Response to South Warwickshire Local Plan (SWLP) Issues and Options Consultation January 2023

Foreword:

The SWLP is for a 25 year period to 2050. One question we should be asking is: What will the people in 2049 be thinking of those who developed this Local Plan? Will they be pleased or will they wonder at the poor ambitions and insight of those of today?

Chapter 1 - Introduction

We note that the document has not benefited from transport specialist input and, therefore, has a number of shortcomings. It seems to make an assumption that the transportation issues can be left for later, are not difficult to solve, and will not identify any major issues that impact upon the deliverability of the plan. We believe it is the other way around - that identifying the transport links that are practicable and affordable is core to shaping large areas of the plan and should be addressed within it.

Section 1.2 describes the relatively low population density and the good existing, but mainly long-distance, transport links. South Warwickshire is perceived as rural, affluent, and with better transport links than many other parts of the country. In comparison with, for example, Coventry (urban and with areas of deprivation), East Lancashire (post-industrial decay), or North Yorkshire / South Lincolnshire (rural but with poor transport links), South Warwickshire may struggle to compete for Government (levelling-up) funding.

Section 1.8 says that more technical assessments will be commissioned after the Issues and Options consultation has closed. These include a Green Belt Study and Landscape Character Assessment. However these two studies are critical to the allocation of sites process so they are needed as soon as possible.

Chapter 3 - Vision and Strategic Objectives

Both Councils have declared a climate emergency. If this is to be more than just a 'political slogan' it must be the Golden Thread that runs through all the policies in the local plan. At present The Vision has five elements of which 'A climate resilient and Net Zero Carbon South Warwickshire' is just one. The other four elements are laudable but must be subordinate to that one key aim of Net Zero Carbon South Warwickshire.

Unfortunately the 'climate emergency' is glossed over in many places in the document. Set out below are a few examples of a total lack of ambition:

> P21 the fourth element of the vision statement "A well connected South Warwickshire.." that "promotes active travel". In view of the climate emergency should this not read, "gives absolute priority to active travel".
>
> P29 Improving connectivity why does this not express an absolute priority for active travel?
>
> P67 *"Many businesses are reliant on the strategic road network for transporting products, and realistically this is unlikely to change significantly in the near future."* This certainly won't change unless there are ambitious policies in place now to ensure change happens and as rapidly as possible.

P153 penultimate paragraph *"If there is a gradual move away from residents relying on the use of a private car…."* This must not be a question of "if" but how fast can change occur.

The above are just four of countless examples in the document where the wording does not reflect the 'climate emergency'. It is essential that not only the policies drive this key objective but the wording of the whole document reflects the absolute priority of the need to respond to the climate change emergency.

Chapter 4 -Sustainable Development

A number of growth options and new settlement locations are listed. However it is difficult to understand how any of these options can be assessed without having a Green Belt Study or Landscape Character Assessment available. When those studies are completed, they may say that some areas are totally unsuitable for new development.

Q-I-2 We support Option I-2a: Set out infrastructure requirements for all scales, types and location of development.

I4 – Infrastructure Safeguarding

To tackle the climate emergency and create vibrant local communities, the focus must shift from large road projects to developing active travel options locally. Therefore there should be no infrastructure safeguarding for road projects, but there should be safeguarding of land for future strategic cycle routes, for example.

S1 -Green & Blue Corridors

We support Option S1a to identify Green & Blue Infrastructure Corridors now in advance of other information becoming available. It is essential that these corridors be identified now on the basis of existing information as they are strategically important elements to consider when assessing other elements of the Local Plan. (The corridors adjacent to and within settlements have been identified as part of the Settlement Analysis, but important corridors in the open countryside also need to be identified)

S2 – Intensification (density)

The feedback from the first consultation and associated commentary in the current consultation document provides compelling reasons to have strong policies to support intensification. These include increasing active travel, maintaining local services and reducing the need to build on greenfield sites.

We support Option S2a: (Identify areas considered particularly suited to intensification development, and develop a design code for each character area.) This is appropriate as there cannot be a successful generic design code which applies to each location.

S3 – Brownfield development

The urban capacity study identifies relatively little room for growth in the number of residential properties in existing urban areas. Neverthless opportunities may arise over the life of the Plan. For example, a reduction in demand for office and retail space may provide opportunities to reuse these sites for residential. However it should be noted that sometimes if 'brownfield' employment land is used for housing, 'greenfield' land may have to be allocated for existing businesses to relocate elsewhere. So brownfield development is not always the most environmentally friendly solution.

QS-3.2 We support Option S3.2a: (Prioritise brownfield development only when it corresponds with the identified growth strategy, or if it can be proven that the development is in a sustainable location)

S4- growth of existing settlements

Q-S4.1: We support the growth of some of our existing settlements, as long as the proposed development land complies with the principles of the "20-minute neighbourhood ". If existing settlements do not yet have facilities, we support the extension of them as long as new facilities

are provided which follow the principles of the "20-minute neighbourhood " and do not have a significant impact on the area's landscape character. It is essential that these new facilities are completed before other development takes place.
When planning the growth of existing settlements it is important to ensure an engagement of existing local residents in the design process. Presenting an architect's plan as a fait accompli is not the way forward. Consideration should be give to the use of a process using a 'Design Charette' or 'Enquiry by Design' both of which are planning tools that brings together key stakeholders to collaborate on a vision for a new community.

S5- potential for new settlements

Q-S5.1: Finding ways to reduce carbon emissions is vital given the climate emergency. Unfortunately this modelling is inadequate, as effective change in lifestyles have not been considered so that all scenarios are predicted to have almost identical emissions.

Q-S5.2: We support the principle of new settlements being part of the overall strategy, as long as the proposed developments comply with the principles of the "20-minute neighbourhood".

Q-S5.3: We support the principle of rail corridors being one factor to consider when assessing the location of a new settlement. However, other factors should be considered such as the impact on landscape character. Apart from their locations along railway lines, the potential settlement locations shown in the document appear to have been chosen at random, with no other justification.

On Figure 12, the existing rail lines identified on the map have different characteristics. C, D, and F are part of the main-line network and connect into the national system at both ends, the others are branch lines that connect only at one end, so the journey opportunities are more limited. Also, E and G are freight-only, stub-end lines, whose infrastructure is probably not suitable for a passenger service without major investment.
The siting of 'F3' (on the railway line near Fenny Compton) does not match with the wording in table 5 as 'GLH Gaydon Lighthorne Heath' (which is not on a rail line). Please clarify.
Figure 12 and Table 6 shows 'A1' in the area of Wood End/Tanworth in Arden, yet it is referred to as 'Henley in Arden' in table 5. In table 5, Wood End is identified as 'F1', yet this is shown as near Harbury on Figure 12. Please clarify.
The landform / significant changes of level in the Tanworth in Arden area would make it very difficult to fit in new development without severely affecting the landscape character. In contrast, a location at Earlswood Station would appear to be a sustainable possibility as it is a flat site next to a motorway as well as the railway, but this does not appear on the list.

S6- Green Belt

We support development in the Green Belt in locations which are sustainable – i.e. can follow the principles of the "20-minute neighbourhood ".

S7 – Spatial Growth Options

To describe them as Options implies selecting one of them. In reality, the preferred way forward is likely to be a combination of them, but using the Vision and Strategic objectives (page 21) to guide selection. Option 5 (Dispersed) is the least favourable option as it would perpetuate the need for individual travel, particularly by car.
We would hope that the strategic objectives would be to prioritise available resources on enhancing and expanding those settlements large enough to be significantly self-sustaining with houses, jobs, schools, communications, transport links etc., whilst "stabilising" other, smaller settlements. The Vision and Strategic objectives, coupled with available funding, must have

rational outcomes. We think the description of options needs to be followed by a summary of the implications for each settlement location noted. Some of the locations will come across as having strong development potential because of viable existing, and potential, transport opportunities whilst others will not.

Figures 14 and 15: Do the graphs include the embodied energy expended in construction, or just the ongoing emissions? Construction uses a lot of energy/generates a lot of CO2 (e.g. concrete), and is an up-front impact. We would have expected to see some early peaks in the graph.

Option 1 (page 63):
We are surprised that the document says *"at this stage in the plan-making process, no detailed feasibility work has been undertaken around the capacity of existing rail infrastructure or the potential for enhanced or new services. There may be locations identified in these growth options where rail improvements are found not to be feasible, or where the existing capacity could support only limited growth."* This is an admission of a major shortcoming, as the approach to rail transport appears to be cursory.
If rail connectivity is a major factor in deciding on settlements, then some work should have been done to evaluate the practicality. e.g. the Leamington - Coventry line is substantially single-track, and part of the national strategic freight network. Doubling and electrification have been in and out of the strategic rail plan for years, but without much progress, and the line has significant shortcomings for additional services and stations without this investment.
New and improved stations are more likely on the lines currently used by passenger trains (as opposed to freight-only) but, even here there will be detailed analysis needed to determine what is achievable and affordable (the single-platform Kenilworth station cost £14m and the service is only hourly).

Option 2 (page 65): We don't understand the logic. If a smaller settlement has a railway station, and assuming a suitable train service can be provided, then there is no impediment here to development. Again, there is no "detailed" feasibility for dedicated bus corridors, nor any recognition that selective improvements to the road network might enhance the reliability of bus services. This is likely to have some adverse impact on private car users so, perhaps, the writers have ducked this issue.

Option 3 (page 67): this approaches a traditional settlement where people live close to where they work, and have the other amenities they need (e.g. schools) also close by. There will always be people (and goods) who need to travel into and from the settlement, but the mode they choose will depend upon the relative convenience, attractiveness, and cost. Key factors are good public transport (where affordable), and disincentives to using the private car.

S8- Small scale development
We support limited infill within settlement boundaries. This is a well established and successful strategy. We also support small developments adjacent to existing settlements as long as the new developments follow the principles of the “20-minute neighbourhood “.

S9 – Settlement boundaries
We support settlement boundaries for all settlements and adjustment to existing boundaries where necessary as noted above. Defined settlement boundaries give certainty to all affected. However these boundaries need to be informed by the Green Belt Study and Landscape Character Assessment.

S10 -Other development strategy issues

The plan should include a strategy for integrating the South Warwickshire Local Plan into the development of the wider West Midlands region. This is because the duration of the Local Plan is significantly long and within this period currently unforseeable factors may influence the movement of employment and people across the region.

Chapter 6- Homes

Generally – there are several uses of the term 'sustainable communities'. We suggest that the consultation document should include a definition of this phrase.

H1- Numbers

Figure 22 – ends in 2009. The table should be replaced with one which shows the latest figures – government statistics are available up to 2021.The rationale for calculating figures seems to be sound.

H2 – Housing Tenure (affordable housing)

It is noted on page 9 of the document that median house prices in both districts are over ten times average salaries. Given it is only possible to borrow five times a salary this demonstrates the scale of the affordable housing problem in the area. The first step in ensuring an adequate supply of affordable housing is to ensure that the definition of affordable is crystal clear.

The starting point for this is the definition in the NPPF which states, *"Affordable housing: housing for sale or rent, for those whose needs are not met by the market…"*. This is reflected in the definition in the glossary at the end of the document. What is missing at present are the calculations setting at what value or rent a house is considered affordable. This is a critical element as it affects the amount developers are prepared to pay for land. It is therefore essential that the calculations which will underpin the price of what constitutes a genuinely affordable house are established as soon as possible. This can be done regardless of which sites are selected for development.

Question H2-2– Affordable options

We support Option H2-2a: A single South Warwickshire wide affordable housing requirement.

H3- Size of homes

Q-H3 Should local policy include space standards ?

We believe space standards are important. We support option 2 **(**apply Nationally Described Space Standards dependent on being able to evidence a need) and option 3 (include a requirement to include Building Regs standards M4(2) and M4(3) dependent on being able to evidence a need)

H4 – Housing need arising from outside South Warwickshire

We agree that the Local Plan should contribute to meeting housing needs arising from outside South Warwickshire. Shortfalls should be accommodated in the most sustainable locations closest to the area from which the need derives. This may be within the Green Belt.

H5- Self-build options

We support options H5a (Identify a range of specific sites within or on the edge of existing settlements of approximately 5-20 homes in size to be developed only for self and custom build homes.) and H5b (Require large developments of, say, over 100 homes to provide a proportion of self and custom-build homes within the overall site.) Option H5c is not suitable as it would not give the certainty that any plots would be delivered.

We also suggest that both councils advertise the existence of self build sites.

Chapter 7 – 'A climate resilient and net zero carbon South Warwickshire'

The most important part of this section is 7.2 Zero Carbon Buildings. With currently circa 40% of CO2 from buildings (27% domestic and 13% non-domestic) the issue in terms of carbon reduction in relation to the climate emergency is of the utmost importance.

Consider first the definitions included within the glossary of the consultation document. There are three definitions to consider which is quite confusing.

Net Zero Carbon	Having Net Zero Carbon dioxide emissions, either by balancing carbon dioxide emissions with removal, or simply eliminating carbon dioxide emissions altogether.
Net Zero	The point at which the amount of greenhouse gases being put into the atmosphere by human activity in the UK equals the amount of greenhouse gases that is being taken out of the atmosphere. Source: Powering our Net Zero Future. Energy White Paper. Department for Business, Energy and Industrial Strategy. HM Government, Dec. 2020.
Zero-carbon	Where no carbon emissions are being produced from a product/service.

The Net Zero Carbon definition in the Glossary is ambiguous and also not completely transparent. What is meant by *"balancing carbon dioxide emissions by removal"*? Is this allowing offsetting and if so what offsetting is acceptable and what is not acceptable.

The wording "….or simply eliminating carbon dioxide emissions altogether" is much clearer and unambiguous.

As yet there is not a nationally agreed definition of net zero carbon. This is set to change with an initiative launched in 2022 -the UK Net Zero Carbon Buildings Standard. This is being developed by the following organisations with the support of an advisory group of some 500 UK experts. The ambition is to have an agreed definition and a verification process by the summer of 2023.

BBP Better Buildings Partnership · bre · Carbon Trust · CIBSE · The Institution of Structural Engineers · LETI · RIBA Architecture.com · RICS · UK GBC

What is clear from the work of the advisory group is that it is almost impossible to get to net zero carbon using the tools currently within the building regulations namely SAP and SBEM. This fact is actually recognised by Warwick District Council (WDC). The following is an extract from a document included within the submission in 2022 for the WDC Net Zero Carbon DPD:

Warwick DC Zero Carbon DPD
Energy and Sustainability policy review

Rev: 05 - updated 26th April 2022

About the energy performance gap

The energy performance gap is the difference between the predictions for a designed building's energy use, and the amount of energy it actually uses in operation. This gap arises from a combination of three factors:

1. Poor methods used to predict the energy use of a building (including poor calculations, incorrect assumptions, and exclusion of 'unregulated' energy loads)
2. Errors in construction which lead to worse airtightness or thermal envelope

3. Errors in system operation, and user behaviour different to assumptions (for example, residents turning up space heating while opening windows to dry laundry or not using heat system as intended, or spending more time in the building than anticipated, or retail tenants leaving bright lighting on overnight).

Unfortunately, the calculation methods used in Building Regulations Part L (SAP and SBEM) are very poor predictors of the actual energy use of a building. SAP and SBEM are compliance tools, not really tools to predict energy and carbon performance (even though they purport to be). This is not only due to out-of-date carbon factors used for different energy sources, but the entire methodology. This is a key reason for point (1).

For this reason, recalculating SAP on completion[17] will not confirm that the building *performs* to the same metrics as in the SAP output (kWh/m^2 and CO_2/m^2), only that it is *built* as designed in terms of installed specification of insulation, heating system and renewable energy generation. The nation-wide lack of post-occupation energy monitoring means that both developers and planning/building control enforcers are often unaware of the scale of difference between SAP outputs and actual performance.

Point (2) above relates to how imperfections in the construction process can lead to worse energy performance than predicted, even if an accurate energy prediction methodology were used. For example, a building may leak a lot of heat if insulation is incorrectly installed, or if a hatch to a cold loft is put in the wrong place and has to be moved, resulting in unexpected holes in the air tightness membrane. Another risk is that lower-spec products may be used or poor substitutions made in the building – whether for cost-cutting reasons, supply difficulties, or simply because the right person was not available on site at the right time to make the decision within a set deadline.

From the above it is clear that WDC are fully aware that the entire methodology of SAP and SBEM are not fit for purpose as compliance tools now and most especially for the requirements of true Net Zero Carbon. It should be noted that there are experts who are of the opinion that the WDC Net Zero Carbon title for the DPD is both incorrect and misleading.
In order to provide guidance for a true net zero carbon definition the following might be useful:
To understand what is required for true net zero carbon the direction of travel is to get away from % improvements and instead develop what is called an **Energy Use Intensity** (EUI) target. For housing this could be set at approximately 30 kWh/m2/yr. EUI will include all regulated and unregulated energy – i.e. All metered energy.
For low rise housing ALL of the EUI will be met by on site renewables – usually photovoltaic (PV) panels.

For apartments higher rise buildings and many non domestic buildings, it is generally not possible to meet all of the EUI with on site renewables and so appropriate offsetting (not including trees) is allowed. More on offsetting later.

In order to give an insight of how policy requirements will deliver true net zero carbon the following is an extract from the Cornwall Climate Emergency DPD

Net Zero Carbon Homes | Recommended Policy Requirements

Based on Climate Change Committee guidance, which indicates that residual emissions from new buildings should be negligible, the following approach is recommended to deliver net zero carbon new buildings:

Space Heating Demand Limit & Overheating Risk

The energy used specifically for heating is a crucial and simple measure of how well the fabric of the building is performing. Space Heating Demand should be required to be less than 15–20 kWh/m²/yr. The risk of overheating should be assessed as 'Low' using the Good Homes Alliance Tool.

Fossil Fuel Ban and Total Energy Use Limit

There should be no fossil fuels used on site, i.e. no gas or oil boilers in any new properties and no new buildings should be connected to the gas grid.

The predicted total energy use, expressed as an Energy Use Intensity (EUI) should be limited in order to ensure that efficient heating systems are adopted and general energy use is reduced. Total energy use in new houses and flats should be less than 35 kWh/m²/yr.

Renewable energy to match consumption

Photovoltaic arrays should be installed on-site with an output to match the calculated total energy use. In a limited number of cases this may be technically challenging. An energy credit mechanism will be needed to allow developers to pay for the installation of additional PVs elsewhere..

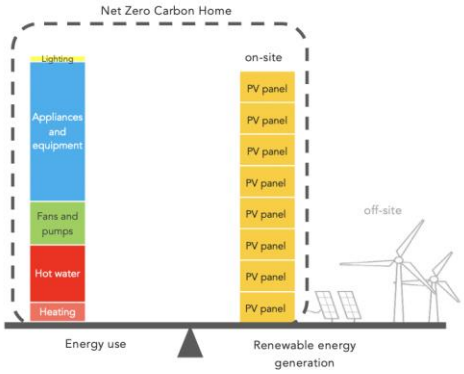
Flexible Power Demand

The home should be flexible in terms of when it needs to use electricity, so demand can be matched to windy and sunny periods. This can be achieved through good fabric efficiency and hot water storage.

Performance Gap

Policy is required to address the performance gap to ensure that net zero buildings are delivered on site. There are various ways this could be achieved.

Etude



A net zero energy balance on site is assumed to provide a reasonable proxy for net zero carbon, on the basis that solar generation displaces the majority of grid emissions that would otherwise occur. Once the electricity grid has decarbonised, a net zero energy balance ensures the energy needs of new homes are balanced by new solar generation, on a site that has already been developed, rather than a separate greenfield site. The example shown is for an efficient house heated by a heat pump. Each yellow block represents the energy produced by a single solar photovoltaic panel.

1	2	3	4	5
Ultra-low space heating demand	No fossil fuels and low total energy use (EUI)	Renewable energy generation	Flexible power demand	Reduced performance gap
15 kWh/m²/yr	35 kWh/m²/yr	Equal to the EUI		

Five key requirements for a net zero carbon ready new home

20200359 | Cornwall Climate Emergency DPD | Feb 21 | Rev J 9

Cornwall Council submitted the Climate Emergency DPD for independent examination in November 2021. The Planning Inspector has confirmed that the plan is sound subject to recommended modifications. The plan can now proceed to adoption on 21st February 2023.

A similar ambitious document has also been confirmed as sound by the Planning Inspector in the Bath and Northeast Somerset Local Plan (BNES). Similar ambitious Local Plans are being prepared by Greater Cambridge and Central Lincolnshire amongst others. All have developed a similar direction of travel towards true Net Zero Carbon.

It should be noted that a seismic change in building standards is underway in Scotland. All new build homes in Scotland will soon have to meet greater levels of energy efficiency after the Scottish Government agreed to progress legislation proposed by Scottish Labour MSP Alex Rowley.
In December 2022 Scottish government ministers announced plans to make all new build housing meet a Scottish equivalent to the Passivhaus standard within the next two years. Work to develop the standard will commence early in 2023, seeking the laying of amending regulations in mid-December 2024. This is a HUGE and potentially game-changing move for building performance, comfort, low energy bills, and climate action in Scotland. Its ripples will extend far beyond Scotland and it is already attracting global attention.

<u>7.1 Large Scale renewable energy generation and battery storage.</u>
The opening two paragraphs set the scene well. However there is no mention of the need to urgently upgrade the capacity of the grid to accommodate the move to heat pumps and the increased requirement for EV charging at home.

<u>Issue C1: Solar and wind power.</u>

Solar farms and onshore wind will be the key areas of focus. The document clearly sets out the need for consideration of the impact of landscape and heritage assets, the loss of agricultural land and the sterilisation of mineral reserves. The latter is not quite accurate as solar and wind farms are not permanent fixtures.
Community support for these projects will be important. However local communities will benefit from a reduction to their cost of electricity for the time that the development is in place. This may provide a driver for certain communities to ask for solar farms and on shore wind developments. There are also a small number of community wind schemes (e.g. Ripple Energy) where the public have the opportunity to buy shares in a wind farm and get a return in reduced electricity costs.

What is not mentioned are the significantly large areas of roofs on both residential and non residential buildings that could be equipped with PV. This could include schools, warehouses, public buildings etc.We suggest that the Plan should include a policy that all new buildings are equipped with appropriate levels of PV panels. As stated earlier, this should at least provide the electricity to match the EUI and where possible additional panels to aid EV charging.

Issue C2 Decentralised energy systems.
The current expert thinking for true net zero carbon low rise housing is that decentralised energy is **not** appropriate as it is basically not needed.

Decentralised energy is a possible solution for the deep retrofit to true net zero carbon standards for existing domestic and non-domestic buildings. A good example is the use of the 'waste' heat from the Coventry incinerator being used to heat existing buildings in the city.

Combined Heat and Power (CHP) is a solution that can be considered for non domestic buildings such as civic amenity buildings, Leisure and Sports Centres. However as the main aim is to remove fossil fuels for the generation of energy, consideration should be given to first significantly reduce the need for energy using the Passivhaus Standard or equivalent as has been achieved by Exeter City Living with the recent construction of St Sidwell's Point Leisure centre.

Issue C3 Carbon Sequestration.
The information provided on carbon sequestration is correct but there needs to be a separate section on Offsetting. Offsetting policies will be very important most especially to ensure that they are not abused by developers.
There is no definition of Offsetting in the Glossary and this must be addressed.
Carbon emission offsetting is quite a wide subject and takes a number of forms which include:

- Trees
- Off-site renewable energy
- Developer payment for retrofit of existing properties off-site to reduce carbon.
- Offsetting outside the UK

Carbon emission offsetting is necessary for specific new build categories such as flats, office buildings and industrial buildings where on site renewable energy is not possible. Carbon emission offsetting should NOT be used for low rise new residential dwellings where all of the EUI must be matched by on site renewables.

7.2- Net Zero Carbon Buildings
The consultation document says *"With effect from June 2022, changes to Building Regulations mean that all new homes must produce 30% less carbon dioxide emissions than previous standards. From 2025 all new*

homes will be required to produce 75- 80% less carbon dioxide emissions and will need to be 'zero-carbon ready' requiring no further energy efficiency retrofit work to enable homes to become zero-carbon as the electricity grid decarbonises. "
In reality it is almost impossible to get to true net zero carbon using % reduction through the 2021 Building Regulations. The guaranteed way to get to true net zero carbon is to have specific energy targets known as Energy Use Intensity (EUI) – in kWh/m2/y and match this with the generation of renewable energy - where possible on site. (e.g. for low rise housing). A definition for Energy Use Intensity should be added to the Glossary.
Importantly there is no mention of the Performance Gap, nor is there a definition of this in the Glossary. This needs to be addressed.

Page 125 – states "*The National Design Code 2019 identifies the need for new developments to follow the energy hierarchy to: 1. Reduce the need for energy through passive measures, including form, orientation and fabric 2. Use energy efficient mechanical and electrical systems, including heat pumps, heat recovery and LED lights; and 3. Maximise renewable energy especially through decentralised sources, including on-site generation and community-led initiatives"*
However the National Design Code 2019 has been replaced by the National Model Design Code 2021, which does not have this wording. We suggest the local plan should include the following wording:
" 1. Reduce the need for energy to a target EUI for example 30kWh/m2/yr. for dwellings. Separate targets are needed for regulated and unregulated energy the sum of which amount to the EUI.
2.Use energy efficient mechanical and electrical systems, including heat pumps, heat recovery and LED lights;
3. Renewable energy on site to at least match the EUI. Decentralised sources are not relevant for true net zero carbon low rise dwellings.
<u>BREEAM</u>
There is no mention of the use of BREEAM in the text. The only mention is in the information relating to existing policy documents from Stratford and Warwick.
BREEAM should be included in the Glossary.

Stratford use BREEAM 'Good' and Warwick use BREEAM 'Very Good'. Regretfully both are totally inadequate. Clearly there will need to be some consistency across the districts. Although BREEAM does provide sustainable benefits it will **not** on its own deliver true net zero carbon as demonstrated in the following extract from the Cornwall Climate Emergency DPD recently approved by the Inspector:

Comment on BREEAM

BREEAM for net zero carbon

For non-residential buildings, a requirement to meet BREEAM Excellent or Outstanding has been considered as a simple and familiar requirement to encourage better energy and carbon performance. However, BREEAM is designed to deliver sustainable buildings but it **is not a net zero carbon delivery platform.**

BREEAM does incorporate calculations of energy demand, energy consumption and carbon emissions but these are opaque measures that are not easily calibrated against other calculation methods.

There are additional credits for Post Occupancy measurements which could potentially address Performance gap issues, but these are optional and not mandatory credits, so setting an overall BREEAM target does not give any certainty that this process would be undertaken.

Alternative schemes

NABERS UK has recently been launched. This is a Design for Performance process to target a **specific energy** rating at the design stage of a new office development or refurbishment and verify performance when the building is occupied. It is expected to be administered by the BRE, alongside BREEAM and may be suitable for larger commercial schemes.

The BRE are currently considering updates to the BREEAM scheme that could, in the future, provide a better structure for delivering net zero carbon, but these are not yet available.

Recommendation

It is therefore recommended to use specific energy and carbon targets for non-residential buildings. BREEAM Excellent or Outstanding can be required in addition but not in lieu of these requirements.

BREEAM Excellent business park in Hayle © BRE

Etude

<u>Issue C4 New buildings</u>

Page 127 of the consultation document says *"Buildings are a major source of emissions for South Warwickshire and so the need to minimise those that are generated from new development is critical in achieving the climate emergency ambitions."*

This is absolutely correct, however the way forward proposed in section 7.2 will not deliver this ambition. The document should contain reference to the tools available for the design and construction of new buildings.

Commercial buildings:

- BREEAM
- NABERS
- Passivhaus

Domestic Buildings:

- Passivhaus
- AECB
- BEPIT (Building energy performance improvement toolkit)
- Assured Performance Process (APP)

Definitions for all of these tools should be included in the Glossary.

<u>Issue C5: Existing Buildings</u>

There is a huge challenge in getting **all** existing buildings to be true net zero carbon.

The policy needs to recommend that all retrofit should be undertaken to a specific standard. The reason for this is that the current supply chain out there in the market can be likened to the 'wild west'. If deep retrofit is not done properly the health and wellbeing of occupants and indeed building fabric will suffer.

The following is a list of appropriate standards:

- PAS 2035 for domestic buildings
- PAS 2038 for non-domestic buildings
- EnerPHit Standards – this is retrofit using the Passivhaus Standard
- Energiesprong – this would be useful for council homes and social housing.
- AECB or LETI - Retrofit Standard for housing.

Other initiatives to consider:

- **National Retrofit Hub** - There is an initiative which has just received funding (January 2023) from Innovate UK to establish a National Retrofit Hub and regional/ local retrofit hubs emerging around the country (e.g. https://retrofit.coop/ in Manchester, https://cosyhomesoxfordshire.org/ . SWLP should look to establish a local partnership with the National Retrofit Hub to train the supply chain including procurers, designers and contractors.

- **Historic Buildings:** There needs to be a clarification around definitions of 'Historic Buildings'. This implies listed buildings / conservation area status etc. Option C5b includes the wording 'Traditional Buildings', which may be a better term to use. This would then include all solid walled and timber framed buildings. Traditional Buildings require a risk-based approach as defined in guidance from Historic England and the Sustainable Traditional Buildings Alliance (STBA)

- **EnerPHit Standards** – this is retrofit using the Passivhaus Standard – although an excellent standard it probably goes too far for most buildings, except for linear blocks (e.g. blocks of flats, either horizontal or vertical blocks). There seems to be a consensus starting to emerge around “heat-pump ready” as an acceptable first step on the retrofit journey. This means doing sufficient fabric improvement to allow a heat pump to work efficiently, and hence not to drive up energy costs when switching from gas to electric heating. There are still arguments about exactly how far the fabric improvements should go – should it be far enough that you can re-use the existing heating system, which will operate at lower temperatures and therefore put out less heat? Or do you not need to go that far and accept that you need to add in more radiators – you just do it based on the sizing of the heat pump. Either way, it needs to be done as part of a whole house retrofit plan, so that any changes don’t waste any measures that are installed i.e. they won’t need ripping out again later if any further improvements are planned. Anyway, that seems to be the general position that’s emerging from both LETI and the AECB.

- **Energiesprong** – this would be useful for council homes and social housing – this is another excellent solution but probably also goes too far for most buildings. See above.

The relation between the new AECB Standard and PAS is as follows: PAS is a process that requires you to take a whole house approach. The AECB standard (now two levels) sets actual performance targets. Operational Energy in kWh/m2/y – Lifetime Carbon kg/CO2e and kg/CO2/m2
Note – all the information in the SWLP being about % reduction is NOT the way forward. The solution is to use Energy Use Intensity as explained elsewhere in this document.

Energy Performance Certificates.
In assessing an existing building for a deep retrofit it is appreciated that currently for local authorities the only tool is the EPC. It should be carefully noted that the EPC is considered by experts to be not fit for purpose.

The Climate Change Committee have set out the need to reform the domestic EPC rating metrics to support the delivery of Net Zero. A letter was sent to Lee Rowley MP, Parliamentary Under Secretary of State, Department for Levelling Up, Housing and Communities on the 2nd February 2023.

Issue C6 Whole Life-Cycle carbon emission assessments

Requiring whole life-cycle carbon assessments is most definitely the right thing to aspire to on the journey to net zero by 2050. However the paragraph outlining this on page 129 seems to have been written based on incorrect assumptions. Here is the paragraph:
"Whole Life-Cycle Carbon emissions are those resulting from the material, construction and the use of a building over its entire life, including its demolition and disposal. A Whole Life-Cycle Carbon Assessment considers a building's carbon impact on the environment and are most usefully undertaken once a building has been constructed but prior to occupation. In order to drive down emissions a policy approach would be necessary to establish appropriate targets to reduce emissions. "
The Whole Life Cycle calculations can and must be done during the design stage and look to reduce the carbon impact of both the construction process the materials used and future maintenance. The Whole Life-Cycle would include:

- Design
- Construction process
- Construction materials
- Regulated carbon in operation
- Un-regulated carbon in operation.
- Future retrofitting, repairs and maintenance

Consider the definitions used by LETI:

Net Zero (Whole Life) **Carbon**	**A 'Net Zero** (Whole Life) **Carbon' Asset is one where the sum total of all asset related GHG emissions, both operational and embodied, over an asset's life cycle (Modules A1-A5, B1-B7 (plus B8 and B9 for Infrastructure only), C1-C4) are minimized, meet local carbon, energy and water targets, and with residual 'offsets', equals zero.**
Net Zero Embodied Carbon	A 'Net Zero Embodied Carbon' asset is one where the sum total of GHG emissions and removals over an asset's life cycle (Modules A1-A5, B1-B5 and C1-C4) are minimized, meets local carbon targets (e.g. $kgCO_2e/m^2$), and with additional 'offsets', equals zero.

Make no mistake – this is **extremely complicated** and time consuming and MUST not detract from making progress towards true net zero carbon for regulated and unregulated energy. This certainly requires a policy but implementation MUST be after the mandate for true net zero for regulated and unregulated carbon as part of the operation of the building.

Requiring this now will just hold back the key issue of improving energy efficiency and reducing carbon emissions from the operation of a building. Reducing the carbon emissions by 100% for construction and materials WILL NOT HELP REDUCE energy costs for occupants.

As yet there is no agreed method to calculate embodied energy and the following was published by UK Green Buildings Council (UKGBC) in January 2023:
"*The https://www.ukgbc.org/ukgbc-work/net-zero-whole-life-roadmap-for-the-built-environment/ sites measurement and targets for embodied carbon as one of the key priorities for decarbonising the built environment. Embodied carbon has also become increasingly important within wider political contexts with the suggestions of Part Z and Grade III listed status.*
UKGBC has opened applications to join the Task Group of Industry experts for Its project on embodied carbon. The project aims to build on the Net Zero Whole Life Carbon Roadmap and seek to provide clarity on measurement and reporting on embodied carbon, as well as how Embodied Carbon Assessments can link into scope 3 reporting."

As the SWLP develops there will be national guidance available later in 2023.

7.3 Climate responsive development design
The two opening paragraphs set the scene quite well and are seriously ambitious.
What is clear is that the 4 existing policies from Stratford and Warwick that follow will **not** deliver the aspirations of what needs to be done NOW.

The comments on BREEAM that are made earlier in this submission apply. BREEAM is good to have and will help deliver a better Climate response – however BREEAM Good and Very Good are inadequate and BREEAM MUST be included in the design to achieve the highest category available at the time of the final publication of the SWLP. To emphasise an earlier point - all current BREEAM categories will **not** deliver true net zero carbon.

Issue C7: Adapting to higher temperatures

Table 14 – The cooling Hierarchy.
The four points require modification and updating.
There is no mention of MVHR (mechanical ventilation with heat recovery). This is ESSENTIAL for true net zero carbon buildings and on all buildings new or existing where the air tightness is less than **3 cubic metres per square metre of internal surface area of the building m3 at 50Pa.** The notation is **$3m^3/(h \cdot m^2)$@50Pa.** The reason for this is in relation to the health and wellbeing of the occupants.
A definition for `MVHR should be added to the Glossary.

The section needs to add specific details about the size and orientation of windows. Windows should also be triple glazed.

Specific comments referring to the numbered items in the table on page 131:

1. The sentence here is wrong - 'Such ventilation should be able to preserve air tightness in cold weather" Closing ventilation will adversely affect the indoor air quality. For example, in Scotland all new housing must have CO2 monitors in bedrooms. This should also apply to schools.
2. This should be MVHR
3. Again this should be MVHR

4 All building ventilation to have MVHR.

The mistake that has been made in developing this table is that the assumption is that the airtightness will be 3 or more. The 2021 regulations have air tightness at **<8m^3/(h·m^2)@50Pa** – for true net zero carbon it needs to be at about 0.6 which is the requirement for Passivhaus certification.

The paragraphs on the use of cool materials and green infrastructure are correct.
Green roofs also help with flood control through attenuation of rain water (see later comment).

Issue C8 Adapting to flood and drought events.

SUDS.
This paragraph is fine but does not go far enough. The Plan should include a policy that for existing domestic and non-domestic buildings such that SUDS MUST apply where a driveway or hardstanding is being added or replaced.
In continental Europe, Green Roofs are used extensively to help control storm water flooding. This is because a Green Roof will go some some way to attenuate the flow of storm water.

Reducing water consumption.
The consumption of 100 litres per person per day is reasonable however we believe a lesser figure is used in some other countries.
The document should consider that there may be the need before 2050 to account for the carbon footprint of water used in the manufacture of construction materials and during the construction process.

Issue C10: Climate change Risk Assessments.

Whilst the contents of the single paragraph seem sensible, will this process be fit for purpose in 2050?. We support Option C10.1a. It is important that a climate change risk assessment is required by planning for all new developments.

7.4 Flooding and water management.

Issue C11: Water Management

We support Option C11b, to retain and improve the existing policies. The two currently adopted policies refer to the maintenance of 'good' status of water bodies, however a 'high' status should be aimed for if possible.
Water quality offsetting should be avoided if possible but if it is essential it will require careful monitoring.

Issue C12: Flood risk.
Clearly the two councils currently have different policies on development in flood zones. We suggest that the policy should be the same across the Plan area and that there will be a presumption against development in flood zones 2 and 3. It should be noted that the Government has recently put the NPPF out to consultation which includes policies on this issue, so the section will need to be reviewed again later.

Chapter 8 – Design

The word 'complimentary' is used several times in this chapter and should be spelt '**complementary**'

The wording in the design section generally follows the guidance in the NPPF, so is justified.

Issue D1- Strategic Design Principles:

P138 says:

"A strategic design principles policy is expected to cover the following:

• *Comprehensive development - ensuring development is designed and delivered in a coordinated way, and avoiding piecemeal schemes.* **This is not in the NPPF but we support this.**

• *Attractiveness – creating a pleasant environment to live and work.* **Wording from NPPF so supported.**

• *Sensitive to context – responds to its surroundings.* **We propose that NPPF wording is used, as follows:** *"sympathetic to local character and history ...whilst not preventing or discouraging appropriate innovation or change (such as increased densities)"*

• *Distinctiveness – builds upon the unique characteristics of its surroundings and/or creates a unique sense of place in itself.* **Wording from NPPF so supported.**

• *Connectedness (also tackles aspects of 'healthy') - weaves into existing networks of different scales.* **This wording is not in the NPPF and is not clear. We suggest the wording in the existing Stratford Core Strategy should be followed, as follows**: *"Connected: Proposals will be well-integrated with existing built form, enhancing the network of streets, footpaths and green infrastructure across the site and the locality, and retaining existing rights of way. "*

• *Safety – ensures layout and orientation create spaces and overall environment that feels safe and secure to be in.* **Wording from NPPF so supported.**

• *Environmental sustainability and adapting to climate change (links to policies in 'A climate resilient and Net Zero Carbon South Warwickshire' section)* **This is not in the NPPF but we support this.**

• *Mix and amount of development (links to D3 below) - getting the right range of complimentary uses* **Similar to wording in NPPF, so supported. 'Complimentary' should be 'complementary'**

Issue D2 -Design codes:

The wording in this section is fine, as it refers to the use of National Design Guide and National Model Design Code. We support the proposed policy.

Question D2: options for format of design guide:

Separate guides or codes for each district or area would seem to be the most appropriate, manageable and practical. However, when combined it is essential that they cover the whole plan area.

Issue D3 – Adaptable Places

The wording in this section is fine. It refers to 'strategic design principles set out in DS1' – this should read **D1**

We agree that the approach to density should be addressed or bottomed out at this stage as it will influence the amount of development land which needs to be allocated.

Question D3- density:

There is no reason why the minimum density should not be the same in both Warwick and Stratford districts. Designs for new sites should take into account the current densities of nearby

areas, but these existing densities on their own should not dictate the design of the new development.

Issue D4 – Safe & Attractive Streets
The wording in this section is fine. We support the proposed policy.
Question D4- Do you agree that this is an appropriate range of topics for a policy on the design of safe and attractive streets? Yes.

Issue D5 – Heritage assets
The wording in this section is fine. We support the proposed policy.
Question D5 -Should we continue with the approach to include a high-level strategic policy within the Part 1 plan and to utilise heritage assessments to inform the growth strategy, and delay detailed policies to Part 2? Yes.

Chapter 10- 'A well connected South Warwickshire'

Issue T1
We support the concept of the "twenty minute neighbourhood". We suggest it should be possible to describe what this typically might look like. The implication is a self-sustaining settlement with boundaries about 1km from its centre. Within this area, for each selected settlement it should be possible to work out how many people could be accommodated with the necessary homes, schools, shops, etc., and what transport links are needed to connect with other settlements. Population growth estimates then dictate how many of these neighbourhoods there would need to be.
In the last paragraph on page 152 the following wording is included: *"This affords the choice of walking (or cycling) wherever possible as a realistic alternative to using the private car."* We suggest that this sentence be replaced by the phrase *"In this area walking and cycling will be promoted in preference to using the private car."*

Issue T2
We would have expected more to be said about the growing financial disadvantages of car ownership. Increasing costs per mile, because of the move to electric vehicles and higher fuel costs, and greater restrictions on on-street parking, would be key factors. At present, the Government's failure to increase fuel duty (for the past decade), and new, high-density developments clogged by parked cars half on the road and half on the pavement, isn't moving us in the right direction. Of course, good public transport has to be offered as an alternative.

Very Light Rail is mentioned a couple of times, but the concept is still being developed and has a number of technical, statutory, and economic obstacles to overcome. It is supposed to be a less expensive alternative to conventional Light Rail, in particular by avoiding the utility diversions that inflate the cost of conventional schemes. However, it still requires a substantial captive travel market, and there are many cities (such as Leeds or Coventry) that do not have a light rail system, and where the economics would be stronger than in any part of South Warwickshire except, possibly, for the new developments on the Coventry-Warwickshire boundary and close by the University.
There are two other means of transport which aren't mentioned in the consultation document, but should be considered as part of the transport mix. These are tram-train (the pilot scheme in South Yorkshire bears a lot of scars, but the lessons learned will be valuable.) and Vivarail (trying to

develop cheaper heavy rail vehicles with battery or hydrogen propulsion.) These modes would be worth considering for the route from Long Marston to Stratford.
We support the development of routes for active travel, but we believe that a stronger emphasis should be given in the document to the need to provide the infrastructure for this. If one considers the three towns of Kenilworth, Warwick and Leamington Spa they are all close and within easy cycling distance of each other. However there are no continuous off road safe cycling routes that link these three centres. Cycle routes only become well used when they actually link places together safely. It is therefore considered that as part of the transport policies priority should be given to building a safe high quality network of cycle routes linking directly all the major settlements in the area including Kenilworth, Warwick, Leamington Spa, Stratford and any of the major opportunity areas selected for further development.

Generally, we feel Chapter 10 lacks substance. The options offered seem designed to elicit a positive response to public transport at an abstract level, but without offering a clear statement of what this might look like. It's obvious that everyone wants good public transport, as long as it isn't costing them anything or discouraging them from using their own cars. The discussion on connectivity is weak, and there isn't anything about making the end-to-end journey experience attractive. This should include a safe and covered stop within about 400m of home or workplace, a reliable service at a good frequency (15 minutes?), real-time customer information, and good connections between modes. University Hospital in Coventry was cited as being difficult to reach other than by car, so a public transport alternative would imply no more than two bus journeys and with a five minute connection between them, these being (for example) a local bus from home to Leamington Transport Interchange and a limited-stop bus onwards to the hospital.

We believe transport should be the foundation of an implementable Local Plan, not something to be discussed lightly near the end of the document. So many of the other opportunities discussed will fail unless good public transport can be provided and, where it cannot for economic or other reasons, then the settlements affected will not be able to enjoy the full range of benefits of their larger neighbours.

South Warwickshire Settlement Analysis

Introduction and scope

We support the general principles of analysis in this document.
It is excellent that as paragraph 2.7 states “This analysis does not have any regard for sites submitted as part of the (call for sites process).

The first section of the Settlement Analysis stresses the importance of the ‘20 minute neighbourhood’, and we support this strong basis for assessment. However in practice the analysis of the proximity of facilities to potential development sites is weak. The analysis of ‘local facilities within 800m’ for each settlement is presented in table form, which is difficult for the layman to interpret. We suggest that this information be presented in map form, with 800m radius areas projected from each location of facilities. This will make the subject much easier to understand.

The analysis has not taken into account the location of Conservation Areas, ancient monuments, listed buildings or listed historic parks and gardens. We suggest that this should form part of the next stage of analysis as it will be found that some of the potential development sites are not suitable for development because of the proximity of these historic assets.

Landforms mapping

Notable gradients have a significant impact to the ability to construct new buildings and construct new highways efficiently. New buildings on hillsides also have a significant impact on the landscape character of the wider area as they are more visible from a greater distance away than the same properties would be on flatter terrain.

Clearly a number of the Connectivity Analysis plans were prepared over a year ago. They need to be updated with the latest Ordnance Survey information to show developments which have been constructed in the last few years or have planning consent. Some of the 'footpaths' shown on the plans are private tracks, not public rights of way, yet some public footpaths are not shown, especially in urban areas, so this element needs to be checked and corrected. It would also help if the Connectivity Analysis plans showed the existing settlement boundaries.

Comments on individual plans:
Leamington Spa Connectivity Analysis plan – It is not obvious where potential development site '1' is. On Warwick North Connectivity Analysis plan part of potential site '1' is covered by the key. It appears to have been given the wrong connectivity grade as in reality the access to the road network is poor. On Warwick South Connectivity Analysis plan it is surprising that sites to the east of Stratford Road have not been included in the analysis. Site 8 has already got permission for development. On Whitnash Connectivity Analysis plan the former sewage works site south of Harbury Lane has not been selected for assessment. This site has been allocated for development in the past and is needed to complete the comprehensive development in this area.

Sustainability Appraisal of the South Warwickshire Local Plan.

The methodology used in the Sustainability Appraisal (SA) is not sufficiently clear for the reader to understand the process by which locations are assessed using the SA/SEA approach.
There are several parts to the methodology:
1). Selection of 13 SA Objectives which are scored at each location;
2) Assessment of each SA Objective based on a SA Framework (SA vol. 3 Appendix A pages 538-541 pdf pp.580-583) which includes Decision-making criteria – a set of questions – and Indicators used to answer the questions for each SA Objective;
3) Scoring for each SA Objective (and sub-objectives) based on Explanations (assessment of Indicators) using a six category scoring system (SA vol.2 Table 2.1 page 410 pdf p.452) represented by Impact Symbols (--,-,+/-,0,+,++);
4) Evaluation of the performance of different options based on the scoring for SA Objectives, sometimes tabulated, averaged or shown graphically through the use of rose diagrams (e.g. Kenilworth SA vol. 2, 4.5 page 458, pdf p 500).

It may be challenging to identify quantitative Indicators for all the SA Objectives but some Indicators are statements of intention or policy rather than factual information.
For example, SA1 Climate Change is described through six Decision-making criteria that include the question: "*Will the option ensure that sustainable construction principles are integrated into developments including energy efficient building design*?" To which, one of the Indicators is listed as "*Implementation of adaptive techniques in building design e.g. passive heating/cooling*".
This criterion and indicator cannot be addressed in 2022-24 as they depend on future policy.
Or, the Decision-making criterion question "*Will the option help to reduce reliance on personal car use? Indicator - Encourage active travel to local services and amenities*." This is not an indicator

that can be used to judge the performance of an objective for a location now as it represents a future intention or action.
Some questions are unclear. For example, SA13 Economy, one of the Decision-making criterion questions is "*Will the option provide or improve sustainable access to a range of employment opportunities*?" It is not clear what this means: how could it be answered on the basis of locations for housing alone, and what is the appropriate Indicator?

It is not clear how the Explanations are arrived at. We might expect to see these based on answers to the Decision-making criteria using the stated Indicators. For Kenilworth North, the Explanation for the scoring of SA1 Climate (SA vol 3. B.5.1 page 565 pdf p.607) only uses one of the stated Indicators (carbon emissions), as in "*Large scale residential-led development is likely to result in an increase in GHG emissions. Development in this Broad Location could deliver up to 2,000 dwellings and therefore could increase carbon emissions in the District by more than 1% and result in a major negative impact*." Why are the other stated Indicators not included ? In any case this is contradictory given that one of the Indicators acknowledges future houses (up to 2050) are likely to be low energy/zero carbon.

The apparent inconsistencies above potentially undermine the value of the SA methodology.

It is not clear how the Impact Symbols are translated into SA Objective Performance scores on the rose diagrams. The rose diagrams are scored 0 to 5 which suggests they map on to the six impact symbols. But this is not the case. For example, SA1 Climate Change for Kenilworth North (SA vol 3. B.5.1 page 565 pdf p.607) is given an Impact Symbol of (--) (most adverse effect) but is mapped on to a score of 1 in the rose diagram – not 0 (zero) (SA vol. 2, 4.5 page 458, pdf p 500).

It is not clear how the Impact Symbols are 'averaged' for an SA Objective on a rose diagram when there are sub-objectives with different Impact Symbols. For example, SA6 Pollution for Kenilworth North (SA vol 3. B.5.6 page 568 pdf p.610) has five sub-objectives all scored with the same Impact Symbol (-) yet the rose diagram score is 2.2. Or, SA3 Biodiversity (SA vol 3. B.5.3 page 566 pdf p.608) that has eight sub-objectives (+/-, 0, 0, -,--,-,0,-,) and also with an average score 2.2 (a simple mapping of 0 to 5 to these would give an average score of 14/8 = 1.75). Perhaps the different sub-objectives are weighted differently, though this is not clearly stated, or there is an error in the mapping.

These concerns are far from trivial. The underlying methodology to the whole exercise is based on simple scores, many of which are contentious because they depend on intention or policy rather than factual information. As a result, the findings are very sensitive to particular scoring values and provide relatively weak discriminatory power (i.e. many of the rose diagrams look very similar). Yet the scores are used to rank locations (e.g. Best Performing Location) as evidence for the Issues and Options report. Minor errors in the scorings, rose diagrams and 'averaging' across objectives could result in quite different findings.

Consideration should be given to investigating the use of a new tool which is being used to help local authorities with spatial carbon modelling. This has recently been used to assist Greater Cambridge and Central Lincolnshire to identify the lowest-carbon route for new developments. The link to the webpage is here: https://www.bioregional.com/projects-and-services/case-studies/helping-local-authorities-model-emissions-from-proposed-growth