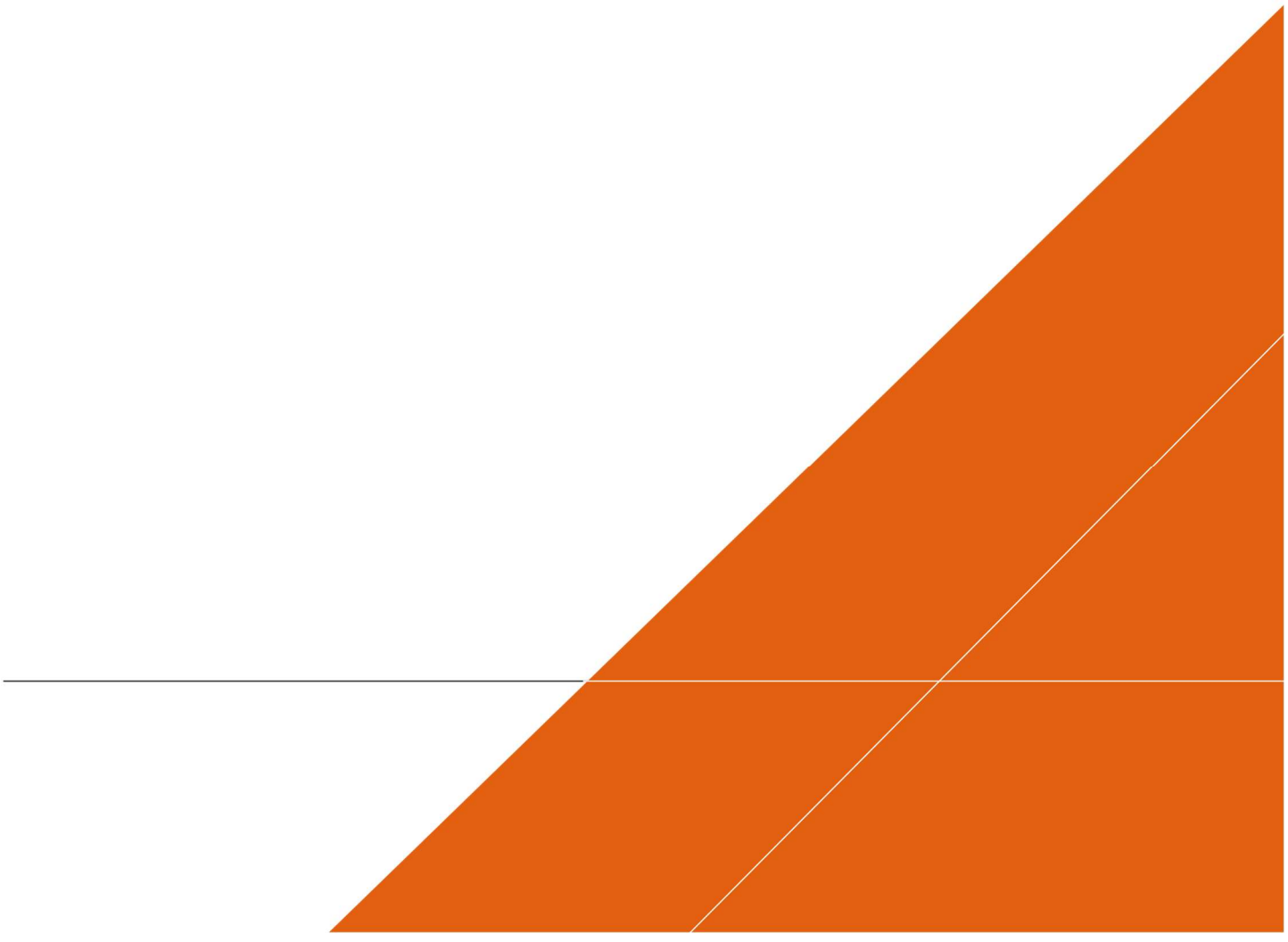
ARCADIS Design & Consultancy for natural and built assets

SUSTAINABILITY APPRAISAL – SPATIAL OPTIONS

Lancaster South Area Action Plan

SEPTEMBER 2021



CONTACTS

CATHERINE WRIGHT
Senior Environmental Consultant

e catherine.wright@arcadis.com

Arcadis.
2 Glass Wharf,
Temple Quay,
Bristol,
BS2 0FR

VERSION CONTROL

Version	Date	Author	Checker	Approver	Changes
1	July 2021	AC & CW	ST	FH	First draft for client review
2	August 2021	CW	ST	ST	Second draft for client review
3	September 2021	ST	ST	ST	Final draft following client comments

CONTENTS

FIGURES

TABLES

1 Introduction

1.1 Background to the Broad Area of Growth

The Lancaster South Broad Location for Growth, which will include Bailrigg Garden Village, is situated south of Lancaster City with the general area being predominantly rural. The area of growth is intersected by the M6 motorway and the A6 both running north-south through the site. The West Coast Main Line (WCML) rail link also transects the area of growth north-south running parallel to the A6 with the closest train station being Lancaster Station in the city centre. The suburb of Scotforth is located to the north of the area of growth with the village of Galgate to the south.

The area of growth in general comprises large amounts of agricultural land plus Bailrigg Garden Village, and the campus for Lancaster University, occupying the area of space between the M6 and A6 corridors. The Lancaster Canal falls in the north west area of the site and forms the south western boundary of the site. The Forest of Bowland Area of Outstanding Natural Beauty (AONB) is also close by, to the east of the site boundary.

1.2 Background to the Adopted Local Plan and the Lancaster South AAP

In July 2020, Lancaster City Council formally adopted its Local Plan, which comprises the Strategic Policies and Land Allocations DPD[1] and Review of the Development Management DPD[2]. The Adopted Lancaster Local Plan will guide development in the Lancaster District for the next 10 years. It includes the need to plan for the new housing, employment, open spaces, shops and community facilities necessary to create places people want to live, work and do business.

The Broad Location for Growth has been brought forward as part of the Strategic Policies & Land Allocations DPD, through Policy SG1. Policy SG1 identifies a Broad Location for Growth in South Lancaster (see Box 1: Policy SG1). Policy SG1 sets out a general plan for the Location for Growth and how it is to be delivered in a further DPD – the Lancaster South AAP.

Box 1: Policy SG1 from the Adopted Lancaster Local Plan

POLICY SG1: LANCASTER SOUTH BROAD LOCATION FOR GROWTH (INCLUDING BAILRIGG GARDEN VILLAGE)

The Council has identified a broad location for growth in South Lancaster, including for the development of the Bailrigg Garden Village, on the Local Plan Policies Maps. This will be a major mixed-use development which focuses on the delivery of at least 3,500 new houses, a number of opportunities for employment and economic opportunities including the delivery of Lancaster University Health Innovation Campus and wider University related expansion.

Key Growth Principles for Development in the Broad Location for Growth

The Council has defined a range of principles which will be at the very core of the planning and development in South Lancaster and for the Garden Village. These will be explored in more detail via the forthcoming Lancaster South Area Action Plan DPD for this area. These principles include:

1. Involving local communities in pro-active consultation about the creation of new development.
2. Securing high-quality urban design which promotes sustainable, attractive places to live, defining a sense of place and creates a sense of community for its new residents.
3. Seeking a modal shift in local transport movements between South Lancaster, the Garden Village, Lancaster University Campus and Lancaster City Centre and beyond into the

[1] Available at: http://www.lancaster.gov.uk/planning/planning-policy/land-allocations-dpd [Accessed: 15.07.21]
[2] Available at: http://www.lancaster.gov.uk/planning/planning-policy/development-management-dpd [Accessed: 15.07.21]

employment areas of Morecambe and Heysham through the delivery of a Bus Rapid Transit System and Cycling and Walking Superhighway network.

4. Delivering a wide range of market and affordable housing, in terms of type and tenure to ensure that opportunities to live in the Garden Village are available to all sections of the community and contribute significantly to the creation of cohesive, balanced communities and thereby assist the district in meeting its evidenced housing needs within the Local Plan period.

5. Ensuring that the necessary infrastructure to achieve sustainable growth is delivered in the right place, at the right time, to address strategic constraints to the delivery of future development in the South Lancaster area.

6. The creation of sufficient areas of high quality open spaces to provide a distinct sense of place and deliver a network of green corridors and walking and cycling routes across the South Lancaster area to the benefit of the local environment and residents. The delivery of such spaces and routes should make for distinct areas of separation between the new development and the urban edge of Lancaster, Bailrigg Village and Galgate and give potential to bring forward a new country park.

7. Development proposals will need to take account of the recommendations for mitigating harm and/or maximising enhancements as set out in the Council's Heritage Impact Assessment for this area.

8. The creation of healthy and cohesive communities through the delivery of high quality development and the correct levels of services, open space and infrastructure which is provided in safe and accessible locations.

9. The sympathetic masterplanning of new facilities and growth within the campus of Lancaster University for a range of educational facilities, student accommodation, visitor accommodation and ancillary uses located primarily at the Bailrigg Campus, the Lancaster University Health Innovation Campus and in appropriate locations within the wider University estate in the context of its sensitive landscape setting.

10. Safeguarding Lancaster University's Bailrigg Campus, by ensuring that development in South Lancaster and for the Bailrigg Garden Village is well planned and does not have an adverse impact on the University Campus and its setting.

11. Taking proper account of the need to design new development to minimise its contribution to, and the impacts of, Climate Change and to ensure that new development is resilient and adaptable to the effects of Climate Change.

12. Managing water and run-off to safeguard development, assuring public safety and amenity with active measures within new development to reduce flood risk downstream for both existing and new residents and businesses.

13. Offering opportunities for national housebuilders to work alongside local construction firms and encourage training opportunities for local people, particularly through the construction phases of the development. The Garden Village should also include opportunity for the provision of self-build and custom-build properties.

14. To ensure innovative urban design both in terms of the layout and density of new development and the specific design of new buildings. This should include the application of appropriate new technologies for buildings and transport where possible. Proposals should investigate opportunities for localised heating systems in the South Lancaster area.

15. Addressing longstanding constraints and capacity issues in the strategic and local road network through improvements to traffic management and physical interventions to increase network capacity and advantage sustainable travel. This will involve the re-configuration of Junction 33 of the M6 to afford direct motorway access into the South

Lancaster area and remove traffic from Galgate which is currently designated as an Air Quality Management Area (AQMA).

To support the delivery of growth in the South Lancaster area, including development of the Bailrigg Garden Village, there will be a requirement for a wide range of both locally important and strategically important infrastructure, including new highways, public transport network, education provision, new local centre(s), open spaces and green network. These are set out in Policy SG3 of this DPD and will be addressed in more detail through the preparation of the Lancaster South Area Action Plan DPD.

Proposals will need to demonstrate that no Internationally designated sites would be adversely affected by development either alone or in combination with other proposals, as per the requirements of Policy EN7 of this DPD. In view of the potential for likely significant effects as a result of this allocation, development proposals must accord with the requirements of Appendix D of this DPD.

Mechanism for Delivery of Growth in South Lancaster, including Bailrigg Garden Village

The Council will prepare and implement a specific Development Plan Document (DPD) for this broad location for growth, entitled the 'Lancaster South Area Action Plan DPD'. The purpose of the forthcoming DPD will be as follows:

A. To provide additional detail on how the Key Growth Principles set in this policy will be delivered;

B. To set out a Spatial Development Framework as a basis for further masterplanning, to help guide the preparation of future planning applications and against which future development proposals and planning applications will be assessed; and

C. To facilitate and support the co-ordination and timely delivery of the infrastructure necessary to facilitate growth in this location.

Development within the broad location for growth in advance of the Lancaster South Area Action Plan DPD will be permitted provided that:

1. There would be no prejudice to the delivery of the wider Bailrigg Garden Village (including its infrastructure requirements) and would not undermine the integrated and co-ordinated approach to the wider Bailrigg Garden Village development; and

2. That the development would conform with and further the Key Growth Principles described in Policy SG1; and

3. That the opportunities for sustainable transport modes have been fully considered and that the residual impacts upon the transport network will not be severe.

The potential for the future re-configuration of Junction 33 of the M6 and highway network improvements in South Lancaster will be an integral part of this forthcoming DPD.

To ensure the timely delivery of the Bailrigg Garden Village, work on the wider DPD has already commenced and is anticipated to be ready for adoption within the first five years of the plan (i.e. before 2022).

In January 2019, Lancaster City Council declared a climate emergency. Whilst the Adopted Local Plan does seek to address climate change, it was too far advanced in the plan preparation process to incorporate some of the actions and directions of the climate emergency declaration. The Council have therefore begun a Local Plan Review, to ensure that the aspects of this important agenda are adequately considered and include the necessary mitigation and adaption measures to address the climate emergency. The Local Plan Review is now at the second stage. A Scoping consultation was undertaken between September and November 2020. Consultation on a draft document (Regulation 18) is currently ongoing, with comments requested by September 2021 and submission anticipated in early 2022.

1.3 Purpose of this Report

This SA Report has been prepared by Arcadis Consulting (UK) Ltd. on behalf of Lancaster City Council, as part of the combined Sustainability Appraisal (SA) and Strategic Environmental Assessment (SEA) (hereinafter referred to as SA) of the emerging AAP. The background to and purpose of the SA is outlined in the SA Scoping Report dated July 2021. In summary, SA is a process of appraising the social, environmental and economic effects of a plan and its alternatives as it develops.

The SA is undertaken by independent consultants who can provide feedback and recommendations to the plan-makers during the appraisal process in order to amend the plan and contribute to the achievement of sustainable development. The SA is being produced in accordance with the SEA Directive[3] which is transposed directly into UK law through the SEA Regulations[4]. This requires the authority preparing the plan to consult the consultation bodies[5] on the scope and level of detail of the SA.

This stage of the SA relates to the appraisal of spatial options. As such, this report provides the SA of the three spatial options proposed in the Council's 2018 consultation document. In addition to this, Option 3a (2021) has now been appraised alongside the previous options. This will help to inform the consultation process and feed into decision-making. The SA of these options will eventually also be reported in the formal SA Report for the Draft and Final AAP.

1.3.1 Previous SA work on the AAP

In 2018, three spatial options and four Bailrigg Garden Village centre options were considered in the 'Bailrigg Garden Village Area Action Plan - Issues and Options Paper'[6] and were appraised in the associated SA[7]. The 2018 SA assessed these options against a slightly different SA Framework to that used in this SA Report, which better related to the adopted Local Plan SA Framework (the most relevant SA Framework at that time). The SA Framework presented in the 2021 SA Scoping Report reflects some of the changes made as part of the Local Plan Review and associated SA process, which focuses on the recently declared climate emergency. Therefore, the assessments set out in this SA Report set out an updated assessment of the previously considered options against the latest SA Framework.

[3] Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plansand programmes on the environment. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32001L0042 [Accessed: 12.07.21]
[4] The Environmental Assessment of Plans and Programmes Regulations 2004. Available at: https://www.legislation.gov.uk/uksi/2004/1633/contents/made [Accessed: 12.07.21]
[5] Natural England, Environment Agency, Historic England
[6] Lancaster City Council (2018) Bailrigg Garden Village Area Action Plan, Issues and Options Paper. Available at: https://planningdocs.lancaster.gov.uk/NorthgatePublicDocs/00978585.pdf [Accessed: 27.07.21]
[7] Arcadis (2018) Bailrigg Garden Village Area Action Plan, Sustainability Appraisal of Spatial Options. Available at: https://planningdocs.lancaster.gov.uk/NorthgatePublicDocs/00978589.pdf [Accessed: 27.07.21]

2 Approach to the SA

2.1 Stages in the SA process

The ODPM's Practical Guide[8] and the National Planning Practice Guidance (NPPG) subdivides the SA process into a series of stages. While each stage consists of specific tasks, the intention should be that the process is iterative. Table 2-1 presents the key stages in the SA process and indicates where specific tasks have been addressed to date. The table also demonstrates how each of the SA stages are linked to the preparation and development of the AAP.

Table 2-1: Stages in the SA process

SA Stage	Section of the Report (where applicable)	Application to the AAP
Stage A: Setting the context and objectives, establishing the baseline and deciding on the scope		
A1: Identifying other relevant policies, plans and programmes and sustainability objectives	This was outlined within the SA Scoping Report (July 2021).	Stage A corresponds to the scoping stage of the SA. The findings of this stage were presented in the SA Scoping Report, issued for consultation to statutory consultees (Natural England, the Environment Agency and Historic England).
A2: Collecting baseline information		
A3: Identifying sustainability issues and problems		
A4: Developing the SA Framework		
A5: Consulting on the scope of the SA		
Stage B: Developing and Refining Options and Assessing Effects		
B1: Testing the AAP objectives against the SA Framework	This report documents the Initial SA of the AAP objectives against the SA Framework along with the spatial options.	Stage B of the SA process is linked to the overall production of the AAP which includes the development of options and the selection of the preferred options. There should be a considerable degree of interaction between the plan-making and SA teams during this stage in the process to enable potential adverse effects of the AAP to be avoided/minimised and potential sustainability benefits maximised.
B2: Developing the AAP Options		
B3: Predicting the effects of the AAP		
B4: Evaluating the effects of the AAP		
B5: Considering ways of mitigating adverse effects and maximising beneficial effects	All of these stages will be documented in the SA Report.	
B6: Proposing measures to monitor the significant effects of implementing the AAP		
Stage C: Preparing the SA Report		
C1: Preparing the SA Report	This will result in a SA Report documenting the effects of the AAP and will also include an assessment of the options considered	The proposed submission AAP will be prepared ready for consultation.

[8] ODPM (2005) A Practical Guide to the SEA Directive. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/7657/practicalguidesea.pdf [Accessed: 15.07.21]

SA Stage	Section of the Report (where applicable)	Application to the AAP
	during the AAP's development.	
Stage D: Consultation on the Proposed Submission AAP and the SA Report		
D1: Public participation on the proposed submission AAP	-	The SA Report and the proposed submission AAP will be consulted upon in accordance with the Regulation 13 of the Environmental Assessment of Plans and Programmes Regulations (2004).
D2: Appraising significant changes resulting from representations	-	Following the receipt of representations, the SA Report may need to be updated to reflect comments received. It will be essential for the SA Report and the AAP to remain consistent.
D3: Making decisions and providing information	-	
Stage E: Monitoring the significant effects of implementing the AAP		
E1: Finalising aims and methods for monitoring	Monitoring will commence once the AAP has been adopted.	Monitoring undertaken for the SA process should feed into the Authority's Monitoring Report.
E2: Responding to adverse effects		

2.2 SA Framework

The SA Framework underpins the assessment methodology and comprises a series of Sustainability Objectives (covering social, economic and environmental issues) that are used to test the performance of the plan being assessed. Whilst the SEA Regulations do not require the use of Sustainability Objectives, they are a recognised tool for undertaking the assessment and are aspirations/goals that the AAP should work towards achieving.

The Sustainability Objectives are separate from the AAP Objectives, although there may be some overlaps between them. Baseline data should be collated to support each of the Objectives, as this provides a means of determining current performance for the AAP and gauging how much intervention or the extent of work needed to achieve the targets that have been identified. The following sections provide further details about the development of the SA Framework.

The Sustainability Objectives previously developed for the SA of the Lancaster Local Plan Review have been modified where necessary to suit the assessment approach taken for the AAP. The original SA Objectives and Sub- Objectives were generated by using the review of other relevant plans, programmes and environmental objectives, the baseline data and the key issue and opportunities of the Local Plan SA. The Local Plan Review focuses on the effect of development within the context of the recently declared climate emergency, and the SA Framework for the Local Plan Review reflects this. Climate change was already within the SA Framework for the AAP under SA Objective 6: to limit and adapt to climate change and increase energy efficiency.

The SA Objectives have been reviewed to ensure they are relevant to other relevant plans, programmes and environmental objectives, the baseline data and the key issues and opportunities of the AAP and what the AAP can achieve. The modifications are only relatively minor to ensure consistency with the SA for the Local Plan as a whole. On the whole, the headline SA Objectives have remained largely unchanged although the sub-objectives have been amended to better reflect the AAP.

Table 2-2 presents the proposed SA Objectives that will be used in the assessment of the AAP. Each of the Sustainability Objectives is supported by a series of sub-objectives to add further clarity and to assist the assessment process. A summary of the Scoping consultation comments can be found in Appendix C of the SA Scoping Report.

Table 2-2: SA Framework

SA Objective	Sub-Objectives
1. To ensure there is housing to meet all needs	• To provide new housing to contribute towards the District's housing targets. • To ensure a wide range of decent housing is provided to meet housing needs including affordable housing.
2. To improve physical and mental health for all, encourage community cohesion, reduce health inequalities and reduce exposure to hazards	• To ensure the health and wellbeing needs of all sectors of society are addressed. • To improve access to health and social care services. • To promote healthy lifestyles. • To ensure there is access to greenspace, public spaces, rights of way and play areas. • To ensure there are cultural /social/ community facilities and activities for people to enjoy / participate in. • To encourage the development of strong and cohesive communities. • To reduce exposure to noise disturbance and limit impacts upon Noise Important Areas. • To ensure instances of crime and fear of crime are minimised. • To help reduce/avoid levels of anti-social behaviour and violent crime. • To encourage safety by design. • To improve the provision of natural greenspace within the AAP area. • To protect and enhance green infrastructure.
3. To encourage lifelong learning	• To ensure there is access to primary, secondary and further educational opportunities for new residents.
4. To improve sustainable access to basic goods, services and amenities for all groups	• To ensure public transport services (bus and train) meet peoples' needs. • To ensure highways infrastructure serves peoples' transportation needs (including for private vehicular travel, walking and cycling). • To ensure buildings and public spaces are readily accessible. • To promote the use of more sustainable modes of transport and reduce dependence on the private car. • To improve access to cultural and leisure facilities. • To maintain and improve access to essential services and facilities. • To improve access to basic goods, services and amenities.

SA Objective	Sub-Objectives
5. To encourage thriving local economies, ensure key economic drivers are strong, and encourage economic inclusion	• To create new and diverse employment opportunities. • To encourage economic growth. • To encourage inward investment. • To ensure sufficient land, buildings and premises are available to accommodate for businesses. • To ensure Infrastructure (including transportation) meets the needs of business. • To ensure local centres are strong and vibrant. • To ensure higher education sector remains vibrant. • To ensure the knowledge economy is strengthened. • Ensure the labour supply meets local economic needs. • To improve physical accessibility to jobs for those in greatest need. • To contribute to self-containment and a reduction in commuting.
6. To limit and adapt to climate change and increase energy efficiency	• To ensure greenhouse gas emissions are minimised. • To ensure new development is low carbon and energy efficient. • To promote the use of more sustainable modes of transport and reduce dependence on the private car. • To ensure new developments are able to withstand extreme weather events and are resilient to the future long-term changes in climate. • To encourage energy efficiency measures. • To increase the use of renewable energy.
7. To ensure the sustainable use of natural resources, minimise waste and increase recycling	• To ensure the use of best and most versatile agricultural land is avoided. • To ensure that contaminated land will be guarded against. • To encourage development of brownfield land where appropriate. • To encourage sustainable use of water resources. • To ensure important mineral resources are not sterilised. • To encourage waste recycling and re-use and other forms of sustainable waste management. • To promote the use of recycled and secondary materials.
8. To protect and enhance biodiversity	• To protect and enhance designated sites of nature conservation importance. • To protect and enhance wildlife especially rare and endangered species. • To protect and enhance habitats and wildlife corridors. • To provide opportunities for people to access wildlife and open green spaces.
9. To protect and enhance landscape and townscape character and quality	• To ensure places and views, whether urban or rural, are of distinctive character and quality. • To ensure light pollution is minimised. • To promote sensitive design in development • To ensure strategic views are maintained. • To ensure views from the AONBs are not significantly harmed.

SA Objective	Sub-Objectives
10. To protect and enhance the historic environment and heritage assets	• To protect and enhance heritage assets and their settings. • To protect and enhance the historic environment. • To protect and enhance the historic character of the local landscape/ townscape through maintaining and strengthening local distinctiveness and sense of place.
11. To protect and improve air quality	• To protect and improve local air quality. • To avoid worsening of AQMAs.
12. To reduce or manage flooding and enhance the quality of water resources	• To ensure the management of flood risk to people and property. • To seek to reduce flood risk overall, either on the development site or elsewhere. • To ensure watercourses and impounded waters (including canals) are clean and unpolluted. • To ensure groundwater is clean and unpolluted. • To protect and enhance the river corridor environment. • To improve existing water quality.

2.3 Methodology

The appraisal has been presented in an appraisal matrix for each group of policies and allocations. The matrix is an established method for clearly analysing the performance of the policies or sites and helps meet the requirements of the SEA Regulations by ensuring that the following elements are considered:

- Effect – whether the effect will be positive, negative or neutral when assessed against the SA Objectives;
- Temporal scale – whether the effect will be short-term (within 5 years), occur in the medium term (5 – 10 years) or occur in the long-term (10 years +);
- Spatial scale – where the effect will occur within the area. Any transboundary effects outside of the study area would also be considered;
- Permanency – whether effects will be permanent or temporary;
- Level of certainty – the level of certainty in the prediction will be classified as low, medium or high; and
- Cumulative and synergistic effects.

Where negative effects have been identified, measures have been proposed to offset, avoid or otherwise mitigate for the impact. In addition, measures which may further enhance benefits have also been identified as appropriate. Table 2-3 provides an explanation of the notation used in the appraisal matrices.

Table 2-3: Summary of Option Appraisal Terminology

Impact	Description	Symbol
Major Positive Impact	The proposal contributes strongly to the achievement of the SA Objective.	++
Positive Impact	The proposal contributes partially to the achievement of the SA Objective.	+
No Impact/ Neutral	There is no clear relationship between the proposal and/or the achievement of the SA Objective or the relationship is negligible.	0
Negative Impact	The proposal partially detracts from the achievement of some elements of the SA Objective.	-
Major Negative Impact	The proposal strongly detracts from the achievement of all elements of the SA Objective.	--
Uncertain impact – more information required	It is not possible to determine the nature of the impact as there may be too many external factors that would influence the appraisal, or the impact may depend heavily upon implementation at the local level.	?
Positive and Negative Impacts	The proposal has a combination of both positive and negative contributions to the achievement of the SA Objective.	+/-
Timescale	The effects could be realised in the short term (next 5 years), medium term (5-10 years), long term (more than 10 years) or a mix of these.	S / M / L
Direct/ Indirect	The effect is a direct or indirect consequence of the option.	D / I
Reversibility	The effect is reversible or irreversible.	R / I
Certainty	There is high, medium or low certainty in the predication.	H / M / L

3 The Options

3.1 Strategic Spatial Options

The Council has presented four spatial options for development within the AAP boundary. These four options are summarised below. Colours are identified in brackets, to represent the colour presented on each of the Spatial Option figures below.

Options 1, 2 and 3 are carried over from the previous SA Options Report prepared in 2018. The assessment of these three options has been updated to reflect the latest available information and the updated SA Framework. Option 3a is an evolution of Option 3, reflecting the same area, but providing more detail in relation to the work being undertaken on the masterplan of Bailrigg Garden Village. Option 3a has been assessed in the same way as Option 1, 2 and 3.

Spatial Option 1 – Concentrated Garden Village

Description

Garden Village settlement (yellow) is concentrated to the west of the A6 and West Coast Main Line (WCML) with generous areas of green space surrounding the development. Small area of retail growth abutting the existing settlement of Scotforth to the north of the proposed Garden Village development (turquoise). Extension of Lancaster University central to the development area and to the east (pink). Approximately 2,509 dwellings would be delivered through this option at a density of 40 dwellings per hectare (dph). All dwellings would be delivered through the Bailrigg Garden Village.

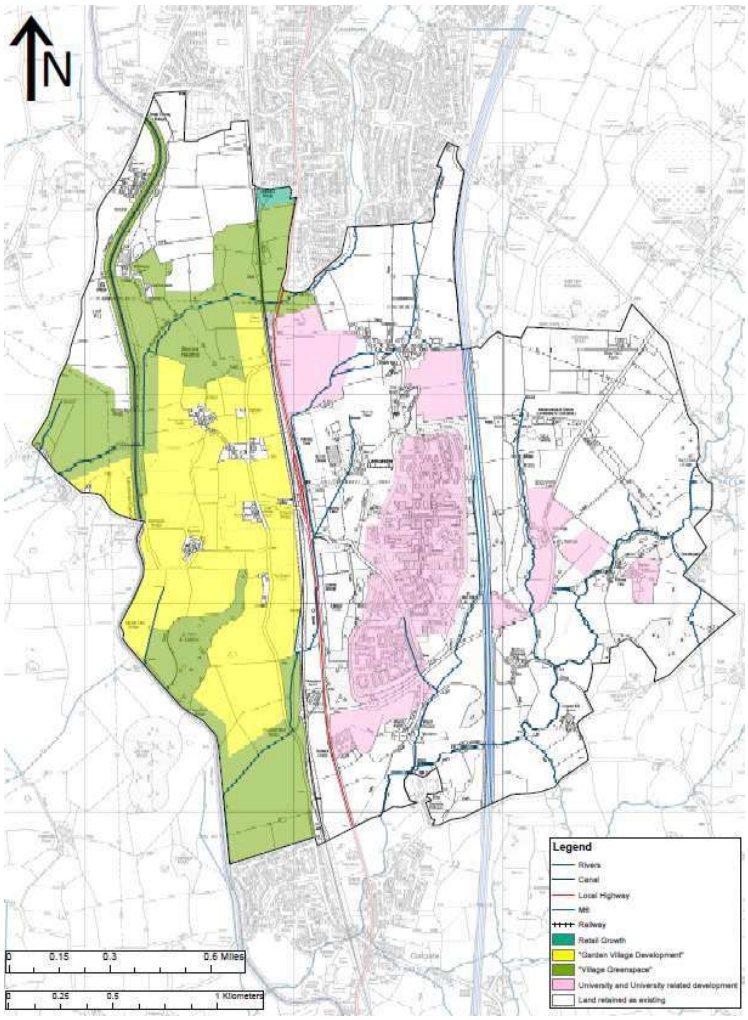


Figure 3-1: Spatial Option 1

Spatial Option 2 – Dispersed Garden Village

Description

The core of the Garden Village settlement (yellow) located to the west of the A6 and WCML with associated dispersed areas allocated to the north and between the A6 and M6 motorway. Option includes generous areas of green space linked to the Garden Village. Small area of proposed retail growth abutting the existing settlement of Scotforth to the north of the proposed Garden Village development (turquoise). Extension of Lancaster University located centrally to the development area and to the east (pink). Approximately 4,367 dwellings would be delivered through this option at a density of 40dph. All housing provision would be delivered entirely through the Bailrigg Garden Village.

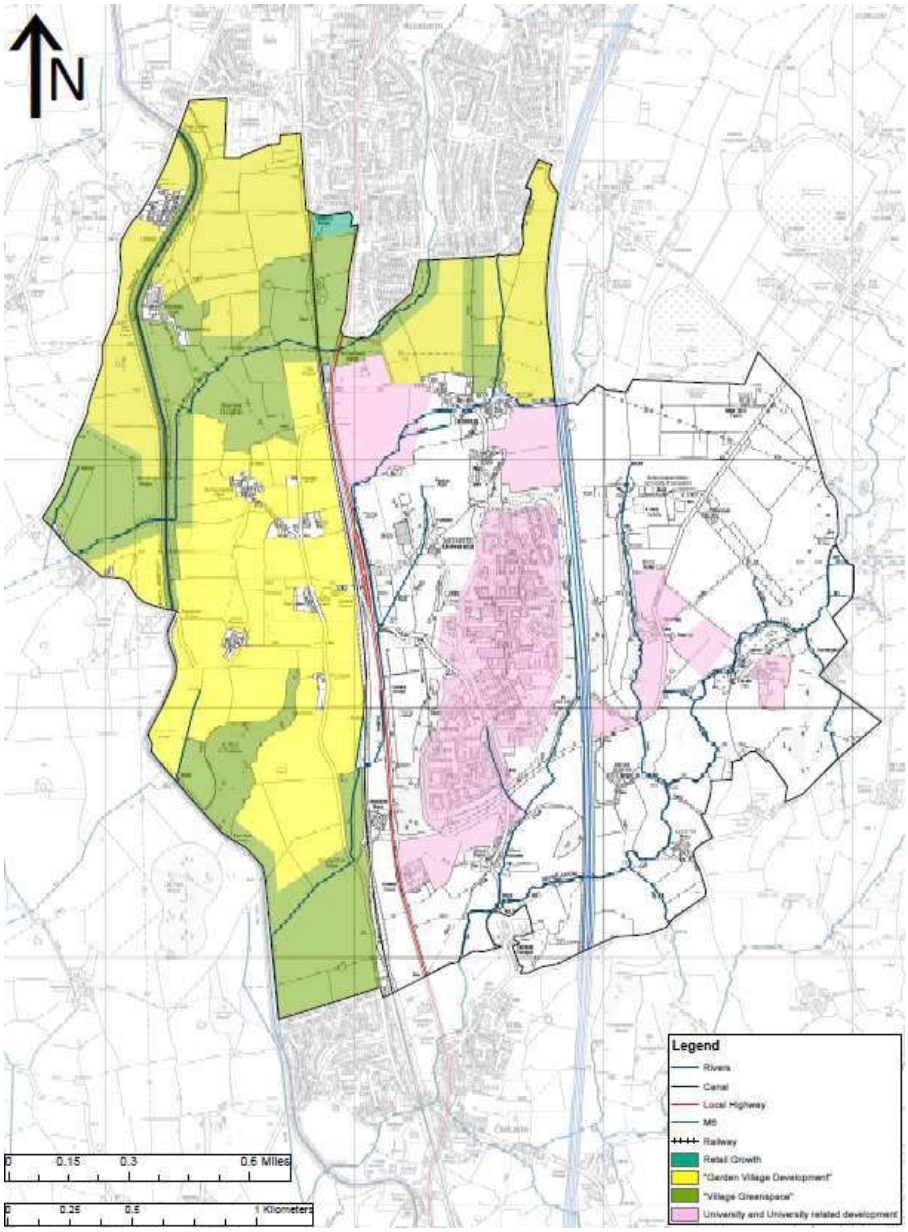


Figure 3-2: Spatial Option 2

Spatial Option 3 - Concentrated Garden Village plus development extensions to the southern edge of Lancaster

Description

Smaller Garden Village settlement (yellow) allocated wholly to the west of the A6 and West Coast Main Line (WCML) with generous areas of green space linked to the development. Small area of proposed retail growth abutting the existing settlement of Scotforth to the north of the proposed Garden Village development (turquoise). Extension of Lancaster University central to the development area and to the east (pink). Large area of development allocated as an urban extension of Lancaster to the north (orange) brought forward through seven sub-options. Approximately 4,367 dwellings would be delivered through this option at a density of 40dph. These dwellings would be delivered through two developments - ~2,509 dwellings delivered through the proposed Bailrigg Garden Village with the remaining ~1,858 dwellings delivered through the seven sub-options.

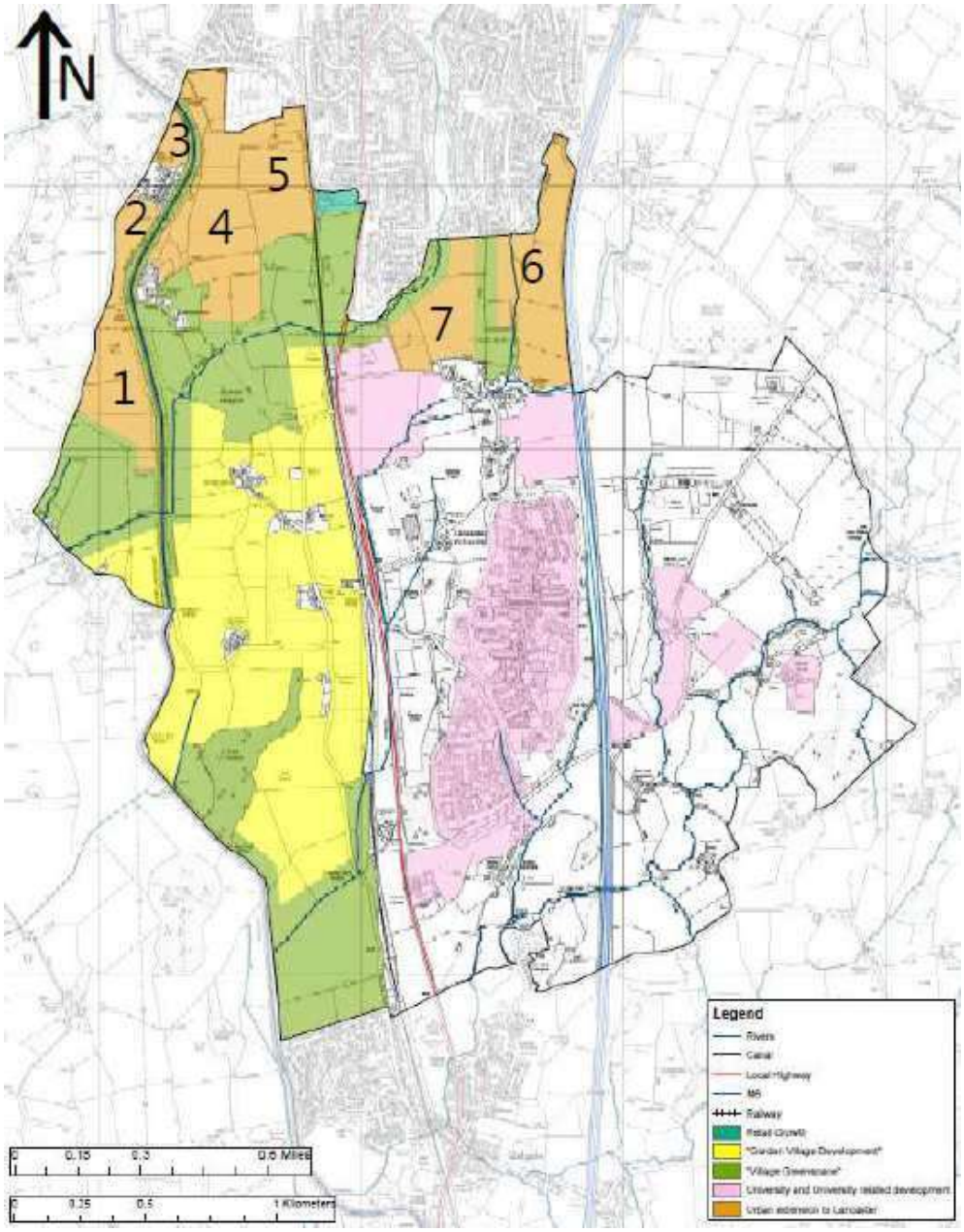


Figure 3-3: Spatial Option 3

Spatial Option 3a - Masterplan Garden Village plus development extensions to the southern edge of Lancaster

Description

The allocation of the Garden Village (yellow) is bound to the north west by the A588 and by the WCML to the east, with areas to be explored for urban development to the south of Scotforth. The option would allow for the development of 3,500 new dwellings at an estimated 40dph, opportunities for employment and economic growth including the delivery of the Lancaster University Innovation Campus and wider University related expansion as well as the infrastructure required to support growth at this location. Large areas of greenspace are proposed as part of the Garden Village development. The urban extension to Scotforth (orange hashed) is not as well defined as the Garden Village and the precise configuration of development is currently unknown.

Spatial Options 1, 2 and 3 were set out in the 2018 Issues and Options report prepared by the Council. Option 3a is a new option which has evolved following the consideration of Options 1, 2 and 3, the preparation of the draft masterplan for Bailrigg Garden Village, and consultation with the local community.

Following the options appraisal work undertaken in 2018, the City Council commissioned architects JTP to review the work undertaken to date and engage further with the community to prepare a detailed masterplan for the Bailrigg Garden Village area. Unlike the earlier options analysis undertaken by the City Council, the scope of the JTP masterplanning focused specifically on the delivery of a Garden Village and not did not make any recommendations with regard to options for wider growth within the area designated as the 'Lancaster South Broad Location for Growth' identified under Policy SG1 of the Strategic Policies & Land Allocations DPD. The AAP (and all options presented in this report) seeks to consider this wider area and the formal designation under Policy SG1.

The work undertaken to date on the masterplan clearly moves considerations further in relation to how development might be progressed within the Bailrigg Garden Village area. In terms of the AAP it represents an evolution of the existing Option 3 explored by the Council in 2018 and adds detail to what parcels of land may be appropriate for development within the Garden Village. Recognising this evolution through the masterplan, the Council has included an additional Option 3a into the options assessment. Whilst this continues to reflect the geographical boundaries identified by all three options, it allows the considerations emerging from the masterplan to be assessed within the SA process and represents an evolution of Option 3. It identifies in more detail the need for generous landscape buffers and starts to allow for consideration of how the topography and landscape will inform the amount and location of development within the Garden Village. Option 3a continues to focus on the opportunities for growth within the formal designation set out by Policy SG1, whilst the masterplan highlights opportunity for extension for the growth of the garden village to meet needs well beyond this plan period, this does not represent a formal position at this time. The Council will explore the need to re-define the scope for growth in South Lancaster through AAP process. Any decisions on widening the scope will be appropriately reflected in the SA/ HRA processes.

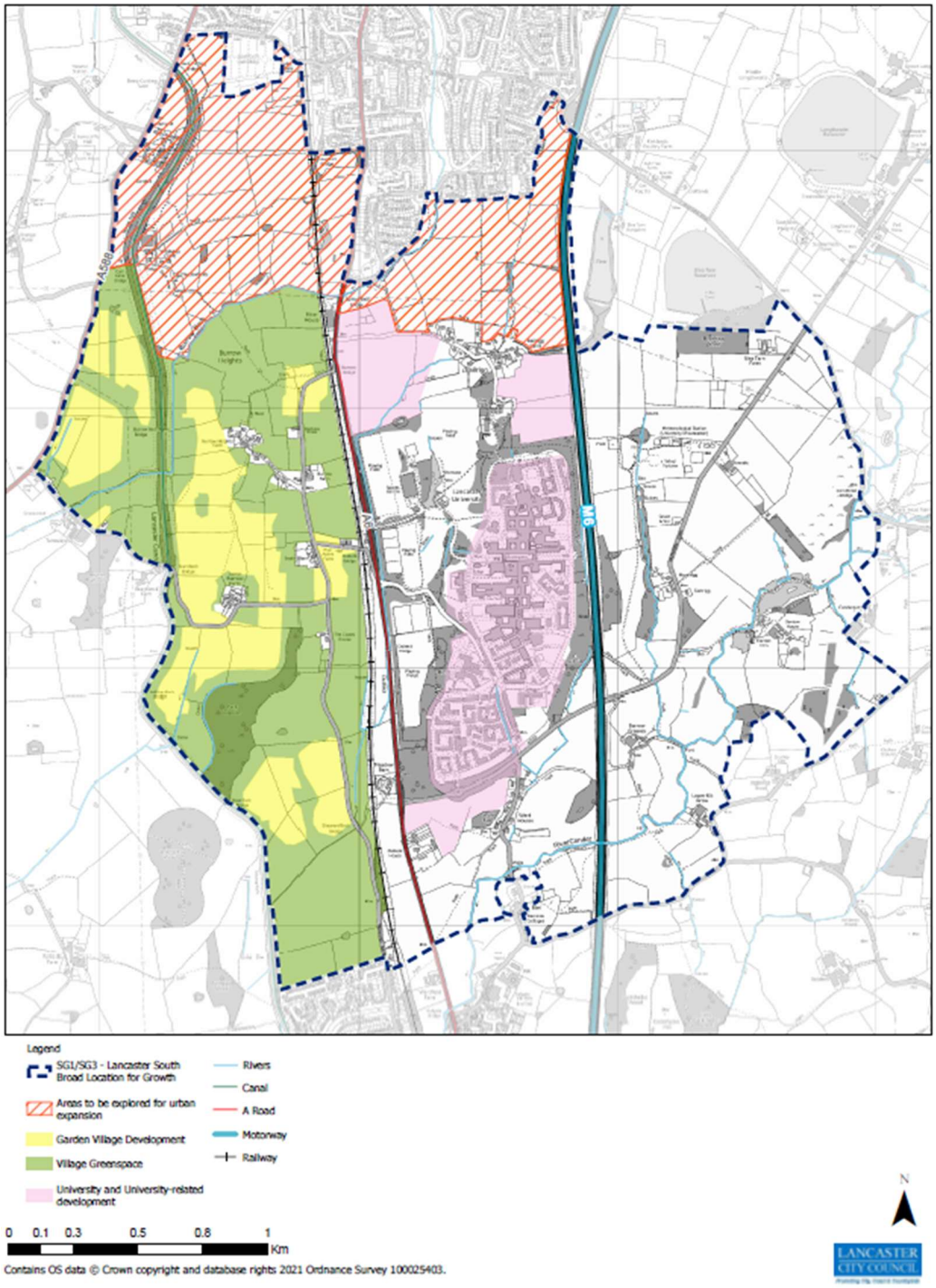


Figure 3-4: Spatial Option 3a

An appraisal of the four spatial options is set out in Table 4-1.

3.2 Bailrigg Garden Village Centre Options

In conjunction with the four spatial options, the Council has also put forward four Bailrigg Garden Village centre options. These options were assessed in 2018. These are presented in Figure 3-5 below.

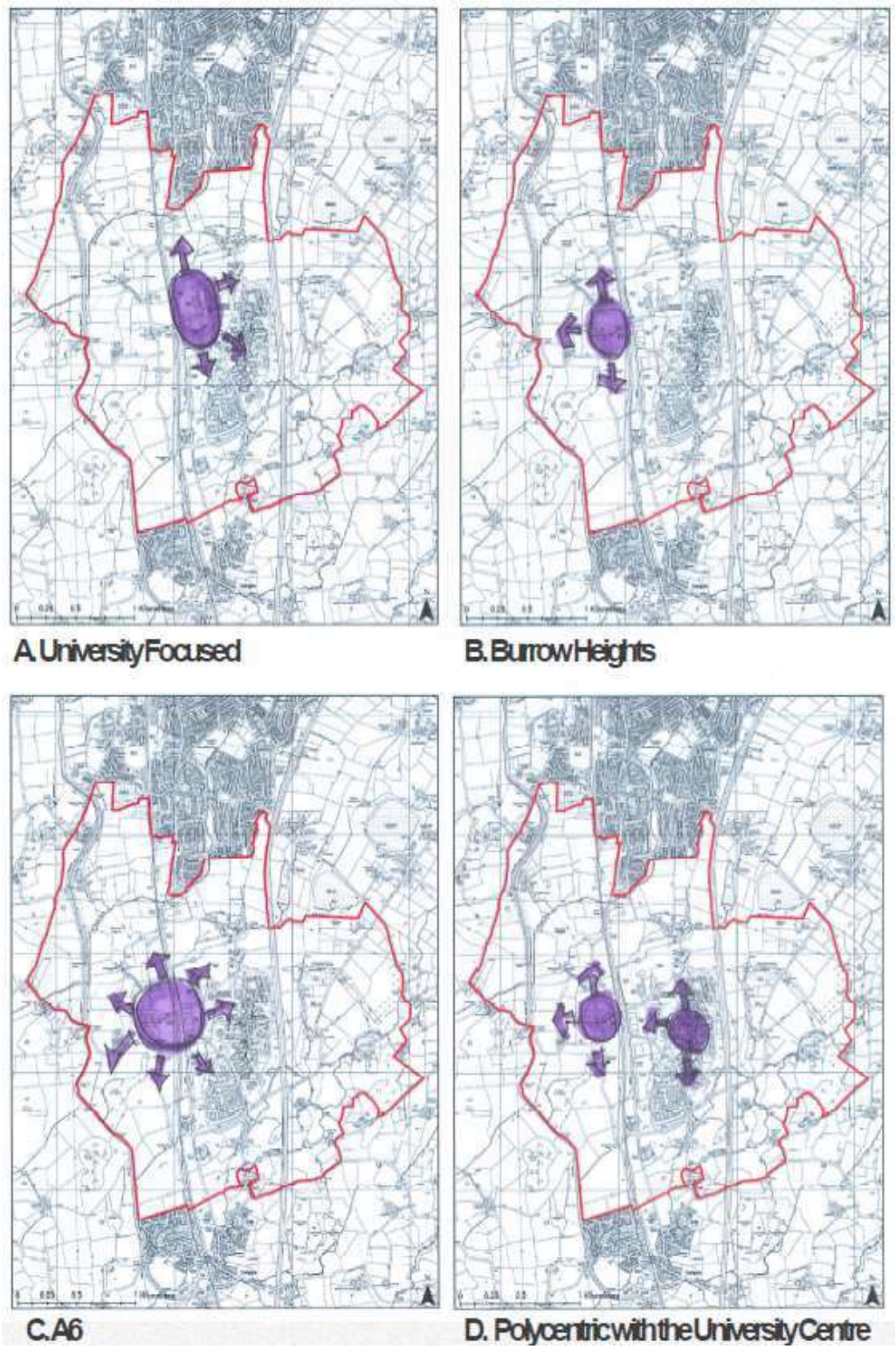


Figure 3-5: Four proposed Bailrigg Garden Village Centre Options

A high-level SA assessment of the four village centre options has been undertaken; this is presentedalongside the SA of the spatial options in Table 4-2.

4 Appraisal of the Options

4.1 Strategic Spatial Options Appraisal

Table 4-1 sets out the appraisal of the four strategic spatial options presented by the Council.

Table 4-1: Appraisal of the Strategic Spatial Options 1, 2, 3 and 3a

SA Objective	Strategic Spatial Options 1, 2, 3 and 3a				
	Spatial Option	Score (in the absence of mitigation)	Commentary	Mitigation potential and recommendations	Potential Residual Score
1. Housing To ensure there is housing to meet all needs	1	+ M/L D R H	The options all seek to provide a significant quantum of housing to meet housing needs. It is assumed that the AAP would include for a range of housing including affordable housing to ensure the housing stock provided is suited to the local demands and needs.	The AAP should detail how a range of housing types and tenures will be provided to ensure that housing needs are met for all groups including affordable homes.	+ M/L D R H
	2	++ M/L D R H	Options 2 and 3 include a developed area with ~4,367 new dwellings at 40dph. Option 3a proposes ~3,500 dwellings at 40dph. Option 1 has the smallest housing provision (~2,509 at 40dph). In this sense, Options 2 and 3 perform the strongest in terms of delivering housing needs with Option 1 being the weakest, although all options contribute strongly to this SA Objective. All of the proposed development under Option 2 is proposed to be part of the Garden Village development. Development proposed to the north of Options 3 and 3a are proposed as urban extensions to Scotforth.		++ M/L D R H
	3	++ M/L D R H			++ M/L D R H
	3a	++ M/L D R H	Overall, Options 2 and 3 propose the highest number of new dwellings and would therefore result in the greatest benefits in relation to housing. Option 1 proposed the least number of dwellings and would therefore result in the least benefits in relation to housing.		++ M/L D R H

SA Objective	Strategic Spatial Options 1, 2, 3 and 3a				
	Spatial Option	Score (in the absence of mitigation)	Commentary	Mitigation potential and recommendations	Potential Residual Score
2. Health and Wellbeing To improve physical and mental health for all, encourage community cohesion, reduce health inequalities and reduce exposure to hazards	1	+/- L I R M	It is assumed that all options would provide sufficient provision of the five essential services and amenities to meet the needs of the new population. This would include schools, shops and health care facilities. Access to healthcare would be provided for all options and all options also include provision of amenity and recreational spaces and opportunities for active travel and encouraging healthy lifestyles, e.g. provision of footpaths, cycleways and access to green infrastructure. All options are also in proximity to the Health Innovation campus at Lancaster University. All options would provide new, decent quality homes and sustainable access to jobs. None of the options are expected to lead to a worsening of air quality as there is a strong focus on sustainable travel, especially into the city centre and all options would require new junction access to the M6 which would avoid worsening of air quality in the Galgate Air Quality Management Area (AQMA). However, Options 1, 2 and 3 propose residential development along the WCML and close to the A6. A Noise Important Area (NIA) is currently designated along the A6, presumably relating to the high noise levels at an existing residential receptor. It is feasible that if new residential development occurs along the WCML then this NIA may need to be extended, suggesting a potential noise issue. Option 3a does not propose to situate development adjacent to the WCML and only two small areas of proposed development are in proximity to the railway line, reducing the exposure of noise and vibration to new residents under this option. Options 2, 3 and 3a propose development adjacent to the M6, adjacent to another NIA. Introducing sensitive development in such an area could result in the existing	The AAP should detail how sufficient access to health care would be provided including to match any phasing of construction. It is recommended that noise mitigation is provided for development near to the WCML (potentially including a buffer and noise barrier). It is recommended that residential development is not proposed adjacent to the M6 (as with Options 2, 3 and 3a) on noise pollution grounds unless it is possible to mitigate this through the provision of e.g., noise barriers. Following mitigation, it should be possible to avoid any adverse effects on human health. Whilst crime is more than just a planning issue, it is possible to reduce the potential of an area becoming a crime target through careful design and security measures. This should be outlined in the AAP and whilst there is likely to be more crime compared with the current greenfield nature of the site, it is anticipated that this can be reduced to a minimum. It is recommended that Secured by Design principles and opportunities for natural surveillance are included into the proposed scheme.	+ L I R M
	2	+/- L I R M			+ L I R M

SA Objective	Strategic Spatial Options 1, 2, 3 and 3a				
	Spatial Option	Score (in the absence of mitigation)	Commentary	Mitigation potential and recommendations	Potential Residual Score
	3	+/- L I R M	NIA being extended to cover a larger area. It is for this reason that the Health SA Objective scores both positive and negative effects with the negative effects being more pronounced in Options 2 and 3 than in Options 1 and 3a. Option 3a also proposes more greenspace to be located around key source of noise and air pollution (railway lines and roads) which would act as buffers and help to minimise adverse effects. The Garden Village ethos and development of a village centre should benefit the creation of cohesive community spirit. Currently it is not clear how any of the options which propose a separation of development between the village centre and the urban extension to the north (Options 2, 3 and 3a) could be regarded as part of the same village, so this is less likely to create cohesion between those areas.		+ L I R M
	3a	+ L I R M	All new housing development on greenfield sites has potential to create new targets for crime. Given the scale of the proposed development this increase has potential to be significant although opportunities to minimise this exist through good design. All options are similar in this respect. All four options include the integration of greenspace into housing development, providing access to natural habitats for mental well-being benefits and outdoor space for physical exercise. Option 3a proposes the greatest area of greenspace in and around the proposed development and therefore would provide the most natural space and have the most benefits in relation to mental well-being.		+ L I R M

SA Objective	Strategic Spatial Options 1, 2, 3 and 3a				
	Spatial Option	Score (in the absence of mitigation)	Commentary	Mitigation potential and recommendations	Potential Residual Score
3. Education To encourage lifelong learning	1	++ S/M/L D I M	It is assumed that new schools would be provided within all options to meet the needs of the new population. This may need to include primary and secondary provision. Under Option 3a, the level of land proposed for university and university-related development is less clear, compared with Options 1, 2 and 3. Therefore, the predicted benefits under Options 1, 2 and 3 are more certain in relation to education, compared with Option 3a, at this stage. Linkages to the University provide a strong opportunity to encourage lifelong learning and further education for new residents and beyond. The new sustainable transport links proposed as part of the Garden Village could improve access to new and existing education for new residents and those who already live nearby.	The AAP should detail how sufficient access to education would be provided to match any phasing of construction. It is recommended that noise mitigation is provided should development be near to the WCML and/or M6 (potentially including a buffer and noise barrier).	++ S/M/L D I M
	2	++ S/M/L D I M			++ S/M/L D I M
	3	++ S/M/L D I M			++ S/M/L D I M
	3a	+ S/M/L D I M			+ S/M/L D I M
4. Transport To improve sustainable access to basic goods, services and amenities for all groups	1	++ S/M/L D I M	All options include provisions for a Bus Rapid Transit scheme into and out of Lancaster City Centre. It is assumed that all options would include essential services and amenities within the Garden Village de therefore providing easy access to these. All options are already well served by major transport routes such as the A6 road and M6 motorway as well as the WCML, all running north to south. All options propose a new park and ride facility, and would include significant walking and cycling infrastructure including the proposed Cycle Superhighway being brought forward as part of the Lancaster Cycling and Walking Investment Plan. However, it is unknown at this stage what links are included to serve east to west connections. Options for a new railway have been investigated, but this has been evaluated as not feasible at this stage.	The transport strategy will be key to developing a sustainable development and opportunities to maximise connectivity by sustainable means including safe and attractive walking and cycling. Options should be kept open in relation to the prospect of a new railway station, should this become more viable in the future.	++ S/M/L D I M
	2	++ S/M/L D I M			++ S/M/L D I M
	3	++ S/M/L D I M			++ S/M/L D I M

SA Objective	Strategic Spatial Options 1, 2, 3 and 3a				
	Spatial Option	Score (in the absence of mitigation)	Commentary	Mitigation potential and recommendations	Potential Residual Score
	3a	++ S/M/L D I M	As Options 3a proposes new housing development to be located in smaller areas rather than one large Garden Village (as proposed under Options 1, 2 and 3), Option 3a could potentially lead to limited accessibility between houses and services within the area. Proposed public transport and walking and cycling facilities should create positive effects against this objective..		++ S/M/L D I M
5. Economy and Employment To encourage thriving local economies, ensure key economic drivers are strong, and encourage economic inclusion	1	+ S/M/L I R M	All options locate housing close to easily accessible employment opportunities in Lancaster providing proximity to sustainable transport, including the Bus Rapid Transit Scheme and proposed Cycle Superhighway to enable key employment areas to be accessed readily. This is both beneficial to economic growth and inward investment potential as well as encouraging proximity to jobs, resulting in major positive effects on the local economy, economic drivers and economic inclusion. Furthermore, it is assumed that all options include for the provision of basic services and facilities which can both help encourage economic investment in those areas and increase access to employment opportunities. The expansion of Lancaster University proposed under all options would strengthen the strong knowledge economy of the area through attracting a range of skilled workers and allow the University to increase its student intake and therefore its income. This expansion will help to increase the vibrancy of the higher educational sector of Lancaster	The AAP could include an increased allocation for employment space in conjunction with the Garden Village therefore offering a range of job opportunities to local residents including for those most in need. This would also help to encourage further inward investment into the Garden Village and thus the Lancaster District itself.	++ S/M/L I R M
	2	+ S/M/L I R M			++ S/M/L I R M

SA Objective	Strategic Spatial Options 1, 2, 3 and 3a				
	Spatial Option	Score (in the absence of mitigation)	Commentary	Mitigation potential and recommendations	Potential Residual Score
	3	+ S/M/L I R M	by offering a range of university-related opportunities. Expansion to Lancaster University would also increase employment opportunities in the immediate area of the Garden Village. Option 3a is not as clear in relation to university-related development, compared to the other three options, and therefore, effects on the local economy are less certain. It is assumed that all options include for a range of housing types therefore attracting a workforce with a range of skills suiting local economic needs. For example, the Garden Village would be a particularly suitable area for those working at Lancaster University or within Lancaster City centre itself given its strong sustainable transport opportunities and its proximity to these employment areas. All options would increase accessibility to jobs through the provision of shops and services through the proposed retail growth to the north of the development forming an integral part of the Garden Village.		++ S/M/L I R M
	3a	+ S/M/L I R L			++ S/M/L I R M
6. Climate Change To limit and adapt to climate change and increase energy efficiency	1	- S/M/L I IR L	All options include provisions for strengthening sustainable transport opportunities in South Lancaster particularly through the Bus Rapid Transit Scheme and the Park and Ride, as well as including designations for open space. All options are likely to increase greenhouse gas emissions overall through the increase of private car use and energy use in homes, due to the significant increase in population. Option 1 proposes the least amount of development, and therefore, would have the least impact in relation to greenhouse gas emissions.	The AAP could promote low carbon building design to limit the amount of carbon dioxide production and improve energy efficiency. Consideration could also be given to on-site renewable energy schemes so long as they are low impact and do not contradict biodiversity or landscape objectives. The transport strategy will be key to developing a sustainable development and opportunities to maximise	+/- S/M/L I IR L
	2	- S/M/L I IR L			+/- S/M/L I IR L
	3	- S/M/L I IR L			+/- S/M/L I IR L

SA Objective	Strategic Spatial Options 1, 2, 3 and 3a				
	Spatial Option	Score (in the absence of mitigation)	Commentary	Mitigation potential and recommendations	Potential Residual Score
	3a	+/- S/M/L I IR L	Option 3a proposes a greater quantity of greenspace across the AAP area which have benefits in relation to carbon storage. The green spaces between developments could be used for specific initiatives such as SUDs and urban cooling, which could help the community adapt to the effects of climate change. However, this option also proposes housing development in smaller parcels within the AAP area, which could increase the distance between housing and essential services and could potentially lead to the use of private car use rather than walking or cycling, resulting in an increase in transport-associated greenhouse gas emissions. The implementation of walking, cycling and public transport infrastructure will be key to minimising potential negative effects against this objective.	connectivity by sustainable means including safe and attractive walking and cycling	+/- S/M/L I IR L
7. Natural Resources To ensure the sustainable use of natural resources, minimise waste and increase recycling	1	- S/M/L I R M	All options allocate development around Burrow Beck and the Lancaster Canal. Development in this location would replace a large amount of greenfield land around these waterbodies with less permeable materials thereby increasing surface water runoff. In turn, this would increase the risks of residential and commercial pollutants entering watercourses. Options 2, 3 and 3a allocate residential development around Ou Beck to the northeast, which could potentially result in pollutants entering the watercourse. All options would lead to an increase in waste production and natural resource use due to the increase in local population. Option 1 proposes the least new development and therefore would result in the least volume of soil lost to development and is therefore the best performing option in relation to natural resources. Option 3a proposes the	A thorough and detailed drainage design would be required to prevent the pollution of watercourses. The AAP should require this to be developed with good practice measures to intercept potential polluted run-off from development, including the integration of SUDS. Measures should also be in place to prevent pollution during construction. Opportunities for water efficiency measures should be taken where feasible to minimise water consumption and depletion of the local supply. The AAP should include for onsite waste recycling provisions to reduce the amount of waste sent to landfill. Additionally, it should be confirmed that	- S/M/L I R M
	2	-- S/M/L I R M			- S/M/L I R M
	3	-- S/M/L I R M			- S/M/L I R M

SA Objective	Strategic Spatial Options 1, 2, 3 and 3a				
	Spatial Option	Score (in the absence of mitigation)	Commentary	Mitigation potential and recommendations	Potential Residual Score
	3a	- S/M/L I R M	largest areas of greenspace and therefore the second-least amount of soil would be lost to development.	waste produced from the development can be adequately disposed of. The AAP should ensure the use of ethically and sustainably sourced building materials and promote the use of recycled construction materials where possible.	- S/M/L I R M
8. Biodiversity To protect and enhance biodiversity	1	- S/M/L D IR L	The nearest internationally and nationally designated sites are the Morecambe Bay Special Protection Area (SPA) / Special Area of Conservation (SAC) / Ramsar site and the Lune Estuary Site of Specific Scientific Interest (SSSI) approximately 850m west of all four options. There is potential that all of the options may contain land that is functionally linked to the designated sites mentioned above. This could therefore result in likely significant effects on qualifying bird species that would use this land as an important foraging resource through loss of habitat and recreational disturbance. There are also three locally designated Biological Heritage Sites (BHSs) that lie within the AAP area – Park Coppice Woodland, Burrow Beck and the Lancaster Canal. All options retain these BHSs as part of the Garden Village along with existing hedgerows and ponds where possible. Option 1 is the smallest spatial option proposed and would therefore result in the least amount of greenfield	Specific measures should be included in the AAP for the protection of designated nature conservation sites (during construction and operation) whether this be in the form of buffer zones, measures to manage recreational impact or physical barriers. Retention of wildlife corridors, pollution prevention and retention and new planting of trees, hedgerows and BAP habitat is encouraged where possible. The preferred spatial option should include green infrastructure provision to enhance biodiversity and connectivity. Habitat and wildlife surveys should be undertaken to determine suitable mitigation measures and minimise habitat and species loss.	- S/M/L D IR L
	2	-- S/M/L D IR L			- S/M/L D IR L

SA Objective	Strategic Spatial Options 1, 2, 3 and 3a				
	Spatial Option	Score (in the absence of mitigation)	Commentary	Mitigation potential and recommendations	Potential Residual Score
	3	-- S/M/L D IR L	land lost to development, helping to protect existing biodiversity. Option 3a is the spatial option which proposes the largest quantity of greenspace which would help protect existing biodiversity features, but also provides an opportunity for biodiversity enhancements to be integrated into the development. As each option will be built on greenfield land, it is likely that habitats will be lost through the development.	Should the preferred spatial option result in the loss of functionally linked land, the AAP should seek to identify replacement land in order to mitigate the effects of this loss. This remains subject to functionally linked land being identified. Further investigation should be undertaken to determine whether the land is functionally linked to the designated sites. The land to the east of the M6 is one potential geographic location where mitigation land could be explored. It is also recommended that the AAP specifies a percentage for biodiversity net gain required on site. The adopted Local Plan (2011-2031) highlights the importance of biodiversity enhancements, so it is therefore assumed that each of the spatial options would attempt to provide biodiversity net gain to the site.	- S/M/L D IR L
	3a	- S/M/L D IR L			- S/M/L D IR L
9. Landscape To protect and enhance landscape and townscape character and quality	1	- S/M/L I R M	All options would have an adverse effect on the character of two Landscape Character Areas resulting from the change of land use. All options would result in an evident change in the appearance and setting of the local landscape resulting in the encroachment of the urban form within an important buffer to the Key Urban Landscape at the south edge of Lancaster. All options have the potential to result in significant negative effects on views out of the Forest of Bowland AONB, views from high sensitivity residential properties at the urban edge of Lancaster and on views from high sensitivity rural	The AAP should include stringent policies for sympathetic design and landscaping mitigation including landscape buffers, planting and screening measures in order to reduce the effects of the Garden Village development on heritage assets and the local landscape. In particular, development should avoid high points, green corridors should be maintained and consideration of reducing the	- S/M/L I R M
	2	-- S/M/L I R M			- S/M/L I R M

SA Objective	Strategic Spatial Options 1, 2, 3 and 3a				
	Spatial Option	Score (in the absence of mitigation)	Commentary	Mitigation potential and recommendations	Potential Residual Score
	3	-- S/M/L I R M	properties and Public Rights of Way within the site. The impact of Option 1 would be slightly less significant that the impacts of Option 2, 3 and 3a, as no development is allocated between the proposed Garden Village and the settlement of Scotforth under Option 1, thereby providing a natural buffer to any Garden Village related development further south. There is less greenfield land lost under Option 1, retaining existing landscape features and views. Option 3a also proposes the greatest proportion of greenspace which would help to minimise the effect of development on the local landscape character.	impact of views from the AONB, and other key local viewpoints should be given.	- S/M/L I R M
	3a	- S/M/L I R M			- S/M/L I R M
10. Historic Environment To protect and enhance the historic environment and heritage assets	1	- S/M/L D R M	There is high concentration of designated and non-designated heritage assets that fall within the west/northwest area of the AAP area. These are mainly located around Burrow Heights and Lancaster Canal. Consequently, all options would result in negative effects occurring on the character and setting of a large number of these assets. Options 2, 3 and 3a would result in a more significant negative effect on these heritage assets than Option 1 given that the development footprint of these three options stretch further to the north, therefore increasing the number of assets that fall within the area allocated for development. This is particularly the case for Options 3 and 3a, as sub-options 1-4 of Option 3 and the north west areas of Option 3a would require particular attention due to their proximity to the canal. Option 1 proposes the least quantity of development, and therefore, would be expected to be the option resulting in the least adverse effects on the historic environment. Options 3a proposes the largest quantity of greenspace which could help buffer development from heritage assets.	An appropriate heritage desk-based assessment should be undertaken for any detailed proposal supported by potential ground truthing and recording where required. Impacts on heritage assets can be reduced by considering and respecting the setting of built heritage assets in the detailed design. This may include buffer zones and planting to screen heritage assets from the development. The AAP should be specific on how future development in the area should 'acknowledge' the surrounding historic environment.	0 S/M/L D R M
	2	-- S/M/L D R M			0 S/M/L D R M
	3	-- S/M/L D R M			0 S/M/L D R M
	3a	-- S/M/L D R M			0 S/M/L D R M

SA Objective	Strategic Spatial Options 1, 2, 3 and 3a				
	Spatial Option	Score (in the absence of mitigation)	Commentary	Mitigation potential and recommendations	Potential Residual Score
11. Air Quality To protect and improve air quality	1	- S/M/L D R M	All options are in proximity to the Galgate Air Quality Management Area (AQMA) to the south and the Lancaster AQMA further north. All options would result in an increase in private car movements, particularly north-south via the A6 and M6, which would likely result in an increase in emissions to air in the local area. However, the increase in sustainable transport provisions including the Bus Rapid Transit Scheme and potential Cycle Superhighway proposed would go some way to minimising emissions and this is a key aim of the sustainable transport strategy being developed. Each option would require improvements to the M6 Junction 33. Currently, traffic exiting the M6 motorway northbound is directed through Galgate causing major congestion. The planned improvements to Junction 33 would result in traffic travelling north to the proposed Garden Village bypassing Galgate altogether moving it onto the A6 thereby reducing congestion and travel delays. Option 3a proposes a greater quantity of greenspace across the AAP area which have benefits in relation to air filtration. However, this option also proposes housing development in smaller parcels within the AAP area, which could increase the distance between housing and essential services and could potentially lead to the use of private car use rather than walking or cycling, resulting in an increase in transport-associated air pollution. The implementation of walking, cycling and public transport infrastructure will be key to minimising potential negative effects against this objective. Option 1 proposes the least amount of development, and therefore, would have the least impact in relation to air pollution.	It is recommended that mitigation is provided for development near to the WCML and A6. It is recommended that residential development is not proposed adjacent to the M6 (as with Options 2, 3 and 3a) to prevent exposure to adverse air quality unless it is possible to mitigate this through the provision of green infrastructure as a buffer. Following mitigation, it should be possible to avoid significant adverse effects on human health. The effects of non-exhaust emissions from vehicles should also be considered. The transport strategy will be key to developing a sustainable development and opportunities to maximise connectivity by sustainable means including safe and attractive walking and cycling.	+/- S/M/L D R M
	2	- S/M/L D R M			+/- S/M/L D R M
	3	- S/M/L D R M			+/- S/M/L D R M
	3a	+/- S/M/L D R M			+/- S/M/L D R M

SA Objective	Strategic Spatial Options 1, 2, 3 and 3a				
	Spatial Option	Score (in the absence of mitigation)	Commentary	Mitigation potential and recommendations	Potential Residual Score
12. Flood Risk To reduce or manage flooding and enhance the quality of water resources	1	+/- S/M/L D IR M	Options 1, 2 and 3 allocate development away from Flood Zone 2 (medium risk) and Flood Zone 3 (high risk) areas. It is assumed development as part of urban extensions under Option 3a would not coincide with areas of flood risk, although a small area of the southern corner of the area is within Flood Zone 3. It is assumed areas of medium and high flood risk would remain as undeveloped green space to act as flood storage and buffer areas in order to help protect new housing from the risk of flooding. However, such large-scale development occurring on greenfield land will inevitably reduce the permeability of ground, consequently increasing surface water runoff and increasing flood risk in other areas in and around all options. Option 1 would have the least effect in relation to water and flooding as it proposes the least amount of development. Option 3a proposes the largest quantity of greenspace which would help to naturally reduce water run-off.	Although no development is proposed within medium or high flood risk areas, the site area exceeds the 1ha threshold set out by the National Planning Policy Framework and therefore requires a mandatory Flood Risk Assessment (FRA). Sustainable Drainage Systems (SuDS) should also be included within the overall drainage strategy of the AAP.	0 S/M/L D IR M
	2	+/- S/M/L D IR M			0 S/M/L D IR M
	3	+/- S/M/L D IR M			0 S/M/L D IR M
	3a	+/- S/M/L D IR M			0 S/M/L D IR M

4.2 Garden Village Centre Options

Table 4-2: High level assessment of Bailrigg Garden Village Centre Options

SA Aspect	Village Centre Options A-D			
	A. University Focused	B. Burrow Heights	C. A6	D. Polycentric with University Centre
Social SA Objectives: 1. To ensure there is housing to meet all needs 2. To improve physical and mental health for all, encourage community cohesion, reduce health inequalities and reduce exposure to hazards 3. To encourage lifelong learning 4. To improve sustainable access to basic goods, services and amenities for all groups	Close to the A6 and likely proposed sustainable transport links. This could benefit both new residents and University users. Readily accessible to University staff and students. Adjacent the Health Innovation campus. Provides a more integrated approach to the Garden Village and University in South Lancaster. May result in the Garden Village being less distinct from the University. On campus and so not a definitively 'public location'. Scope for village development is quite constrained. Across the A6 and so away from the main areas reasonably available for village – A6 may be seen as a natural barrier to movement east-west. Required transport access is likely challenging.	Provides the most natural and easiest access to village centre amenities for the majority of the new population thereby reducing the distance needed to travel – this may be of greatest benefit to those with limited mobility. Likely can be readily served by all sustainable transport options. Close to the University campus Potential for excellent direct cycle and walking routes. Connections could be provided to and from the campus. Ready-made 'main street'. Relatively unconstrained.	Centrally located within the main areas reasonably available for village development. Likely can be readily served by all sustainable transport options. Close to the University campus. Potential for excellent direct cycle and walking route connections to and from the campus. A6 may be seen as a natural barrier to movement east-west. Constrained by the A6 and main line railway. Village centre amenities would be less accessible to majority of new population located west of the A6.	Centrally located within the main areas reasonably available for village development. Likely can be readily served by all sustainable transport options. Potential for excellent direct cycle and walking route connections to and from the campus. Split centres may be weak and limited with uses split between Will make for otherwise unnecessary travel movements. Part heavily constrained by the A6 and main line railway. A6 may be seen as a natural barrier to movement east-west. Village centre amenities would be less accessible to majority of new population located west of the A6.

SA Aspect	Village Centre Options A-D			
	A. University Focused	B. Burrow Heights	C. A6	D. Polycentric with University Centre
	Village centre amenities would be less accessible to majority of new population located west of the A6.			
Economic SA Objective: 5. To encourage thriving local economies, ensure key economic drivers are strong, and encourage economic inclusion	May provide stronger economic benefits due to closer integration with University. It is assumed that all options include for the provision of basic services and facilities which can both help encourage economic investment in those areas and increase access to employment opportunities.	It is assumed that all options include for the provision of basic services and facilities which can both help encourage economic investment in those areas and increase access to employment opportunities.	It is assumed that all options include for the provision of basic services and facilities which can both help encourage economic investment in those areas and increase access to employment opportunities. Much land otherwise required either for University development / use or for transport uses.	It is assumed that all options include for the provision of basic services and facilities which can both help encourage economic investment in those areas and increase access to employment opportunities.
Environmental SA Objectives: 6. To limit and adapt to climate change and increase energy efficiency 7. To ensure the sustainable use of natural resources, minimise waste and increase recycling 8. To protect and enhance biodiversity 9. To protect and enhance landscape and townscape character and quality	All options are unlikely to have significant effects on local air quality, biodiversity, waterbodies and local heritage assets. None of the centre options fall within area at risk of flooding however development may increase flood risk elsewhere. Location not distinctive to the Garden Village. All options would lead to an increase in energy use, waste production and natural resource use however these	Existing development gives some character to work to. Note that development should avoid the high-ground of Burrow Heights itself to reduce impact on long distance views e.g. from the AONB. All options are unlikely to have significant effects on local air quality, biodiversity, waterbodies and local heritage assets. None of the centre options fall within area at risk of flooding,	All options are unlikely to have significant effects on local air quality, biodiversity, waterbodies and local heritage assets. None of the centre options fall within area at risk of flooding however development may increase flood risk elsewhere. Difficult to design for any sense of place. Not distinctive. All options would lead to an increase in energy use, waste production and natural	All options are unlikely to have significant effects on local air quality, biodiversity, waterbodies and local heritage assets. None of the centre options fall within area at risk of flooding however development may increase flood risk elsewhere. Not distinctive and can confer no sense of place. Much land otherwise required either for University development / use or for transport uses.

SA Aspect	Village Centre Options A-D			
	A. University Focused	B. Burrow Heights	C. A6	D. Polycentric with University Centre
10. To protect and enhance the historic environment and heritage assets 11. To protect and improve air quality 12. To reduce or manage flooding and enhance the quality of water resources	effects are unlikely to be significant.	however, development may increase flood risk elsewhere. All options would lead to an increase in energy use, waste production and natural resource use however these effects are unlikely to be significant.	resource use however these effects are unlikely to be significant.	All options would lead to an increase in energy use, waste production and natural resource use however these effects are unlikely to be significant.
Overall combined SA Score	+/-	++	+/-	+/-

4.3 Summary of Options Appraisal findings

A precautionary approach has been taken to the assessment and the scores recorded may therefore represent a worst-case scenario. Additionally, it is also important to note that there is a low level of certainty associated with some impacts reported in the SA given the current high-level nature of the Spatial Options. A summary of the scores from the SA appraisal can be found in Table 4-1. As the options are refined and developed further, it is possible that negative impacts will be designed out or mitigated, resulting in an improvement of the scores.

Table 4-1: Summary Results of Appraisal (in the absence of mitigation)

SA Objective	Spatial Option			
	1 (2018)	2 (2018)	3 (2018)	3a (2021)
1. Housing	+	++	++	++
2. Health and Wellbeing	+/-	+/-	+/-	+
3. Education	++	++	++	+
4. Transport	++	++	++	++
5. Economy and Employment	+	+	+	+
6. Climate Change	-	-	-	+/-
7. Natural Resources	-	--	--	-
8. Biodiversity	-	--	--	-
9. Landscape	-	--	--	-
10. Historic Environment	-	--	--	--
11. Air Quality	-	-	-	+/-
12. Flood Risk	+/-	+/-	+/-	+/-

4.4 Key strengths and weaknesses

4.4.1 Spatial Option 1 (2018)

Option 1 scored well against the Housing Objective, although this option would provide the lowest number of homes when compared against the other options. Further expansion of the Garden Village to the north or increasing the proposed density of housing could improve the performance of this option against the Housing Objective. Option 1 proposed the least number of dwellings and would therefore result in the least benefits in relation to housing.

It is assumed that there would be additional educational provision as part of the development of Option 1, which, alongside the expansion of Lancaster University, would positively contribute to the Education Objective. Development in this location would benefit from existing good connectivity and increasing provision to public transport, which would benefit the social and economic SA Objectives as this would improve access to services. The improvements to Junction 33 on the M6 and the proposed Cycle Superhighway will further improve access to the development in South Lancaster with a range of transport options. Similarly, the increased access to transport will enable key employment areas to be accessed readily, which would be beneficial to economic growth and investment. Development at the site will directly provide jobs during construction, and services within the Garden Village will provide ongoing employment opportunities. Expansion of the Lancaster University site will attract skilled workers and could offer additional opportunities from the university.

Option 1 generally performed poorly against the environmental SA Objectives. Development through any of the chosen options would be likely to reduce air quality and increase flood risk in the area due to the increase in private vehicle use and reduction in permeable surfaces. Option 1 does not allocate development around the Ou Beck and is therefore favourable compared to Options 2, 3 and 3a in this sense, due to the reduced likelihood of surface water run-off reaching the waterbody.

Option 1 proposes the least amount of development, and therefore, would have the least impact in relation to greenhouse gas emissions, air pollution, risk of flooding and loss of natural resources, biodiversity as well as landscape and historic character.

4.4.2 Spatial Option 2 (2018)

Overall, Option 2 scored well against the social SA Objectives. The Option would provide approximately 4,300 dwellings, ensuring local housing needs are met by providing new high-quality homes. It is assumed that new development in the area will include education and healthcare provisions to meet the needs of the population. However, with development proposed between the A6 and M6, it is deemed possible that residential receptors would be exposed to high levels of noise and air pollution due to the volume of traffic that utilises these routes.

Option 2 is already well served by major transport routes. A new park and ride facility is proposed, and the development would include significant walking and cycling infrastructure including the proposed Cycle Superhighway. As with Option 1, the increased access to transport infrastructure will enable employment areas to be accessed readily, which would be beneficial to economic growth, jobs and investment.

Development proposed under Option 2 would expand further north and east than Option 1, and as such would result in the loss of more greenfield land from the area. The scores against the Biodiversity and Landscape SA Objectives are therefore major negative, as the greater footprint of development would likely result in significant biodiversity loss and the potential for substantial negative visual impacts from the surrounding viewpoints.

As for all of the spatial options, Option 2 is likely to increase the area of impermeable surfaces, resulting in an increased risk of flooding and reducing resilience to climate change by removing flood storage areas. The

development of the area will introduce new pollution potential, from surface water run-off and from greenhouse gas emissions, released from vehicle use and increased energy consumption.

4.4.3 Spatial Option 3 (2018)

Option 3 generally scores well within the social and economic SA Objectives, including the Economy and Employment and Transport Objectives. Like Option 2, Option 3 proposes development between the A6 and the M6, which may expose residential receptors to high levels of noise and air pollution and would therefore adversely impact the Health and Wellbeing Objective. Option 3 performs well against the Housing Objective by delivering adequate housing provision for the area but phasing in the development as an urban extension of Lancaster. It is unknown how this would affect the housing provision at this stage. Like Options 1 and 2, Option 3 would be required to provide adequate educational and health care facilities to meet the needs of the population. The expansion of Lancaster University presents an opportunity for wider education prospects and economic viability through the provision of jobs and the attraction of investment.

Unlike Option 1, Options 2 and 3 allocate housing development near the Ou Beck to the north of the site. This would likely increase occurrences of flooding and presents a greater opportunity for surface water run-off to reach the waterbody, potentially causing contamination.

4.4.4 Spatial Option 3a (2021)

Option 3a generally performs well across the social and economic SA Objectives. Option 3a proposes 3,500 dwellings and therefore would result in more benefits in relation to housing than Option 1 but does not deliver as much housing as Options 2 and 3.

Option 3a is an evolution of Option 3 following the work carried out in 2018 and the masterplanning work carried out specially on Bailrigg Garden Village. Option 3a proposes less development within the area of the Garden Village and a better greenspace network than Option 3. However, the proposed urban extensions to the south of Scotforth under Option 3a are less defined and the potential for greenspace is less clear, in comparison to Option 3. This would need further refinement if this option were to be taken forward.

Under Option 3a, there is less certainty in relation to land proposed for university and university-related development compared to Options 1, 2 and 3. Therefore, this creates less certainty in the prediction of significant positive benefits, so option 3a has scored less beneficially in relation to the local economy from university expansion and growth compared to the other options, at this stage.

As Option 3a proposes new housing development to be located in smaller areas rather than one large Garden Village (as proposed under Options 1, 2 and 3). Consequently, Option 3a could potentially lead to limited accessibility between houses and services within the area unless strong cycling, walking and public transport links are provided for local journeys.

Option 3a proposes a greater quantity of greenspace across the AAP area which have benefits in relation to carbon storage and air filtration, SUDs, improved biodiversity, and urban cooling. However, this option also proposes housing development in smaller parcels within the AAP area, which could increase the distance between housing and essential services, in comparison to the other options, and could potentially lead to the use of private car use rather than walking or cycling, resulting in an increase in transport-associated greenhouse gas emissions and air pollution. Proposed public transport solutions could go someway to reducing the potential significance of this effect.

Unlike Options 1, 2 and 3, Option 3a would situate residential properties away from the WCML and the A6 and would utilise vegetation buffers to reduce the potential for air and noise pollution. The option does situate some residents in the urban extension adjacent to the M6, but the details of development in this area is unknown at present.

Option 3a would contain the greatest area of green infrastructure in comparison to the other three options. Increased vegetation through greenspace would help to promote the resilience of populations and

ecosystems to climate change. The option would also provide the most natural space and have the most benefits in relation to mental well-being. The proposed greenspace under this option would also help to minimise the effect of the proposed development on the surrounding landscape and historic character.

4.5 Recommendations

All options should guarantee provision of services to adequately serve the new development, including healthcare, nursery and educational facilities.

For all spatial options, it is recommended that new development seeks to deliver high quality design which incorporates landscaping. This recommendation would ensure new development contributes towards the enhancement of local landscapes. High quality design, including safety lighting, can be used to minimise crime, as the new development creates new opportunities for crime. It is recommended that secured by design principles and opportunities for natural surveillance are included into the proposed scheme.

Multifunctional greenspaces should be incorporated into the chosen option. Green infrastructure can be used for cycle ways and footpaths, as well as recreation, flood resilience and climate change mitigation, all of which would improve the sustainability of the development in the AAP area and improve health and mental wellbeing in the population. Similarly, the AAP should require that development should incorporate SUDS, to reduce flood risk from surface water run-off. It is also recommended that the AAP specifies a percentage for biodiversity net gain required.

It is recommended that the option of a new railway station is kept open, should the opportunity become viable in the future.

It should be ensured that the new development does not lead to any significant adverse effects on Morecambe and the Lune Estuary designated sites. Development must not affect the integrity of the sites or species for which they are designated for. Habitat Regulation Assessment (HRA) Screening may be required prior to development of the site.

Appropriate heritage desk-based assessment should be undertaken for any detailed proposal supported by potential ground truthing and recording where required to determine the likelihood of undiscovered historic assets. Impacts on heritage assets should be reduced by considering the setting of the built environment, and designs should respect the unique townscape of the area and surroundings.

Should the preferred spatial option result in the loss of functionally linked land, the AAP should seek to identify replacement land in order to mitigate the effects of this loss.

The AAP should include for onsite waste recycling provisions to reduce the amount of waste sent to landfill. Additionally, it should be confirmed that waste produced from the development can be adequately disposed of. The AAP should ensure the use of ethically and sustainably sourced building materials and promote the use of recycled construction materials where possible.

A thorough and detailed drainage design would be required to prevent the pollution of watercourses. The AAP should require this to be developed with good practice measures to intercept potential polluted run-off from development. Measures should also be in place to prevent pollution during construction. Opportunities for water efficiency measure should be taken where feasible to minimise water consumption and depletion of the local supply.

4.6 Next Steps

It is intended that this is an internal document and will not be consulted on with the consultation bodies or the wider public.

The next stage of the planning process will be the appraisal of the preferred approach.

Arcadis (UK) Limited

2 Glass Wharf,
Temple Quay,
Bristol,
BS2 0FR

arcadis.com