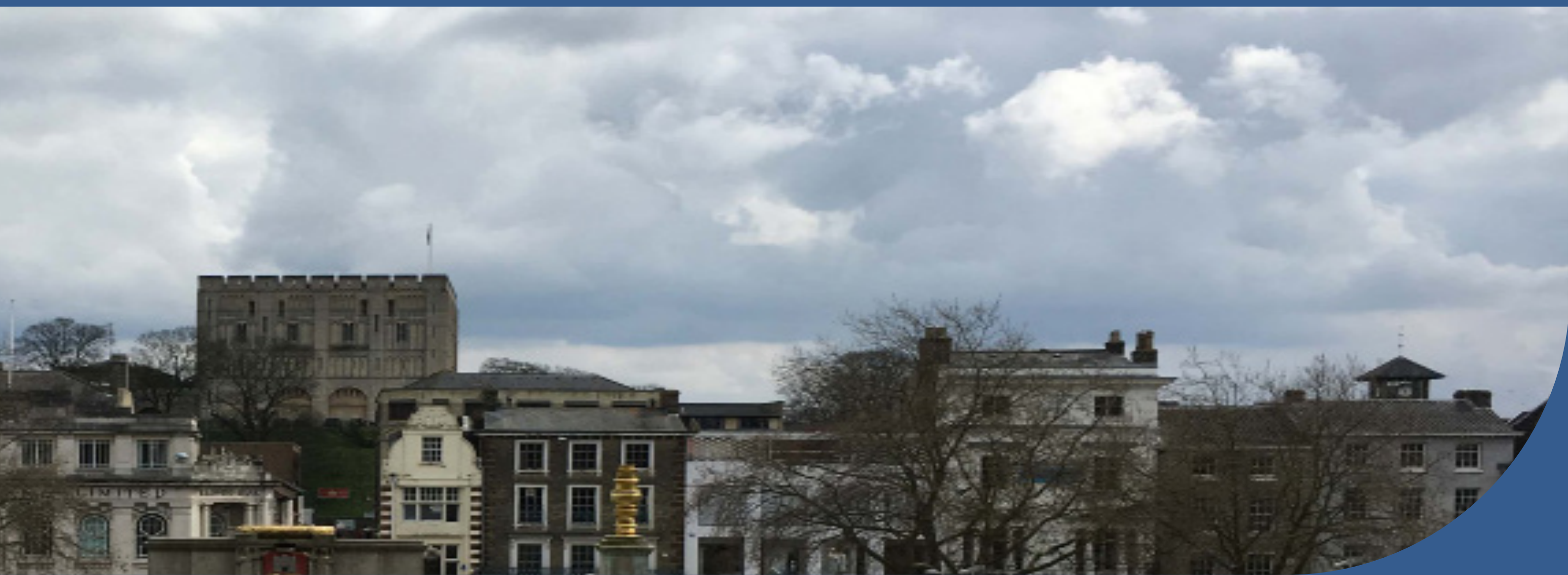
Sustainability Appraisal and Strategic Environmental Assessment of the Greater Norwich Local Plan 2018 - 2038

Addendum to the Regulation 19 SA Report

Inspectors' Initial Questions: Reasonable Alternatives for Housing Number Options

December 2021



LEPUS CONSULTING
LANDSCAPE, ECOLOGY, PLANNING & URBAN SUSTAINABILITY

Sustainability Appraisal and Strategic Environmental Assessment of the Greater Norwich Local Plan 2018 – 2038

Inspectors' Initial Questions: Reasonable Alternatives for Housing Number Options

Addendum to the Regulation 19 SA/SEA Report

LC-663	Document Control Box
Client	Greater Norwich Development Partnership
Report Title	Inspectors' Matters, Issues and Questions: Reasonable Alternatives for Housing Number Options *Addendum to the Regulation 19 SA/SEA Report*
File Name	LC-663_GNLP_SA_Addendum_7_031221ND.docx
Date	December 2021
Author	ND
Reviewed	LB
Approved	ND

Front cover: Norwich City Centre by Lepus Consulting

About this report & notes for the reader

Lepus Consulting Ltd (Lepus) has prepared this report for the use of the Greater Norwich Development Partnership. This document is intended as an Addendum to the Regulation 19 SA/SEA Report, which is available on the Greater Norwich Local Plan website.

There are a number of limitations that should be borne in mind when considering the conclusions of this report. No party should alter or change this report whatsoever without written permission from Lepus.

This SA Addendum Report is based on the best available information, including that provided to Lepus by the Greater Norwich Development Partnership and information that is publicly available. No attempt to verify these secondary data sources has been made and they have been assumed to be accurate as published. This report was prepared during November and December 2021 and is subject to and limited by the information available during this time. This report has been produced to assess the sustainability impacts of the Greater Norwich Local Plan and meets the requirements of the SEA Directive. It is not intended to be a substitute for an Environmental Impact Assessment (EIA) or Appropriate Assessment (AA).

Client comments can be sent to Lepus using the following address:

1 Bath Street,

Cheltenham

Gloucestershire

GL50 1YE

Telephone: 01242 525222

E-mail: enquiries@lepusconsulting.com

www.lepusconsulting.com.

Contents

Tables

1 Introduction

1.1 Context

1.1.1 The purpose of this document is to support the Greater Norwich Development Partnership (GNDP), which includes Broadland District Council, Norwich City Council and South Norfolk Council, in the preparation of their Local Plan 2018 - 2038.

1.1.2 Between 1st February and 22nd March 2021, the GNDP underwent public consultation on the Regulation 19 Pre-Submission Draft Version of the GNLP[1]. This version of the GNLP was supported by a Sustainability Appraisal/Strategic Environmental Assessment (SA/SEA) report[2], which satisfied the requirements of an 'Environmental Report' as per the SEA Directive[3] (from here on referred to as the Regulation 19 SA Report).

1.1.3 Lepus Consulting has prepared this Addendum to the Regulation 19 SA Report in response to a request from the Inspectors who have been appointed to undertake the examination of the GNLP. The Inspectors have asked: "*Each of the 'reasonable alternatives' identified in the Sustainability Appraisal for the housing requirement include a 20% delivery buffer (which includes the windfall allowance in some scenarios). In our view, the Sustainability Appraisal should also model both smaller and minimal supply buffers as 'reasonable alternatives'. Please could the Partnership prepare an addendum to the Sustainability Appraisal to address this point.*"

1.1.4 This report does not reproduce the contents of the earlier SA reports and should be read in conjunction with them. All appraisals have been assessed against the SA Framework set out in **Appendix A**. The methodology for the appraisal process is the same as that used in earlier stages. A summary of the SA methodology for undertaking the assessment of potential effects is provided in **Chapter 3**.

1.1.5 This note has been prepared only on the basis of a comparative assessment against other housing number options that were prepared in 2018. The housing number options include no information about alternative distributions of housing either by location or by number of houses at different locations.

1.2 Using this document

1.2.1 This document should be read in the context of the SA and Local Plan process so far (see **Table 2.1**) and in conjunction with the Regulation 19 SA Report.

---

[1] GNLP (2021) Regulation 19 Publication Information. Available at: https://www.gnlp.org.uk/regulation-19-publication-part-1-strategy/regulation-19-publication-information-not-part-plan [Date Accessed: 01/12/21]

[2] Lepus Consulting (2021) Sustainability Appraisal and Strategic Environmental Assessment of the Greater Norwich Local Plan (Volumes 1 -3) January 2021. Available at: https://www.gnlp.org.uk/regulation-19-publication/evidence-base [Date Accessed: 01/12/21]

[3] Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 (SEA Directive). Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32001L0042&from=EN [Date Accessed: 01/12/21]

2 Summary methodology

2.1 Introduction

2.1.1 This chapter provides a brief overview of the methodology used to inform the identification and assessment of potential effects in the SA process. The detailed SA Methodology is provided in the SA reports which accompanied the previous stages of Local Plan preparation.

2.1.2 The process of sustainability appraisal uses geographic information, the SA Framework and established standards (where available) to inform the assessment decisions and provide transparency.

2.2 The appraisal process

2.2.1 Development proposals and policies set out in the GNLP have been assessed against the SA Framework (see **Appendix A**). The SA Framework is comprised of SA Objectives and decision-making criteria. Acting as yardsticks of sustainability performance, the SA Objectives are designed to represent the topics identified in Annex 1(f)[4] of the SEA Directive. Including the SEA topics in the SA Objectives helps ensure that all of the environmental criteria of the SEA Directive are incorporated. Consequently, the 15 SA Objectives reflect all subject areas to ensure the assessment process is transparent, robust and thorough. The SA Objectives and the SEA Topics to which they relate are set out in **Table 2.1**.

2.2.2 Each SA Objective is considered when appraising each aspect of the GNLP. It is important to note that the order of SA Objectives in the SA Framework does not infer prioritisation. The SA Objectives are at a strategic level and can potentially be open-ended. In order to focus each objective, decision making criteria are presented in the SA Framework to be used during the appraisal of the GNLP.

[4] Annex 1(f) identifies: '*the likely significant effects on the environment, including on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors*'.

Table 2.1: *Summary of the SA Objectives*

	SA Objectives	Relevance to SEA Directive - Annex 1(f)
1	**Air Quality and Noise:** Minimise air, noise and light pollution to improve wellbeing.	Air and human health
2	**Climate Change Mitigation and Adaptation:** Continue to reduce carbon emissions, adapting to and mitigating against the effects of climate change.	Climate change, soil and water
3	**Biodiversity, Geodiversity and Green Infrastructure:** Protect and enhance the area's biodiversity and geodiversity assets and expand the provision of green infrastructure.	Biodiversity, flora, fauna and geodiversity.
4	**Landscape:** Promote efficient use of land, while respecting the variety of landscape types in the area.	Landscape and historic environment.
5	**Housing:** Ensure that everyone has good quality housing of the right size and tenure to meet their needs.	Housing, population and quality of life
6	**Population and Communities:** Maintain and improve the quality of life of residents.	Population and quality of life
7	**Deprivation:** To reduce deprivation.	Population and quality of life
8	**Health:** To promote access to health facilities and promote healthy lifestyles.	Population, quality of life and health
9	**Crime:** To reduce crime and the fear of crime.	Population and quality of life
10	**Education:** To improve skills and education.	Population and economic factors
11	**Economy:** Encourage economic development covering a range of sectors and skill levels to improve employment opportunities for residents and maintain and enhance town centres.	Economic factors and material assets
12	**Transport and Access to Services:** Reduce the need to travel and promote the use of sustainable transport modes.	Accessibility, climate change and material assets
13	**Historic Environment:** Conserve and enhance the historic environment, heritage assets and their setting, other local examples of cultural heritage, preserving the character and diversity of the area's historic built environment.	Historic environment and landscape
14	**Natural Resources, Waste and Contaminated Land:** Minimise waste generation, promote recycling and avoid the sterilisation of mineral resources. Remediate contaminated land and minimise the use of the best and most versatile agricultural land.	Soil and material assets
15	**Water:** Maintain and enhance water quality and ensure the most efficient use of water.	Water

2.2.3 The purpose of this document is to provide an appraisal of reasonable alternative housing number options within Greater Norwich in line with Article 5 Paragraph 1 of the SEA Directive[5]:

2.2.4 *"Where an environmental assessment is required under Article 3(1), an environmental report shall be prepared in which the likely significant effects on the environment of implementing the plan or programme, and reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme, are identified, described and evaluated. The information to be given for this purpose is referred to in Annex I".*

2.2.5 This document also provides information in relation to the likely characteristics of effects, as per the SEA Directive (see **Table 2.2**).

Table 2.2: *Annex II of the SEA Directive*[6]

Criteria for determining the likely significance of effects (Article 3(5) of SEA Directive)
The characteristics of plans and programmes, having regard, in particular, to: • the degree to which the plan or programme sets a framework for projects and other activities, either with regard to the location, nature, size and operating conditions or by allocating resources; • the degree to which the plan or programme influences other plans and programmes including those in a hierarchy; • the relevance of the plan or programme for the integration of environmental considerations in particular with a view to promoting sustainable development; • environmental problems relevant to the plan or programme; and • the relevance of the plan or programme for the implementation of Community legislation on the environment (e.g. plans and programmes linked to waste management or water protection).
Characteristics of the effects and of the area likely to be affected, having regard, in particular, to: • the probability, duration, frequency and reversibility of the effects; • the cumulative nature of the effects; • the transboundary nature of the effects; • the risks to human health or the environment (e.g. due to accidents); • the magnitude and spatial extent of the effects (geographical area and size of the population likely to be affected); • the value and vulnerability of the area likely to be affected due to: o special natural characteristics or cultural heritage; o exceeded environmental quality standards or limit values; o intensive land-use; and • the effects on areas or landscapes which have a recognised national, community or international protection status.

2.2.6 The appraisal process considers the level of significance of the effects identified. To do so, it draws on criteria for determining significance of effects in Annex II of the SEA Directive (see **Table 2.2**). Any assessment rated as negligible cannot constitute a significant effect.

[5] Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 (SEA Directive). Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32001L0042&from=EN [Date Accessed: 01/12/21]

[6] Ibid

2.3 Impact assessment and determination of significance

2.3.1 Significance of effect is a combination of impact sensitivity and magnitude. Impact sensitivity can be expressed in relative terms, based on the principle that the more sensitive the resource, the greater the magnitude of the change, and as compared with the do-nothing comparison, the greater will be the significance of effect.

2.4 Sensitivity

2.4.1 Sensitivity has been measured through consideration as to how the receiving environment will be impacted by a plan proposal. This includes assessment of the value and vulnerability of the receiving environment, whether or not environmental quality standards will be exceeded, and for example, if impacts will affect designated areas or landscapes.

2.4.2 A guide to the range of scales used in determining sensitivity is presented in **Table 2.3.** For most receptors, sensitivity increases with geographic scale.

Table 2.3: *Sensitivity*

Scale	Typical criteria
International/ national	Designations that have an international aspect or consideration of transboundary effects beyond national boundaries. This applies to effects and designations/receptors that have a national or international dimension.
Regional	This includes the regional and sub-regional scale, including county-wide level and regional areas.
Local	This is the district and neighbourhood scale.

2.5 Magnitude

2.5.1 Magnitude relates to the degree of change the receptor will experience, including the probability, duration, frequency and reversibility of the impact. Magnitude has been determined on the basis of the susceptibility of a receptor to the type of change that will arise, as well as the value of the affected receptor (see **Table 2.4**).

Table 2.4: *Magnitude*

Magnitude	Typical criteria
High	• Likely total loss of or major alteration to the receptor in question; • Provision of a new receptor/feature; or • The impact is permanent and frequent.
Medium	Partial loss/alteration/improvement to one or more key features; or The impact is one of the following: • Frequent and short-term; • Frequent and reversible; • Long-term (and frequent) and reversible; • Long-term and occasional; or • Permanent and occasional.
Low	Minor loss/alteration/improvement to one or more key features of the receptor; or The impact is one of the following: • Reversible and short-term; • Reversible and occasional; or • Short-term and occasional.

2.6 Significant effects

2.6.1 A single value from **Table 2.5** has been allocated to each SA Objective for each reasonable alternative. Justification for the classification of the impact for each SA Objective is presented in an accompanying narrative assessment text for all reasonable alternatives that have been assessed through the SA process.

2.6.2 The assessment of impacts and subsequent evaluation of significant effects is in accordance with the footnote of Annex 1(f) of the SEA Directive, where feasible, which states: *"These effects should include secondary, cumulative, synergistic, short, medium and long-term, permanent and temporary, positive and negative effects".*

Table 2.5: Guide to scoring significant effects

Significance	Definition (not necessarily exhaustive)
Major Negative --	The size, nature and location of a site would be likely to: • Permanently degrade, diminish or destroy the integrity of a quality receptor, such as a feature of international, national or regional importance; • Cause a very high-quality receptor to be permanently diminished; • Be unable to be entirely mitigated; • Be discordant with the existing setting; and/or • Contribute to a cumulative significant effect.
Minor Negative -	The size, nature and location of site would be likely to: • Not quite fit into the existing location or with existing receptor qualities; and/or • Affect undesignated yet recognised local receptors.
Negligible 0	Either no impacts are anticipated, or any impacts are anticipated to be negligible.
Uncertain +/-	It is entirely uncertain whether impacts would be positive or adverse.
Minor Positive +	The size, nature and location of a site would be likely to: • Improve undesignated yet recognised receptor qualities at the local scale; • Fit into, or with, the existing location and existing receptor qualities; and/or • Enable the restoration of valued characteristic features.
Major Positive ++	The size, nature and location of a site would be likely to: • Enhance and redefine the location in a positive manner, making a contribution at a national or international scale; • Restore valued receptors which were degraded through previous uses; and/or • Improve one or more key elements/features/characteristics of a receptor with recognised quality such as a specific international, national or regional designation.

3 SA of additional housing number options

3.1 Identification of reasonable alternatives

3.1.1 The preparation of the GNLP has been supported by a sustainability appraisal process consisting of several stages. Key stages of the sustainability appraisal process are set out in **Table 3.1.**

Table 3.1: *Timeline of SA documents in relation to the GNLP stages of preparation*

Date	Local Plan Stage	Sustainability Appraisal
January to March 2018	**Stage A Regulation 18 Consultation of Site Proposals, Growth Options and the Interim Sustainability Appraisal**	**Interim Sustainability Appraisal (GNDP)** This report assessed four GNLP options for housing growth, and six options for the spatial strategy and policy options.
October to December 2018	**Stage B Regulation 18 Site Proposals Addendum and HELAA Addendum**	No SA report prepared.
January to March 2020	**Stage C Regulation 18 Draft Strategy consultation** Draft strategy including vision, objectives and strategic policies, a sites document and supporting evidence documents.	**Regulation 18C SA Report (Lepus)** This report assessed 285 reasonable alternative sites and eleven draft strategic policies.
February to March 2021	**Publication Draft Plan** The GNLP is split into two documents: The Strategy and Site Allocations. The Strategy Document sets out the profile of Greater Norwich, the Plan vision and objectives, and the strategic policies. The Site Allocations Document sets out the site allocations of the GNLP.	**Regulation 19 SA Report (Lepus)** The Regulation 19 SA Report summarised the SA process to date and helped inform the examination stage of the preparation of the GNLP. The Regulation 19 SA presented the findings of the sustainability appraisal of the GNLP, which is composed principally of twelve strategic policies and 138 site policies. This report also contained an assessment of an additional 107 reasonable alternative sites.
September 2021	**SA Addendum for Spatial Options** Supplementary information in relation to the SA of spatial options.	**Regulation 19 SA Report (Lepus)** Supplementary information.

3.1.2 The Interim Sustainability Appraisal (January-March 2018) which is highlighted in **Table 3.1**, identified, amongst other things, four options for growth:

1. GNLP Housing Requirement is equal to Objectively Assessed Need (OAN). Delivery Buffer is Approx. 20%. Forecast Windfall Housing does not form part of the Delivery Buffer.
2. GNLP Housing Requirement is equal to OAN. Delivery Buffer is Approx. 20%. Forecast Windfall Housing forms part of the 20% Delivery Buffer.
3. GNLP Housing Requirement is Equal to OAN plus Housing Response to City Deal. Delivery Buffer is Approx. 20%. Forecast Windfall Housing does not form part of the Delivery Buffer.

4. GNLP Housing Requirement is Equal to OAN plus net Housing Response to City Deal. Delivery Buffer is Approx. 20% OAN. Forecast Windfall Housing forms part of the 20% Delivery Buffer.

3.1.3 The identification of the four alternatives is based on a range of factors including:

- GNLP Housing Need;
- Objectively Assessed Housing Need;
- Should the Housing Requirement be lower, equal to or higher than OAN?;
- Housing Delivery Buffer; and
- Windfall Housing.

3.1.4 Full details are available in section 7.3 of the 2018 SA report[7].

3.2 Assessment of housing number reasonable alternatives

3.2.1 **Table 3.2** presents sustainability performance scores for all six housing number options that are being evaluated as part of the SA of the GNLP. Options 1-4 were assessed in 2016 and have not been modified. Options 5-6 represent the two new reasonable alternative options identified following a request from the Inspectors.

3.2.2 Each option has been assessed for its likely sustainability impacts, a summary of which is presented in **Table 3.2**. Full explanations and reasonings behind each overall 'score' outlined are set out per SA Objective in the following sections of this addendum.

3.2.3 **Table 3.3** presents a high level commentary in terms of a discussion around significant effects, and relative merits of alternative housing numbers for each SA objective. It has been reproduced in large part from the 2018 R18 SA report (which is also reproduced in the R19 SA Report. Any additional information to be added as a consequence of Housing Number Options 5-6 is also presented in **Table 3.3**.

3.2.4 The SA of the housing number options has assessed the entire number associated with each option. It has been assumed that the buffer level would be built out in addition to the OAN figure. Otherwise, there would be no way to differentiate between options 2, 5 and 6.

3.3 Limitations of assessment

3.3.1 Environmental assessment, as per the methodology, needs to have details of size, nature and location in order for impacts to be understood in relation to the environmental baseline. The housing numbers have only 'nature', in this case housing. The size and location details are not present which means that any attempt to evaluate impacts in a meaningful way is necessarily very high level. The housing number descriptions lack spatial prescription beyond the principles promoted by the NPPF para 119 to pursue brownfield first. Whilst size is implied by the total number of houses associated with each option, the distribution by size and location is missing and consequently the SA process is only able to engage at a very high level with restricted diagnostic conclusions.

[7] GNDP (2018) Interim Sustainability Appraisal of the Greater Norwich Local Plan for Broadland, Norwich and South Norfolk. Available at: https://www.gnlp.org.uk/sites/gnlp/files/2021-01/Reg.-18-Interim-Sustainability-Appraisal-of-the-GNLP.pdf [Date Accessed: 01/12/21]

3.3.2 **Tables 3.3 – 3.17** present the likely overall SA impacts (as per **Table 3.2**), alongside the assessment narrative which provides a qualitative analysis of the sustainability performance of each option compared to the other options, with respect to that particular objective.

Table 3.2: Impact matrix of the six housing number options discussed within this report

SA Objective	Housing Number Option					
	1	2	3	4	5	6
	OAN + 20% Buffer + Windfall	OAN + 20% Buffer	OAN + 20% Buffer + Windfall + City Deal	OAN + 20% Buffer + City Deal	OAN + 10% Buffer	OAN + 1% Buffer
SA OBJECTIVE 1 Air Quality and Noise	-	-	--	-	-	-
SA OBJECTIVE 2 CC Mitigation and Adaptation	-	-	--	-	-	-
SA OBJECTIVE 3 Biodiversity, Geodiversity & GI	-	-	--	-	-	-
SA OBJECTIVE 4 Landscape	-	-	--	-	-	-
SA OBJECTIVE 5 Housing	++	+	++	++	+	+
SA OBJECTIVE 6 Population & Communities	0	0	0	0	0	0
SA OBJECTIVE 7 Deprivation	0	0	0	0	0	0
SA OBJECTIVE 8 Health	0	0	0	0	0	0
SA OBJECTIVE 9 Crime	0	0	0	0	0	0
SA OBJECTIVE 10 Education	0	0	0	0	0	0
SA OBJECTIVE 11 Economy	++	+	++	++	+	+
SA OBJECTIVE 12 Transport & Access to Services	0	0	0	0	0	0
SA OBJECTIVE 13 Historic Environment	-	-	--	-	-	-
SA OBJECTIVE 14 Natural Resources, Waste & Contaminated Land	0	0	0	0	0	0
SA OBJECTIVE 15 Water	0	0	0	0	0	0

3.4 SA Objective 1 – Air Quality and Noise

3.4.1 Seeking to prioritise housing on previously developed land, all housing options would direct a proportion of growth towards Norwich City. Development within the city is likely to be of higher density than in surrounding areas. Higher density development would be expected to reduce the overall quantity of land being built upon across the Plan area, which would in turn help to minimise the risks to air quality caused by development. However, there is a general trend of air pollution in higher density urban areas having more adverse impacts on human health than in air pollution in lower density urban areas[8]. Cities generally have higher populations and higher emission of pollutants as well as taller buildings which stagnate air flow.

Reg 18 SA Commentary: Air Quality and Noise: Minimise air, noise and light pollution to improve wellbeing.

All housing development, unless "car free", will inevitably generate additional car trips locally as new residents move into the area. Therefore, because all of the Core Housing Alternatives would result in the allocation of further land for housing development, all alternatives would give rise to increased air and noise pollution, disruption to amenity and potential secondary health impacts locally. Similarly, more housing is likely to result in more light pollution. Consequentially, all alternatives are predicted to have a significant negative impact on the baseline.

The identified impacts are directly related to the scale of development. In this regard alternative 2 would release the least land for development followed by alternative 4 then alternative 1. Alternative 3 would release the most land. A straightforward reading of the alternatives would therefore indicate that alternative 2 is likely to have the least impact and alternative 3 would have the greatest impact. Whilst alternatives 1 would release more land for development than alternative 4, alternative 4 would carry a greatest risk of further land releases on 5 year land supply grounds. Thus in relative terms the impact of alternative 4 and alternative 1 are considered to be similar.

It is possible, maybe even likely, that, above a certain level, increasing the scale of land allocated for housing would have no impact on actual housing delivery i.e. availability of land would no longer be a constraint to development and the ability of the market to deliver would be the sole determinant of housing completions. It is uncertain whether any of these alternatives would have this impact however.

3.4.2 By focusing the majority of development within the city, where air quality is already poor (e.g. in proximity to, or within, Central Norwich AQMA), development at the scale of any of the proposed housing options could lead to a further deterioration of air quality and lead to pockets of poor air quality and noise pollution, particularly associated with traffic congestion.

3.4.3 In terms of light and noise pollution, the impacts are likely to be greatest under scenarios where higher dispersal of development is advocated. Introducing a significant proportion of new dwellings into rural communities could result in significant changes to lighting and noise levels, whereas development closer to Norwich is likely to already have such infrastructure in place and result in less extensive impacts.

3.4.4 The introduction of Options 5 and 6 will not change the SA commentary presented during the R18 assessment. Comparing the options on a like-for-like basis, without details of location and distribution of quanta, there is little to distinguish the 'new' options.

[8] Yuan, C, Ng, Edwards, Norford, Leslie, K. (2014) Improving air quality in high-density cities by understanding the relationship between air pollution dispersion and urban morphologies, Building and Environment, V71, pp245-258, January 2014

***Table 3.3:** Sustainability performance scores for the housing options under SA Objective 1 – Air Quality & Noise*

Housing Option:	1	2	3	4	5	6
SA OBJECTIVE 1 Air Quality and Noise	-	-	--	-	-	-

3.5 SA Objective 2 – Climate Change Mitigation and Adaptation

3.5.1 Greater Norwich is largely rural, with Norwich City in the centre of the Plan area representing the main populated area, linking to the Main Towns via the strategic road network. The Plan area contains a large proportion of green and blue infrastructure, including a network of natural and semi-natural habitats amongst the settlements and agricultural landscape, including a number of nationally and locally designated biodiversity sites as well as watercourses such as the River Wensum and River Yare and associated wetlands. Soils and vegetation play vital roles in mitigating and adapting to climate change, such as through carbon storage and attenuating flood risk by intercepting surface water and storing water that could otherwise lead to flooding, causing harm to people and property within urban areas. Flood risk is prevalent particularly towards the east (adjacent to The Broads) and will likely become a more significant threat in the future due to climate change and sea level rise.

Reg 18 SA Commentary: Climate Change Mitigation and Adaptation; Continue to reduce carbon emissions, adapting to and mitigating against the effects of climate change.

The principal concern in relation to climate change mitigation will be the degree to which new development supports efforts to reduce car dependency and bring about modal shift to less polluting forms of transport, walking and cycling. Other considerations will relate to the extent to which development would support low carbon energy generation or buildings that are energy efficient.

In terms of adaptation, key issues will include flood risk concerns and green infrastructure. Again the relative scale of the alternatives would indicate that alternative 3 would release the most land and have the greatest impact. Alternatives 1 and 4 would be broadly similar in terms of impact. Alternative 2 is likely to have the least impact, as it would release the least land for development. However, all alternatives are predicted to have a significant negative impact on the baseline.

3.5.2 Under all housing options the proposed scale of development would be expected to result in a loss of greenfield land and vegetation cover to some extent, consequently resulting in a reduction in the carbon storage capabilities of the Plan area. This scale of development would also be expected to result in a significant increase in carbon emissions due to the construction and occupation of new development, including through an increase in the number of vehicles on the local road networks, which represents a major source of particulate matter and greenhouse gases (GHGs).

3.5.3 All housing options will direct larger proportions of development towards Norwich and the existing built-up areas would be likely to present greater opportunities for efficient use of land and natural resources, such as via higher density developments. This may also be expected to result in lesser impacts in terms of pluvial flood risk subject to appropriate building design. Furthermore, new residents in these locations would be expected to have good access to a range of public transport and sustainable travel options rather than relying on personal car use.

3.5.4 The introduction of Options 5 and 6 will not change the SA commentary presented during the R18 assessment. Comparing the options on a like-for-like basis, it is feasible that the lowest housing number will lead to the lowest levels of impact in terms of quanta of houses, demand for energy, new cars and increased demand for use of greenfield locations. However, this will not overcome the likelihood that minor adverse effects will arise as a consequence of building more than 40,000 new homes over the plan period.

Table 3.4: *Sustainability performance scores for the housing options under SA Objective 2 – Climate Change Mitigation & Adaptation*

Housing Option:	1	2	3	4	5	6
SA OBJECTIVE 2 CC Mitigation and Adaptation	-	-	--	-	-	-

3.6 SA Objective 3 – Biodiversity, Geodiversity and Green Infrastructure

3.6.1 Greater Norwich supports a range of biodiversity and geodiversity assets. There are four European designated biodiversity sites within the GNLP area: Broadland SPA and Ramsar; The Broads SAC; River Wensum SAC; and Norfolk Valley Fens SAC. Several other European sites can be found in the surrounding area within Norfolk. A Habitats Regulations Assessment (HRA) has been carried out alongside the Local Plan and SA process which has considered the potential impacts of the development proposed within the GNLP, in the context of the Birds and Habitats Directives.

Reg 18 SA Commentary: Biodiversity, Geodiversity and Green Infrastructure; Protect and enhance the area's biodiversity and geodiversity assets and expand the provision of green infrastructure.

It is reasonable to assume that growth on the scale proposed within all of the alternatives would lead to direct effects on land that has some biodiversity importance, or land that contributes to the functioning of wider "ecological networks". There may also be some indirect effects associated within growth, such as recreational impact on ecologically important sites. Consequently it is considered that all alternatives are likely to result in a significant negative impact on the baseline.

On the basis of the above, it is also arguably the case that higher scales of development are likely to lead to greater impact than lower scales of growth. Consequently, alternative 2 is likely to have the least impact, as it would release the least land for development. Alternative 3 would release the most land and have the greatest impact. Alternatives 1 and 4 would be broadly similar in terms of their impact in land release terms and therefore it is not possible to meaningfully differentiate between them.

3.6.2 The emerging Green Infrastructure and Recreational impact Avoidance and Mitigation Strategy (GI RAMS)[9] aims to support local planning authorities in addressing the mitigation needs of Local Plans including the GNLP in-combination with European sites. The strategy seeks to use green infrastructure at the Local Plan level to divert and deflect new residents from visiting European sites on a daily basis.

[9] Place Services (2021) Norfolk Green Infrastructure and Recreational impact Avoidance and Mitigation Strategy – Habitats Regulations Assessment Strategy Document March 2021. Available at: https://www.gnlp.org.uk/sites/gnlp/files/2021-03/Norfolk_GI_RAMS_Strategy_March_2021.pdf [Date Accessed: 01/12/21]

3.6.3 A network of nationally and locally designated and non-designated biodiversity sites can also be found in Greater Norwich. This includes 49 Sites of Special Scientific Interest (SSSI) and two National Nature Reserves (NNR), as well as numerous stands of ancient woodland, Local Nature Reserves (LNR), County Wildlife Sites (CWS) and priority habitats distributed throughout the Plan area. In terms of geodiversity, important sites include a number of SSSIs which contain features of geological interest, as well as 'Pinebanks' County Geological Site (CGS).

3.6.4 As a minimum, there should be no net loss to the biodiversity network, the species diversity or habitat diversity. Recent government policy on net gain includes a commitment to at least a 10% gain in biodiversity, measured using the Defra biodiversity metric[10].

3.6.5 Delivering the majority of development within Norwich and the urban fringe would be expected to provide opportunities to intensify under-utilised and vacant space within the urban area. This would be likely to reduce the overall quantity of new land required for development to meet the housing need and thereby protect biodiversity features in the wider countryside. However, urban areas also support important habitats and form ecological networks so it would be important to ensure preservation and enhancement of green corridors and habitat links alongside development in these areas.

3.6.6 All housing options would be likely to result in loss of previously undeveloped land to some extent, and as such, it is expected that all options would result in some loss of green infrastructure and degradation of ecological networks. At all scales of housing growth, new dwellings would be likely to increase recreational pressure and disturbance to designated sites, result in reductions to air quality, and result in increased demand for water resources, all of which could result in harm to biodiversity if not carefully managed and mitigated.

3.6.7 The introduction of Options 5 and 6, as lower quantum scenarios, when compared to Options 1-4, will probably perform better in the sense that they will not lead to the same level of overall impacts when considering habitat fragmentation, disturbance from recreation, hydrological impacts through demand for water resources and habitat loss. However, this will not overcome the likelihood that minor adverse effects will arise as a consequence of building more than 40,000 new homes over the plan period.

Table 3.5: *Sustainability performance scores for the housing options under SA Objective 3 – Biodiversity, Geodiversity & GI*

Housing Option:	1	2	3	4	5	6
SA OBJECTIVE 3 Biodiversity, Geodiversity & GI	-	-	--	-	-	-

[10] Environment Act 2021. Available at: https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted [Date Accessed: 01/12/21]

3.7 SA Objective 4 – Landscape

3.7.1 Greater Norwich is largely rural with high quality landscapes and countryside which is distinguished by the river valleys of the River Yare and River Wensum. The Broads National Park is situated in the south east of Broadland and the north east of South Norfolk districts, with a small section within Norwich City. There are two Country Parks within the Plan area: 'Catton Park' Country Park in Broadland and 'Whitlingham' Country Park in South Norfolk.

Reg 18 SA Commentary: Landscape: Promote efficient use of land, while respecting the variety of landscape types in the area.

The vast majority of the additional growth that will be planned for within the GNLP is likely to be on edge of settlement greenfield land that currently contributes to landscape character of different types, in particular the setting of settlements. It is therefore suggested that all alternatives result in a significant negative impact on the baseline.

Again the relative scale of the alternatives would indicate that alternative 2 is likely to have the least impact, as it would release the least land for development. Alternative 3 would release the most land and have the greatest impact. Alternatives 1 and 4 would be broadly similar in terms of land release.

3.7.2 All housing number options will deliver development within the existing urban areas. This is likely to help to promote an efficient use of land and reduce the amount of development required within smaller settlements and encroachment into the countryside. Modifying built form where houses or offices already occupy the immediate landscape tends to accommodate change better than new houses in a field with natural features. Although, infilling and redeveloping urban land close to Norwich could lead to adverse impacts on the character and quality of the townscape without careful design and consideration of factors such as key views and historic landmarks.

3.7.3 The SA commentary presented during the R18 assessment provides a fair and logical interpretation of likely impacts on landscape receptors associated with Options 1-4, emphasising that lower levels of housing are likely to perform better. This means that Options 5 and 6 would both potentially perform better than Options 1-4. However, the effect of each housing option on the landscape is difficult to quantify as it depends on many contextual factors that cannot be determined at this high level. It is likely that all options would result in adverse impacts on the landscape to some extent. The necessary urban focus on Norwich due to brownfield opportunities is potentially complicated by the significant range of cultural heritage receptors that make certain neighbourhoods so distinctive.

Table 3.6: *Sustainability performance scores for the housing options under SA Objective 4 – Landscape*

Housing Option:	1	2	3	4	5	6
SA OBJECTIVE 4 Landscape	-	-	--	-	-	-

3.8 SA Objective 5 – Housing

3.8.1 The NPPF defines local housing need as *"the number of homes identified as being needed through the application of the standard method set out in national planning guidance"*[11]. Local authorities must consider the identified needs of specific groups within the Local Plan. All six housing number options seek to meet the identified housing need of 40,541 homes to accommodate the growing population.

Reg 18 SA Commentary: Housing: Ensure that everyone has good quality housing of the right size and tenure to meet their needs.

In theory all of the alternatives would be capable of providing the housing needed, including the provision of the necessary affordable housing. Therefore all alternatives are considered to result in a significant positive impact on the baseline.

A straight forward assessment might conclude that the alternative which plans for the most housing would perform best in relative terms, as it would provide the most housing. However, given that alternatives 1, 3 and 4 all positively plan for a potential level of development that is in excess of 20% above the OAN, each alternative is clearly capable of meeting needs. Whilst alternative 2 also plans for a level of growth that is 20% above OAN, a substantial proportion of this (in excess of 50% of the buffer) would be in the form of windfall housing. Current windfall projections are based on past trends and whilst legitimate over the short term they are less certain over the longer them. Therefore, alternative 2 is considered to offer less certainty of delivery than the other alternatives. It is subsequently considered to perform worse in relative terms.

3.8.2 All options would be expected to have positive impacts on housing.

3.8.3 A higher number of homes may provide a greater range of housing types to meet the diverse needs of residents, including provision of affordable homes. As noted in the R18 commentary, delivery may be challenging for higher numbers, however in terms of impact on the housing receptor, e.g. the total housing resource, the smaller quanta options (Options 5 and 6) will deliver less housing.

***Table 3.7:** Sustainability performance scores for the housing options under SA Objective 5 – Housing*

Housing Option:	1	2	3	4	5	6
SA OBJECTIVE 5 Housing	++	+	++	++	+	+

[11] MHCLG (2021) National Planning Policy Framework. Available at: https://www.gov.uk/government/publications/national-planning-policy-framework--2 [Date Accessed: 01/12/21]

3.9 SA Objective 6 – Population and Communities

3.9.1 This objective seeks to maintain and improve quality of life for residents. In line with the NPPF, local planning authorities should seek to promote social interaction, create communities which are safe and accessible, and ensure there is good accessibility to a range of green infrastructure, sports facilities, local shops, cultural buildings and outdoor space. It is beneficial for residents' wellbeing to be situated within communities that provide services and facilities to meet their day-to-day needs.

Reg 18 SA Commentary: Population and Communities: Maintain and improve the quality of life of residents.

It is considered likely that all alternatives would result in development in locations that are currently of high amenity value, or environmental quality. It is likely also that it would be possible to create high quality developments within these areas. Important to consider also is the impact on the "quality of life of residents" as perceived by existing residents. Many people may well feel that new development will have a detrimental impact on their quality of life. Others could, of course, see that development will bring with it some benefit.

On the basis of the above, it is concluded that the alternatives on Core Housing Matters will have no significant effect on the baseline. Nor is it possible to differentiate between the alternatives in relation to this objective.

3.9.2 The provision of local services and facilities within Greater Norwich is most concentrated in the larger settlements. However, although there may be fewer facilities found in the smaller settlements, residents within these areas may experience a stronger sense of community than residents of towns and cities and may place greater value on the local services that are available to them. Furthermore, smaller settlements would generally be expected to provide better access to open spaces and the surrounding countryside, and have higher environmental quality, potentially leading to higher quality of life.

3.9.3 Quality of life is highly subjective and can be perceived differently by residents in the same area.

3.9.4 The introduction of Options 5 and 6 will not change the SA commentary presented during the R18 assessment. Comparing the options on a like-for-like basis, without details of location and distribution of quanta, there is little to distinguish the 'new' options.

Table 3.8: *Sustainability performance scores for the housing options under SA Objective 6 – Population & Communities*

Housing Option:	1	2	3	4	5	6
SA OBJECTIVE 6 Population & Communities	0	0	0	0	0	0

3.10 SA Objective 7 – Deprivation

3.10.1 The purpose of this SA Objective is to redress deprivation issues across the Plan area. The Index of Multiple Deprivation (IMD)[12] is the official measure of relative deprivation for Lower Super Output Areas (LSOAs)[13] in England. Overall, deprivation is relatively low across Greater Norwich, although there are some pockets of deprivation within Norwich City, with approximately 20% of Norwich's LSOAs among the 10% most deprived in England[14]. Out of 317 Local Authorities in England, Norwich is ranked 52nd most deprived. In contrast, South Norfolk is ranked 232nd and Broadland 260th most deprived, with no LSOAs within the most 10% deprived in England.

Reg 18 SA Commentary: Deprivation: To reduce deprivation.
Development may stimulate or support regeneration of deprived areas. The provision of affordable housing will also help to address deprivation to some degree. In theory, more affordable housing could be delivered from options which provide more housing overall. More overall housing growth could, in theory, also support enhanced jobs growth. However, whilst the alternatives would all provide for affordable housing, it is the distribution and form of development that would dictate the extent to which development would stimulate or support regeneration. Consequentially it is considered that the alternatives would have no significant impact on the baseline. Nor is it possible to differentiate between the alternatives in relation to this objective.

3.10.2 All housing number options will include a focus on development in Norwich City and the urban fringe would be likely to provide the most opportunity to develop vacant and under-utilised space for residential use. This would also direct more new residents towards the city centre and in close proximity to employment opportunities and other services. Ensuring residents have good access to a wide range of services and facilities as well as employment opportunities would be likely to have benefits to local communities and result in a positive impact on equality.

3.10.3 However, any emphasis on development in and around the city could also result in more higher density developments, and reduced accessibility to outdoor space. Additionally, development within existing deprived areas could potentially exacerbate the existing social pressures faced by current residents in these areas and place increased pressure on local services. On the other hand, development could also help to support regeneration in these deprived areas, if carefully planned and designed.

---

[12] MHCLG (2019) English indices of deprivation 2019. Available at: https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019 [Date Accessed: 01/12/21]

[13] DCLG (2016) The English Indices of Deprivation 2015 – Frequently Asked Questions (see question 11. What is a Lower-layer Super Output Area/neighbourhood/small area?). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/579151/English_Indices_of_Deprivation_2015_-_Frequently_Asked_Questions_Dec_2016.pdf [Date Accessed: 01/12/21]

[14] Local Government Association (2019) Indices of Multiple Deprivation 2019. Available at: https://lginform.local.gov.uk/reports/view/lga-research/lga-research-report-indices-of-deprivation-2019?mod-area=E92000001&mod-group=AllRegions_England&mod-type=namedComparisonGroup [Date Accessed: 01/12/21]

3.10.4 Overall, deprivation is not expected to be significantly affected by the housing number options for Greater Norwich. The introduction of Options 5 and 6 will not change the SA commentary presented during the R18 assessment. Comparing the options on a like-for-like basis, without details of location and distribution of quanta, there is little to distinguish the 'new' options.

Table 3.9: *Sustainability performance scores for the housing options under SA Objective 7 - Deprivation*

Housing Option:	1	2	3	4	5	6
SA OBJECTIVE 7 Deprivation	0	0	0	0	0	0

3.11 SA Objective 8 – Health

3.11.1 National and local health strategies and policies seek to promote the development of healthy communities, such as through delivering age-friendly environments for the elderly, encouraging healthier food choices and facilitating active travel.

Reg 18 SA Commentary: Health: To promote access to health facilities and promote healthy lifestyles.

If well planned, development can contribute to, or create, mixed and inclusive communities that are supported by a range of services and facilities, including green infrastructure.

The impact of development on these matters is however related to distribution and choice of site rather than pure housing numbers. Therefore, it is considered that the alternatives would have no significant impact on the baseline. Nor is it possible to differentiate between the alternatives in relation to this objective.

3.11.2 Access to healthcare facilities is also an important factor, especially within rural communities. There is only one NHS hospital with an A&E department in the Plan area: Norfolk and Norwich University Hospital. Other hospitals in Greater Norwich include St Michaels Hospital, Hellesdon Hospital, Julian Hospital and Norwich Community Hospital. There are approximately 70 GP surgeries located across the Plan area, with the surgeries more-or-less evenly distributed across the three districts.

3.11.3 Providing residents with sustainable access to a diverse range of natural habitats is an effective means of reducing health inequalities in the area. Given the rural character of much of Broadland and South Norfolk, new residents in these areas are likely to have good access to the surrounding countryside and a range of natural habitats. The extensive PRoW network throughout Norfolk offers residents good access into the countryside. Within the Plan area including Norwich City, there are a wide variety of public green spaces including parks, playing fields, golf courses, allotments and sports facilities. All these open spaces positively contribute towards the health and wellbeing of residents, by helping to encourage physical exercise through sports, recreation and active travel.

3.11.4 The introduction of Options 5 and 6 will not change the SA commentary presented during the R18 assessment. Comparing the options on a like-for-like basis, without details of location and distribution of quanta, there is little to distinguish the 'new' options. Demand for health services would in theory be lower under Options 5 and 6 however it is anticipated that new development would include appropriate infrastructure provision in order to meet higher levels of demand. If this was not forthcoming, Options 5 and 6 might perform better.

Table 3.10: *Sustainability performance scores for the housing options under SA Objective 8 – Health*

Housing Option:	1	2	3	4	5	6
SA OBJECTIVE 8 Health	0	0	0	0	0	0

3.12 SA Objective 9 – Crime

3.12.1 The purpose of this objective is to help reduce crime rates in the local area. Although levels of crime are generally low in Greater Norwich, there are higher crime levels in inner urban wards, particularly in areas with a concentration of late-night drinking establishments.

Reg 18 SA Commentary: Crime: To reduce crime and the fear of crime.

If well planned, development can contribute to, or create mixed and inclusive communities that are designed taking into account guidance such as "safer by design".

The impact of development on these matters is however not directly related to decisions about the scale of housing allocation. Therefore, it is considered that the alternatives would have no significant impact on the baseline. Nor is it possible to differentiate between the alternatives in relation to this objective.

3.12.2 Community cohesion is important to help ensure residents are living happy and healthy lifestyles. Interactive and vibrant communities often benefit from a strong sense of place, a reduced fear of crime and have economic benefits. Development under all housing number options would be expected to provide similar opportunity to incorporate measures to deliver these objectives, including taking into account guidance to make developments safer by design.

3.12.3 Higher rates of crime and anti-social behaviour can be associated with high density development, and residents can often feel less safe in these areas. As such, more development in Norwich and the Urban Fringe could potentially present more challenges in this aspect. However, crime and the fear of crime is not expected to be significantly affected by any one housing number option more than another.

Table 3.11: *Sustainability performance scores for the housing options under SA Objective 9 – Crime*

Housing Option:	1	2	3	4	5	6
SA OBJECTIVE 10 Education	0	0	0	0	0	0

3.13 SA Objective 10 – Education

3.13.1 The education sector plays in important role in Norfolk. Within Greater Norwich there are 150 primary and 24 secondary schools. There are 52 primary schools in Broadland, 34 in Norwich and 64 in South Norfolk. The secondary schools are primarily located within Norwich City and the urban fringe, with others located in Reepham, Aylsham and Acle in Broadland and Wymondham, Long Stratton, Harleston, Diss, Loddon, Hethersett and Framingham Earl in South Norfolk. Within the wider county, there are many schools and colleges, as well as higher education at the University of East Anglia, Anglia Ruskin University and University Campus Suffolk.

Reg 18 SA Commentary: Education: To improve skills and education.

It is assumed that housing will be distributed so as to make effective use of existing school capacity, or be located in areas where additional capacity can be made available. There is no evidence that there are any fundamental constraints to education provision that are directly related to decisions about the scale of housing allocation.

As such, it is considered that the alternatives would have no significant impact on the baseline. Nor is it possible to differentiate between the alternatives in relation to this objective.

3.13.2 The extent to which all housing number options would facilitate good education for new residents is almost entirely dependent on the specific location of development, which is uncertain at this high level of assessment.

3.13.3 In general, it is likely that directing a larger proportion of growth towards Norwich City would mean that more residents are situated within close proximity to existing schools and higher education opportunities and are better related to sustainable transport options to reach schools elsewhere. However, this scenario can present some uncertainty in terms of capacity.

3.13.4 Access to primary schools is a key consideration for the GNDP when considering growth within Villages. Several of the villages within Greater Norwich do not contain primary schools. It is likely that higher housing number options may come to rely on larger proportions of development being dispersed in these lower-tier settlements which would result in more risk in terms of accessibility to schools. However, it is possible that by delivering more spread-out development, development could help to relieve potential issues with capacity to a greater extent than those with higher growth in the city.

3.13.5 Careful consideration of the impacts of development on the capacity of local schools will be required, and in some locations expansion of schools may be needed to support large scale higher density development proposals.

3.13.6 The introduction of Options 5 and 6 will not change the SA commentary presented during the R18 assessment. Comparing the options on a like-for-like basis, without details of location and distribution of quanta, there is little to distinguish the 'new' options. Demand for educational services would in theory be lower under Options 5 and 6 however it is anticipated that new development would include appropriate infrastructure provision in order to meet higher levels of demand. If this was not forthcoming, Options 5 and 6 might perform better.

Table 3.12: *Sustainability performance scores for the housing options under SA Objective 10 – Education*

Housing Option:	1	2	3	4	5	6
SA OBJECTIVE 10 Education	0	0	0	0	0	0

3.14 SA Objective 11 – Economy

3.14.1 The Greater Norwich Employment Land Assessment[15] identified 68 active employment sites within the GNLP area totalling approximately 700ha. The assessment estimates there is an additional need for between 11,762 and 20,487 employment opportunities in Greater Norwich, with land requirements between 46ha and 84ha until 2036.

Reg 18 SA Commentary: Economy: Encourage economic development covering a range of sectors and skill levels to improve employment opportunities for residents and maintain and enhance town centres.

All of the alternatives plan for a sufficient number of homes to accommodate the workers needed to realise the East of England Forecasting Models projections for jobs growth across Greater Norwich, and the additional homes needed to support the Greater Norwich City Deal. It is also notable that the New Anglia Strategic Economic Plan (2014) estimated that each new home built is equivalent to £36, 700 more (in GVA) to the economy.

Therefore all alternatives are considered to result in a significant positive impact on the baseline.

Alternatives 3 and 4 proactively plan for all of the additional homes needed to support the City Deal and include at least a 20% buffer above this number of homes. This means that they are best placed to ensure there are sufficient homes to support City Deals jobs growth. However, alternative 1 also provides more than 20% above the number of homes needed to support the City Deal. Alternative 2 provides a fraction less than 20%.

Therefore, in relative terms alternative 2 is considered to perform less well than the other alternatives in regards to this objective, but the difference is very slight.

3.14.2 The majority of the employment land in the Plan area is found in Norwich and the urban fringe. Notable major employers include Aviva, Virgin Money, Greene King and Royal Bank of Scotland.

3.14.3 All housing number options will include a focus on Norwich which would be expected to provide the most sustainable access to employment opportunities. For this reason and the reasons cited in the R18 SA commentary, all options will perform well.

Table 3.13: *Sustainability performance scores for the housing options under SA Objective 11 – Economy*

Housing Option:	1	2	3	4	5	6
SA OBJECTIVE 11 Economy	++	+	++	++	+	+

3.15 SA Objective 12 – Transport and Access to Services

3.15.1 This objective seeks to reduce the need to travel and promote the use of sustainable transport modes. Development should be located where transport options are, as far as possible, not limited to using the private car, so that sustainable transport options can be promoted, and where the need for additional infrastructure can be minimised.

[15] GVA (2017) Greater Norwich: Employment Land Assessment. Available at: https://gnlp.oc2.uk/docfiles/46/greater_norwich-_employment_land_assessment-_final_submission.pdf [Date Accessed: 01/12/21]

Reg 18 SA Commentary: Transport and Access to Services: Reduce the need to travel and promote the use of sustainable transport modes.

In the context of housing growth, reducing the need to travel and promoting the use of sustainable modes of transport are matters that are expected to be principally aligned to the strategy for the distribution of housing. Additional development may generate/justify investment that would result in improved public transport services and sustainable transport infrastructure which would provide wider sustainable transport benefits. Conversely, widely dispersed growth could foster car dependency.

Therefore, it is not possible to conclude that the alternatives would have a significant impact on the baseline.

However, alternatives 3 and 4 would result in a GNLP housing requirement that is notably above OAN, and linked to the realisation of City Deal aspirational jobs growth. If such aspirational jobs growth does not occur then there will be insufficient demand for the planned housing. In this scenario it is likely that housing delivery would fall behind the requirement, with the distinct possibility of a lack of five year housing land supply. This may lead to additional, unplanned sites being released for development that may not be as well related to sustainable transport as planned sites. Therefore there is an increased risk that alternatives 3 and 4 would result in development that is more poorly served by sustainable transport.

3.15.2 There is a need to improve the strategic transport network in Greater Norwich, most particularly improvements to the rail network, to the A47 and to provide good quality public transport access to Norwich International Airport. In rural areas, access to public transport is more restricted, so it will be important to sustain local public transport services where possible and to support demand responsive transport.

3.15.3 The housing number options do not allocate development to any particular locations however growth near to areas which support the most services, facilities and employment opportunities and which are already well-served by sustainable transport options are likely to deliver better levels of sustainability development.

3.15.4 The introduction of Options 5 and 6 will not change the SA commentary presented during the R18 assessment. Comparing the options on a like-for-like basis, without details of location and distribution of quanta, there is little to distinguish the 'new' options. Demand for new public transport services is likely to depend on the location of new development. As with education and health services, it is assumed that appropriate and proportionate infrastructure planning will be provided for any housing number option. Options 5 and 6 will both introduce lower demand levels when compared to the higher quanta options.

Table 3.14: *Sustainability performance scores for the housing options under SA Objective 12 – Transport & Access to Services*

Housing Option:	1	2	3	4	5	6
SA OBJECTIVE 12 Transport & Access to Services	0	0	0	0	0	0

3.16 SA Objective 13 – Historic Environment

3.16.1 Historic environment priorities from the international to the local level seek to address a range of issues, particularly in relation to the conservation and enhancement of heritage assets that are irreplaceable and play an important role in place making and the quality of life for local residents.

Reg 18 SA Commentary: Historic Environment: Conserve and enhance the historic environment, heritage assets and their setting, other local examples of cultural heritage, preserving the character and diversity of the area's historic built environment.

The vast majority of the additional growth that will be planned for within the GNLP will be on greenfield land. It is likely that some of this would have an impact on the historic environment, heritage assets or cultural heritage. It is therefore suggested that all alternatives result in a significant negative impact on the baseline.

Alternatives that release more land therefore carry an increased risk that within this land there are sites that would impact on heritage assets. However, the precise impact of the growth in terms of the historic environment will depend upon the allocations made. Therefore it is not possible to differentiate between the alternatives in this regard.

3.16.2 Greater Norwich has a wide range of designated statutory and non-statutory heritage assets including 213 Grade I Listed, 355 Grade II* Listed and 4,437 Grade II Listed Buildings; 137 Conservation Areas; 82 Scheduled Monuments (SMs); and 22 Registered Parks and Gardens (RPGs). Whilst not listed, many historic buildings and infrastructure such as roads, canals, railways and their associated industries are also of historic interest.

3.16.3 Maintaining local distinctiveness, character and sense of place alongside delivering development can present challenges. However, new development can also stimulate new investment and potentially enhance the local townscape or improve the accessibility of heritage assets for local residents.

3.16.4 As all six housing number options would locate a large proportion of development on previously undeveloped land, it is likely that all options would have the potential to result in harm to heritage assets and the historic environment, to some extent.

3.16.5 The introduction of Options 5 and 6 will not change the SA commentary presented during the R18 assessment. Comparing the options on a like-for-like basis, without details of location and distribution of quanta, there is little to distinguish the 'new' options.

Table 3.15: *Sustainability performance scores for the housing options under SA Objective 13 – Historic Environment*

Housing Option:	1	2	3	4	5	6
SA OBJECTIVE 13 Historic Environment	-	-	--	-	-	-

3.17 SA Objective 14 – Natural Resources, Waste and Contaminated Land

3.17.1 This objective covers a range of topics and aims to minimise waste generation, promote recycling, avoid the sterilisation of mineral resources, remediate contaminated land and to minimise the use of 'best and most versatile' (BMV) agricultural land.

Reg 18 SA Commentary: Natural Resources, Waste and Contaminated Land: Minimise waste generation, promote recycling and avoid the sterilisation of mineral resources. Remediate contaminated land and minimise the use of the best and most versatile agricultural land.

The vast majority of the additional growth that will be planned for within the GNLP will be on greenfield land. However, the impact of the growth in terms of this objective is expected to relate to the location of the allocations made. Therefore, it is not possible to conclude that the alternatives would have a significant impact on the baseline. Nor is it possible to differentiate between the alternatives in relation to this objective.

3.17.2 The development of all options would be expected to lead to a cumulative increase household waste generation. Potential mineral resources in Norfolk include widely distributed sand and gravel, and to a lesser extent silica sand and carstone[16].

3.17.3 Soil is an essential and non-renewable resource that provides a wide range of ecosystem services. It filters air, stores and cycles water and nutrients, decomposes and cycles organic matter, supports plant growth and provides medicines[17]. Soil is also one of the most important natural carbon sinks globally and its protection is vital in efforts to mitigate anthropogenic climate change. It can reduce flood risk, alleviate flood damage and improve local water and air quality to the benefit of ecosystem and human health.

3.17.4 The majority of the Plan area is located on land classified as Grade 3 Agricultural Land Classification (ALC) land, although there are large extents of Grades 1 and 2 ALC particularly in Broadland. ALC Grades 1, 2 and Sub-Grade 3a represent some of Greater Norwich's BMV land[18]. Almost the entirety of Norwich is 'Urban' ALC land.

3.17.5 All six housing number options would involve a large amount of development situated on previously undeveloped land and so would result in adverse impacts on natural resources, to some extent. The introduction of Options 5 and 6 will not change the SA commentary presented during the R18 assessment when it discusses the challenge of providing assessment scores without having distributional data.

3.17.6 However, the score of negligible (which has been applied to Options 1-4) only applies to the challenge of scoring impacts without locational data. There are likely to be significant adverse effects on the soil resource from all options due to the likely requirement to build at greenfield locations and the previous scores should perhaps be seen in this light. Comparing the options on a like-for-like basis, without details of location and distribution of quanta, there is little to distinguish the 'new' options. Options 5 and 6 being lower in overall quanta will likely lead to lower impacts on resources overall; however, since all options deliver more than 40,000 homes during the plan period, there will be a high likelihood of adverse effects on the soil resource. In this light, Options 5 and 6 will perform marginally better.

Table 3.16: *Sustainability performance scores for the housing options under SA Objective 14 – Natural Resources, Waste & Contaminated Land*

Housing Option:	1	2	3	4	5	6
SA OBJECTIVE 14 Natural Resources, Waste & Contaminated Land	0	0	0	0	0	0

16 Norfolk County Council (2011) Norfolk Minerals and Waste Development Framework. Core Strategy and Minerals and Waste Development Management Policies Development Plan Document 2010-2026. Adopted September 2011. Available at: https://www.norfolk.gov.uk/what-we-do-and-how-we-work/policy-performance-and-partnerships/policies-and-strategies/minerals-and-waste-planning-policies/adopted-policy-documents [Date Accessed: 01/12/21]

17 Food and Agriculture Organization of the United Nations (2021) Soil ecosystem services. Available at: http://www.fao.org/agriculture/crops/thematic-sitemap/theme/spi/soil-biodiversity/soil-ecosystems-services/en/ [Date Accessed: 01/12/21]

18 Natural England (1988) Agricultural Land Classification of England and Wales: Revised criteria for grading the quality of agricultural land (ALC011). Available at: http://publications.naturalengland.org.uk/publication/6257050620264448?category=5954148537204736 [Date Accessed: 01/12/21]

3.18 SA Objective 15 – Water

3.18.1 Water is a key consideration within Greater Norwich, including water quality, management and availability. A complex network of waterways course through the GNLP area, with the main watercourses including the River Wensum and the River Yare.

Reg 18 SA Commentary: Water: Maintain and enhance water quality and ensure the most efficient use of water.

The supply and disposal of water, and related water quality matters, are key issues for the GNLP. The vast majority of the housing development that needs to be planned for is contained within existing planning permissions and allocations. There is good evidence to suggest that these developments can be delivered without any significant impact on water quality.

Further growth will place an additional burden on water supply and disposal infrastructure. Early engagement with AWS, EA and NE have not identified any fundamental water quality constraint to further development. However, detailed evidence on this issue is not currently available therefore it is not possible to conclude that the alternatives would have a significant impact on the baseline.

A straight forward analysis might however suggest that allocation alternatives that release less land for housing would be less likely to be impactful than those that release more land for housing.

Particularly in terms of waste water disposal and its impact on water quality, distribution of housing further away from Norwich is likely to be significant, as foul water will be disposed of through local treatment works which have their own particular issues in terms of their volumetric capacity and required treatment standards.

3.18.2 The main water service provider for Greater Norwich is Anglian Water. The Water Resources Management Plan (WRMP)[19] states that there is currently significant pressure from population growth, climate change, sustainability reductions and the need to increase resilience to severe drought. The Water Cycle Study (WCS)[20] assessed development proposals in Greater Norwich in regard to water supply capacity, wastewater capacity and environmental capacity and identified that there are some Water Recycling Centres that have no capacity to treat additional wastewater flows from the proposed level of growth and where upgrades will be required to accommodate the planned growth, such as in Long Stratton, Wymondham and Whitlingham.

3.18.3 The vulnerability of groundwater to pollution is determined by the physical, chemical and biological properties of the soil and rocks. Groundwater Source Protection Zones (SPZs) indicate the risk to groundwater supplies from potentially polluting activities and accidental releases of pollutants[21]. A large proportion of Greater Norwich lies within SPZ 3, with smaller areas of SPZ 1 and 2.

[19] Anglian Water (2019) Water Resource Management Plan 2019. Available at: https://www.anglianwater.co.uk/siteassets/household/about-us/wrmp-report-2019.pdf [Date Accessed: 01/12/21]

[20] AECOM (2021) Greater Norwich Water Cycle Study Final Report March 2021. Available at: https://www.gnlp.org.uk/sites/gnlp/files/2021-04/Greater%20Norwich%20Water%20Cycle%20Study_Final%20Version%20March%202021.pdf [Date Accessed: 01/12/21]

[21] Environment Agency (2013) Groundwater Source Protection Zones. Available at: http://apps.environment-agency.gov.uk/wiyby/37833.aspx [Date Accessed: 01/12/21]

3.18.4 All housing number options would be expected to result in an increased demand for water resources, with implications for the management of wastewater and the availability of drinking water. All development within Greater Norwich would need to consider the potential impacts on water, including above and below ground watercourses, as well as implications for the management of wastewater and availability of drinking water.

3.18.5 Assessment of environmental impacts on water is not necessarily as restricted by distributional data as other SA topics. All six housing options have the potential to result in a minor negative impact on water. The earlier R18 assessment concluded that effects would be negligible based on water infrastructure. It also acknowledged that further growth will place an additional burden on water supply and disposal infrastructure. It can be argued that perhaps the previous SA assessments are now outdated and a more appropriate score would be minor negative in light of climate change trends and increasing levels of drought which is predicted during the plan period. Planning and management for appropriate infrastructure and water conservation measures are likely to prove critical during the plan period. Therefore, in considering the precautionary principle, all options are likely to perform negatively.

Table 3.17: *Sustainability performance scores for the housing options under SA Objective 15 – Water*

Housing Option:	1	2	3	4	5	6
SA OBJECTIVE 15 Water	0	0	0	0	0	0

4 Conclusion

4.1 Conclusion

4.1.1 In order to identify the best performing option, no attempt to sum the different SA 'scores' across each SA objective has been made since they are intrinsically different and not comparable.

4.1.2 The evaluation of sustainability performance has been prepared against the environmental baseline. In terms of the scores, there is often little to tease apart the different housing options.

4.1.3 Allowing for the limitations of the scoring orders of magnitude, analysis and comparison of the options against each other sees a clear trend emerge. The lower quanta options are likely to perform better in terms of the environmental SA objectives. This includes: air quality, climate change, biodiversity, the historic environment, water resources, water quality, the soil resource and landscape.

4.1.4 Conversely, the higher quanta figures will perform better in terms of economic issues, assuming that the house building programme is not purely an economic phenomenon in its own right but a stimulus that triggers higher economic multipliers within the settlement growth and development that will take place as the plan is 'built out'. Such economic growth scenarios must be accompanied by training and educational programmes that will lead to upskilling and creation of a workforce that can meet the plans and aspirations of the wider economic strategy for the sub-region.

4.1.5 Social and economic considerations do not only concern health, jobs, skills and GDP. Other considerations include environmental economic considerations of climate change such as drought and storm damage, the role that ecosystem services can play and implications for managing health when air quality is poor.

4.1.6 On balance, and drawing on the precautionary principle, especially since much of the assessment is prepared at a high level with the limitations cited in **chapter 2** in mind, the lower quanta options (5 and 6) should be considered more sustainable because some of the identified environmental impacts are irreversible e.g. loss of the soil resource, and more so, beginning to be stretched to levels that whilst not irreversible are showing signs of long term impacts with consequences for health, jobs, food production and water availability. Climate change presents an increasingly pressing concern for all of these reasons but perhaps more than other parts of the UK due to Norfolk's position in the east of the country, considered to be one of the driest locations in England.

4.1.7 Without more accurate data, and notwithstanding the high level approach to assessment which makes it hard to differentiate between numbers that are relatively similar, it is difficult to say whether Option 5 or 6 is the best. However, it is possible to state that overall, both are likely to perform better overall when delivering sustainable development than the higher quanta options such as 1, 3 and 4.

4.2 Examination

4.2.1 The Submission Version of the GNLP was submitted to the Secretary of State for independent examination on 30th July 2021[22]. Further information regarding the ongoing examination process can be found on the GNLP website: https://www.gnlp.org.uk/

[22] Greater Norwich Local Plan (2021) Submission of the GNLP to the Secretary of State. Available at: https://www.gnlp.org.uk/node/33 [Date Accessed: 01/12/21]

Habitat Regulations Assessments

Sustainability Appraisals

Strategic Environmental Assessments

Landscape Character Assessments

Landscape and Visual Impact Assessments

Green Belt Reviews

Expert Witness

Ecological Impact Assessments

Habitat and Ecology Surveys

LEPUS CONSULTING

LANDSCAPE, ECOLOGY, PLANNING & URBAN SUSTAINABILITY

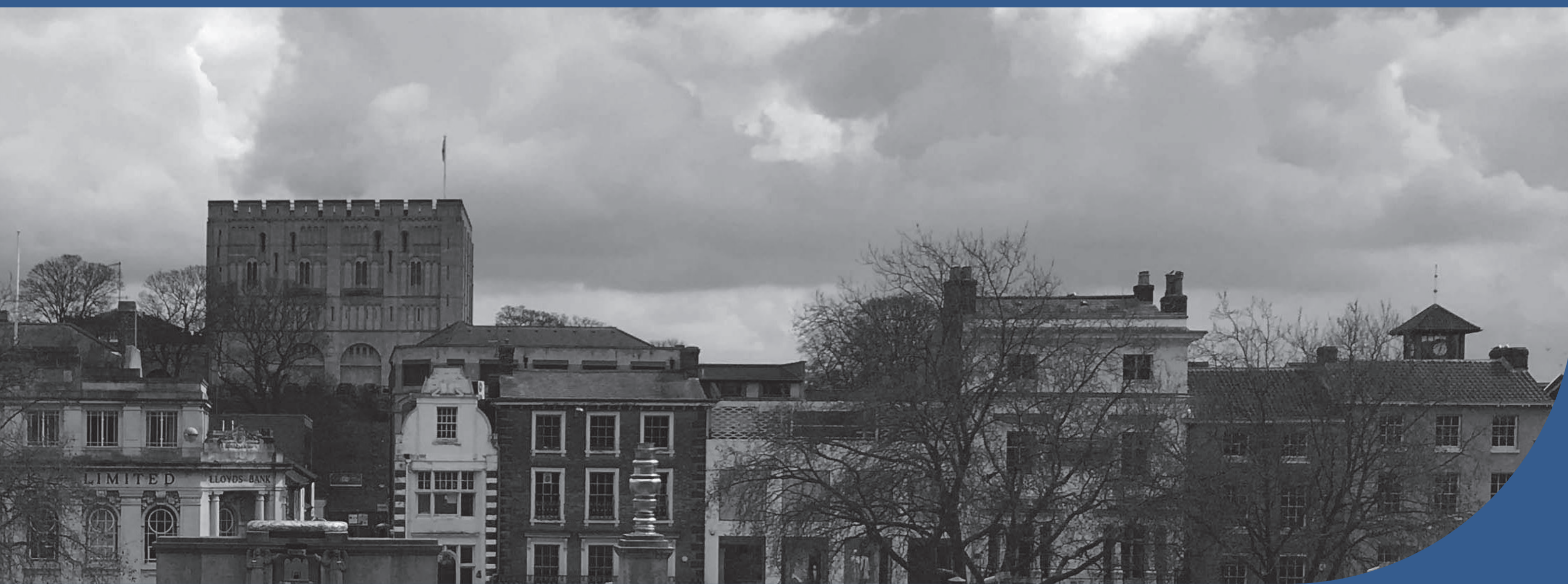
1 Bath Street Cheltenham GL50 1YE

T: 01242 525222

E: enquiries@lepusconsulting.com

www.lepusconsulting.com

CHELTENHAM



Lepus Consulting
1 Bath Street
Cheltenham
Gloucestershire GL50 1YE

t: 01242 525222
w: www.lepusconsulting.com
e: enquiries@lepusconsulting.com