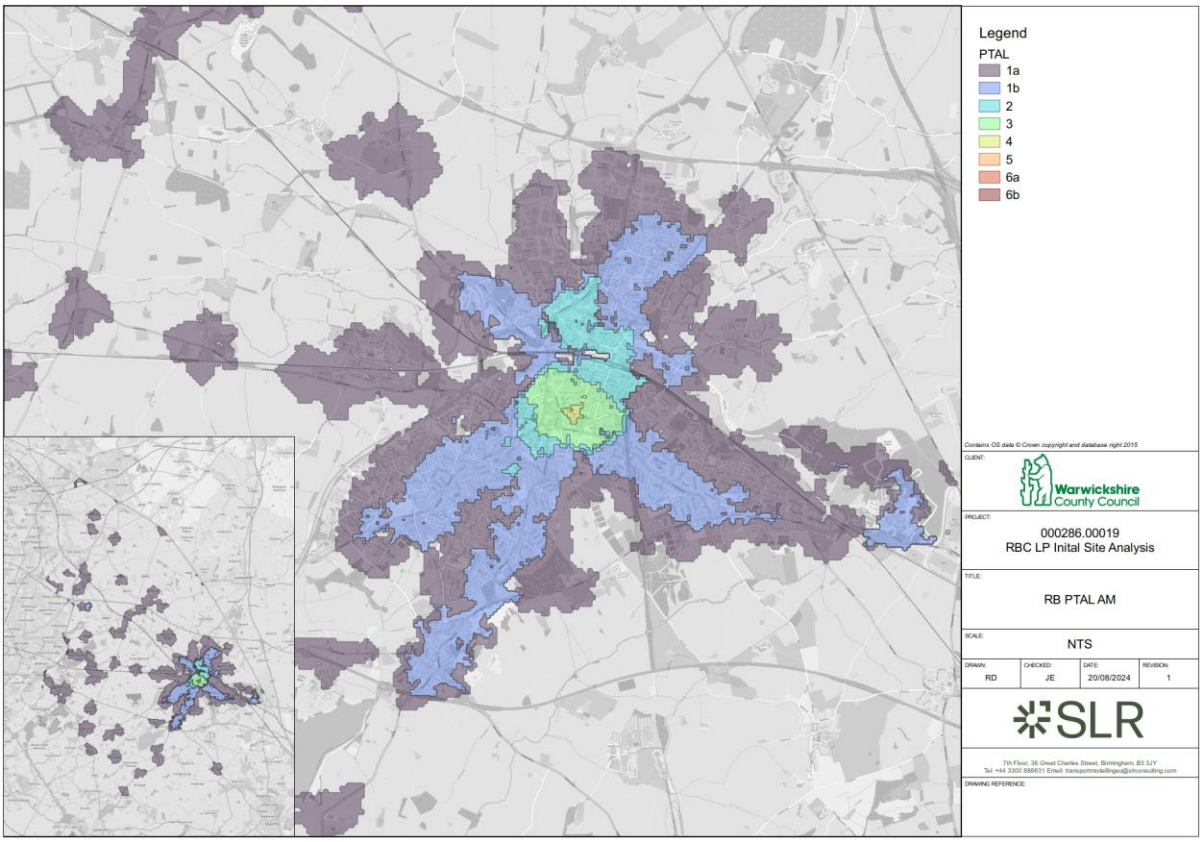
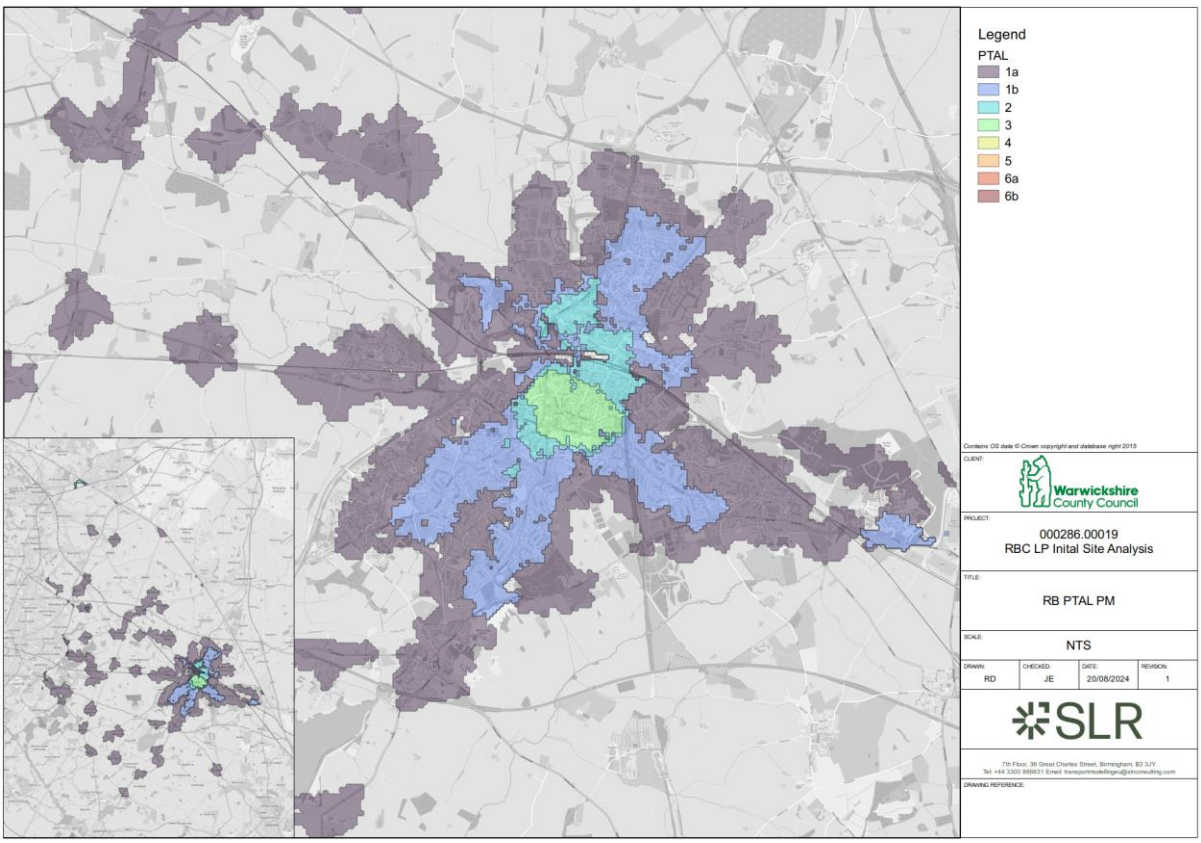


Figure H: Baseline PTAL PM

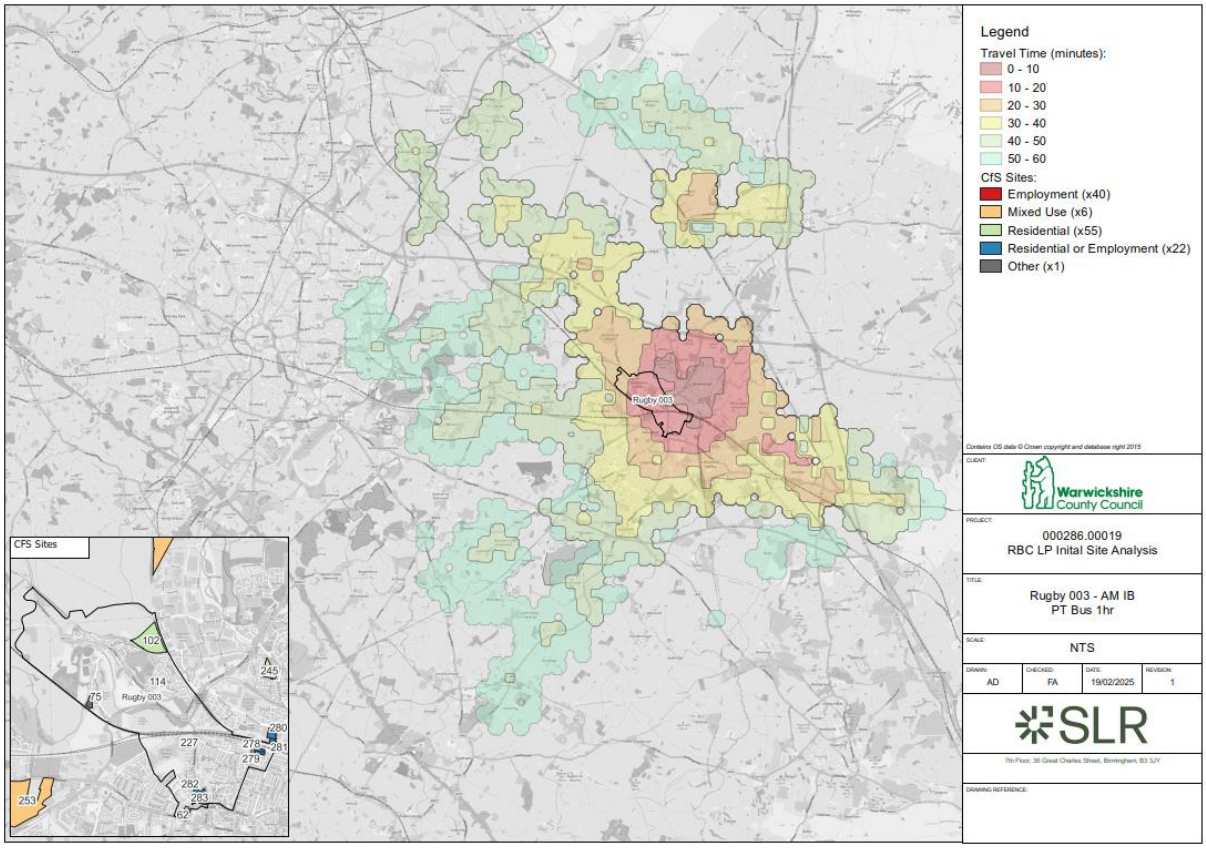


Bus Origin-Destination Accessibility Analysis

3.12 TRACC Origin-Destination calculations have been undertaken to identify areas which are accessible, by bus, to the select MSOA sites within 1 hour during the AM (07:00 to 10:00) and PM (16:00 to 19:00) periods. As per the PTAL assessment, bus service and route data for Q2 2024 was utilised.

3.13 **Figure I,** overleaf, presents a bus travel time contour map which has been produced for Rugby 003. The bus accessibility area visualised indicates Rugby 003, within which the town centre is situated, has a relatively large catchment, capturing areas such as Coventry and Southam.

Figure I: Rugby 003 OD Bus Travel Time Contour Map (60-minute catchment)



4.0 Stage 2 - Public Transport Improvement Accessibility Assessment

4.1 The next stage of the assessment utilised TRACC to analyse the impact of the proposed BSIP measures on the site accessibility scores.

4.2 WCC have provided SLR with the latest information on proposed BSIP measures in Rugby. This has been reviewed to select the key plans which can be considered using the TRACC software including new services and stops, timetable revisions and select infrastructure improvements.

4.3 Adjustments to timetables and additions of new services and stops can be simply replicated within the public transport network input file in TRACC. For the more generalised targets for improved connectivity and patronage in select areas, assumptions have been made to reflect decreased delay. For instance, for a proposal of improved bus accessibility on a corridor by means of a bus gate, time savings can be applied on select services. This is the approach used on services 63 and 86 where a conservative time saving of 2 minutes is applied to replicate a quicker journey.

4.4 The following table summarises the adjustments made to the network and timetable inputs in TRACC to reflect the proposed improved connectivity by public transport.

Table B: BSIP Adjustments TRACC

Service/Stop	Route	Description
4	Brownsover - Elliott's Field Retail Park - Rugby Rail Station - Rugby Town Centre - Bilton - Admirals Estate - Cawston Grange	Following a council review the Sunday services will be revised to run every 30 minutes. Starts 25 May 2024.
4a	Brownsover - Elliott's Field Retail Park - Rugby Rail Station - Rugby Town Centre - Bilton - Admirals Estate - Cawston Grange	A new evening service with later buses supporting those working or socialising in the evening. The last buses from the town centre to both Brownsover and Bilton will now be at 2234
63	Rugby – Southam - Leamington	The morning journey leaving Leamington at 07:04 will leave 12 minutes earlier to help improve reliability during the morning. Starts 1 June 2024
64	Rugby – Southam - Leamington	The morning journey will leave 8 minutes earlier at 0545 from Rugby. Starts 1 June 2024
961	Hillmorton – Rugby	The 0813 will depart at 0810 with more time to complete the journey reflecting local traffic conditions. Starts 1 June 2024
NEW SERVICE	Rugby North (new developments at north of town) - Elliot's Field Retail Park - Rugby Rail Station – Rugby Town Centre – St Cross Hospital - Southwest Rugby developments sites	Circular route in TRACC running 30 mins peak and hourly off peak 6:30-1900 Rugby
63	Rugby – Southam – Leamington – Warwick – Lighthorne Heath – Wellesbourne – Stratford – Evesham	Applied 2-minute time savings on service 63
86	Hillmorton – Rugby – Coventry	Applied 2-minute time savings on service 86
Rugby Parkway Rail Station		Timetable and routing included - direct rail service to London, Milton Keynes, Northampton, Coventry and Birmingham,

5.0 Stage 3 - Highway Congestion Review

5.1 This stage of the study focuses on the initial assessment of the congestion hot spots on the existing highway network and provides an indication of the sites that are situated in in areas of the Borough that could be considered more favourable in terms of localised congestion.

5.2 To undertake this assessment WCC provided SLR with the 2023 DfT Inrix data, this expansive data set provides average travel speeds on each road link observed across Warwickshire's network and comparisons can be made between peak hours relative to the off-peak periods when typically, one may expect congestion levels to be lower.

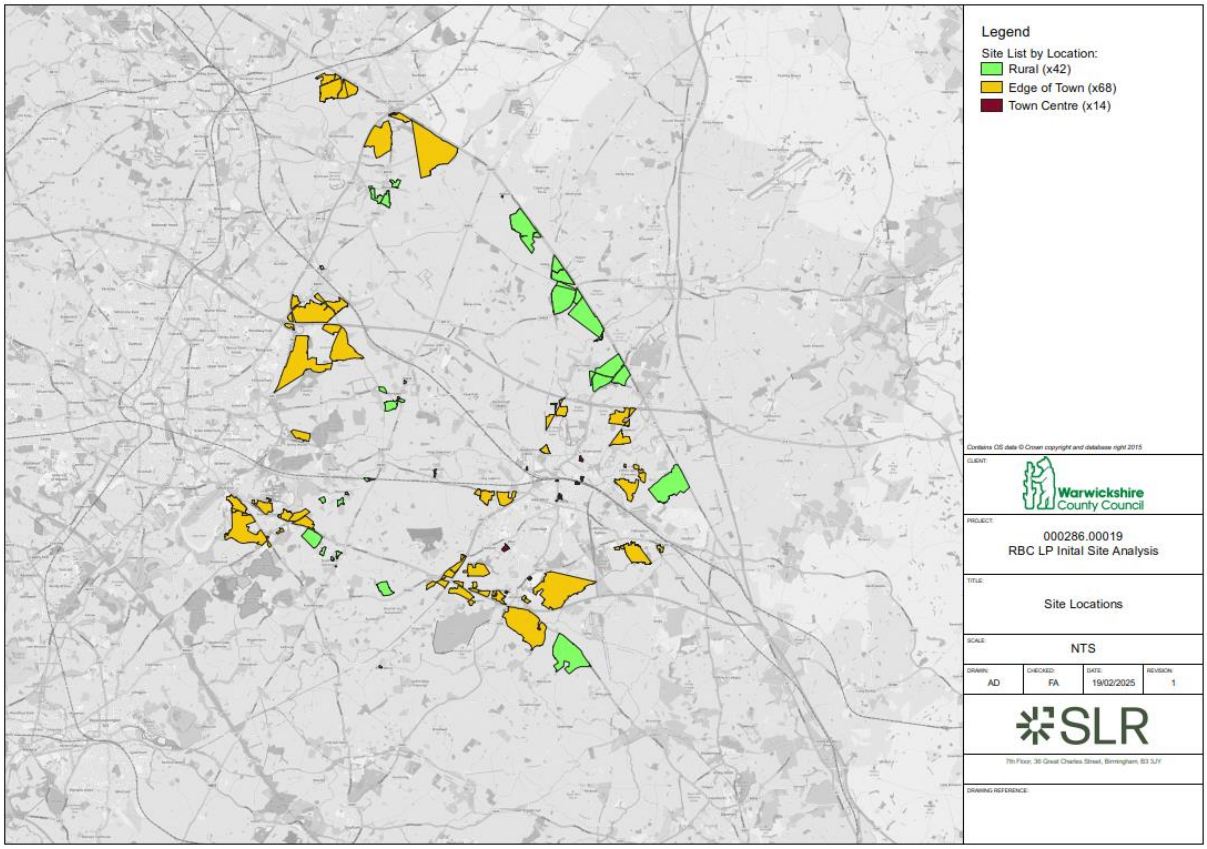
5.3 Due to the size of the data provided, the dataset was trimmed to focus on the road network contained within Rugby Borough boundary with a small buffer area outside of the boundary to ensure that sufficient coverage of the road network is included. Including a buffer area was especially important as some the Local Plan sites identified are located on the Borough's boundary.

5.4 Prior to undertaking the assessment and capturing the individual site congestion areas, SLR disaggregated each site into three key regions these are:

- Town centres,
- Edge of town,
- Out of town/rural

5.5 Each site should be considered in context of its broad location as typically town centre sites would be expected to be closer to areas which experience traffic congestion than sites on the edge of town and rural locations. To overcome this bias assessment further refined each site by location to help identify the least congested site. The following figure outlines the Local Plan sites defined by location.

Figure J: Local Plan Site by Location



5.6 Once the above step was completed, SLR, defined the following distance bands by area type, these were defined to ensure sufficient road network was captured for the assessment and are as follows:

- Town centres, 1.5km
- Edge of town, 3km
- Out of town/rural, 5km

5.7 Location type is an important factor because one would expect more issues to be identified around the urban areas because of higher traffic flows and volume of junctions to begin with. It is important to ensure that this analysis features within the overall appraisal. The following figure provides an example of the buffer area applied to each site type:

Figure K: Buffer Area by Site Type

5.8 For each of the 124 local plan site locations, the above buffer areas were identified and then used to select the surrounding road network containing the Inrix congestion data.

5.9 SLR then selected the average travel speeds, from the selected network, by site for the following hours:

- AM Peak Hour (08:00 to 09:00)
- PM Peak Hour (17:00 to 18:00)
- Free Flow Hour (05:00 to 06:00)

5.10 To normalise the data, across the 124 sites, the average speeds were then divided by the total link length distance selected by each buffer area. This allowed for the comparison of AM and PM peak hour speeds to be compared against the free flow hour speeds on a site-

by-site basis. The output of this was a % Speed Ratio by the AM and PM hour alongside the combined average speed Ratio.

6.0 Assessment Results

6.1 The results of this study are presented in the form of data tables with scoring systems.

6.2 The accessibility analysis stages, Stages 1 and 2, utilise the same scoring system, applied at the MSOA, LSOA and site level where possible, for ease of comparison between the existing accessibility levels and those following the inclusion of the BSIP measures.

6.3 The Highway Congestion Review stage has adopted a bespoke score system applied on a site-by-site basis.

Stages 1 and 2:

6.4 The primary results from this analysis are provided within the Baseline Data Tables[1] and Baseline vs BSIP Measures Data Tables[2] Spreadsheets previously issued to RBC. The scores are summarised at MSOA and LSOA level and further disaggregated to site level. This section provides a summary overview of the assessment, outlining the areas with highest accessibility scores and ranking and how these change with BSIP inclusion.

Scoring System

6.5 Following the disaggregation of the MND and TRACC data sources, a scoring system was applied which ranks the regions and sites by the following:

- **MND Distribution and Distance Travelled by Mode:** Increased distribution for active and sustainable travel modes rank higher. Shorter distance travelled ranks higher for Highway and Slow modes whereas Rail is scored as more accessible for longer distances;
- **Public Transport Accessibility Level (PTAL)**: PTAL Scores increase with accessibility level (0 is low and 6a is high accessibility by public transport), these were then compared in the AM and PM period with a ‘prevalent’ and ‘optimistic’ score considered in the ranking system; and
- **Bus Origin/Destination (O-D) Accessibility:** Area (km²) accessible by bus within a 1-hour time catchment, presented in 10-minute intervals.

6.6 These scores have been allocated to each of the 124 sites based on MSOA/LSOA location. For ease of reporting, the MSOA tables will be presented and discussed within the section to follow.

[1] 000286.SP008b RBC LP Initial Site Analysis - Baseline Data Tables (Refined CfS list).xlsx
[2] 000286.SP010 RBC LP Initial Site Analysis - Baseline v BSIP Measures Data Tables (Refined CfS list).xlsx

Results

MND Distribution and Distance Travelled by Mode

6.7 Following the application of the Stage 1 methodology described above, the MSOAs and LSOAs considered within the MND distribution and distance travelled by mode assessment were ranked. **Table C** below presents the results of the MND analysis.

Table C: Baseline MND Distribution and Distance Travelled by Mode

MSOA	Classification	Number of Sites	Score	Rank
Rugby 002	Urban City and Town	3	40	3
Rugby 003	Urban City and Town	9	34	1
Rugby 004	Rural Town and Fringe	18	62	5
Rugby 007	Urban City and Town	8	67	6
Rugby 010	Urban City and Town	3	39	2
Rugby 012	Rural Village and Dispersed	28	73	8
Rugby 013	Rural Village and Dispersed	44	70	7
Rugby 014	Rural Village and Dispersed	11	47	4

6.8 Rugby 003, an MSOA representing much of central rugby is ranked the highest amongst the MSOAs assessed due to the relatively low volume of highways journeys complete and higher slow mode and rail.

6.9 In terms of the average distances travelled for each mode, Rugby 003 ranked highly for highway journeys but middled amongst the selection for slow mode and rail despite being well located with regards to Rugby train station. Whilst the mode share of rail journeys was high for Rugby 003 these journeys may be shorter and therefore not ranked as highly according to our system.

Public Transport Accessibility Level (PTAL) Scores

6.10 PTAL Scores were determined for each site assessed, these were then collated by MSOA and LSOA to determine the overall score for each region considered. From this the most prevalent score, the score assigned to most of the sites within the MSOA/LSOA, and the most optimistic, the best score assigned to a site within the MSOA/LSOA, were deduced.

6.11 The combination of the most prevalent and optimistic scores informed the final scores and the ultimate rank for each region.

6.12 **Table D** overleaf presents the PTAL scores and ranks for the Baseline scenario, and **Table E** presents the scenario inclusive of the BSIP measures.

Table D: Baseline PTAL Scores

MSOA	Classification	Number of Sites	Score	Rank
Rugby 002	Urban City and Town	3	16	2
Rugby 003	Urban City and Town	9	18	1
Rugby 004	Rural Town and Fringe	18	8	5
Rugby 007	Urban City and Town	8	8	5
Rugby 010	Urban City and Town	3	8	5
Rugby 012	Rural Village and Dispersed	28	9	3
Rugby 013	Rural Village and Dispersed	44	9	3
Rugby 014	Rural Village and Dispersed	11	8	5

Table E: BSIP Inclusive PTAL Scores

MSOA	Classification	Number of Sites	Score	Rank
Rugby 002	Urban City and Town	3	8	6
Rugby 003	Urban City and Town	9	18	1
Rugby 004	Rural Town and Fringe	18	8	6
Rugby 007	Urban City and Town	8	8	6
Rugby 010	Urban City and Town	3	11	2
Rugby 012	Rural Village and Dispersed	28	10	3
Rugby 013	Rural Village and Dispersed	44	10	3
Rugby 014	Rural Village and Dispersed	11	10	3

6.13 **Tables D and E** consistently assign Rugby 003 the best score and overall rank, this is due to 3 sites within this MSOA scoring a PTAL of 3, which is the highest score within Rugby District. Other sites within this region score PTALs of 1b and 2.

Bus O-D Accessibility

6.14 Utilising the shapefile output from TRACC, the km² area accessible by bus within a 1-hour time catchment was determined. The higher the area coverage within each 10-minute interval, the higher the rank. Whilst maximum coverage across the 1-hour period is a positive, the higher coverage in the lower classifications must also be considered.

6.15 **Tables F and G** present the Stage 1 and Stage 2 assessment findings for bus accessibility.

6.16 In the Baseline scenario, prior to the implementation of the BSIP measures, the highest ranked region is Rugby 003. This region ranks first in the AM and PM periods for highest coverage within 20, 30 and 40 minutes. Neighbouring Rugby 002 ranks highest in the 10 minute and 60-minute coverage classifications.

Table F: Baseline Bus O-D Accessibility

MSOA	Classification	Number of Sites	Score	Rank
Rugby 002	Urban City and Town	3	21	2
Rugby 003	Urban City and Town	9	18	1
Rugby 004	Rural Town and Fringe	18	65	6
Rugby 007	Urban City and Town	8	73	7
Rugby 010	Urban City and Town	3	57	5
Rugby 012	Rural Village and Dispersed	28	51	3
Rugby 013	Rural Village and Dispersed	44	91	8
Rugby 014	Rural Village and Dispersed	11	56	4

Table G: BSIP Inclusive Bus O-D Accessibility

MSOA	Classification	Number of Sites	Score	Rank
Rugby 002	Urban City and Town	3	19	1
Rugby 003	Urban City and Town	9	20	2
Rugby 004	Rural Town and Fringe	18	63	6
Rugby 007	Urban City and Town	8	75	7
Rugby 010	Urban City and Town	3	53	3
Rugby 012	Rural Village and Dispersed	28	53	3
Rugby 013	Rural Village and Dispersed	44	91	8
Rugby 014	Rural Village and Dispersed	11	58	5

6.17 With the BSIP measures included Rugby 002 bests Rugby 003 to become the highest ranked MSOA. This is likely a result of the BSIP inclusions which provide better connectivity to Rugby North and Southwest Rugby with several additional services servicing Elliott's Field Retail Park which lies within the region.

6.18 Rugby 013, a rural village and dispersed classified MSOA performs most poorly in both scenarios. This is due to the calculation in TRACC being unable to complete any bus only trips due to the MSOA centroid's location and dispersed natures of the stops and services in the surrounding area.

Overall

6.19 The following tables summarises the MSOAs and LSOAs which contain the sites, ranked by overall accessibility scores within the Baseline and BSIP scenarios. The site-by-site ranking has been appended to this technical note as **Appendix A** for further information.

6.20 The overview provided within **Tables H and I** illustrate that Rugby 003 (central Rugby) remains as the most accessible MSOA by scoring of OD Bus calculation and PTAL outputs.

Table H: MSOA Overall Accessibility Rank Comparison

MSOA	Classification	Number of Sites	Baseline Rank	BSIP Rank
Rugby 002	Urban City and Town	3	2	4
Rugby 003	Urban City and Town	9	1	1
Rugby 004	Rural Town and Fringe	18	6	7
Rugby 007	Urban City and Town	8	8	8
Rugby 010	Urban City and Town	3	5	2
Rugby 012	Rural Village and Dispersed	28	3	3
Rugby 013	Rural Village and Dispersed	44	7	6
Rugby 014	Rural Village and Dispersed	11	4	5

Table I: LSOA Overall Accessibility Rank Comparison

LSOA	Classification	Number of Sites	Baseline Rank	BSIP Rank
Rugby 002G	Urban City and Town	3	2	12
Rugby 003A	Urban City and Town	1	4	3
Rugby 003B	Urban City and Town	2	7	6
Rugby 003C	Urban City and Town	3	1	1
Rugby 003D	Urban City and Town	3	3	2
Rugby 004A	Rural Town and Fringe	1	8	13
Rugby 004C	Rural Town and Fringe	3	9	14
Rugby 004D	Rural Town and Fringe	1	10	15
Rugby 004E	Rural Town and Fringe	13	11	16
Rugby 007E	Urban City and Town	3	12	17
Rugby 007J	Urban City and Town	5	13	18
Rugby 010B	Urban City and Town	2	14	7
Rugby 010C	Urban City and Town	1	15	8
Rugby 012B	Rural Village and Dispersed	4	5	4
Rugby 012C	Rural Village and Dispersed	1	16	19
Rugby 012D	Rural Village and Dispersed	4	17	20
Rugby 012E	Rural Village and Dispersed	2	23	23
Rugby 012F	Rural Village and Dispersed	6	26	27
Rugby 012G	Rural Village and Dispersed	11	18	9
Rugby 013A	Rural Village and Dispersed	14	24	24
Rugby 013B	Rural Village and Dispersed	14	19	21
Rugby 013C	Rural Village and Dispersed	13	6	10
Rugby 013D	Rural Village and Dispersed	3	27	25
Rugby 014A	Rural Village and Dispersed	1	20	5

Rugby 014B	Rural Village and Dispersed	4	21	11
Rugby 014D	Rural Village and Dispersed	4	22	22
Rugby 014E	Rural Village and Dispersed	2	25	26

6.21 Within the Baseline assessment, the results indicate that Rugby 003 is ranked the highest, indicating 'most accessible' using our scoring system, followed by Rugby 002 whereas Rugby 007 currently ranks lowest. Urban/Rural land classification is summarised alongside the scores which shows urban city and town areas are generally scoring higher than the more rural MSOA/LSOAs.

6.22 The results show increased area of accessibility with the BSIP measures included, notably at Rugby North and Southwest Rugby where there is improved connectivity between these development sites. This is shown in the data tables with increased PTAL levels and Bus OD accessibility area within 1 hour for MSOAs Rugby 012 and Rugby 013. This is evident in the mapping where we can see there is a larger area coverage with PTAL scores exceeding 1 with BSIP measures in place and also greater area of accessibility in the Bus OD figures.

6.23 Where scores have been segmented from MSOA and LSOA levels to the 124 individual sites, maps have been produced to visualise the overall ranking for Baseline (**Figure L**) and where BSIP measures have been included (**Figure M**). The sites are ranked by colour with green indicating a positive ranking and red indicating a more negative ranking, The site reference numbers are presented to identify each site, please see **Appendix A** for a key.

Figure L: Overall Rank Baseline

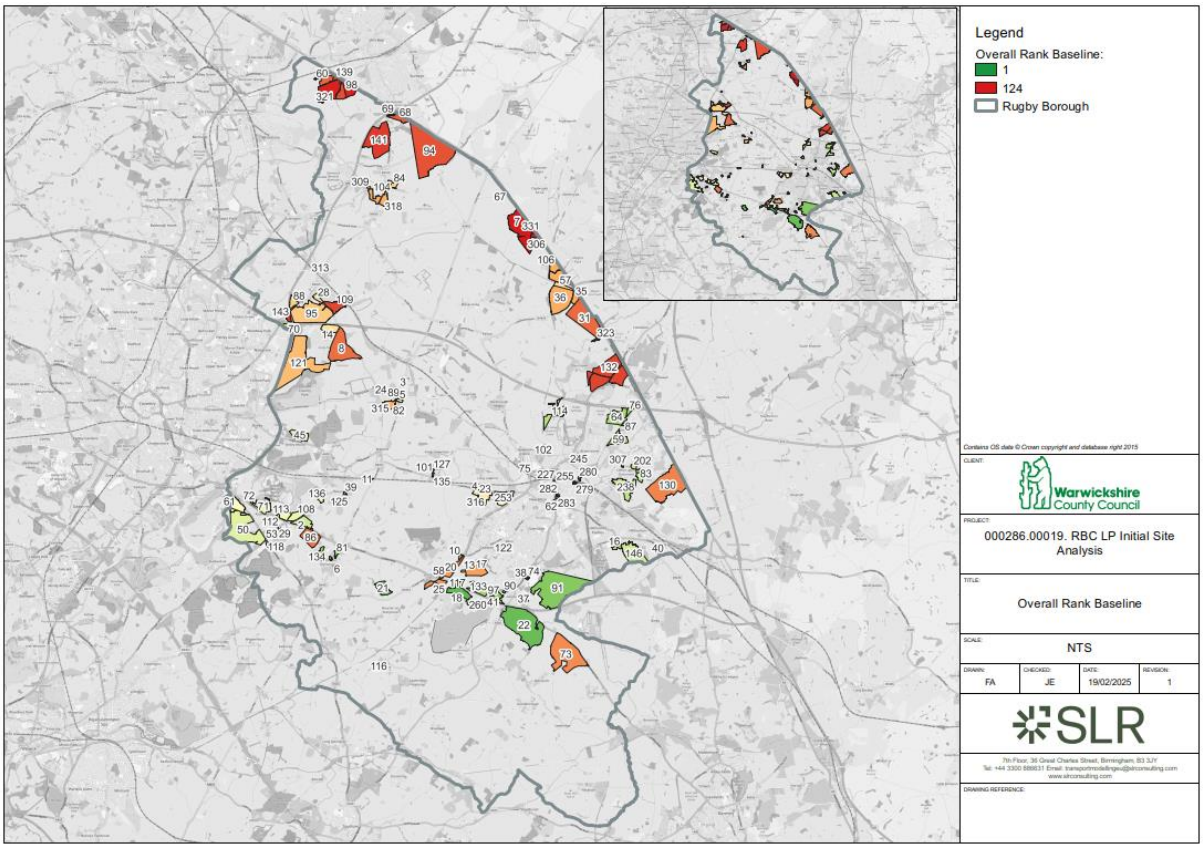
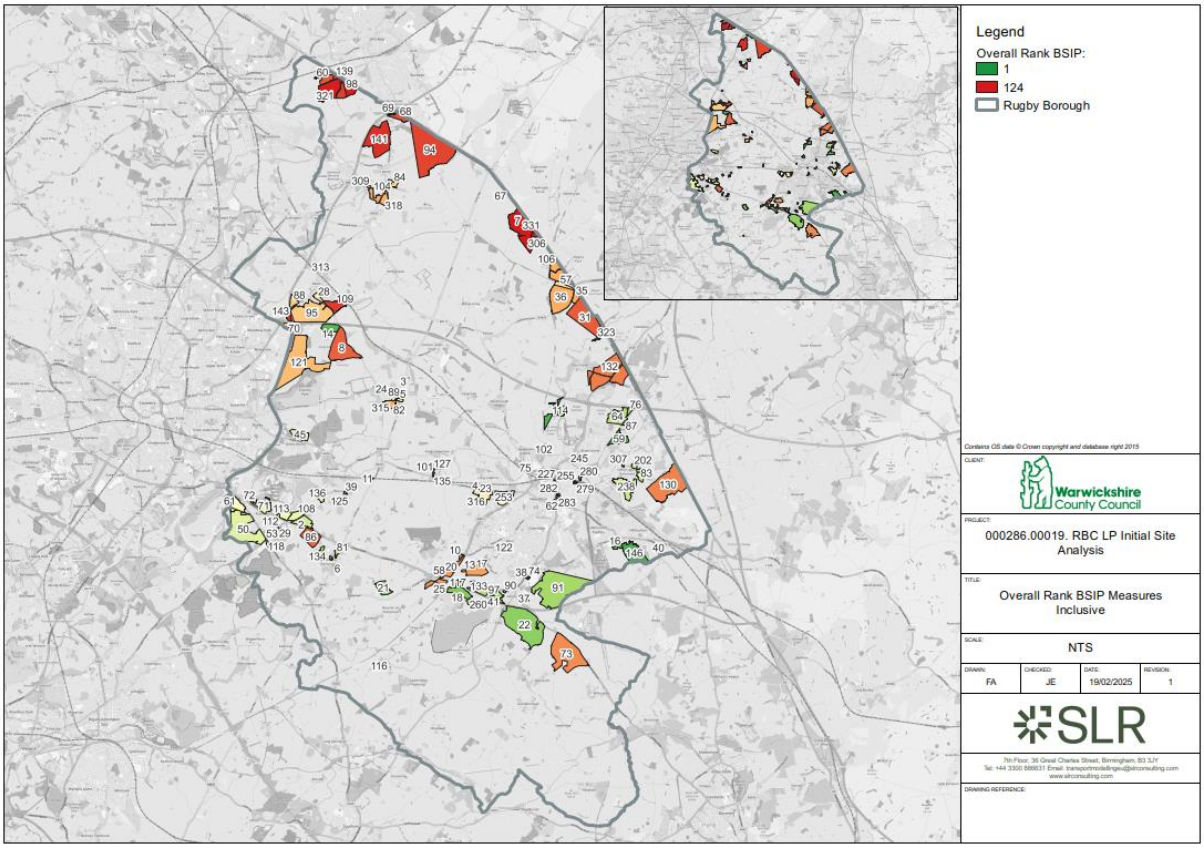


Figure M: Overall Rank BSIP Measures Inclusive



6.24 By comparing the overall rank for baseline and BSIP scenarios, the impact on accessibility levels indicate improved connectivity between key development sites at Rugby North and Southwest Rugby. This is demonstrated in **Figures L and M** where this improved ranking for sites 114 (Land at M6 Junction 1, Newbold on Avon and Long Lawford (strategic Mixed Uses)).

6.25 The highest scoring sites in terms of accessibility are located within Rugby town centre, namely those within the Rugby 002 and Rugby 003 MSOA regions such as site 62 (Morgan Sindall House, Corporation Street, Rugby), 282 (OFF - Former Cemex House and adjacent car park, Evreux Way, Rugby) and 283 (OFF - Rugby Central Shopping Centre, Rugby).

6.26 Additionally, several sites to the south of Rugby, near Dunchurch in MSOA Ruby 012, have also scored highly in terms of accessibility. With several sites, vastly improving as a result of the BSIP measures to be included, i.e. site 122 (Land at Fenley Field, Old Laurentian Rugby Club, Rugby) is ranked 29th in the Baseline scenario however rises to 11th following the BSIP measure inclusions.

Stage 3:

Scoring System

6.27 SLR have assumed an initial grading system based on the initial output data. SLR analysed the initial outputs and created the following 6 score categories by the following ranges:

Table J: Congestion Score Categories

Category	Average Speed Ratio		Number of Sites
6	>80%	<100%	7
5	>70%	<79.9%	23
4	>60%	<69.9%	44
3	>50%	<59.9%	26
2	>40%	<49.9%	23
1	>30%	<39.9%	1
Total			124

6.28 Sites that's score 6 are considered to be the least congested whereas sites that score 1 are considered to suffer from the most congestion based on location.

6.29 The methodology outlined above resulted in an output table of the 124 sites with a congestion score of 1 to 6 assigned. Additionally, three further tables are provided which disaggregated the results by site location type.

Results

6.30 The primary results from this assessment are provided within the supporting Site Ranking by Congestion level spreadsheet. However, this section provides a summary overview of the assessment and provides the top ten sites identified split by site type.

Table K: Top Performing Rural/Out of Town Sites by Congestion Score

Site Ref	Site Type	Site Name	AM Peak Speed Ratio	PM Peak Speed Ratio	Average Speed Ratio	Score
67	Rural	Manor Barns, Wibtoft	93.2%	90.5%	91.8%	6
135	Rural	Land north of Rugby Road, Church Lawford	76.4%	86.2%	81.3%	6
101	Rural	Land south of Church Road, Church Lawford	73.9%	82.8%	78.3%	5
127	Rural	Land north of Church Road, Church Lawford	74.0%	82.5%	78.2%	5
7	Rural	Tythe Platts Farm, West of A5	76.2%	79.6%	77.9%	5
108	Rural	Land off Wolston Lane, Ryton on Dunsmore (strategic Residential or Employment)	76.8%	77.7%	77.3%	5
331	Rural	STRATEGIC - Land at Willey Fields / Tythe Platts Farms (Employment)	72.4%	75.9%	74.2%	5
104	Rural	Land rear of 25 Croft Close, Wolvey	72.7%	70.9%	71.8%	5
86	Rural	Grange Farm, Ryton	71.3%	72.1%	71.7%	5

Table L: Top Performing Edge of Town Sites by Congestion Score

Site Ref	Site Type	Site Name	AM Peak Speed Ratio	PM Peak Speed Ratio	Average Speed Ratio	Score
50	Edge of Town	Prologis Park Ryton West, Ryton on Dunsmore	85.4%	91.3%	88.4%	6
4	Edge of Town	Land West of Lawford Heath Lane, Long Lawford	78.8%	95.6%	87.2%	6
328	Edge of Town	STRATEGIC - Land West of Prologis Park (Employment)	75.2%	88.8%	82.0%	6
72	Edge of Town	Land north of London Road, Ryton on Dunsmore	73.4%	88.9%	81.2%	6
71	Edge of Town	London Road, Ryton on Dunsmore	76.2%	86.0%	81.1%	6
61	Edge of Town	Mountpark Ryton, Ryton on Dunsmore	70.9%	86.8%	78.8%	5
43	Edge of Town	East of Lawford Heath Lane, Long Lawford (strategic Residential)	68.6%	86.5%	77.5%	5
316	Edge of Town	STRATEGIC - Land at Long Lawford (Residential)	68.4%	83.5%	76.0%	5
23	Edge of Town	Land South of Coventry Road, Long Lawford	68.0%	83.3%	75.7%	5
53	Edge of Town	Oxford Road, Ryton	77.5%	73.6%	75.6%	5

Table M: Top Performing Town Centre Sites by Congestion Score

Site Ref	Site Type	Site Name	AM Peak Speed Ratio	PM Peak Speed Ratio	Average Speed Ratio	Score
62	Town Centre	Morgan Sindall House, Corporation Street, Rugby	65.2%	70.1%	67.7%	4
283	Town Centre	OFF - Rugby Central Shopping Centre, Rugby	63.9%	68.8%	66.4%	4
227	Town Centre	PP - Former Newton Vehicle Rentals Site, 117 Newbold Road	65.8%	65.7%	65.8%	4
282	Town Centre	OFF - Former Cemex House and adjacent car park, Evreux Way, Rugby	63.5%	66.8%	65.2%	4
245	Town Centre	PP - Land North of Projects Drive, Rugby	61.0%	58.2%	59.6%	3
279	Town Centre	OFF - Stagecoach Depot car park, Railway Terrace, Rugby	57.0%	56.5%	56.7%	3
278	Town Centre	OFF - Stagecoach Depot, Railway Terrace, Rugby	57.0%	56.3%	56.6%	3
280	Town Centre	OFF - Mill Road Car Park, off Mill Road, Rugby	57.5%	55.1%	56.3%	3

6.31 The preceding three tables identify the top performing local plan sites identified by the congestion sifting methodology outlined within this note. These have been disaggregated by site type.

6.32 As expected, sites located within the rural areas of the borough tend to perform better than Town centre sites, with higher percentage average speed ratios reported.

6.33 Of the Rural/Out of town centre sites, site 67 (Manor Barns, Wibtoft) reported a favourable 91.8% average speed ration when compared to the free flow speeds. The Edge of Town Sites, two sites reported average speed ratios of over 85% these are site 50 (Prologis Park Ryton West, Ryton on Dunsmore) and site 4 (Land West of Lawford Heath Lane, Long Lawford).

6.34 Generally, the Town Centre sites reported lower congestions scores than the Out of Town and Edge of town sites. It is expected that the town centre scores would be more likely to suffer from congestion due to their location, however, conversely you would expect that they perform better when considering accessibility the accessibility assessment. For example the best performing Town Centre site based on the congestion analysis is site 62 (Morgan Sindall House, Corporation Street, Rugby). This site reported Average Speed Ratio of 67.7% and given a congestion score of 4, however, when considering the accessibility analysis this site performed the best on both the Baseline rank and BISP rank, making this site one of the most attractive sites overall.

7.0 Summary

7.1 SLR has been commissioned by Warwickshire County Council (WCC) and Rugby Borough Council (RBC) to undertake an assessment of the transport network implications in delivering development sites identified by RBC through the Local Plan ‘Call for Sites’ process.

7.2 An assessment of existing accessibility conditions and those predicted to result from the inclusion of BSIP measures was undertaken using Mobile Network Data (MND) and TRACC travel time analysis software. The output of this stage of the study consists of a data table which presents the 124 Local Plan sites ranked by accessibility which has been measured by MSOA and LSOA level area coverage of O-D Bus travel time contour and PTAL scores.

7.3 Following the accessibility analysis a highway constraints review was undertaken. For each site SLR have interrogated the 2023 DfT Inrix data to identify the relative Peak Hour congestion compared against free flow speeds. Each site has been considered based location type and adjustments have been made to account for rural sites not capturing large areas of road network.

7.4 The output consists of a table of the 124 Local Plan sites with a congestion score ranging from 6 (least congested) to 1 (most congested). Additionally, the 124 sites have been split into three tables by site location type. This allows each site to be compared based on location type removing the bias between town centre and rural locations.

Appendix A

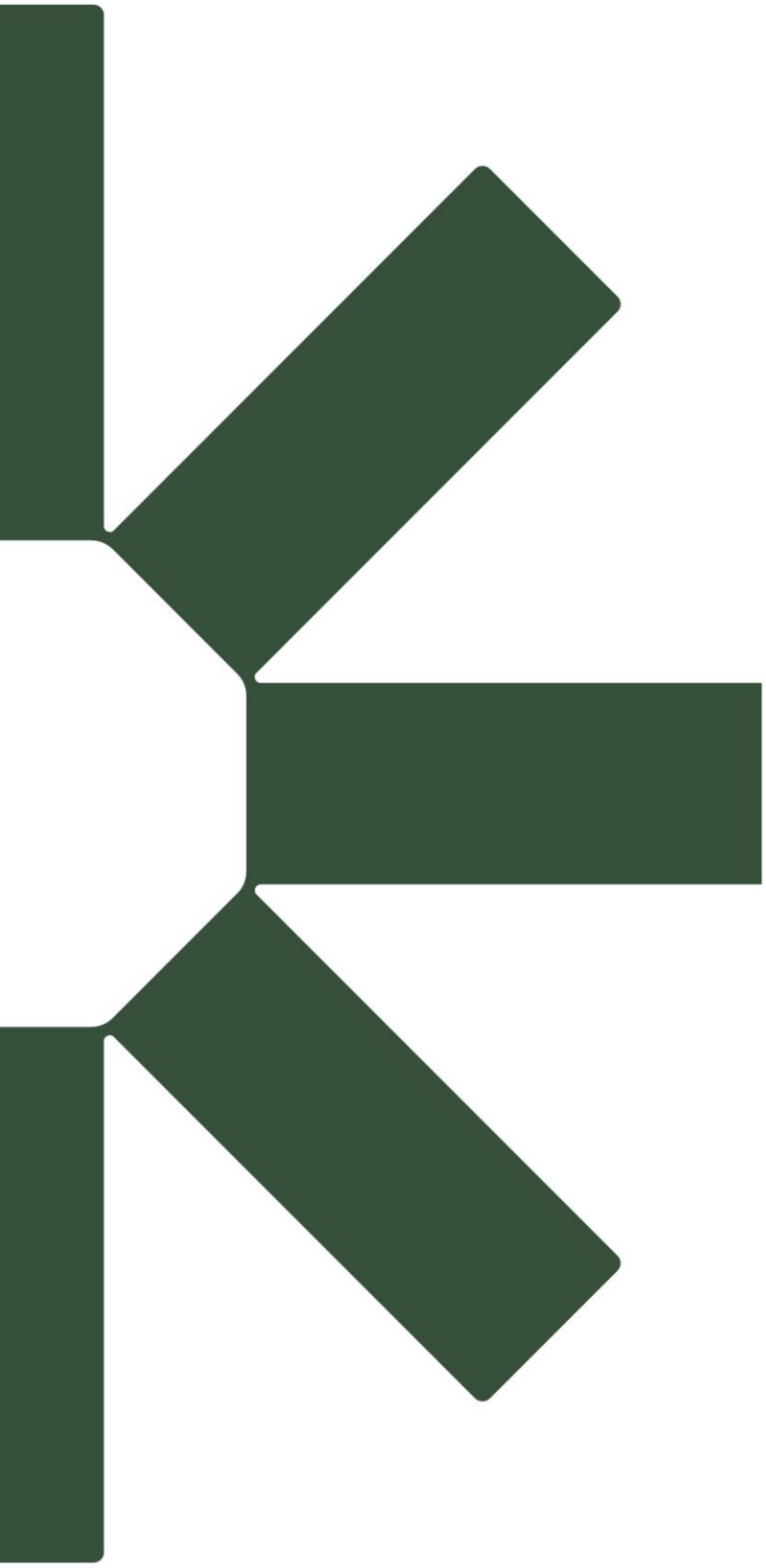
Site-by-Site Overall Accessibility Rank Comparison

Site Ref.	Site	Baseline Rank	BSIP Rank
2	Ryton Fields Farm, Ryton on Dunsmore	47	47
3	Land west of Lutterworth Road, Brinklow	71	71
4	Land West of Lawford Heath Lane, Long Lawford	63	63
5	West Farm, Brinklow	72	72
6	26 School Lane, Stretton	16	24
7	Tythe Platts Farm, West of A5	105	108
8	Land East of Ansty Park, Ansty, Coventry	106	109
10	The Penthouse, Coventry Road, Cawston	94	94
11	The Hall, Rugby Road, Wolston	48	48
13	Station Farm, Dunchurch	95	95
14	Land north of Ansty Park, Ansty, Coventry	73	15
16	Barby Lane, Hillmorton	44	16
17	South West Rugby Safeguarded Land	96	96
18	Barnwell Farm, Thurlaston	17	25
20	Blue Boar Farm, Thurlaston	97	97
21	Boots Farm, Bourton on Dunsmore	18	26
22	Land south of the M45, Dunchurch (strategic Mixed Uses)	19	27
23	Land South of Coventry Road, Long Lawford	64	64
24	Brierleys Farm, Brinklow	74	73
25	Land South of A45, Dunchurch	98	98
26	Brookside, Stretton	20	28
28	South east of Main St, Ansty	75	74
29	Land to the South of Leamington Road	49	49
31	Land at Streetfields Farm, Watling Street, Rugby	107	110
35	Cross in Hand Farm, Monks Kirby	76	75
36	Cross-in-Hand Farm, Willey	77	76
37	Daventry Road, Dunchurch	21	9
38	Drive Field, Bilton Grange School, Dunchurch	11	10
39	Dyers Lane, Wolston	50	50
40	East of Kilsby Lane, Hillmorton	45	29
41	Sandford Way, Dunchurch	22	17
43	East of Lawford Heath Lane, Long Lawford (strategic Residential)	65	65
45	Ruby Road, Binley Wood (strategic Mixed Uses)	51	51

50	Prologis Park Ryton West, Ryton on Dunsmore	52	52
53	Oxford Road, Ryton	53	53
57	North of Coal Pit Lane	78	77
58	North of A45, Dunchurch	99	99
59	Newton Manor Lane, Rugby (strategic Residential)	33	13
60	Moxtons Farm, Hinckley (strategic Residential or Employment)	108	111
61	Mountpark Ryton, Ryton on Dunsmore	54	54
62	Morgan Sindall House, Corporation Street, Rugby	1	1
64	Coton Park East, Central Park Drive, Rugby	34	39
67	Manor Barns, Wibtoft	109	112
68	M69 Junction 1	110	113
69	Land between Hinckley Road and the M69, Hinckley	111	114
70	Land south of M6 Jctn 2, Ansty	35	78
71	London Road, Ryton on Dunsmore	55	55
72	Land north of London Road, Ryton on Dunsmore	103	106
73	Lodge Farm, off Daventry Road, Rugby (strategic Residential)	100	100
74	Lions Field, Bilton Grange School, Dunchurch	12	18
75	Lea Crescent, Newbold	14	23
76	Lane east of Newton Lane, Newton	36	40
77	Land west of Symmetry Park, Rugby	101	101
79	Land west of Medda Place, Thurlaston	23	30
81	Land west of Fosse Way, Stretton	24	31
82	Land south of Rugby Rd, Brinklow	79	79
83	Land south of Lilbourne Road, Clifton on Dunsmore	37	41
84	Land South of Leicester Road, Wolvey	80	80
86	Grange Farm, Ryton	104	107
87	Hillcrest Farm, Newton	38	42
88	Hinckley Road, Ansty	81	81
89	Home Farm, Brinklow	82	82
90	Homestead Farm, Dunchurch	13	19
91	Inwoods Farm and Lower Rainsbrook Farm, east of Dunchurch (strategic Mixed Uses)	25	32
94	Land adjacent to Hinckley Park, south of A5 (strategic Residential or Employment)	112	115
95	Land bound by M69, M6 and B4029, Ansty	83	83
96	Land at Coventry Road, Wolvey (strategic Residential)	84	84
97	Land South of Coventry Road, Dunchurch (strategic Residential)	26	33

98	Land at Elms Farm and Stretton Fields Farm (plot A) (strategic Residential or Employment)	113	116
101	Land south of Church Road, Church Lawford	66	66
102	Land south of Brownsover Road, Newbold on Avon	15	7
104	Land rear of 25 Croft Close, Wolvey	85	85
106	Land opposite MP Lutterworth	86	86
108	Land off Wolston Lane, Ryton on Dunsmore (strategic Residential or Employment)	56	56
109	Land at Hopsford Farm, Ansty	114	117
112	Land off London Road (east), Ryton on Dunsmore	57	57
113	Land off London Road (west), Ryton on Dunsmore	58	58
114	Land at M6 Junction 1, Newbold on Avon and Long Lawford (strategic Mixed Uses)	39	14
116	Land at Marton Road, Birdingbury	27	34
117	Land at Mill House, Dunchurch	28	35
118	Land at Police College, Ryton-on-Dunsmore	59	59
121	Land at Walsgrave Hill	87	87
122	Land at Fenley Field, Old Laurentian Rugby Club, Rugby	29	11
125	Land east of Stretton Rd, Wolston	60	60
127	Land north of Church Road, Church Lawford	67	67
129	Land north of Lilbourne Road, Clifton	40	43
130	Land north of Houlton	102	102
132	Land north of M6 J1 (strategic Residential or Employment)	115	103
133	Land North of M45	30	36
134	Land North of Plott Lane, Stretton on Dunsmore	31	37
135	Land north of Rugby Road, Church Lawford	68	68
136	Land North of Warwick Road, Wolston	61	61
139	Land off A5 Hinckley	116	118
141	Land off Hinkley Road, South side of M69 A5 Jctn	117	119
142	Land off A5, Churchover	118	104
143	Land off Hinckley Road, M6 Jctn 2	119	120
146	Land off Barby Lane (strategic Residential)	46	12
202	Newton Road, Clifton upon Dunsmore	41	44
227	PP - Former Newton Vehicle Rentals Site, 117 Newbold Road	9	8
238	Land off Rugby Rd, Clifton upon Dunsmore (strategic Residential)	42	45
245	PP - Land North of Projects Drive, Rugby	10	20
253	PP - Lawford Fields Farm, Long Lawford (strategic Mixed Uses)	69	69

255	PP - Myson House, Railway Terrace, Rugby, CV21 3LS	4	4
260	PP - Thurlaston Meadows Care Home, Main Street, Thurlaston, CV23 9JS	32	38
278	OFF - Stagecoach Depot, Railway Terrace, Rugby	5	5
279	OFF - Stagecoach Depot car park, Railway Terrace, Rugby	6	6
280	OFF - Mill Road Car Park, off Mill Road, Rugby	7	21
281	OFF - Royal Mail Sorting Office, Mill Road, Rugby	8	22
282	OFF - Former Cemex House and adjacent car park, Evreux Way, Rugby	2	2
283	OFF - Rugby Central Shopping Centre, Rugby	3	3
289	Land at Elms Farm and Stretton Fields Farm (plot B) (strategic Residential or Employment)	120	121
306	Land at Willey Fields Farm, Willey	121	122
307	SC - North Road, Clifton (Site A)	43	46
309	SC - Land North of the B4109, Wolvey	88	88
313	SC - Land north of Shilton, Bedworth	89	89
314	SC - Land south of Rugby Rd, Brinklow	90	90
315	STRATEGIC - Land south of Brinklow (Residential)	91	91
316	STRATEGIC - Land at Long Lawford (Residential)	70	70
318	STRATEGIC - Land south of Wolvey (Residential)	92	92
321	STRATEGIC - Land south of A5 (Residential or Employment)	122	123
323	STRATEGIC - land at Churchover (Residential or Employment)	123	105
325	STRATEGIC - Land adjacent Magna Park (Employment)	93	93
328	STRATEGIC - Land West of Prologis Park (Employment)	62	62
331	STRATEGIC - Land at Willey Fields / Tythe Platts Farms (Employment)	124	124



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