

St Cuthbert's Garden Village

Stage 2 Masterplan Framework

Baseline Report

August 2019

Carlisle City Council



ARUP

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Introduction

In early 2017, Carlisle City Council was successful in obtaining Garden Village status as part of the Government's Garden Town and Villages programme for a 1,323ha site to the south of Carlisle. The project is now known as St Cuthbert's Garden Village, and Carlisle City Council have been active in the promotion of the project as an ambitious and exciting opportunity to develop a Garden Village which is future-proofed and forward thinking.

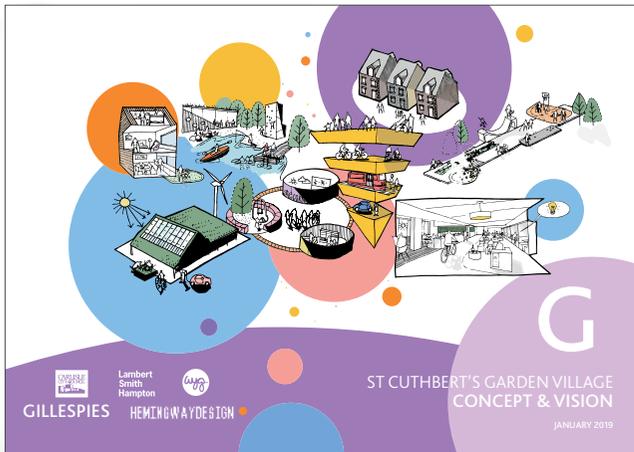
Arup has been commissioned to undertake the Stage 2 Masterplan Framework, which will build upon the work undertaken to date during Stage 1, which set the vision and concept. The Framework will critically inform and support the preparation of a Development Plan Document (DPD) for St Cuthbert's which will include site allocations. Its primary role will be as a planning instrument, guiding future detailed masterplans / design stages and serving as a material planning consideration to help de-risk and bring forward development proposals that will deliver against the vision and objectives for the Garden Village.

The output of Stage 1 was a Concept and Vision document. The document introduced nine guiding principles for the development of the Garden Village, all of which underpin the overarching vision:

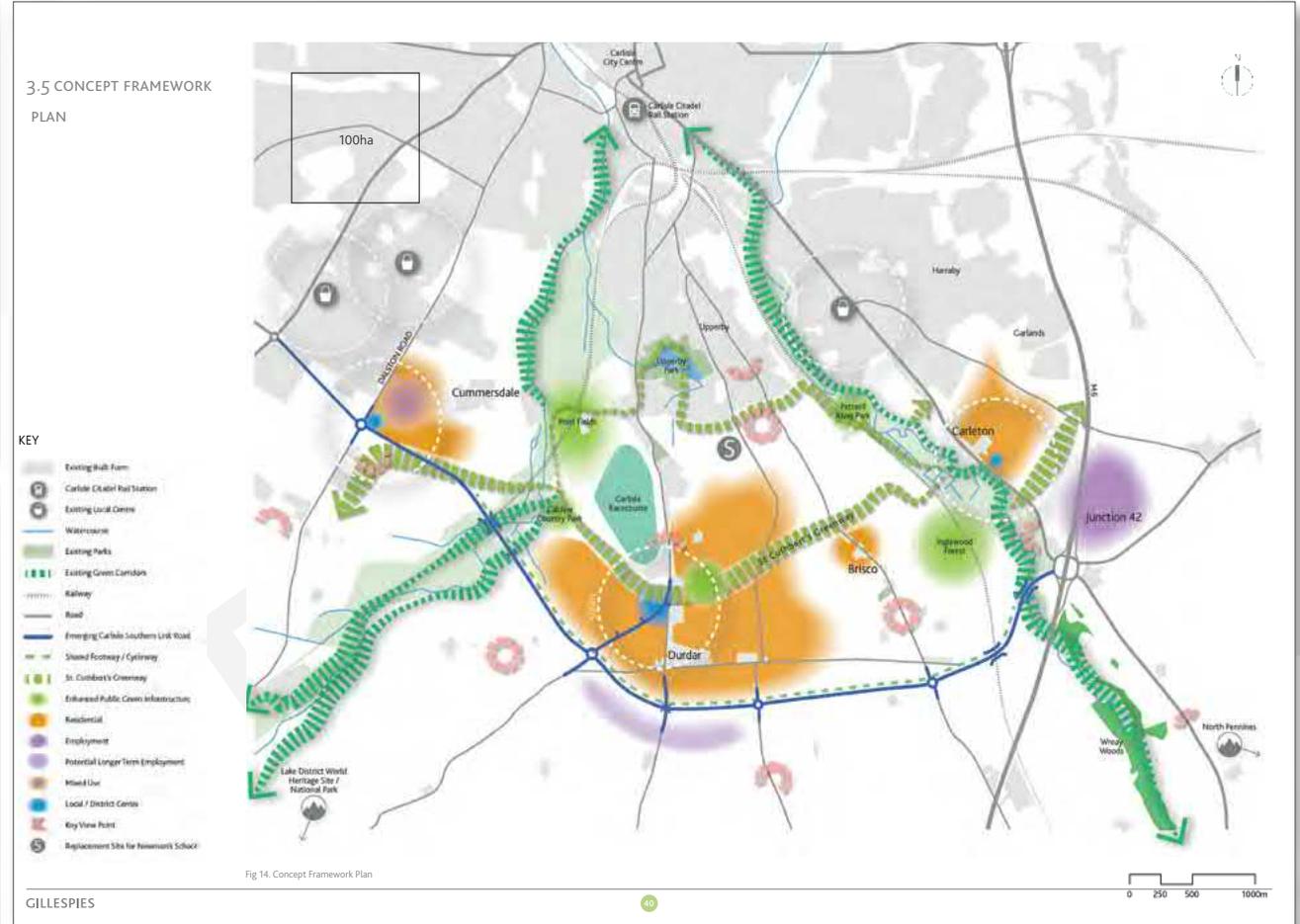
“St Cuthbert's will provide connected villages embedded in stunning healthy landscapes within the world class setting of the Lake District National Park, the North Pennines Area of Outstanding Natural Beauty and Hadrian's Wall World Heritage Site. A cluster of distinct Garden Villages set in an attractive recreational, riverside and landscape setting will be well connected to Carlisle and the wider countryside.

St Cuthbert's will actively promote healthy lifestyles providing integrated communities focused around high quality homes, locally distinctive spaces and inclusive facilities. Innovation and technology will support attractive employment opportunities and exemplary low carbon living.”

Primary Stage 1 Outputs



Stage 1 Concept Framework Plan (from Concept & Vision report)



Throughout this commission, Arup will build upon the established vision and guiding principles through the development of options for each of the settlements, finalising with a framework for the preferred option for the Garden Village.

Since the completion of Stage 1, £102m was allocated from the Housing Infrastructure Fund (HIF) to deliver the Carlisle Southern Link Road (CSLR). At the time of writing, the CSLR has entered design-freeze period and has undergone a further period of public consultation. At the time of writing, the final planning application is due to be submitted in Autumn 2019.

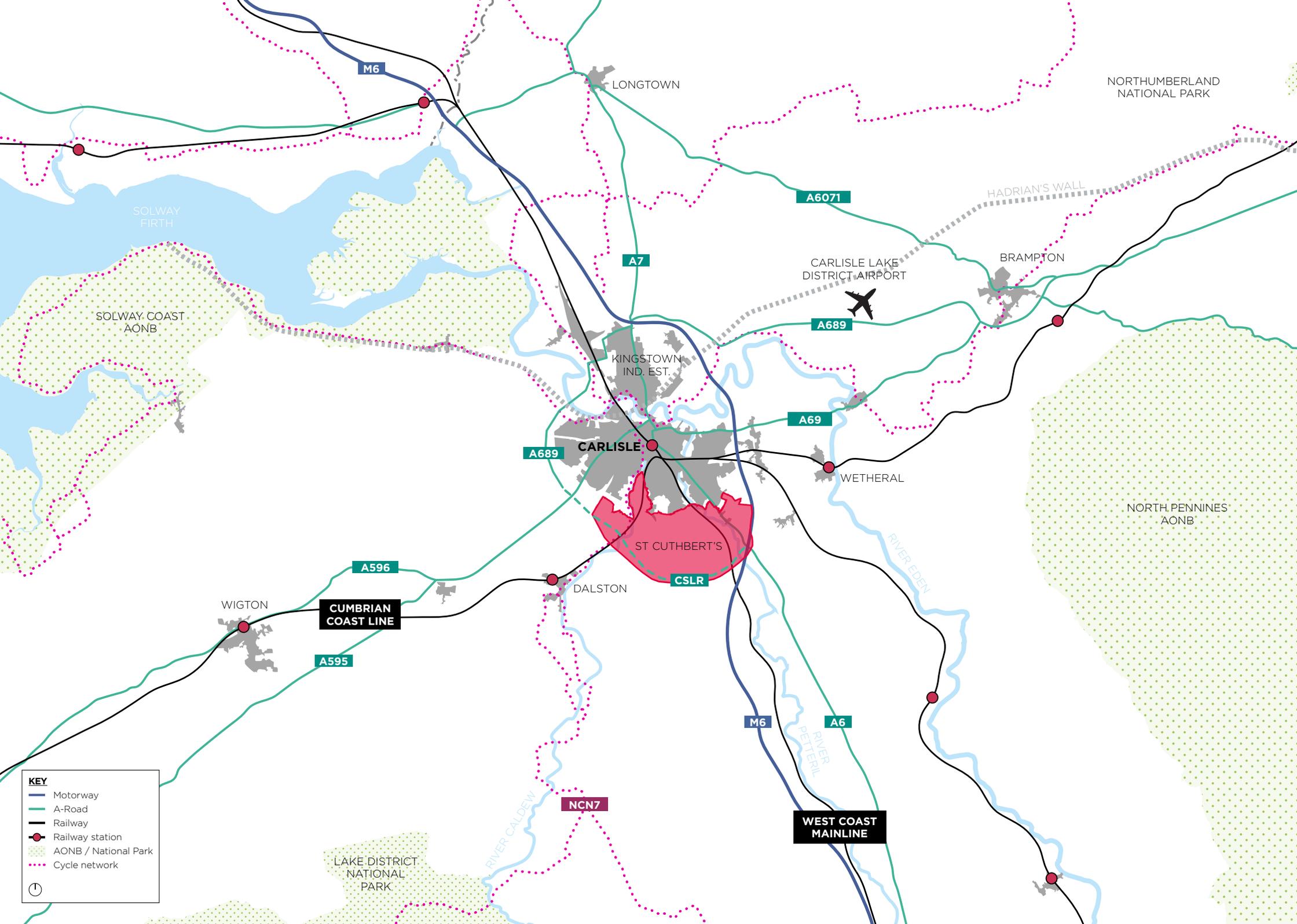
The first stage of this commission is to develop a proportionate and robust baseline for the Framework Masterplan. The purpose of this is to understand the characteristics of the study area which underpins the placemaking and spatial framework process.

The baseline work has drawn primarily on a review of the evidence base collated at Stage 1, supplemented by the existing and emerging evidence from the CSLR scheme and a site visit by the urban design team.

The report seeks to capture the initial outcomes from the technical reviews, the vision and principles workshop and urban design analysis.

The Baseline Report is structured as follows:

- **Section 2** considers the **Key Drivers and Principles** for the Masterplan. It provides a concise review of the guiding principles and the key priorities within these.
- **Section 3** provides an overview of the **Technical Studies** prepared as part of the baseline review and the spatial implications for the Garden Village.
- **Section 4** provides a summary of **Constraints and Opportunities** which, alongside Section 5, which contains Village Context Studies of the existing built form, is the starting point for guiding the Framework Masterplan options development.
- **Section 6** sets out our initial thoughts on **Land Budget**, considering initial testing of density scenarios to understand the potential scale of development at each of the identified settlement areas of the new Garden Village Community.
- **Section 8** provides some **Case Studies** and initial thoughts on development precedents to be taken forward through the options development stage.
- **Section 9** summarises the **Next Steps** in the preparation and delivery of the Masterplan Framework.
- **The appendices** provide the full technical studies that have been completed during the baseline review.



KEY

- Motorway
- A-Road
- Railway
- Railway station
- AONB / National Park
- ⋯ Cycle network

⌚

CUMBRIAN COAST LINE

WEST COAST MAINLINE

A689

A7

A6071

A689

A69

A595

A596

NCN7

CSLR

M6

A6

LONGTOWN

NORTHUMBERLAND NATIONAL PARK

SOLWAY FIRTH

SOLWAY COAST AONB

HADRIAN'S WALL

CARLISLE LAKE DISTRICT AIRPORT

BRAMPTON

KINGSTOWN IND. EST.

CARLISLE

WETHERAL

NORTH PENNINES AONB

ST CUTHBERT'S

DALSTON

WIGTON

LAKE DISTRICT NATIONAL PARK

RIVER CALDEW

RIVER PETTERIL

RIVER EDEN

2 /

Key Drivers & Principles

2.1 / Strategic Context

This is an exciting time for Carlisle: it is the key city as part of the Borderlands Inclusive Growth Deal, St Cuthbert's Garden Village is the most ambitious Garden Village in the UK, £102m of funding for the Carlisle Southern Link Road has been announced as part of the Housing Infrastructure Fund to unlock development land for the Garden Village and Carlisle plays a key role in delivering Cumbria's Local Industrial Strategy.

Carlisle City Council has ambitious plans to grow the city, outlined through its "Be Part of our Growing City" and "Help us Build our Growing City" prospectuses. Carlisle is well connected thanks to its north-south connectivity on both the M6 and the West Coast Main Line and its West-East Connectivity towards the North East. Carlisle Lake District Airport has recently commenced flights to Belfast, Dublin and London Southend. Carlisle is the heart of the sub-region's skills agenda being home to the University of Cumbria, as well as Carlisle College.

The Borderlands Inclusive Growth Deal was announced in March 2019 and focuses on the strategic themes of place, infrastructure, innovation and skills and green growth. The Borderlands is home to over 1 million people over a combined geography that comprises 10% of the UK landmass. Carlisle is recognised as the beating heart of this geography

The Borderlands economy has three main challenges: narrowing the productivity gap; increasing the working age population and delivering inclusive growth. Locally developed proposals designed to address these challenges and harness the region's substantial assets to accelerate economic growth focus on making improvements to transport, skills, place and regeneration, digital infrastructure, energy, business growth, rural innovation, culture and tourism.

In July 2019 the Heads of Terms for the Borderlands Growth Deal were announced. The projects benefitting from the growth deal, and of particular relevance to St Cuthbert's Garden Village, include improvements to transport and digital connectivity and the Carlisle Station Gateway project which focuses on the economic regeneration of Carlisle City Centre. Innovation and skills projects in the rural and tourism sectors have received funding, as well as investment into a Borderlands Energy Investment Company.

The Cumbria Local Industrial Strategy (LIS) was agreed by the Cumbria LEP board in March 2019. It has benefitted from input from a wide range of businesses, public sector and third sector partners and will replace the existing Cumbria LEP's Strategic Economic Plan. The LIS introduces five strategic objectives under the overarching vision of Cumbria being "the place to live, work, visit and invest sustainably – where exceptional industry and innovation meets a breathtakingly beautiful and productive landscape". The objectives are:

- Growing and using our talent pool;
- Capitalising on our productivity, innovation and enterprise potential;
- Exploiting underdeveloped economic opportunities to help get a better-balanced economy;
- Ensuring that all of our residents contribute by sharing prosperity and opportunity;
- Improving connectivity across the country.

The LIS identifies that if the government's population projections materialise, it will lead to a very significant fall in the available workforce over the next decade, with at least a 20,000 person shortfall in people available to meet Cumbria's existing job requirements. Consequently, this has been identified as one of the greatest challenges facing Cumbria, given that the labour market is already very tight. The LIS is explicit that Cumbria needs to build houses at a much greater rate to ensure a steady workforce can be attracted and retained, before further economic growth can be delivered. Carlisle is by some way the largest settlement in Cumbria, being the only city and well connected by road and rail. Carlisle is a critical contributor to the overall housing delivery across Cumbria and the wider Borderlands area, and is required to play a key role in supporting substantial population and housing growth to meet strategic economic aspirations.

The emerging masterplan for St Cuthbert's Garden Village aligns closely with the objectives and priorities outlined within the LIS in its ambitions to attract residents that are of working age, promote innovation and improve connectivity (both digital and physical) for new and existing communities within the Garden Village area.

Reflections on the Vision and Concept Framework

Stage 1 of the St Cuthbert's Garden Village project developed a vision and concept framework. Throughout the Stage 2 Masterplan Framework, Arup will build upon these guiding vision and principles to inform the development and design strategies for the Garden Village.

Designing beautiful and functional places that will be delivered over a long period of time is a complex process. All aspects of placemaking are important to ensure that this is a holistic process.

Within this placemaking and masterplanning process, however, there need to be defined priorities. During Stage 1, nine principles were set that define these priorities.

The Principles have interdependencies, for example, access to parks and green space is likely to increase health and wellbeing through having space to be outdoors, getting fresh air and exercise.

The objective of the Stage 2 masterplan is to maximise the benefits and promote virtuous cycles between the nine principles.

Stage 1 Principles



Principle 1: Start with the Park

Deliver a landscape-led masterplan that harnesses the rivers, world class views and woodlands to create a network of unique, high quality, active landscapes and new destinations.



Principle 2: Locally Distinctive

Support locally distinctive, design of buildings, streets and spaces to create memorable and unique places to live.



Principle 3: Quality Homes and Lifetime Neighbourhoods

Promote a mix of high quality homes in distinct and integrated lifetime neighbourhoods.



Principle 4: Community Focused

Focus inclusive communities around a hierarchy of excellent facilities clustered around village centres.



Principle 5: Innovative Employment

Support a variety of entrepreneurial and creative employment and skills opportunities.



Principle 6: Healthy Environments

Promote health and well-being through accessible facilities and healthy lifestyles for all ages.



Principle 7: Smart & Sustainable Living

Support low carbon living through sustainable planning, transport and energy.



Principle 8: Integrated Sustainable Transport

Provide excellent sustainable connections and environments that make walking, cycling and public transport the most attractive method of getting from A to B, making the most of the opportunities presented by the CSLR.



Principle 9: Exemplary Delivery & Stewardship

Continue to positively engage a range of people and communities in design, delivery and stewardship.

2.2 / Key Drivers and Principles

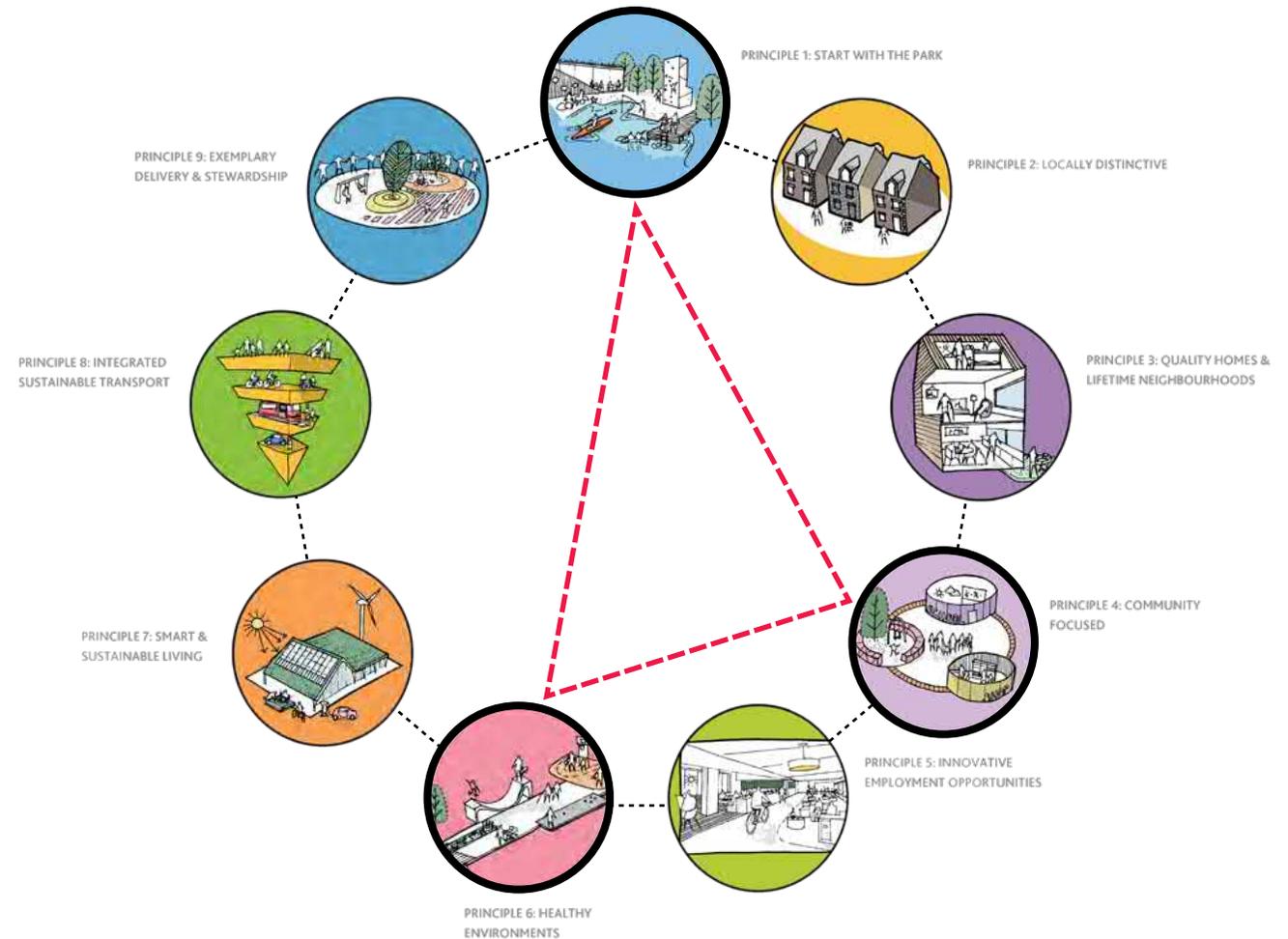
Dialogue and previous engagement during the baseline review established key placemaking drivers, such as the importance of St Cuthbert's Garden Village being responsive to existing communities within Carlisle and ensuring the "place" relates well to the City.

To promote the delivery of a locally distinctive Garden Village, it is important to recognise the importance of the 9 principles developed during Stage 1. These principles cannot be considered in isolation and as part of the baseline process the Council has, having regard to outcomes of previous engagement, identified three of the nine principles as overarching themes representing the Garden Village ambitions:

- 1: Start with the Park;
- 4: Community Focussed; and
- 6: Healthy Environments.

In addition, there was an underpinning theme of ensuring **connectivity** within the new community, within the city of Carlisle, out to the surrounding countryside and further afield; providing a safe environment for all residents and ensure sustainable connectivity between new and existing settlements. Wider drivers include the increasing importance of ensuring smart and sustainable living, reinforced by the climate change emergency recently declared by Carlisle City Council.

Three core principles





Start with the Park

Promoting a landscape-led masterplanning approach and using existing natural assets and land form to develop the sense of place.

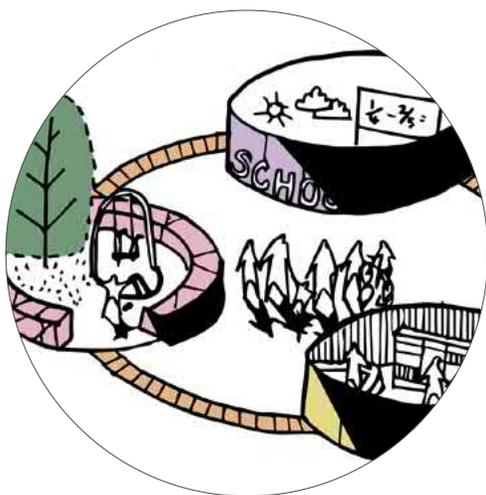
Spatial Opportunities:

Green and blue infrastructure (GI) plays a vital role in shaping the Garden Village in providing the connectivity network between the settlements, encouraging active and sustainable travel within the Garden Village and promoting a healthy lifestyle. This green infrastructure will provide an important link between the city centre and the open countryside surrounding the Garden Village. The sense of 'green' can extend from the major strategic elements through into the urban areas, providing access and views to green infrastructure throughout the site and making this a part of everyday life.

It is important that any options developed maximise the potential for green infrastructure in the Garden Village and align strongly with the 'Start with the Park' principle. With such an extensive site, there is opportunity to provide a range of environments from people-focused amenity spaces to habitat-focused areas and strategic infrastructure, such as opportunities to incorporate sustainable urban drainage systems and flood mitigation strategies.

Opportunities for uses of a Greenway link connecting the settlements and back into the city will also be considered, following the route of the gas pipeline, which will be complemented by smaller local GI, such as woodland, ponds and streams. The site has wonderful natural assets in the form of woodland, hedgerows and the two river corridors that dissect the site, as well as opportunities around the CSLR corridor, the city edge, arterial road corridors and amenity spaces. The development should find ways to exploit and express these natural assets to embed the site in its context and help build a **locally distinctive** character.

The importance of sports and leisure will also underpin the option development, ensuring sporting opportunities for the site are explored. There may be opportunity to develop facilities that have a draw beyond the immediate vicinity, building a network of natural and recreation attractions that complement existing provision at Upperby Park, Bitts Park and the wider Lake District and North Pennines areas.



Community Focussed

St Cuthbert's Garden Village needs to have community at its heart from the outset. The human-centred design and layout of the neighbourhoods must facilitate places for the community to meet and a community spirit to be fostered, as well as space for outdoor events, recreation and play. Access to shared and open spaces is important for health and wellbeing of communities, maximizing opportunities to encourage social interaction and avoid social isolation. The community also needs access to the workplace, schools and social activities.

Spatial Opportunities:

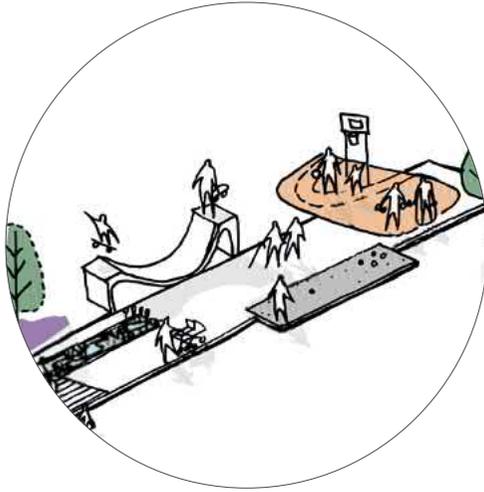
The framework needs to set the precedent in which the community is connected, safe, healthy and vibrant. This means provision of open spaces and town centres that are friendly for all residents, and connectivity in and out of the Garden Village. All aspects of the design principles for St Cuthbert's encompass this: from connected education facilities to the provision of elderly care housing. All options developed for the Garden Village will be developed with place-making at their heart.

The principle of **quality homes and lifetime neighbourhoods** will be developed as part of this masterplan, ensuring that the Garden Village includes mixed tenure and typology housing, including opportunities for self-build and custom-build housing. Housing on the site needs to be flexible and adaptable to meet the changing needs of residents, reinforcing the importance of lifetime homes.

Typology also needs to be considered when considering the transition from rural to urban environments, ensuring that housing type aligns with the communities wishing to be present in the Garden Village, as well as building on the existing communities within the study area boundary. The Garden Village should provide a sufficient range of typology to support an individual's lifecycle, including housing suitable for first time buyers, families, retirees and supported living.

Provision of **innovative employment opportunities** within, or well-connected to the Garden Village, will help to create a community that operates 24/7, supporting local retail and services, facilitating flexible working and building education and skills opportunities.

Through expression of the **exemplary delivery and stewardship** principle, local people can have a role in helping to shape and manage the development, creating buy-in and engagement long before a single resident moves in. Taking an early systems-based approach to spatial design can help facilitate the **smart and sustainable living** principle through community-wide sustainable energy and infrastructure strategies.



Healthy Environments

Carlisle has been designated a healthy city by the World Health Organisation. The Garden Village must be a place that encourages and facilitates a healthy lifestyle, which means the maximisation of active travel opportunities, well connected public green spaces, supportive communities and ensuring health and wellbeing initiatives are available to all residents.

Spatial Opportunities:

Carlisle City Council is a member of the Carlisle Partnership, which works together to deliver innovative health and wellbeing projects and strategies in the city. This, along with other current key health and wellbeing programmes led by the Council, support the ambition to continue and further this into St Cuthbert's Garden Village. The City Council are committed to spearheading efforts to shape, build and grow Carlisle as a place which promotes health and wellbeing, preventing illness and assisting in the maintenance of people's independence.

The form and components of the Garden Village are critical in ensuring that people have a wide range of opportunities for activity, both passively (allowing safe and convenient walking and cycling routes) and actively (through a variety of sports and exercise options). Active travel should be facilitated as far as possible through provision of routes and wayfinding, linked into public transport routes for longer distance travel.

Maximising the potential for green and blue infrastructure within the Garden Village will underpin the development of the masterplan. It is important that this space is accessible to all demographics, from children to the elderly. Blue and green infrastructure provides a preventative healthcare environment for all residents of the Garden Village and existing communities. It is also important that these demographics have access to suitable and high-quality care facilities, such as community centres and health services. The location of extra-care housing on the site will need to be aligned with easy access to community provision.

The development may help provide access to healthy food options through allotments, orchards and local food growing opportunities such as community farms.



Well Connected

The Garden Village location on the perimeter of Carlisle poses opportunities, and challenges, in connecting to local transport networks, employment centres and facilities. The way we move around is expected to change rapidly over the coming decades with the driver of carbon reduction and the need to encourage more sustainable modes of travel.

Spatial Opportunities:

The travel network needs to be attractive for pedestrians starting with attractive streets, easy access to public transport and excellent cycling (including e-bikes/scooters) and e-charging facilities. Most towns and cities have to retrofit these priorities which poses problems with established patterns of land use and behaviour. At St Cuthbert's there is the opportunity to create the ideal network to encourage and design in sustainable travel options. Successful integration with the Carlisle Southern Link Road is important at this stage, which offers wider connectivity for existing and future residents and is of importance to deliver the strategic themes of the Borderlands and Local Industrial Strategy.

In spatial terms this would require: multi modal hubs in key areas, excellent cycle links within St Cuthbert's and into the city, surrounding employment areas and train stations, designing in e-charging stations in residential and communal areas, supporting public transport along key routes, and designing streets that have strong landscape features and are attractive to walk down.

Movement and travel within the Garden Village is important for communities to feel connected, with the ability to safely and sustainably travel to school, work and into the city centre. The site already has strong, albeit constrained, north-south road links; however, there is little existing provision for active travel, particularly in an east-west direction. Building on the **integrated sustainable transport** principle, options need to be developed with the following movement principles in mind: alignment with green corridors, on- and off-road routes, priority segregated routes and crossings, seamless journeys, 'last mile' connectivity. Schemes such as car share, cycle hire and public transport opportunities all need to be considered at this stage of option development in order to ensure they are embedded into the chosen option following public consultation.



Source: Arup Publication (2018)

2.3 / Additional themes and strategic influences

The Principles need to be considered in a wider context. Climate change and the UN Sustainable Development Goals (UN SDGs), formally adopted by most countries, are becoming increasingly imperative to build into development, many of which align with the principles outlined in Stage 1. In the development of the Stage 2 masterplan, it is important to consider the goals as well as the importance of lifecycle living, the potential of digital, and the opportunity for obvious communities to thrive.

2.2.1 UN Sustainable Development Goals

The Sustainable Development Goals (SDGs) are a collection of 17 goals developed in 2015 by the United Nations in the largest ever consultation process. They set out the primary issues being faced by the world and set targets for 2030 within environmental sustainability (such as carbon emissions), but also across socioeconomic topics. They should not be seen as a final end-point, more as a stepping stone on the way to a just, equitable and environmentally resilient Earth. They are specifically designed to be relevant not only to national and local governments and NGOs, but also to engage business in realising solutions.

The SDGs can be usefully applied to all projects in the UK, especially early-stage masterplans, such as St Cuthbert's Garden Village, which have so many opportunities to significantly influence a broad spectrum of issues and whose legacy will exist for decades to come. They provide a framework against which to understand the needs of an area and a community and develop solutions to meet these needs. They are deliberately challenging, but it is clear from many appraisals of the UK's performance against the goals that there is definitely a need for progress to be made in many areas. The SDGs also encourage an understanding of the inter-relationships between seemingly disparate issues.



2.2.2 Climate Change

In early 2019, Carlisle City Council declared a Climate Change Emergency. In order to achieve one of the most ambitious targets in the country, the Council has pledged to put in place measures such as:

- Senior councillors and officers will have responsibility for the reduction in carbon emissions resulting from the Council’s activities,
- Council Scrutiny Panels will consider the impact of climate change when reviewing Council policies and strategies,
- Collaborate with partners across the district and set up a Carlisle Partnership Climate Change group in order to develop a city-wide strategy.
- In addition, the Council has ensured that climate change is the responsibility of the portfolio holder for Environment and Transport.

Two of the commitments within the declaration are to:

“Ensure that all strategic decisions, budgets and approaches to planning decisions are in line with a shift to zero carbon by 2030.

Support and work with all other relevant agencies towards making the Carlisle District Zero Carbon within the same timescale.”

In the wider-context, the UK’s stated aim is to be carbon neutral by 2050. St Cuthbert’s will be under development until 2046 and it is important to consider the increasing importance of achieving the UK goal during options development. Cumbria LEP’s Local Industrial Strategy recognises the opportunity for Cumbria to play an important role in the clean growth Grand Challenge through identifying opportunities for innovation in this field. The Borderlands Inclusive Growth Deal also has a priority for low carbon, therefore any activity that Carlisle City Council undertakes following the approval of this motion will support the strategic growth deal priorities.

The declaration reinforces the agreed principles of smart and sustainable living, start with the park and healthy living specifically; however, it is imperative that sustainability and low carbon principles are embedded into all design principles and options that are developed.



2.2.3 Thinking Digital

Arup strongly believes that 'digital' should be interwoven and facilitate the delivery of St Cuthbert's Garden Village as a smart, sustainable and, as far as possible, future-proofed community. Digital technology is an underpinning theme in both the Borderlands Inclusive Growth Deal and Cumbria LEP's Local Industrial Strategy (LIS). The LIS outlines opportunities for the implementation of test beds in both farming and 5G, as well as outlining the strategic objective of improving connectivity across the county for both businesses and residents. In addition, the Borderlands Growth Deal will invest in improving digital and mobile connectivity across the whole region.

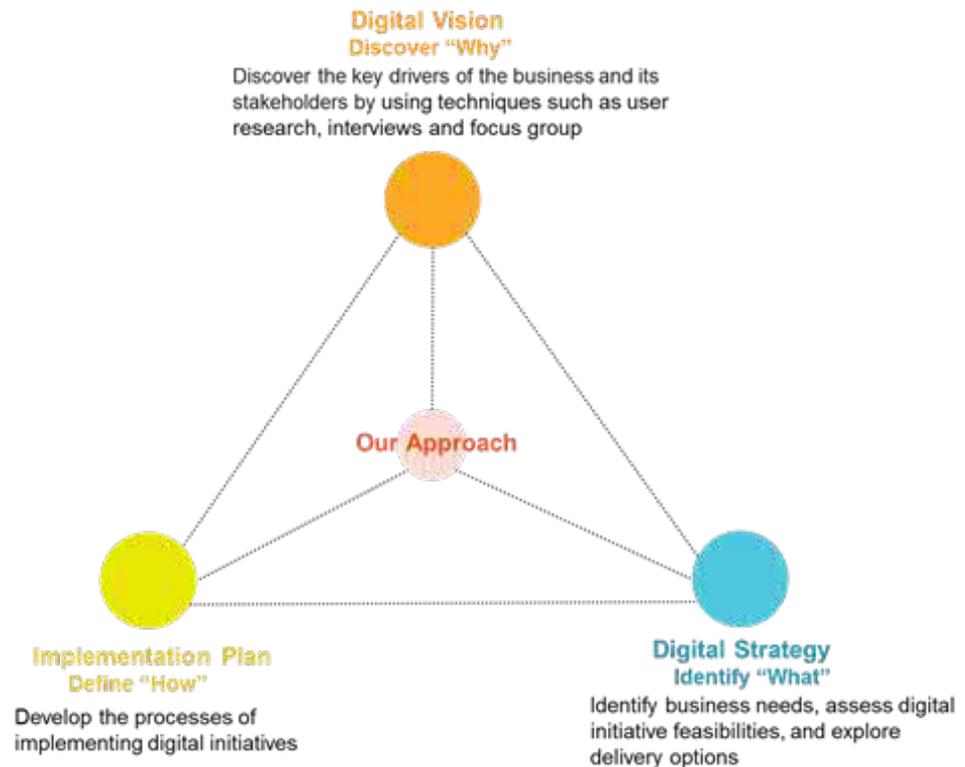
The design, construction and return on investment of today's developments will take place over a period of time in which the impact of digital technology on our economy and society will continue to accelerate.

Technology has the potential to radically change the way we live and work in cities, from how we manage infrastructure and assets, to how we deliver critical services. In reality, this means benefits in terms of improved outcomes delivered at less cost.

Furthermore, digital technologies, the services they enable, and the skills and connectivity required to use them, are beginning to have a significant effect on urban communities, and on placemaking outcomes such as economic growth, social mobility, community engagement, wellbeing and carbon impact.

These outcomes are more traditionally associated with the physical characteristics of the built environment and developments that do not integrate these previously separate disciplines are unlikely to achieve their short-term objectives, let alone their long-term aspirations. Despite this potential, the opportunities around digital transformation have yet to be fully realised across many cities and developments.

Digital Masterplanning is an evolving tool within the development process which enables architects, developers and local authorities to actively direct the availability and impact of digital technologies, harnessing their potential to the benefit of communities and businesses they serve.



2.4 / Assessment of Spatial Options

Establishing clear drivers and principles, and priorities within these, is essential to the development of the options of the Framework Masterplan. It is also fundamental when it comes to assessing the options and moving to Preferred Options Stage and subsequent delivery.

Each option will require testing against the project vision, drivers and principles established as part of the Vision and Concept work, including findings from consultation, as well as by a general SWOT analysis. In addition, the options will require a high-level viability check by the appointed consultants (Aspinall Verdi) and a check against the Sustainability Appraisal objectives, which is being undertaken by AECOM. The Habitats Regulations Assessment (HRA) process will be undertaken concurrent to this.

In working towards a preferred option, it is recommended that clear measurable outcome-based targets are developed that relate to the Key Drivers and Principles. We believe that such an approach will be key to clearly establishing the uniqueness of St Cuthbert's Garden Village and provide clarity in future decision making.



The River Caldw Valley at Upperby

3 /

Overview of Baseline Information

This section provides the key findings from each of the baseline studies, the interdependencies between these and the spatial constraints / opportunities for the development of the Garden Village. All of the technical baseline work has involved high-level desktop reviews of information provided by Carlisle City Council and Cumbria County Council, as well as using data sources available to Arup. Further detail on the technical reviews can be found in the appendices of this report. It should be noted that the technical work will continue to develop and evolve to inform the options and preferred option development of the Framework Masterplan.

3.1 / Planning and Strategic Context

The prospectus “Locally-Led Garden Villages, Towns and Cities” (2016)¹ invited expressions of interest from local authorities who wanted to create new communities based on garden city principles. It offered tailored government support to local areas with ambitious and innovative proposals to deliver 1,500 homes and above. Carlisle City Council submitted one of the most ambitious proposals in the country, aiming to deliver the maximum 10,000 homes in order to drive inclusive growth in the city.

In discussing the supply of large numbers of new homes, paragraph 72 of the National Planning Policy Framework (NPPF) 2019² recognises that this can often be best achieved through new settlements or significant extensions to existing villages and towns. Criteria C of paragraph 72 uses the example of Garden City principles to support setting clear expectations for the quality of the development and how this can be maintained.

The Town and Country Planning Association sets out that the concept of a Garden City is based on:

“...a holistically planned new settlement which enhances the natural environment and offers high-quality affordable housing and locally accessible work in beautiful, healthy and social communities.” (TCPA, 2019)³.

1 <https://www.gov.uk/government/publications/locally-led-garden-villages-towns-and-cities>

2 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/810197/NPPF_Feb_2019_revised.pdf

3 <https://www.tcpa.org.uk/garden-city-principles>

Relevant Planning Policy

The Garden City premise is guided by a set of principles for delivery:

- Land value capture for the benefit of the community;
- Strong vision, leadership and community engagement;
- Community ownership of land and long-term stewardship of assets;
- Mixed-tenure homes and housing types that are genuinely affordable;
- A wide range of local jobs in the Garden City within easy commuting distance of homes;
- Beautifully and imaginatively designed homes with gardens, combining the best of town and country to create healthy communities, and including opportunities to grow food;
- Development that enhances the natural environment, providing a comprehensive green infrastructure network and net biodiversity gains, and that uses zero-carbon and energy-positive technology to ensure climate resilience;
- Strong cultural, recreational and shopping facilities in walkable, vibrant, sociable neighbourhoods; and
- Integrated and accessible transport systems, with walking, cycling and public transport designed to be the most attractive forms of local transport.⁴

4 The Art of Building a Garden City, TCPA

The principle of St Cuthbert’s Garden Village is identified as ‘Carlisle South’ in the Carlisle District Local Plan 2015-2030 (CDLP), adopted in November 2016.

Strategic Policy SP 3: ‘Broad Location for Growth: Carlisle South identifies the area for a major mixed-use development focussed on housing. At the Local Plan examination, the Inspector concluded that the area could accommodate up to 10,000 homes. The policy requires the preparation of a masterplan before development can commence. The purpose of the masterplan is to:

- Provide more detail on how and when the strategic requirements to enable and support the development will be delivered;
- Set a framework to guide the preparation of future planning applications;
- Provide a framework against which future planning applications will be assessed;
- Enable the co-ordinated and timely delivery of infrastructure; and
- Facilitate delivery of land release to help address the imbalance of employment land between the north and south of the city.

Whilst the Local Plan establishes a broad area for growth within Carlisle South, the Council is committed to producing a separate Development Plan Document (DPD) for the Garden Village, of which the masterplan will form a key part. It is anticipated that the DPD will be ready for submission in 2020. In January 2018, the Council formally consulted on the proposed scope of the DPD in fulfilment of Regulation 18 of the Town and Country Planning (Local Planning) (England) Regulations 2012 (as amended).

Other Strategic Policies within the CDLP that are of relevance when considering the St Cuthbert's Garden Village development are outlined in Appendix 1.

Relevant Planning Applications

A planning application search has been undertaken to consider any relevant housing or employment related development proposals within or adjacent to the St Cuthbert's indicative site boundary. The results of this are listed in Appendix 1.

The Housing Market

The CDLP 2015-2030 sets a housing delivery target of over 9,500 new homes by 2030 and St Cuthbert's, with the delivery of around 10,000 new homes, is earmarked within the plan as being a broad location for development (referred to as Carlisle South) which will contribute delivery both within and beyond the existing local plan timeframe.

Scheme development undertaken to date identifies indicative annualised (net) housing delivery rates for St Cuthbert's Garden Village as follows:

- 310 p/a by 2025/26;
- 475 p/a by 2029/29;
- 516 p/a by 2030 and;
- A peak p/a of 519 by 2042.

The Housing Market Demand and Capacity Assessment (HMDCA), undertaken by Lambert Smith Hampton (LSH) in September 2018, considers how many homes are needed by Carlisle over the period to 2050 including the anticipated delivery phasing of St Cuthbert's Garden Village. The Council's Five-Year Housing Land Supply Position Statement (as from April 2018) is calculated to be 10,360 dwellings for the local plan area, of which 3,443 are anticipated by 2020 and 6,917 between 2020 and 2030, including 1,450 delivered at St Cuthbert's between 2023 and 2030.

Masterplan & Spatial Implications

The material planning considerations outlined need to be taken into account in the development of any Supplementary Planning Documents (SPDs) relating to the Garden Village.

The Stage 2 masterplan will form part of the evidence base for the DPD that will be developed.

The masterplan should be designed in a way that can be delivered in line with the indicative housing delivery rates.

3.2 / Topography

The site sits on land generally higher than the city, giving views towards and over the city centre skyline, and its key landmarks, whilst making the site prominent in outward views towards the Lake District and Pennines. The land is gently undulating across the site providing localised high, and low, points and restricting long distance views within the site.

The steep sides to the Petteril and Caldew valleys form strong divisions across the area, separating Cummersdale and Carleton from the main development area at Durdar, and Brisco. Consideration will need to be given to how active travel can be provided across the valleys and how such a network will link with the shared path on the CSLR, particularly with regard to people with restricted mobility.

Land on the valley floor is generally flat; this land corresponds to the areas of highest flood risk so has little development potential.

There are significant areas of steeper land at Carleton, breaking the developable area into small parcels. Development in this area may require extensive cut and fill or restrict achievable development form. Land drops away sharply behind the village of Brisco and towards the urban edge between Scalegate Road and Brisco Road, restricting development potential.

Key Interactions

The topography will affect movement across the site. The development will need to provide new active travel routes and access to properties at suitable maximum gradients to ensure that all users have freedom of mobility and independence.

The landform makes it challenging to bring a second vehicle east-west connection, however there are opportunities for pedestrian and cycle bridged access between the villages and across the rail and river corridors.

The existing topography means that the development may have close connections to the existing areas of Carlisle in terms of service infrastructure, where drainage, services and energy infrastructure would connect to existing neighbourhoods. Depending on demand it may be possible to extend an energy network across the geography, if bridges can also be used to carry pipework and trunking.

The Sustainability Appraisal (carried out at Stage 1 masterplanning) makes reference to the site's need to be surface water drainage self-sufficient and the land form will influence the siting of sustainable drainage. These may be of significant size and will need to be distributed across the geography and street network to avoid the need for discharge into drainage networks.

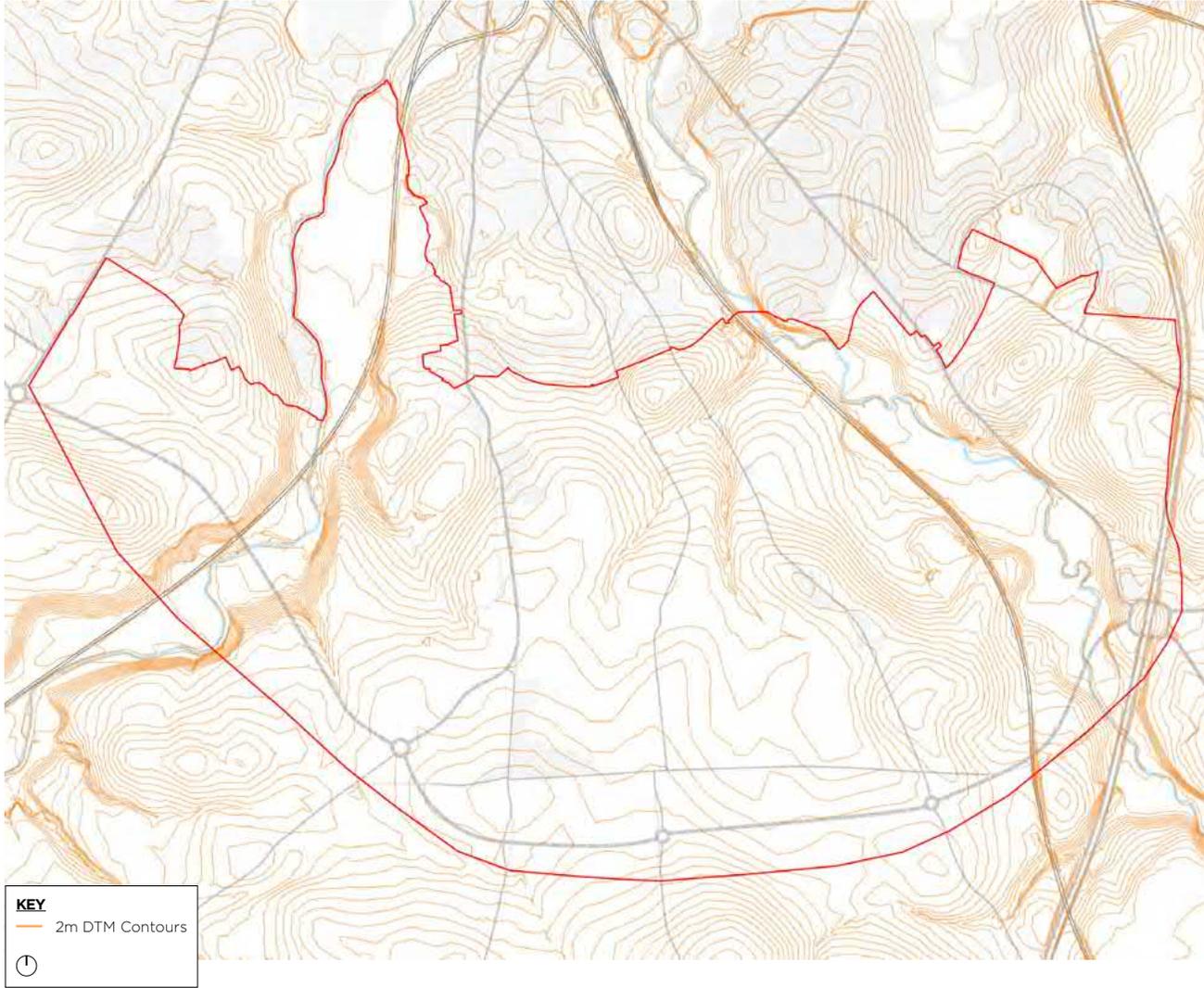
Masterplan & Spatial Implications

The topography will dictate where development will be located, however there are opportunities to use the land form to create an interesting public open space and provide a variety of green and blue infrastructure landscape character areas adjacent to the river corridors and on the sites.

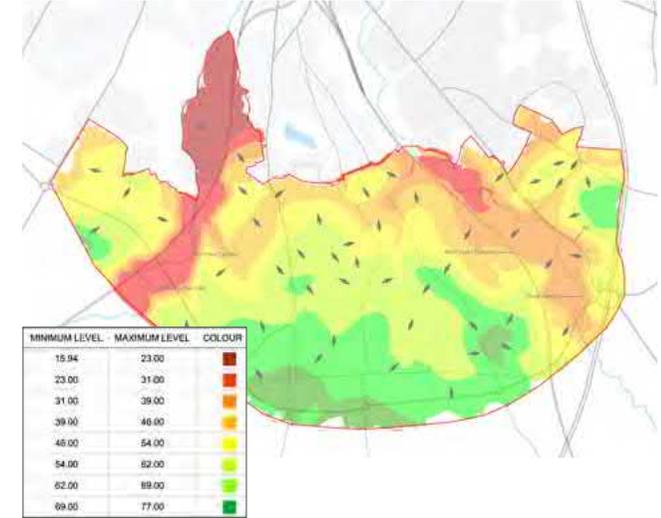
Topography plays an important role ensuring that key views out to the world class setting of the Lake District National Park, the North Pennines Area of Outstanding Natural Beauty and Hadrian's Wall Heritage Site are protected and maximised for new and existing communities.

We propose a working assumption that land with a gradient of less than 5% / 1:20 is most easily developable. Land with a gradient up to 10% / 1:10 may have some development potential but is more constrained in terms of earthworks and accessibility. Steeper land may deliver a lower development density due to land-take for earthworks and indirect access routes. These working assumptions can be refined at the next stage, for example, linked to developer and landowner appetite for development on steeper areas.

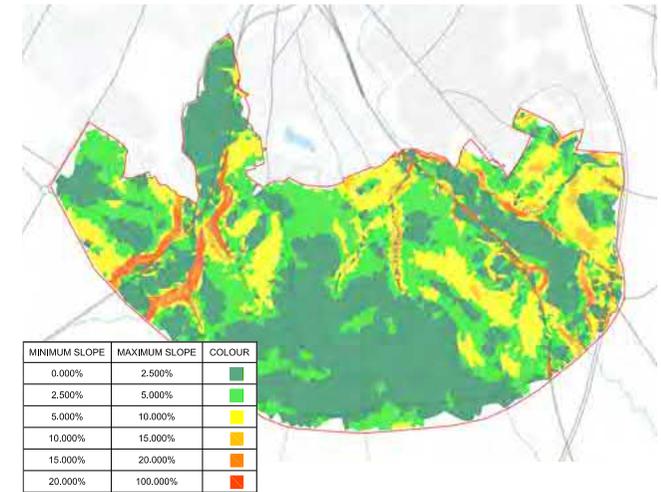
2m DTM Lidar Contours



Topography



Slope Analysis



3.3 / Drainage and Flood Risk

- **Water courses:** There are two main rivers that run through the site (Caldew and Petteril) that flow south to north. Neither river has tidal influence. The River Caldew forms part of the River Eden Special Area of Conservation (SAC) and the River Eden and Tributaries Site of Special Scientific Interest (SSSI). There are several minor watercourses that run through the site.
- **Existing Drainage:** It is known that United Utilities own some significant assets within the site. UU will not permit building over some of their assets or development within proximity. It is likely that several private networks are also present within the site.
- **Flood Risk:** Large areas adjacent to River Caldew (to the west) and River Petteril (to the east) to be within a high flood risk area for river flooding. This flood risk is restricted to the low-lying areas within steep valley side. These areas have limited development potential due to topography; however, the access and movement strategy will need to ensure that east-west access can be maintained during flood events.
- There are smaller isolated areas at risk from surface water flooding. Generally, surface water ponding within the site is a result of the site topography, which may be prevented through landscaping.

Key Interactions

The current flood water areas are outside the main development land identified in the original Stage 1 report and baseline review study.

Carlisle city centre has a history of flooding that has had a detrimental impact on homes and businesses. It will be necessary to ensure that increased surface water flows are not directed downhill towards the existing urban edge. The development is not permitted to create new surface water flows into the existing rivers and all drainage will need to be retained on-site.

Significant land areas will be required to accommodate surface water run-off. The gas pipe will also have an effect on the catchment areas, dividing the Durdar site into north and south catchment areas.

The interaction with topography and drainage is important to consider when developing options: there is significant opportunity to use gravity connections to water networks and minimise use of pumping stations, as well as identifying optimum locations for SuDs holding ponds. This will be developed at the preferred options stage.

Masterplan & Spatial Implications

Water storage will need to be incorporated into the spatial framework design within landscaped areas and street design. Current surface water patterns and ponding could be used as a guide to locating SuDS and this will be explored further at the options stage and in the development of the preferred option. Further investigation will be required to assess the suitability of SuDS approaches, such as the known presence of low permeability glacial till on site and any related land-take or cost implications.

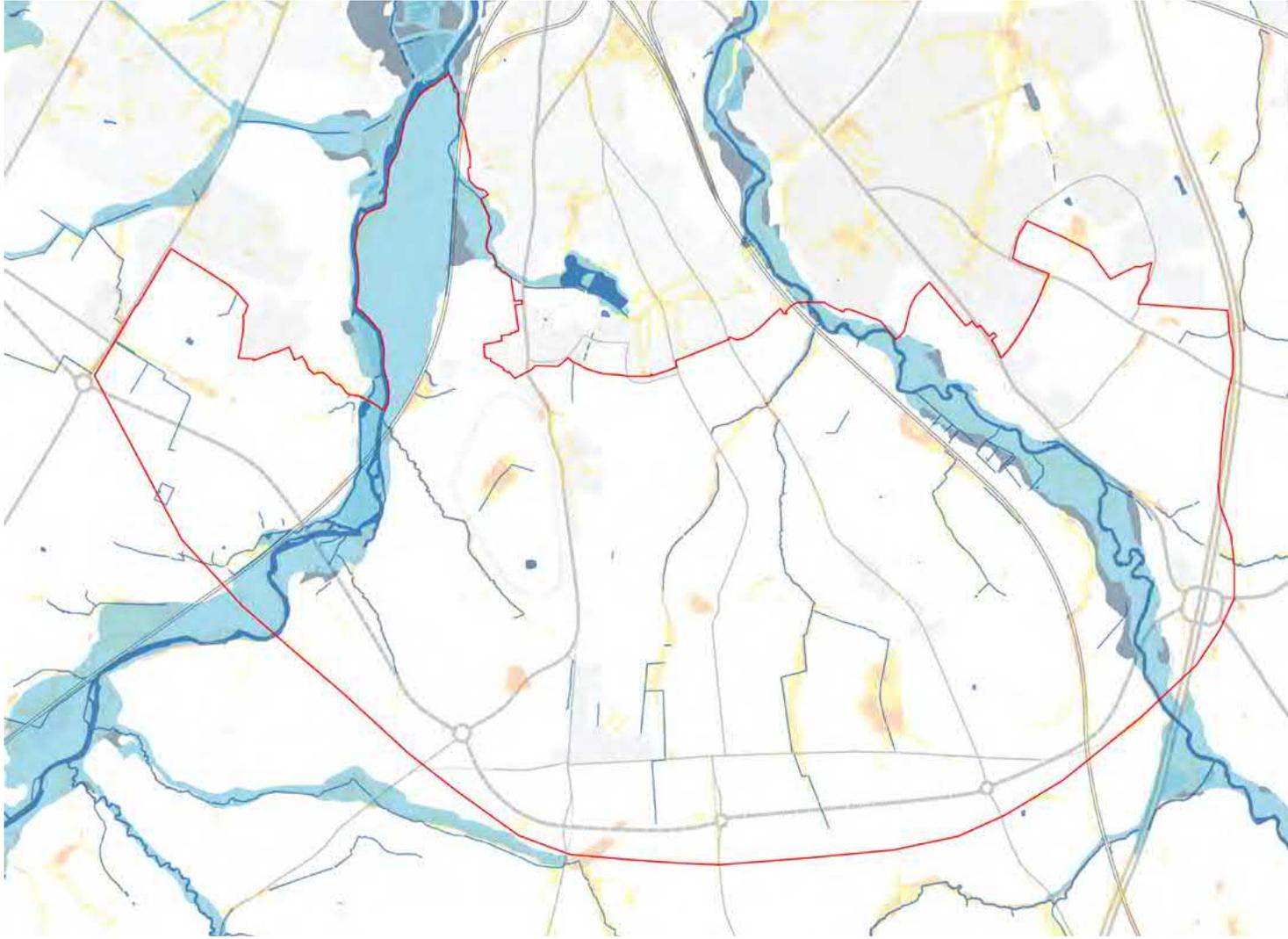
The landscape design can have an interesting mixture of wet and dry habitats that would add value to the landscape spaces.

Although within the flood plain, cycle and pedestrian access along the rivers will form part of the movement strategy connecting the Garden Villages to the centre of the city. Alternative routes may need to be provided to allow access during flood events.

These river corridors will also form important leisure assets providing access to outdoor recreation space within walking distance of the new communities.

Flood Zones and Surface Water Flooding

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KEY

- Flood Zone 2
- Flood Zone 3
- Surface Water Flooding - Low/Medium/High Risk
- Watercourse / waterbody

⌚

3.4 / Infrastructure

- Gas main (Northern Gas): The Catton/Cummersdale (CC02) high-pressure gas main runs through the site. Any crossings (utilities or road) of the pipeline will need to meet agreed easements and design standards. There is a 75m HSE consultation zone either side of the pipeline that restricts the form and scale of development permissible. It is understood that a small diversion is proposed south of Cummersdale to facilitate the construction of the CSLR - this will extend the HSE zone further into the site.
- Overhead power cables (ENW): Energy Northwest own two power lines which skirt the southern edge of the proposed St Cuthbert's Garden Village. One carries an 132kV OHL and the other is 33kV. Easements will need to be applied in development.
- Radio mast (Arqiva): Two 45m high lattice radiator masts and a telecoms mast are sited within the proposed development boundary with significant relocation costs.
- Water mains: UU noted that they own some significant water network assets within the site, around which they will not permit building or development.
- Fibre cables: Openreach are stated as currently owning fibre spine cables running through the site. The exact location of the cables or their dependent functions is unknown at present.
- Railway: The West Coast Mainline and the Cumbrian Coast Line both run through this site and may present constraints if utilities are required to cross the lines.
- Wind turbine: There is an individual wind turbine at Peastree Farm.

Key Interactions

Development near the gas main is managed by the infrastructure provider, with guidance on permissible uses given by the HSE. The HSE Land Use Planning Methodology defines consultation zones around the gas main which place restrictions on land use; restrictions are more onerous for the inner zone than the middle and outer zones. The restrictions mean that very little housing is permitted within the inner zone (developments of 1 or 2 dwellings) while the middle zone is suitable for "developments up to and including 30 dwelling units and at a density of no more than 40 per hectare" and the outer zone for larger/more dense developments. Restrictions on employment and non-residential developments vary.

Open space usage is also restricted by the HSE guidance, with no public uses permitted within the inner zone. Developments "where people will predominantly be outdoors and not more than 100 people will gather at the facility at any one time" are permitted within the middle zone, with the outer zone allowing 100 to 1000 people at any one time.

Masterplan & Spatial Implications

Based on the HSE guidance, amenity green space where the community can meet will need to be provided away from the high-pressure gas main, however this corridor can have other functionality as part of the 'Greenway'. It can contain planting (of a restricted height and depth) and may be used as part of the movement network, although Northern Gas retain a narrow easement within which no tree planting is permitted.

Overhead power cables have a restricted zone where development and amenity space cannot be located. Opportunities exist for wildlife and biodiversity zones, access roads, amenity green space rather than play areas.

Development within 7.2m of the overhead lines may be considered undesirable by many potential residents and operators, meaning this land has restricted development potential.

The medium-pressure pipelines are less significant constraints but will inform the site layout unless diverted.

The radio masts and wind turbine may impact the type, scale and height of development in the vicinity. There may be a further perceptual impact on desirability of nearby land. Stakeholder engagement would be required in order to determine the future of the wind turbine on site and whether it should be relocated or preserved.

Existing Major Utilities

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KEY

-  NGN high pressure gas main (Catton/Cummersdale)
-  HSE Consultation Zones (15m inner, 75m outer)
-  Proposed high pressure gas main diversion with estimated HSE consultation zones
-  NGN medium pressure gas main
-  Energy Northwest overhead power lines (132kV and 33kV) & 15m easement
-  Energy Northwest overhead power lines (11kV)
-  Energy Northwest Buried Power Lines (11kV)
-  United Utilities pumping stations
-  United Utilities service reservoir (High Brownelson)
-  ARQIVA radio masts
-  Wind turbine



3.5 / Energy and Waste

Due to policies set out in the UK Climate Change Act 2009 and the 2018 Clean Growth Strategy, energy, transport and waste systems need to change drastically over the coming years. The energy and waste strategy for this site must be robust and flexible to accommodate such change.

In 2018 the UK government produced a 25-year environmental plan which will tackle problems such as waste and soil degradation. This plan aims to protect and enhance UK landscape and resources while mitigating climate change and enhancing biosecurity.

The Carlisle District Local Plan 2015-30 identifies strategic objectives to promote low carbon and sustainable development. Under a commission from Homes England, AECOM conducted an Energy Masterplanning and Heat Network Feasibility Study, a draft version of which was reviewed as part of this study (under instruction from Carlisle City Council that this is the most recent version).

Cumbria County Council also recognises in its minerals and waste local plan 2015-2030 that carbon dioxide emissions per capita are higher for the local area compared to national average.

The St Cuthbert's Garden Village concept and vision introduced Principle 7: Smart and Sustainable Living, which encourages energy security, sustainable and resilient design, reduced cost of living, future proofing innovation and experimentation and a Garden Village expo to showcase new building, technological and environmental practices in the Garden Village.

Carlisle City Council has held a low carbon workshop with key stakeholders, during which the topics of transport, agriculture and forestry, industry, electricity, waste and buildings were discussed.

A sustainability strategy is required to map out both heat and electricity demands for different components of the development and to identify an integrated approach for supplying these. This will involve collaboration between technical design teams, particularly between energy and transport, so that ambitions for a low-emission transport system can be achieved.

Key Interactions

The service infrastructure would need to include allowances for the preferred energy approach.

The design and orientation of buildings would need to provide opportunities for renewable technology.

There is a need to map out both heat and electricity demands for different components of the development and to identify an integrated approach for supplying these. This will involve collaboration between design areas, particularly between energy and transport, so that ambitions for a low-emission transport system can be achieved

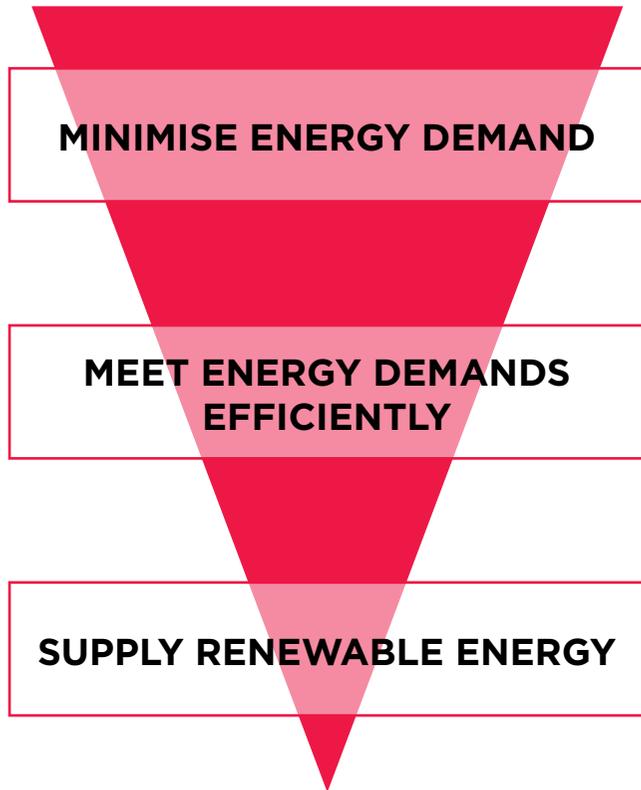
Masterplan & Spatial Implications

There are a number of energy strategies identified within the Baseline Report and reference should be made to Appendix 4.

Each renewable energy format will have its own spatial considerations for example; solar PV and wind requires roof space on buildings or a separate area for energy farming and biomass, or gas, would require space for an energy centre.

To identify the chosen approach consideration needs to be given to the current climate (and weather) characteristics, and also, an allowance made for climate change.

Energy Hierarchy



3.6 / Ground Conditions

The ground conditions constraints study considers the site context, history and geology of the site. The report notes that the River Caldeu on site falls under a Site of Special Scientific Interest and a Special Area of Conservation.

The geotechnical risk on the site is summarised as follows:

- No site-wide or particularly adverse or challenging geotechnical conditions are expected on the site.
- Foundations and other substructures associated with former buildings and railway infrastructure may be present on site which would cause local in-ground obstructions. However, these are likely to be sporadic and isolated and not affecting large areas.
- Earthworks will be required to create platforms suitable for development. It is considered likely that the majority of materials used in earthworks will be site-won.
- Steep slopes associated with railway embankments, cuttings and quarries are present on site.
- Low lying ground along the river valleys may give rise to waterlogging and soft ground issues and shallow groundwater may be present, which has implications for excavations and basements.
- Made ground is likely to be present in localised areas of the site that have been developed previously and in backfilled gravel pits and quarries that may influence the foundation requirements.

The geo-environmental risk on the site is summarised as follows:

- The majority of the site is within a relatively sensitive groundwater environment as the glacial till is underlain by sandstone designated as 'Principal Aquifer', which may implicate locations for SuDS.
- There are multiple localised possible sources of contamination associated with current and previous agricultural activities, as well as the possibility of localised contamination from previous industrial uses. This will need to be explored further during preferred options development.
- There is potential for contamination along railway lines, both at ground level and in any fill used for embankment construction.

Key Interactions

Ground conditions must be taken into account in the drainage strategy as infiltration drainage may not be suitable across the site. Site-specific assessment will identify suitable locations and infiltration drainage SuDS design.

Masterplan & Spatial Implications

Several historic and authorised landfills are located within the site area that may be unsuitable for development or may require remediation prior to construction. Similarly several areas of the site previously used for industrial purposes may require remediation prior to development. Intrusive ground investigation to assess the geotechnical and geo-environmental constraints identified will be required to further assess the implications for development.

Low permeability glacial till is present across the majority of the site, presenting potentially difficult conditions for infiltration drainage SuDS.

Authorised and Historic Landfill Sites



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3.7 / Air Quality

Carlisle City Council plays a pivotal and active role in promoting the health and wellbeing of its residents. In addition to being designated a healthy city by the World Health Organisation, the Council has recently declared a climate change emergency. The importance of the quality of the environment in which residents live is embedded in the 'Healthy Environments' principle outlined at Stage 1.

Developments of the size of St Cuthbert's Garden Village have the potential to cause air quality impacts during the construction and operational phases. The Cumbria 2019-29 Joint Health and Wellbeing Strategy highlights a target for an improvement in air quality to 40µg/m³ for NO₂ and PM₁₀. Diffusion Tube Monitoring results from 2017 showed that this target was met at 31 out of 32 monitoring sites within 2km of the red-line boundary for St Cuthbert's Garden Village.

For a development of this size to limit its impact on air quality, it will be expected to design efficiently to encourage walking and use of public transport as an alternative to car travel. Measures to reduce car or vehicle use on the site should be encouraged, and electric car charging points installed to encourage cleaner vehicles. The construction of the development may impact air quality in the local area due to potential fugitive emissions of dust and PM₁₀ from any construction works, and emissions of NO_x, PM₁₀ and PM_{2.5} from plant equipment.

The development needs to be designed to ensure existing and future receptors are not exposed to pollution levels exceeding the air quality objectives. Therefore, the site needs to be designed to reduce air quality pollution concentrations in the local area. Consideration of open spaces and parks is required to ensure they are not exposed to existing or future high pollution concentrations.

Key Interactions

Highway infrastructure, air quality and noise are linked with main highways routes generating the most air quality issues.

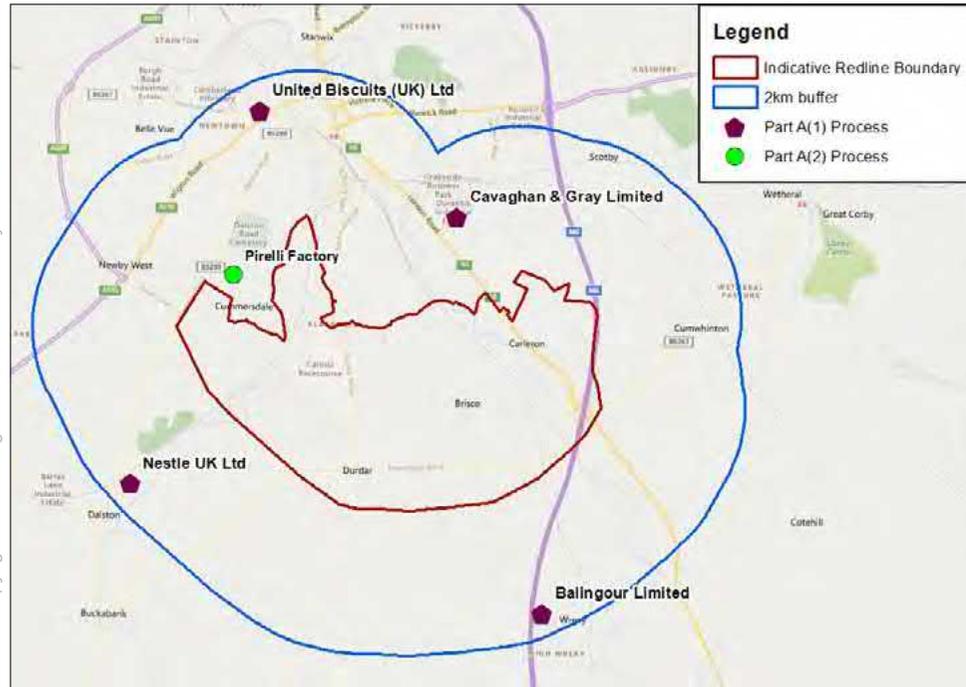
Homes, schools and parks should be set back from primary route edges to reduce exposure to pollutants.

Masterplan & Spatial Implications

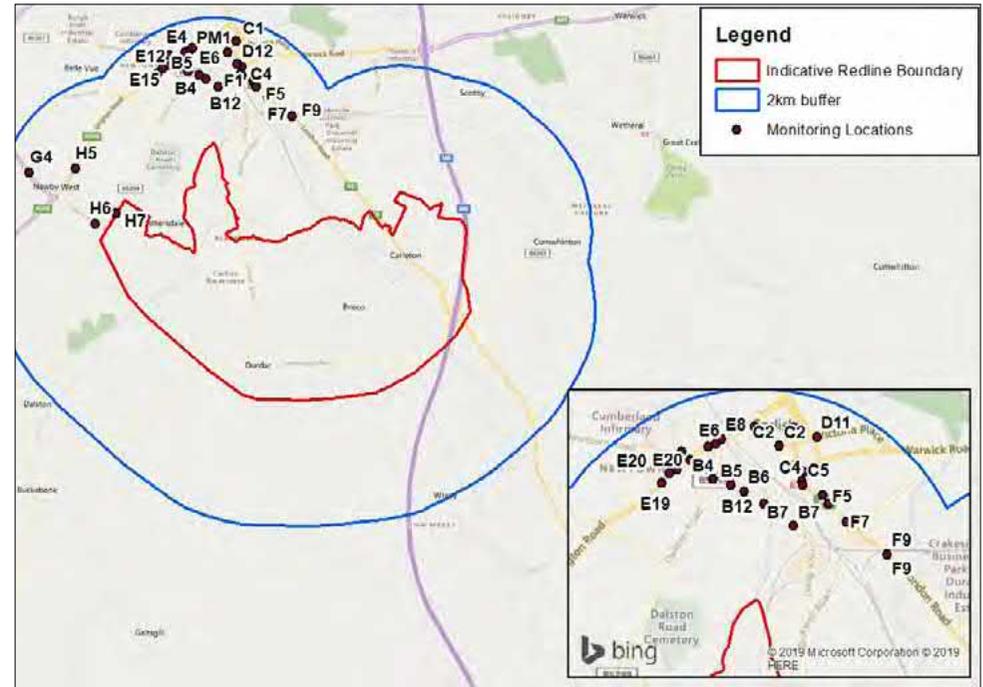
The development needs to be designed to ensure existing and future occupied land uses are not exposed to pollution levels exceeding air quality objectives. The Stage 1 principle 'Smart and Sustainable Living' and Carlisle City Council's climate change agenda play a key role here and the site needs to be designed to reduce air quality pollution concentrations in the local area. This should include the following steps:

- The number of vehicle trips within and out of the garden village should be minimised as far as possible;
- The residential locations need to be located away from key roads which are the main potential source of emissions;
- Emissions from any on-site heating or power generation need to be located at height and away from occupied spaces, as well as meeting the relevant emissions limits for the size of the units;
- Consideration of open spaces and parks is required to ensure they are not exposed to existing or future high pollution concentrations; and
- Encourage the use of electric vehicles through the inclusion of electric vehicle charging points.

Industrial sources within 2km of the site



CCC monitoring sites within 2km of the indicative red-line boundary



Part A (1) processes are regulated by the Environment Agency. Part A (2) processes are regulated by the local authority.

3.8 / Highway and Public Transport Connectivity

Strategic Context

The site sits the west of the M6 motorway, which connects into the site via Junction 42. To the west of the study area, the A595 connects Carlisle to Whitehaven, Workington and Maryport (via the A596).

Two railway lines cross the site: the Cumbrian Coast Line and the West Coast Main Line. Carlisle train station is a key interchange, located within the city centre, approximately 3km to the north of the site. The station serves the West Coast Main Line, connecting the sub-region to key destinations such as Glasgow, Newcastle, London and Manchester. Improvements planned as part of the Borderlands Deal will improved access to the south and further enhance access to the station from St Cuthbert's.

Carlisle Southern Link Road (CSLR)

The Carlisle Southern Link Road (CSLR) is intrinsically linked to the development and delivery of the Garden Village. The link will connect the A595 to the west of Carlisle to the M6 junction 42 along a route to the south of the St Cuthbert's.

The CSLR will provide additional network capacity for the St Cuthbert's area and the surrounding areas and change the volumes and patterns of traffic using the existing network in a strategic context. These changes will be fundamental to the ability to deliver the proposed levels of growth in the St Cuthbert's area and provide a foundation for the delivery of wider integrated and sustainable networks through the St Cuthbert's.

Highway Access

St Cuthbert's is well-connected to the local and regional highways networks, lying along a series of arterial routes between the city centre and the proposed CSLR. The existing roads within and serving the area are relatively narrow and rural in nature, reflecting the existing scale of residential and commercial development within the area.

The CSLR will provide additional network capacity at a strategic level and will, in conjunction with the development proposals, change the volumes and patterns of traffic using the existing network. The CSLR provides an opportunity to review the future role and function of routes between Carlisle and St Cuthbert's for all modes to balance competing demands for roadspace. In developing options, it will be essential to understand and maximise these opportunities whilst identifying and mitigating potential constraints and impacts.

Public Transport

Carlisle city centre acts as the main transport hub for the study area. Connections to and from Carlisle Station will therefore be important to the development of the site. Carlisle railway station is located within the city centre, with links to London, Scotland, the North East and West Cumbria. Connectivity to Dalston Station, particularly of residents in the west of the garden village, will be important to facilitate travel out towards the West Cumbrian coast and the employment opportunities in that location; this may warrant upgrades to the existing station.

Bus services within the study area mostly operate from Carlisle city centre along the key radial corridors. Improvements to bus connectivity between St Cuthbert's and Carlisle city centre will be required in order to encourage high levels of public transport use between the proposed development and the city centre.

Key Interactions

The CSLR provides an opportunity to review the future role and function of existing routes for all modes. It will be important through the development of options to explore how the additional capacity provided by the CSLR can be utilised to support the delivery of the St Cuthbert's and wider development within Carlisle. This will inform where development is proposed within St Cuthbert's.

Given the barriers to east-west movement created by the rivers and railway lines, the CLSR also has an important role for all modes to connect new development together, particularly development at the western and eastern extents of St Cuthbert's (i.e. Cummersdale and Carleton).

Masterplan & Spatial Implications

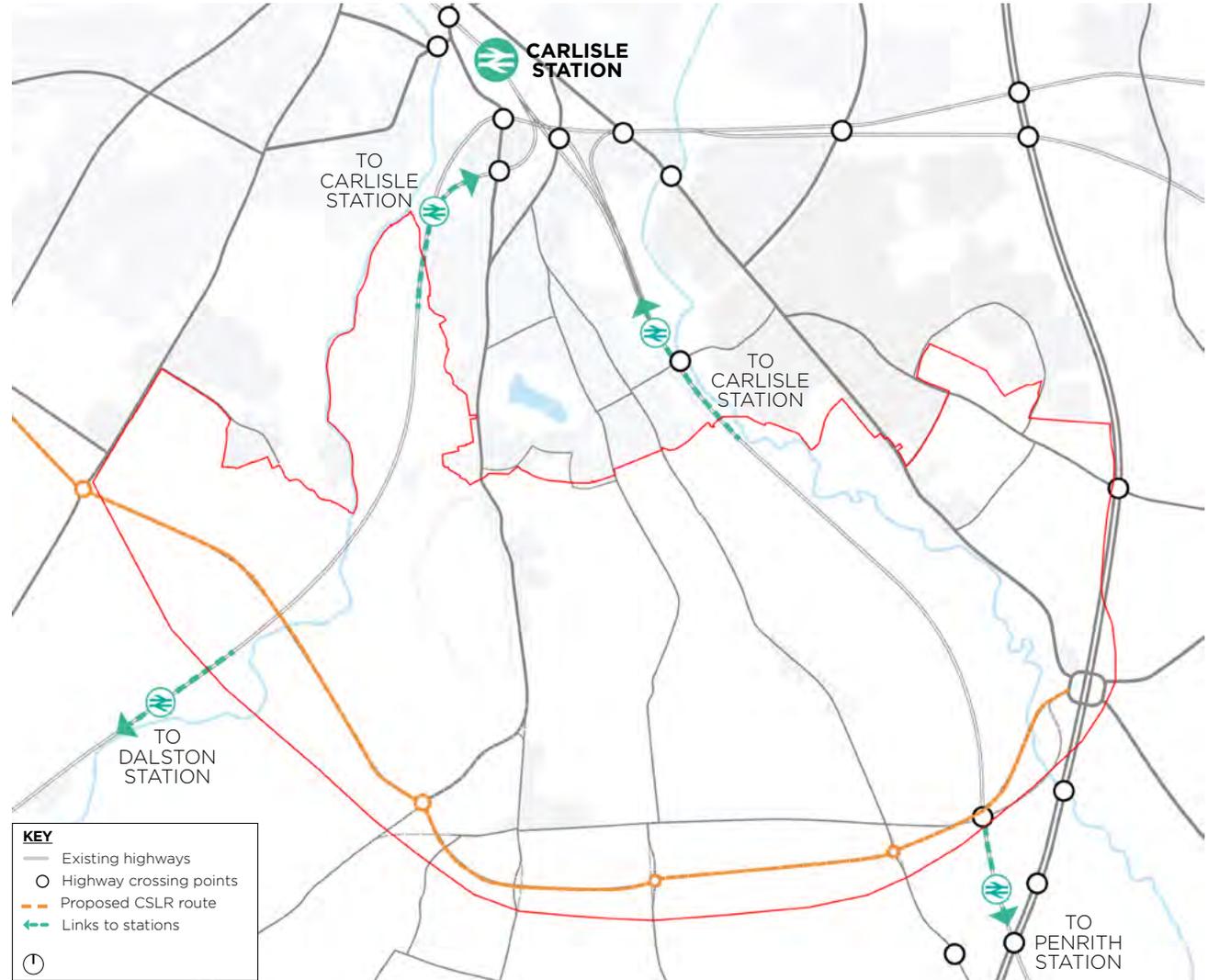
The existing transport networks within and serving the St Cuthbert's area are relatively limited, reflecting the low existing scale of development within the area. The CSLR will provide additional network capacity and will also create opportunities to provide for non-car journeys.

The city centre will continue to be a key employment, leisure and transport hub. The site's proximity to Carlisle city centre and the rail station provides opportunities for a significant proportion of regular journeys to be made by sustainable and active travel modes. To achieve this, the quality of connectivity will need to be improved. This will be explored through options development.

Approaches to creating attractive places for walking and cycling need to be embedded within St Cuthbert's to create liveable neighbourhoods where walking and cycling are the easy and natural choice for short journeys.

The CSLR provides an opportunity to review the future role and function of routes between Carlisle and St Cuthbert's for all modes to balance competing demands.

Network Connectivity



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3.9 / Active Travel

The St Cuthbert's site is crossed by a number of permissive off-carriageway routes which form a significant movement network, however, these routes are generally poorly joined-up, poorly signposted and lack formalised path surfaces, restricting access for many users.

The main north-south active travel route is National Cycle Route 7, which is a traffic-free pedestrian and cycle route alongside the River Caldew. The route has a good quality surface towards Carlisle and could form an important commuter and amenity route for new residents while also bringing people into the site from further afield.

A series of Public Right of Ways link along the Petteril Valley towards the city centre, however, this route is less well-defined and overlooked and stops short of the centre.

There is currently no clear east-west route across the site. The river and railway corridors exacerbate this division and currently have few crossing points. Many existing crossings are poorly signposted and low quality, including bridges with low headroom and poor lighting. There is significant opportunity and need for this to be addressed in order to ensure St Cuthbert's functions as a coherent settlement and all residents can access new facilities.

The arterial roads into the city centre all have footways along both sides within the urban area; however, these vary in quality and width. Outside of the urban area, Scalegate Road and Brisco Road, along with other lanes, are not suitable for pedestrian movements as they have no pavements. There are few permissive cycle routes along these corridors. The CSLR will include a footway and cycleway along the northern edge, providing a strong east-west route along the site's periphery and will connect to the Carlisle Northern Development Route footway and cycleway, providing access to the north of the city and to employment sites such as Kingmoor Park Enterprise Zone.

Key Interactions

The layout of the site should encourage walking and cycling through improving the existing and providing new walking and cycling infrastructure. Cycling infrastructure should be implemented in parallel with other highways improvements, with a suitable buffer provided between cyclists and vehicles.

The greenway will be an opportunity to link cycling and pedestrian routes across the Garden Village area and into the city centre

Masterplan & Spatial Implications

Safe, convenient and well-connected active travel routes should be embedded throughout the site to establish this as the first choice for journeys in and around the Garden Village. Strategic routes should be established from an early phase of development to allow residents to gain the habit of active travel from day one.

East-west routes will be created to link the Garden Villages and embed active travel within the spatial framework of the Garden Village. These should connect to existing cycle routes and public rights of way.

The site should use permeable block layouts that encourage walking and cycling instead of car use, and create attractive walkable streets with pedestrian-friendly landscape design. There is an opportunity to focus development around key pedestrian and cycle routes, aligning these with green infrastructure to form the basis of the site framework. Opportunities will be taken to connect to the CSLR shared cycleway and footpath.

Existing Pedestrian and Cycle Routes



National Cycle Route 7

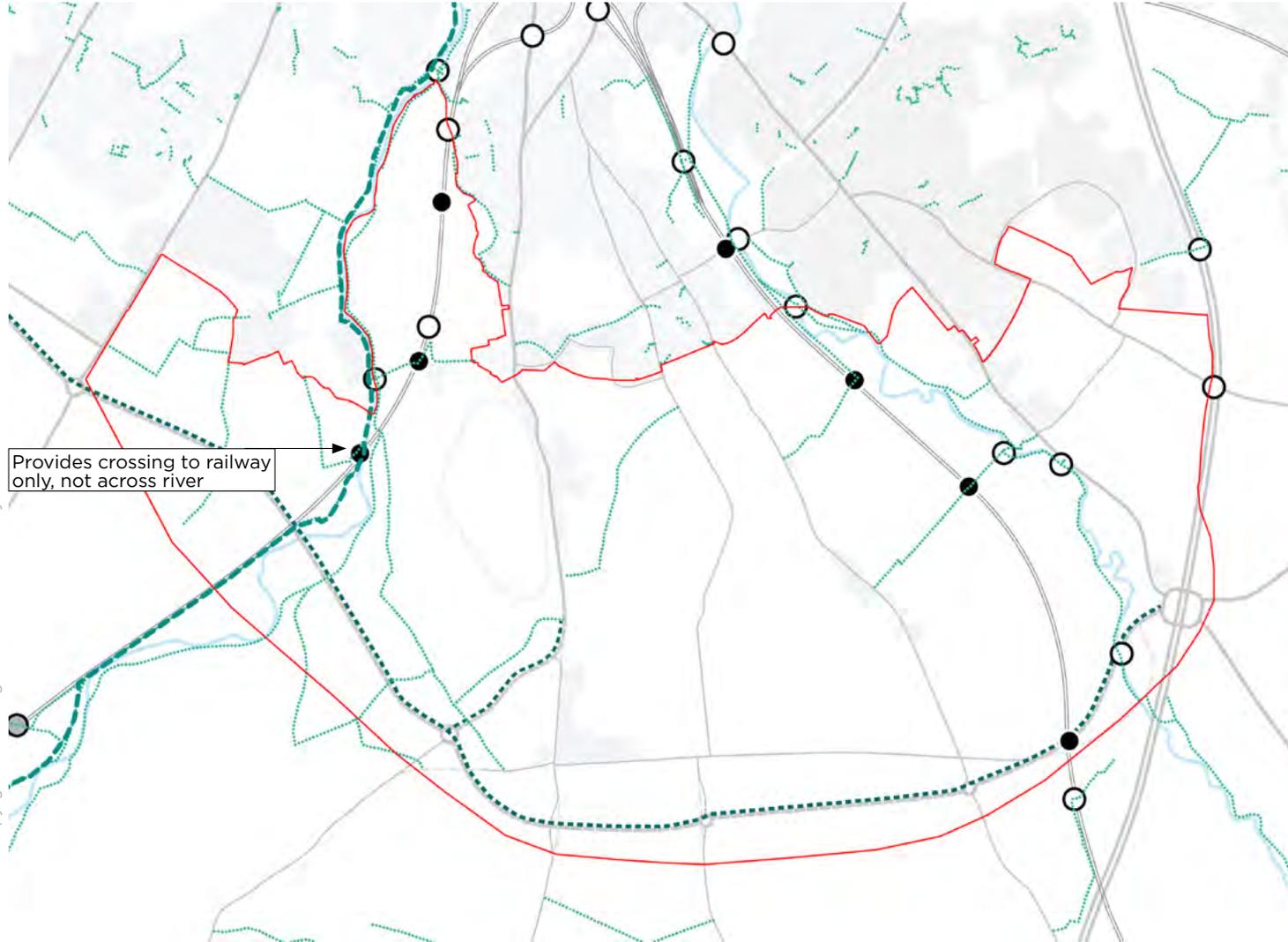


National Cycle Route 7 - bridge over River Caldew



Pedestrian tunnel under Cambrian Coast Line at Upperby

Permissive Movement Routes



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Provides crossing to railway only, not across river

KEY

- National Cycle Route 7
- ... Public Right of Way
- - - CSLR proposed pedestrian / cycle route
- Pedestrian / cycle overbridge
- Pedestrian / cycle tunnel
- Level crossing

⌚

3.10 / Cultural Heritage and Ecology Designations

Cultural Heritage

There are clusters of listed buildings within Bisco, Upperby, Cummersdale and Carleton. Development on the site should be considerate of the setting of these properties.

Due to the Roman heritage of Carlisle, there are areas of archaeological potential on the site and further investigation may be required.

The Holme Head Conservation Area lies partially within the site boundary, covering open land along Caldew Valley. This area is away from the main St Cuthberts development areas and is at low risk from harm however there is potential to further improve the setting through enhancement of the Caldew Valley.

The proposed conservation area at Brisco may limit the extent and character of development within a large area.

Ecology

Two statutory designated sites exist within the site: River Eden SAC and River Eden & Tributaries SSSI. These overlap within the site and extend along the River Caldew corridor. Direct and indirect impacts, e.g. pollution pathways through hydrology, must be avoided on these sites. If impacts cannot be avoided, appropriate mitigation will be required to ensure no adverse impacts on these sites.

- Ancient woodland and S41 priority habitat: Valuable deciduous woodland, hedgerows and river, exist within the site boundary. Wood pasture and parkland and good quality semi-improved grassland were also identified within 2km of the site. Areas of ancient woodland and S41 priority habitat provide ecological value and adverse impacts should be avoided.
- A Preliminary Ecological Appraisal (PEA) will be carried out during the preferred option stage to identify habitats across the site and the potential to support protected/notable species. In particular, the following species are likely to be present on site: bats, otters, water voles, badgers, red squirrels, breeding birds, wintering birds, amphibians, invertebrates and fish.
- Tree Preservation Order (TPO): A number of trees on the site are protected by Tree Preservation Orders.
- There are important habitats on the site that need to be preserved, such as hedgerows and trees, as they are important placemaking features in the landscape and are a key character of existing settlements and communities.

As part of the preferred options development, an extended phase 1 habitats survey will be undertaken which will focus on the proposed areas of development for the Garden Village and ensure mitigation measures are inbuilt for areas of potential for protected and notable species. This survey is often referred to as a Preliminary Ecological Appraisal (PEA).

Key Interactions

Existing priority habitat is to be preserved, and included within green infrastructure proposals.

The area protected by SSSI and SAC designations at the River Caldew lies at a lower level than the main development site and is undevelopable due to the flood risk, meaning the risk of harm from development is reduced. The options and policy development will be subject to a Habitats Regulations Assessment to look at any potential impacts.

Masterplan & Spatial Implications

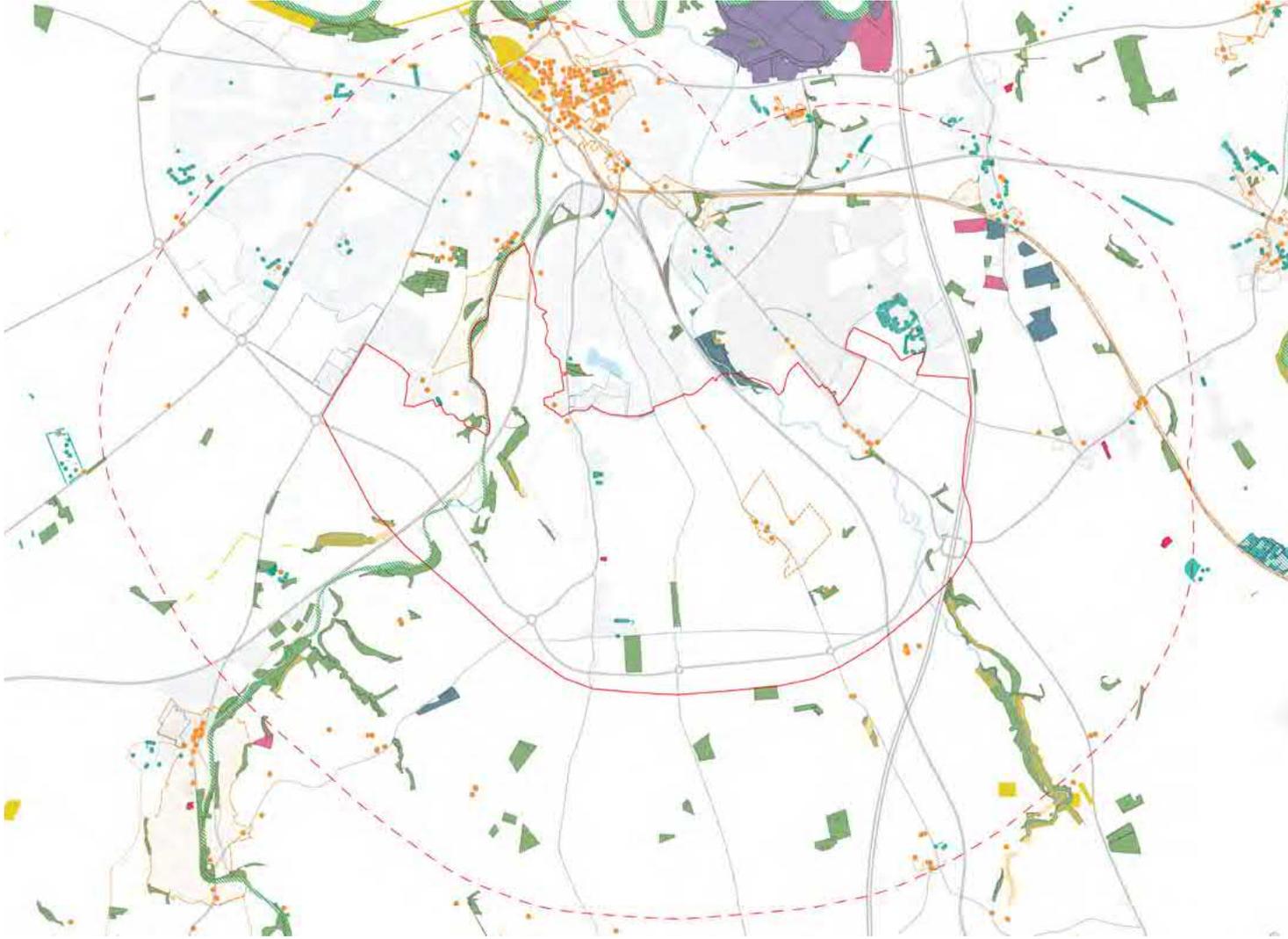
The SSSI and SAC designated areas could be enhanced for landscape and ecological benefits, however access and movement proposals and drainage strategies should take into account the risk of harm.

Development in and around Brisco should have regard to the proposed conservation area. This will impact on the layout, form, scale and architecture in the vicinity to ensure that the character and setting is protected. Visual mitigation may be required between new and existing dwellings, including buffer planting. These considerations also apply to development close to Listed Buildings.

The presumption should be that trees subject to TPOs are retained on site and that development is in line with the Council's adopted SPD "Trees and Development".

Statutory and Local Designations

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KEY

- 2km buffer to site
- Ancient Woodland
- Listed Building
- Conservation Area
- Proposed Conservation Area
- Scheduled Ancient Monument
- Site of Special Scientific Interest
- Special Area for Conservation
- Tree Preservation Order

Priority Habitat Areas:

- Deciduous woodland
- Traditional orchard
- Lowland meadows
- Good quality semi-improved grassland
- Coastal and flood plain grazing marsh
- No main habitat but additional habitats present

⌚

3.11 / Noise and Vibration

The noise mapping identifies that large areas of the site come within the Significant Observed Adverse Effects Level (SOAEL) at night time. These are generally concentrated around the West Coast Main Line and M6 Junction 42, extending across the Petteril Valley to Brisco and across to Carleton.

Relatively narrow areas along the CSLR, Newbiggin Road and the proposed Durdar Road / CSLR are also affected. Development will need to be set back in this area or noise mitigation barriers installed.

Residential development should generally avoid areas exceeding SOAEL or otherwise seek to mitigate levels to below SOAEL to 'Avoid significant adverse health impacts on health and quality of life'.

Noise levels for residential properties are more onerous than those for commercial uses. Consequently, commercial buildings could be located in noisier areas, which are less suitable for residential uses, and used to provide a noise barrier effect providing quieter areas for residential use beyond.

Service yards and building services for commercial uses should be located away from residential properties and use the building massing to provide a noise barrier effect.

Key Interactions

The site topography helps to reduce the impact of noise and vibration across the site as the two railways lie at a lower level. There are areas where the CSLR will lie on an embankment or bridge structures, increasing the travel of noise disturbance.

Masterplan & Spatial Implications

The CSLR and some local roads may require additional noise mitigation along their routes to protect new and existing dwellings.

Residential properties are to be located away from noise sources, where development land needs to be maximised, then protection should be used, in the form of an acoustic barrier (fence, or landscaped bund, or combination). Softer bunding and hedges are more in keeping with the principles of the Garden Village.

On Newbiggin Road, consideration should be given to reducing traffic levels to reduce the need for acoustic protection, if required, once the CSLR is complete.

Areas with higher noise levels may be appropriate for employment and other non-residential uses, such as close to the West Coast Main Line and around Junction 42 of the M6.

Areas exposed to Noise Levels greater than SOAEL during Night Time



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3.12 / Landscape Character and Features

St Cuthbert's has a strong setting, lying on the urban fringe with views south and east towards the Lake District and North Pennines and northwards to the city skyline.

Extensive areas of farmland are divided by the two river valleys, Caldew and Petteril, which continue towards the city centre and offer a localised change in character.

The farmland provides a strong form and character through the existing field pattern and strong boundaries marked by tree and hedge lines, many of which are followed by lanes and access tracks. Field patterns vary, linked to the historic use of the land, with large and irregular fields in some areas and smaller rectangular fields in others. Use of stone walls is generally confined to individual property boundaries rather than marking fields.

The existing mature trees woodland blocks and hedgerows represent a real asset to the site, in terms of providing maturity, character, structure and biodiversity and protection from climate change.

Much of the site is in active agricultural use, with a mix of arable farming and pasture. The majority of land is classified as Agricultural Land Grade 3: Good to Moderate, with areas in the Petteril Valley being Grade 2: Very Good.

The Cumbria Landscape Character Guidance and Toolkit (CLCGT) 2011 identifies three landscape character types across the St Cuthbert's site boundary: 5a Ridge and Valley, 5b Low Farmland and 5d Urban Fringe. Key characteristics and features have been described for each landscape type, including a summary of sensitive features as well as guidelines to conserve, restore and enhance the landscape.

The St Cuthbert's Garden Village site has been described and analysed in more detail within the St Cuthbert's Garden Village Landscape and Townscape Appraisal undertaken by LUC with Nick Haynes in 2017 and the St Cuthbert's Garden Village Landscape Sensitivity Study undertaken by Gillespies in 2018.

The Landscape and Townscape Appraisal divides the area into six distinct landscape character areas, comprising two river valley landscapes following the Rivers Caldew and Petteril and four farmland landscapes, which include a character assessment of the five villages within the area. As well as an overview of the character of the landscape the appraisal provides evidence and guidance to inform the masterplanning process for St Cuthbert's Garden Village.

The Landscape Sensitivity Study, which defines twelve sensitivity parcels, provides further detail on the sensitivity of the landscape around the villages of Durdar and Brisco and sets out key considerations for development proposals.

Key Interactions

Landscape should be used as the defining characteristic to shape St Cuthbert's. A landscape-led approach to masterplanning, aligned to the 'Start with the Park' principle, will help to create a strong sense of place, a high level of amenity and form the framework for sustainable infrastructure, including SuDS and noise mitigation.

The river valleys are largely unsuitable for development due to their flood risk and statutory designations though a sensitive approach to development edges and amenity uses is required to avoid overwhelming the setting of the valleys.





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Masterplan & Spatial Implications

For the most part, the nature of landscape allows opportunity for sympathetic development to enhance, strengthen and protect existing landscape characteristics. Identified constraints and sensitivities on the site can be incorporated into the sympathetic holistic planning and design process, guided by Garden City principles and the Big Green City vision, to achieve an inspirational and exemplary St Cuthbert's Garden Village, particularly through adoption of the 'Start with the Park' principle.

The scheme should seek to sensitively respond to its mature landscape context and retain as much of the existing vegetation, brooks and drainage channels as possible and use them to create structure for the new development areas. The agricultural use and open character of the site will inevitably be modified however integration of landscape features will provide a strong landscape character and help embed the development into the site.

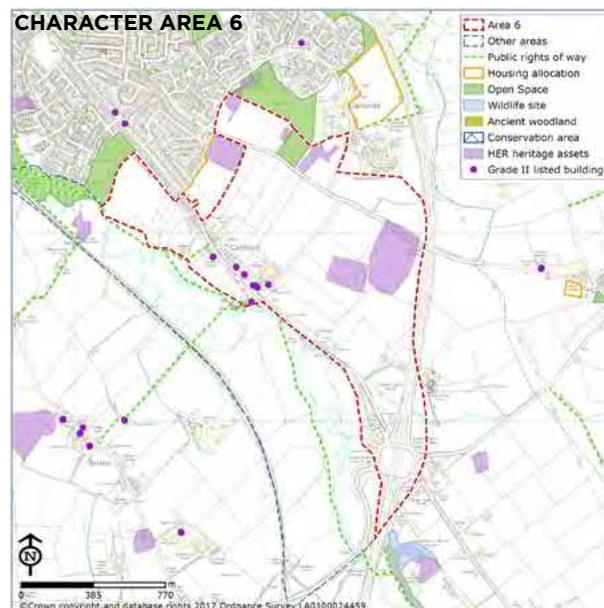
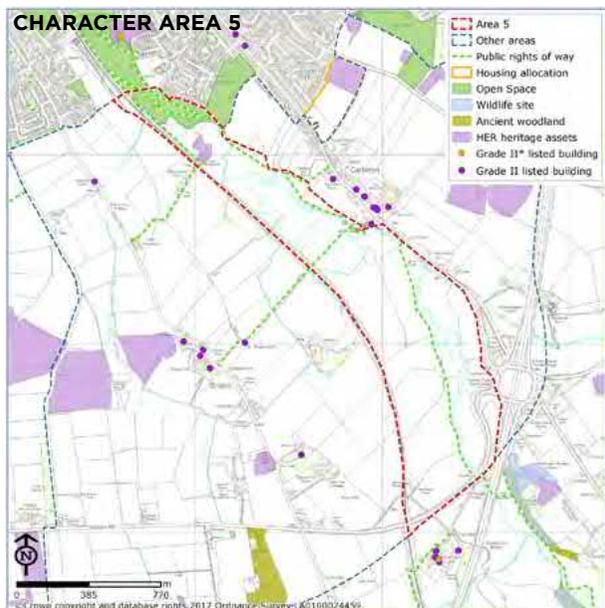
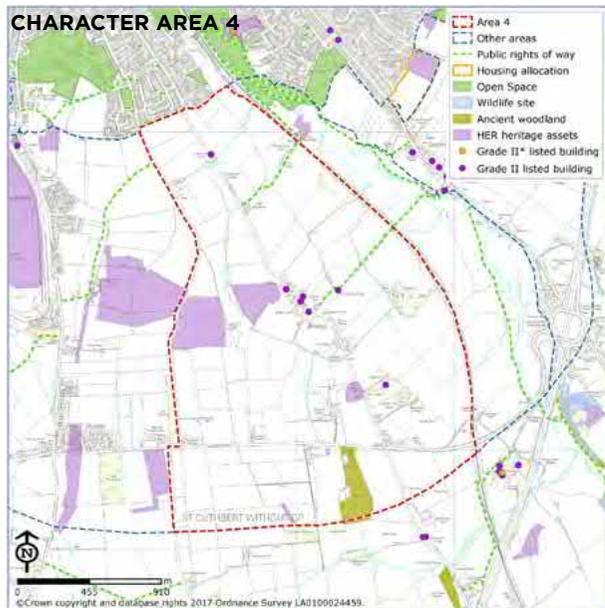
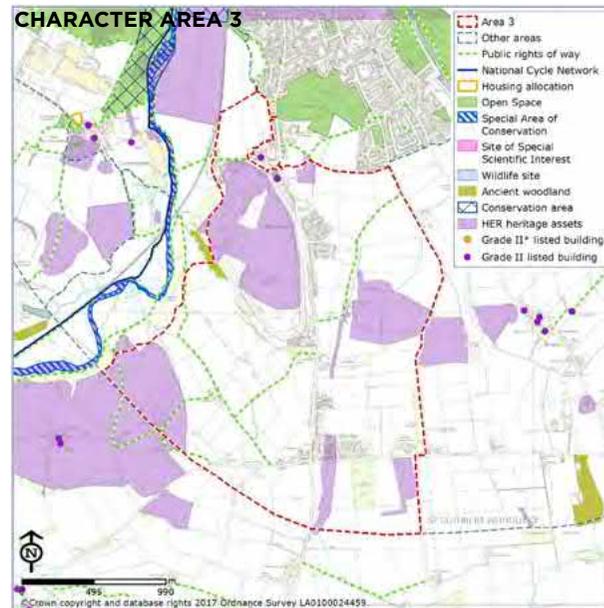
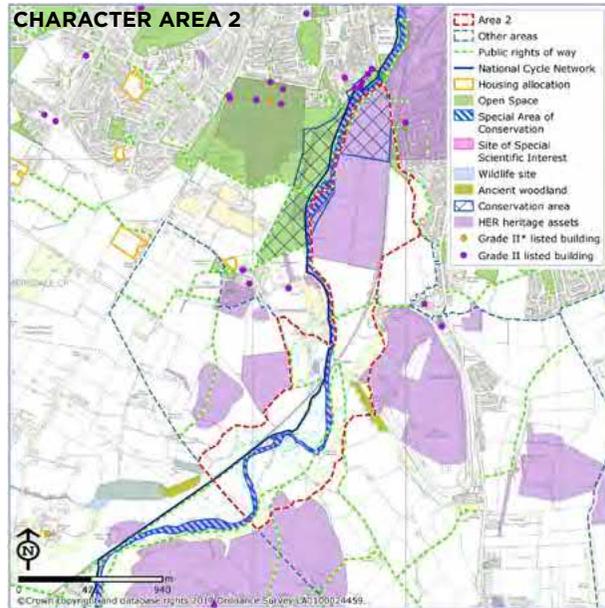
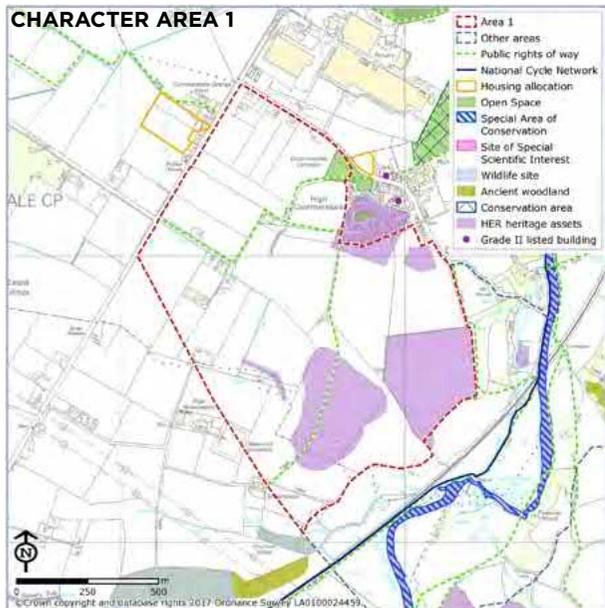
The existing landscape should be utilised to create a landscape led, sympathetically designed masterplan, which enhances the intrinsic qualities of the site.

Key guidelines for the masterplanning process include:

- Development to maintain the separate identity and character of settlements, including a separation from Carlisle.
- Where appropriate integrate existing development as well as the isolated structures of the racecourse into landscape to create a positive interface between built up areas and the surrounding farmland.
- Maintain traditional character and setting of Brisco and Carleton. Sympathetically designed small scale, high quality development which make a positive contribution to the character could be appropriate.
- Locate the new link road across River Caldew to minimise impact on woodland and tranquil areas.
- Utilise the existing green corridors of the river valleys of Caldew and Petteril which are high in biodiversity and recreational value. Link the river valleys as part of the proposed Green Infrastructure with existing and new development as well as the wider area.
- Retain and possible strengthen areas of woodland and encourage hedge and tree planting where appropriate. Incorporate existing features into the wider green network for movement of wildlife and people.
- Consider screening and framing function of exiting woodland.

- Retain long views and maximise availability of the views by providing access. Open space to incorporate wide views to distant skylines.
- Consider additional footbridges across the rivers where appropriate to provide flexibility and circular routes.
- Interpret industrial heritage such as textile printing to enhance experience and time depth of landscape.

There may be an opportunity to retain agricultural functions on the site and shape the development around the retention of existing farms. Land that is suitable for agriculture may be retained in this use but consideration should be given to the size, orientation and shape of any areas left for agriculture to ensure that the land can be farmed efficiently.



3.13 / Green Space

The southern Carlisle area has a range of accessible green spaces from formal parks to open countryside along the river valleys. Facilities include allotments, play spaces, multi-use games areas (MUGAs) and sports pitches, with a range of these clustered close to the site at Upperby Park. Many school sites provide additional green spaces and sports functions, though public access to these varies. The existing network of public rights of way and National Cycle Route 7 help to provide access to these spaces and to the wider countryside. Whilst the city lies in close proximity to large expanses of countryside, much of this is in private ownership and is actively used for agriculture, limiting its amenity functions.

Whilst there is plentiful Green Infrastructure (GI) across Carlisle there are significant opportunities to improve east-west connectivity across the St Cuthbert's site to increase access and to include new amenity space provision such as allotments, playspaces and enhanced riverside walks..

There is considered to be a link between the availability of GI within ward areas and the associated level of health deprivation. Of the top ten wards in Carlisle District identified as lacking in GI provision and being affected by health deprivation, three of those areas lie within or adjacent to the indicative St Cuthbert's Garden Village site boundary. Building on the natural assets of the site and maximising the GI opportunities will support a strong identity for the Garden Village, as well as promoting the health and wellbeing of existing and future communities.

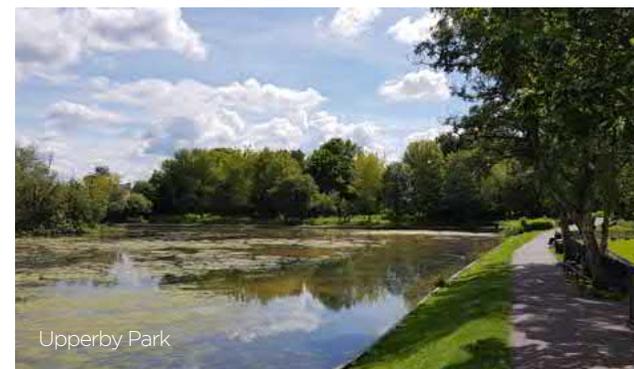
Key Interactions

Green infrastructure needs to be considered in parallel with play and leisure space requirements and ecology provision. To be truly multi-functional the green infrastructure also needs to be considered alongside the drainage strategy and climate change resilience measures. Spaces can be designed to be multi-functional, allowing more efficient use of the land developed.

Masterplan & Spatial Implications

The Stage 1 Principle 'Start with the Park' is very important to the structure and form of the Garden Village, in order to "deliver a landscape-led masterplan that harnesses the rivers, world class views and woodlands to create a network of unique, high-quality, active landscapes and new destinations". This means that green infrastructure should be embedded as a priority within all the options developed.

Considering the 'Healthy Environments' principle, the availability of accessible green space needs to be built into the spatial frameworks as they move forward. This means provision of green spaces within easy walking distance, and of a sufficient size and quality to attract regular users.



Green Space



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KEY	
	Open countryside - agriculture and grazing
	River valleys
	Public Open Space (Carlisle Local Plan)
	Other amenity spaces
	Active space - play spaces (CCC)
	Active space - MUGA, cycle track (CCC)
	Sports pitches
	Allotments
	Public Right of Way
	National Cycle Route
	Proposed school site
	School site
	Cemetery
	Ancient woodland

3.14 / Townscape & Character

The city has grown incrementally from the centre, outwards along the higher land above the Caldew and Petteril valleys. Small settlements have developed along the arterial routes, some of which have now effectively merged into the wider urban area.

- The older areas, close to the city centre, are characterised by two storey terraced houses in red brick with narrow cobbled streets, laid out in a formal grid. These areas are densely packed with small rear gardens. The distinctive patterned brick facades help to make these houses amongst the most characterful and locally distinctive developments in the city.
- The later suburban development has taken a less regular layout. Earlier developments have a mix of short terraces, semi-detached and detached two-storey houses with generous front and rear gardens. Streets are generally laid out in an informal but well-connected and legible pattern.
- Later C20th development has seen a growth in the number of detached properties and increasing use of cul-de-sac layouts which limit connectivity and legibility.
- The most recent developments, including those by Persimmon and Story Homes, have adopted a range of layouts and an increase in the number of semi-detached and linked properties.

As a result, the city has a range of housing characters however there is a limited range of typology, confined mainly to two-storey single-family housing.

The St Cuthbert's Garden Village Landscape and Townscape Appraisal (2017) includes a character assessment and a summary of the historic development of the five villages within the area, namely Cummersdale, Blackwell, Durdar, Brisco and Carleton.

There are a number of buildings and structures in the area and surroundings that form positive and recognisable features on the skyline and in long views, helping with orientation and wayfinding and giving a strong sense of place. This includes the Stead McAlpin chimney, the racecourse grandstand and Denton Mill.

Townscape of the individual settlements is discussed in Section 5.

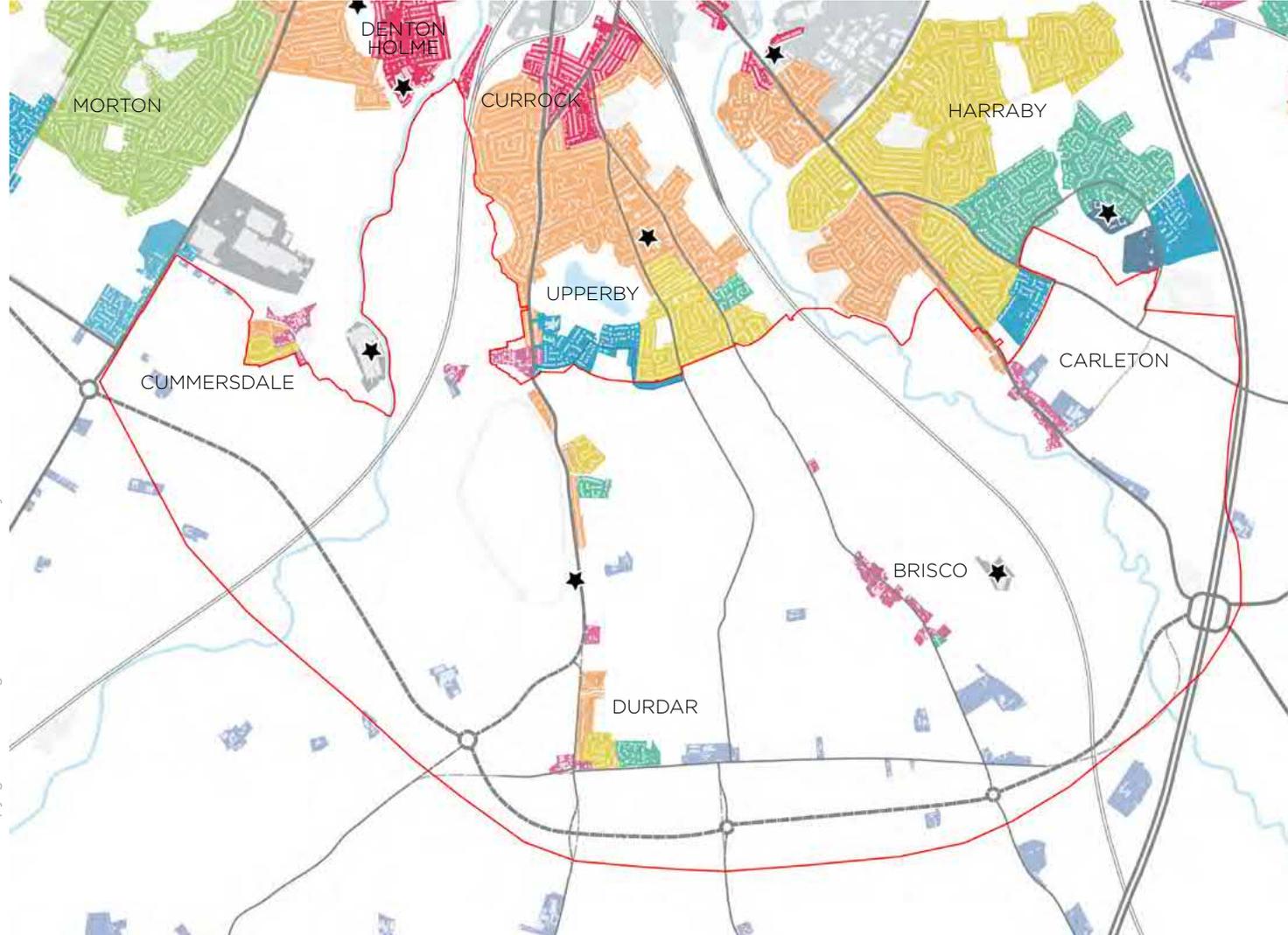
Key Interactions

Sensitive interaction is required to ensure the Garden Village has a suitable relationship to existing settlements and communities. This includes consideration of built heritage, scale and massing of existing buildings and key views into and out of the city.

Masterplan & Spatial Implications

In order to achieve a sensitive interaction, attention must be paid to design and quality standards to ensure that early stages of development set a high standard as a precedent for the remainder of St Cuthbert's. The masterplan will need to set the basis for these and they will be expanded on in separate more detailed design guidance.

Generalised Townscape



KEY

Blue square	Individual Farms/Homes
Pink square	Historic Village - Mixed Form
Red square	Victorian Terraces
Orange square	1920s-30s Suburbs
Yellow square	1950s Suburbs
Light green square	1970s Suburbs
Dark green square	1980s-early 2000s Suburbs
Blue square	C21st Suburbs
Dark blue square	Reuse of Historic Buildings
Grey square	Industrial Uses
Light grey square	Other Land Uses
Solid black star	Positive / Neutral Landmarks
Hollow black star	Negative Landmarks
Circle with clock icon	

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3.15 / Land Use

The study area is largely undeveloped aside from the racecourse, a small number of settlements and a number of farms and smallholdings.

The site for the new Newman Catholic School lies at the urban edge, off Scalegate Road. Areas of residential development are proposed or under construction immediately adjacent to the site boundary, notably at the land south of Morton, The Ridings at Upperby, and The Coppice and Speckled Wood at Carleton

The site includes employment sites that are important contributors to the local economy. The Pirelli factory lies adjacent to the site boundary at Cummersdale; it is understood that there are plans to expand the existing operations within the current site boundary. The Stead McAlpin site lies on lower ground towards the valley floor.

The neighbouring urban areas are relatively mono-use residential areas with little employment or other non-residential development. There are a number of low-key local centres offering a small range of retail and services, however there is no clear focus to these areas and they are generally not co-located with schools or areas of open space. The existing villages have few services, (with the exception of Cummersdale which has a pub, village hall, primary school and has good off road connections to Carlisle through Cummersdale Holmes) and are poorly connected to local centres. The land allocated for Morton District Centre lies between the existing and new communities, forming a central community space. St Cuthberts has potential to offer a range of complimentary services and facilities through its local centres and Durdar village centre.

The racecourse lies fairly central to the site and is relatively quiet aside from on race days and other event days.

The existing car park lies across Durdar Road from the grandstand - there may be potential within the masterplan to relocate this and provide safer access while allowing development to front onto the road. This will be explored through stakeholder engagement and public consultation.

Key Interactions

The existing urban and village areas and individual dwellings are particularly sensitive to new development that could have a negative impact on amenity from construction through to occupation.

Masterplan & Spatial Implications

Existing development within the site should be considered on a case-by-case basis. Some dwellings and farmsteads could be incorporated in their existing form while others could be adapted as part of the development, with potential for reuse of any redundant farm buildings present on site.

Consideration should be given to a need for mitigation to prevent environmental health impacts (including noise, visual impact, air quality and dust).

Opportunities should be sought to link into existing residential areas to help connect communities and support the viability of new and existing retail and services.

Development should respond appropriately to the proposed school and provide sufficient safe active travel routes to new residential areas.

The layout of the development should have regard to the racecourse and its car park to maintain or improve functionality of this facility.

The employment sites may not be considered desirable neighbours for new residential development due to their potential to create environmental health issues (including noise, air quality, vibration, light) however careful site design and mitigation could reduce this risk.

Existing Land Use and Local Plan Allocations

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KEY

- Racecourse
- New school site
- Primary/Junior school
- Farm buildings
- Employment
- River valley - Open space
- GP surgery
- Post office
- Local centre
- Community centre

Local Plan Allocations and Designations:

- Public Open Space
- Primary Residential Area
- Land Committed to Residential Development
- Land allocated for Residential Development
- Land allocated for Employment Development
- Land allocated for Morton District Centre

3.16 / Economy and Employment

In order to understand the land type and size required to provide employment for the Garden Village, an employment strategy is important to define the type of employment land needed, and the associated land requirements. Both the Borderlands Inclusive Growth Strategy and the Cumbria Local Industrial Strategy (LIS) identify the importance of growing the working age population in Cumbria. Due to its location and scale of the opportunity, the Garden Village will play a key role in supporting many of the LIS and Borderlands projects and objectives, such as growing and using our talent pool, improving productivity, innovation and enterprise potential, as well as improving connectivity.

In July 2017, a report undertaken by Regeneris¹ looked at the current economy of Carlisle and the potential growth areas and target sectors for growth. The report highlighted a number of challenges to growth such as a decreasing working age population, a concentration of employment in lower value industries and under-representation in higher value, a high share of residents in precarious forms of employment and an above average level of employee jobs earning less than the UK living wage.

The report, however, highlighted key sectors and growth potential within Carlisle. The key sectors were identified as manufacturing, logistics and storage, agriculture and construction. Enabling sectors were identified as:

- Retail and leisure
- Health and social care
- Professional and business services.

Digital and creative was identified as an aspirational sector, due to the rapid growth experienced nationally; however, Carlisle does not currently have a notable strength or specialism in the sector. Projects that will drive employment over the coming years for Carlisle can be identified as:

- Carlisle Lake District Airport;
- Kingmoor Park Enterprise Zone;
- Carlisle City Centre Development Framework; and
- St Cuthbert's Garden Village (during construction phase).

There needs to be an understanding of the employment needs of the future residents of the Garden Village, something which has been explored at high level during a workshop on 21st March 2018. The workshop output identified that the key strategic role for St Cuthbert's in the short to medium term is to provide employees for existing employers, however posed the question "what is the long-term strategic employment role for St Cuthbert's to support the local and regional economy?".

The decline in the working age population in Carlisle is expected to be one of the most severe in England. It is not realistic to expect the decline in the working age population to be offset by significant levels of increased in-commuting from adjacent areas within Cumbria or southern Scotland. It is expected that additional permanent employment in the Garden Village will be:

- Jobs created by businesses occupying the designated employment land;
- Jobs found in commercial premises located in the Village Centres; and
- Jobs required for the operation of schools, healthcare provision and other services.

The concept masterplan assumes 90,000sqm of commercial premises provided by St Cuthbert's Garden Village.

In the concept plan, Junction 42 and land to the south of Durdar were highlighted as potential future strategic employment land. These opportunities provide flexibility and complement Carlisle's current employment offer whilst supporting the ambitions of the Borderlands Partnership and the Cumbria LEP. The land at junction 42 presents the obvious benefits of a gateway site on a motorway junction. The land to the south of the CSLR at Durdar provides a longer term opportunity for future employment growth beyond the current local plan period. The close proximity to Durdar enables the area to benefit potentially from a local workforce and key sustainable public transport opportunities., further understanding of the strategic opportunity needs to be explored with key stakeholders such as the LEP, Cumbria County Council and the Borderlands Partnership.

¹ <https://www.carlisle.gov.uk/LinkClick.aspx?fileticket=AAQj0AaPT1c%3d&portalid=24>

It is recognised that the construction phase of St Cuthbert's Garden Village will provide employment demand for up to 400 construction jobs per year needed to deliver the settlement and around 3,000 jobs will be required to provide relevant services for new residents.

The next steps required in order to understand the employment potential for St Cuthbert's Garden Village is to understand the location and industry of employment in the Garden Village. Best practice shows growing value for mixed living and employment areas over edge-of-town business parks, in particular for creative, science and innovation sectors.

There have been some suggestions that residents will commute to the city centre for work, highlighting the importance of excellent connectivity. As noted above, Carlisle City Council has noted the digital and creative sector as an aspirational growth area. The Council needs to understand the land requirements of this sector. It needs to be understood whether current employment opportunities are enough to cope with the potential demand for employment from Garden Village residents, or whether there needs to be a strategy to bring higher-value employment into the city, as noted in the report prepared by Regeneris in 2017, in order to increase the GVA of Carlisle and attract a greater working-age population to the area.

Key Interactions

The transport and movement plan developed as part of this masterplan framework will be key to allow travel to employment in the city centre, local centres and proposed employment sites, such as at J42. The location and type of housing is also important to consider, particularly when considering the priority to increase the working-age population in Carlisle.

Masterplan & Spatial Implications

The Garden Village must provide transport links for new and existing residents to key existing and future places of work. There is a need to understand the type of employment likely to be situated on strategic employment sites and their needs from the site: for example, immediate access to the motorway.

It is important to consider digital infrastructure at this stage in order to facilitate flexible employment options across the site, such as home-working and co-working hubs.

3.17 / Key Stakeholder Comments

St Cuthbert's Garden Village Vision and Concept proposals were publicly consulted upon between Friday 26 January and Friday 9 March 2018 and again between Friday 29 June and Friday 10 August 2018.

The first consultation sought feedback on the scope and the vision for the Garden Village. This consultation phase invited feedback on what the St Cuthbert's Local Plan should contain, the issues it should seek to address, what the vision for St Cuthbert's should be and the sustainability appraisal scoping report.

The feedback from this first round of consultation helped to shape the Concept Proposals and Vision consultation and the headline stakeholder feedback which, are presented in table 1.

When asking respondents what the key elements for a thriving new community are, feedback received is categorised into the following three areas:

- Access to good public transport and opportunities for walking and cycling;
- A wide range of local jobs within easy reach of homes; and
- Strong cultural, recreational and shopping facilities.

When asked to rank their priorities from the nine Guiding Principles, respondents listed the top three as 'Start with the Park', 'Locally Distinctive' and 'Quality Homes'. These top three priorities have been prioritised as such within the St Cuthbert's Garden Village Concept & Vision document January 2019. With the stakeholder feedback received, further technical assessments and further option development and testing, these will be used to inform Stage 2 of the detailed Masterplan Framework.

The Council is also involved in ongoing discussions with infrastructure providers, via the Infrastructure Group, in the fields of education, sport, utilities, transport, low carbon technologies and health. Along with stakeholder feedback, these discussions will inform options development which will align with the Garden City principles outlined in this report.

The Council has also attended a number of Parish Council meetings in order to update and involve the Councils on progress on the Garden Village. These sessions have been successful and are ongoing throughout the Stage 2 masterplan framework.

Landowner Engagement

One of the major challenges facing the delivery of SCGV is the willingness of the landowners to participate in delivering the vision as laid out by CCC.

There has been a considerable amount of work to date in order to identify key landowners and their agents and to understand landowner views and aspirations. There have been successful engagement sessions with landowners, with the most recent being a forum held at Carlisle Racecourse in July 2019, as well as ongoing discussions with individual landowners. This updated landowners on progress with the CSLR and the land acquisition process, the stage 2 masterplanning process and future landowner engagement opportunities, as well as a project timeline.

Masterplan & Spatial Implications

In addition to the spatial considerations, landowner appetite will have an implication on the developability of land. Any masterplan options developed should be flexible to adapt to landowner willingness.

Table 1: St Cuthbert's Garden Village Concept Proposals and Vision Headline Stakeholder Feedback

Support	Concerns
<p>Good opportunity to build affordable housing for first time buyers and young families. With a balance between affordability and design quality.</p>	<p>Scale of the proposal. Brisco identified as an area where development may not meet Garden Village principles as it is unlikely to be of a scale to support areas of employment.</p>
<p>Good strategic approach to future development.</p>	<p>Need for employment for new residents.</p>
<p>Opportunity for small and medium sized builders to get involved.</p>	<p>Noise mitigation from the Carlisle Southern Link Road (CSLR). Objections to the proposed Cummersdale Village straddling the CSLR.</p>
<p>Could easily attract high tech small employment units.</p>	<p>Development of new infrastructure to keep pace with demand.</p>
<p>Support for the green gap between the edge of Carlisle and proposed new settlements.</p>	<p>Impact on existing infrastructure in the city.</p>
<p>Good to see proposed creation of new district centres. The concept of Durdar Garden Village being the largest of the Garden Villages is supported.</p>	<p>Objections to loss of open fields around Mayfield.</p>
<p>Opportunity to promote small local enterprises.</p>	<p>The potential for ecological connectivity has not been fully realised or given the full recognition it deserves.</p>
<p>Support for proposed strategic green infrastructure St Cuthbert's Gateway.</p>	<p>Retaining a rural setting for each new village ensuring that they are not merely an extension of the city.</p>
<p>Ideal opportunity to interpret local history for future residents with importance of achieving local distinctiveness.</p>	<p>Proposed new housing should enhance existing villages around which it is proposed rather than swamping them.</p>
<p>Support for the new development to be laid out in four villages as opposed to one.</p>	<p>Land values and landowner aspirations must not compromise the delivery of the positive intentions set out.</p>
<p>Support modern methods of construction.</p>	<p>Pressure for sites to be brought forward in the short term.</p>

4 /

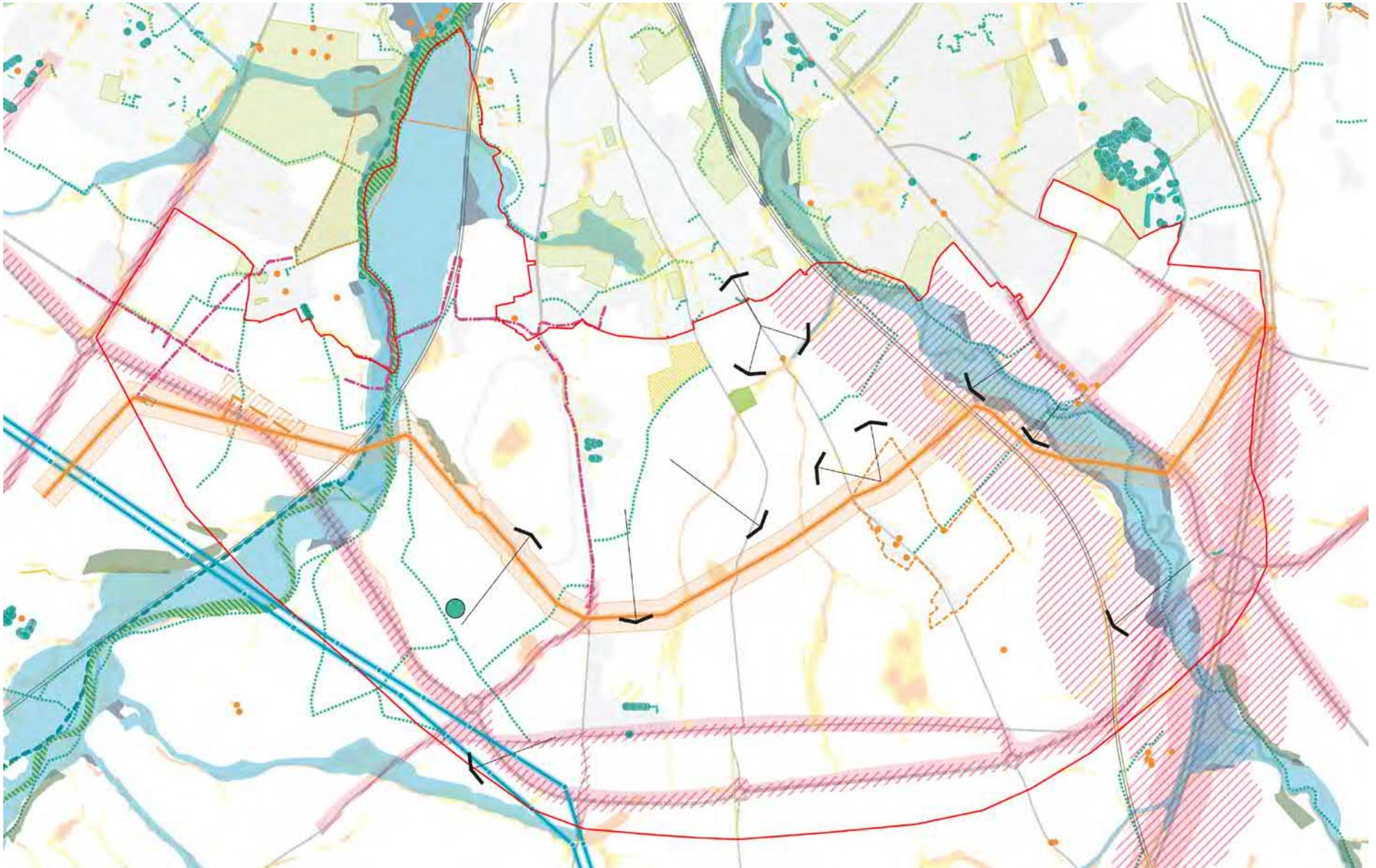
Constraints & Opportunities

4.1 / Constraints and Opportunities Summary

This section summarises the key constraints and opportunities emerging from the baseline review. The diagram on this page shows an overview of the key constraints outlined in this report.

KEY

-  Site boundary
-  Overhead lines (15m easement)
-  Gas main - high pressure
-  Gas main - medium pressure
-  Wind Turbine
-  Telecommunications masts
-  HSE safeguarding zones
-  National Cycle Route
-  Public Right of Way
-  Flood Zone 2
-  Flood Zone 3
-  Surface Water Flooding - low / medium/ high risk
-  Ancient Woodland
-  Listed building
-  Conservation Area
-  Proposed Conservation Area
-  Site of Special Scientific Interest / Special Area for Conservation
-  Tree Preservation Order
-  Noise - levels above SOAEL, night / day
-  New school site
-  Public Open Space (Local Plan)
-  Key views



4.2 / Development Potential

The plan, left, identifies in green the areas of land with the highest development potential for a range of land uses including residential, employment and social infrastructure. These green areas of land are the starting point in developing options; the design of options will prioritise use of land that is of highest development potential. These areas have a slope gradient of 0 – 5%.

The areas shown in yellow are land with a slope gradient of between 6 and 10%. Land that falls within the safeguarding zone for the high-pressure gas pipeline is shown hatched yellow.

The area excludes:

- Land with slope gradient of over 10%.
- High-pressure gas pipeline and all HSE safeguarding zones. Land within the middle and outer zones that may have some development potential is shown in orange.
- Medium-pressure gas pipeline and easement;
- Overhead power lines and easement;
- Flood zones 2 and 3. Some 'less vulnerable' land uses may be acceptable in this area;
- Existing settlements and racecourse; and
- Areas identified as having significant adverse noise levels at night (Significant Observed Adverse Effects Level (SOAEL) night time). Areas shown in blue lie outside of the day time SOAEL and may have potential for land uses not operating during night time hours such as employment.

Areas of land may be subject to additional restrictions including statutory designations, landscape impact and impact on existing residential amenity.

Land that is not identified as having development potential may have potential use for:

- Less sensitive land uses;
- Open space and recreation;
- Landscape and habitat enhancement;
- Utilities infrastructure; and
- Transport infrastructure.

Development Potential of Land



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KEY	
	Areas with highest development potential
	Areas with reduced development potential - 5 to 10% gradient
	Areas with reduced development potential - 10 to 15% gradient
	Areas within HSE middle/outer zones
	Areas outside SOAEL Day time Noise nuisance

4.3 / Opportunities

Exploit and enhance the Green Infrastructure Framework to structure the Settlements

Corridors of green infrastructure frame and divide the site. This could be used as a strong structuring element, embedding the development in its landscape and ecological context.

Movement links as green links and green links as movement links:

- Greening up the existing road corridors.
- Making stronger movement routes along the river corridors.
- Creating a new green and movement link in the Greenway, connected to existing green routes in Carlisle.

Building on the existing patterns:

- Historic plantation at Durdar.
- Houses in the woodland at Carleton.
- Linear woodland at Cummersdale.

Addressing the urban edge:

- Enhancing the urban edge of Carlisle.



KEY

- CSLR route
- Greenway
- River Corridors
- Green gap along Carlisle urban edges
- Existing settlement

Green Infrastructure Opportunities



© Brian Shambien via Flickr

Sustainable Urban Drainage throughout built areas



High-quality sports and recreation provision



© Elliott Brown via Flickr

Rural character to transition points to help manage traffic



Green streets and urban spaces



Children's play and adult exercise equipment



© Google

Village greens modelled on existing local provision (Dalston Village Green)



Woodland and buffer planting



Swales and balancing ponds



Wild swimming opportunities



Access to water at streams and watercourses



© Renndi via Flickr

Horse riding infrastructure



© Sam saunders via Flickr

Allotment and community growing provision

Introduce Larger Range of Land Uses and Housing Typologies to build a Sustainable and Vibrant Community

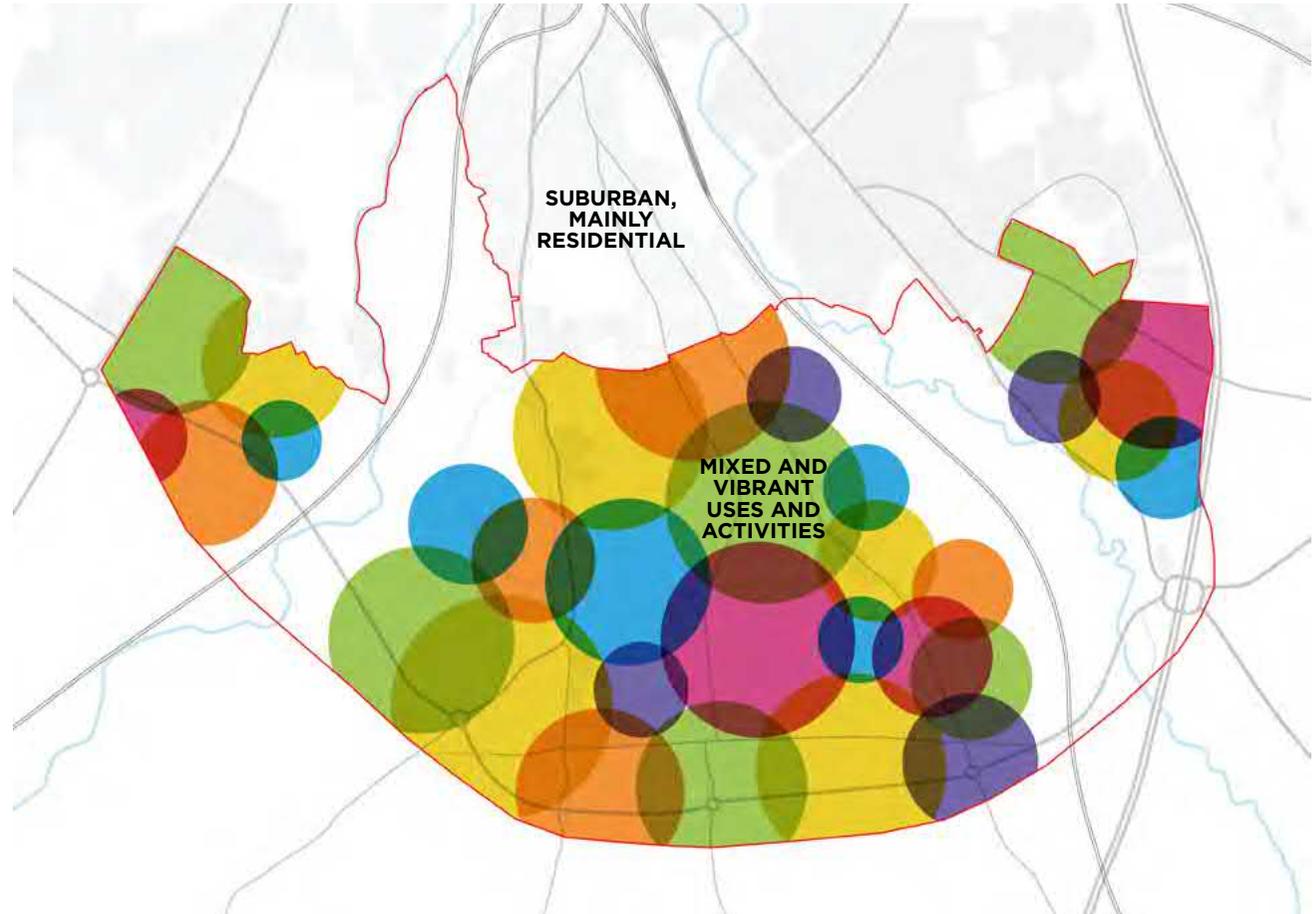
St Cuthberts must be resilient and support the needs of its own residents and visitors but can also support existing communities through provision of shared resources. The wider catchment can support an even greater diversity and scale of facilities.

Co-location of mixed uses, open spaces and movement routes:

- Support linked trips and increase footfall, increasing viability.
- Minimise need to travel outside the area.

Broader mix of housing typologies to support a diverse lifetime community:

- Locally viable but diverse housing mix offering a range of options not offered elsewhere in the district



Land Use Opportunities



Co-location of uses and public space at village centres (Lightmoor Garden Village)



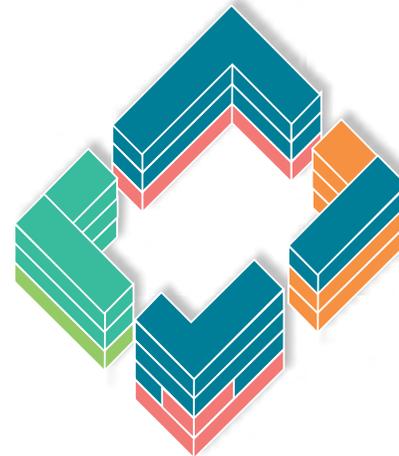
Modern interpretation of historic terraced housing forms



Mixed-use, higher density centres (Northstowe, Cambridgeshire)



Adaptable house types, Assisted Living and elderly care (Heysham Park)



Vertical and horizontal mixing of uses across the site

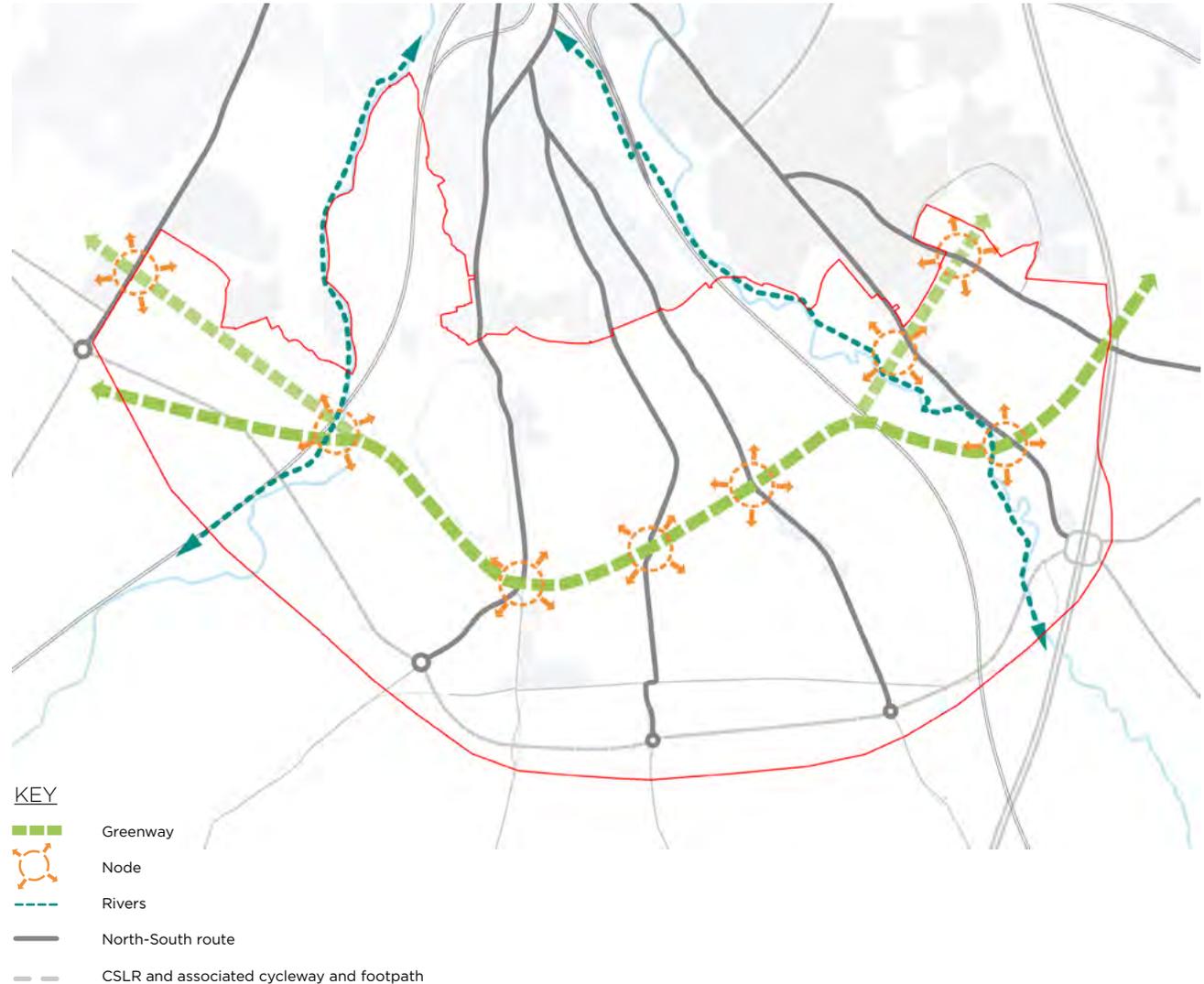


Custom and self-build housing opportunities

Use gateways along strategic movement routes to focus development and support modal shift

Identifying a strong and functional movement framework is critical to shaping the settlement. The nexus points between these routes will be important transition zones and could be used as focus points.

- Key locations for social infrastructure, local centres and open space.
- Transition points between through-traffic and routes into the Garden Village development.
- Opportunity to change the character of streets and emphasise people-focused environments.
- Focus points to aid navigation and legibility.



Movement Opportunities



© Google

Safe and convenient active travel routes integrated into the settlement structure (Houten, Netherlands)



Multi-modal active travel routes



Bike share and last mile connectivity



© Michail Beim via Wikipedia

Car share and electric vehicle charging



Strong wayfinding strategy



© Richard Dorrell via Geograph

People-focused streets and spaces (Ashford Ring Road)

Develop a strong digital infrastructure to support new ways of living and working

A strong digital infrastructure and adoption of a Smart City approach can optimise life and work opportunities in St Cuthberts through active and passive interventions in the public and private realm. A strong 'digital backbone' will help attract a wider range of residents and employment opportunities to Carlisle.

Physical infrastructure:

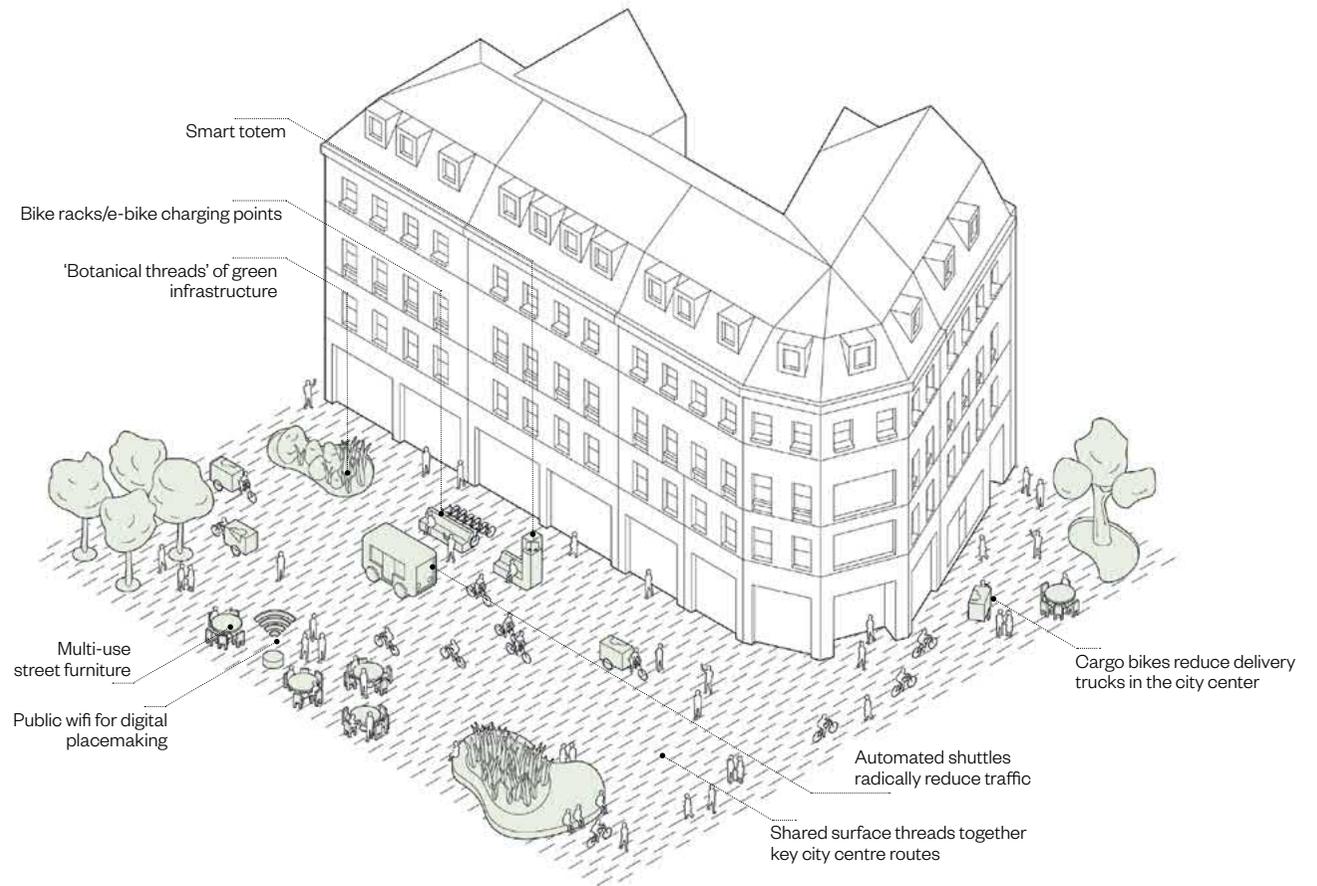
- State-of-the-art physical infrastructure to support a wide range of employment prospects and flexible working environments.
- Interactive interventions to encourage people into public spaces.
- Smart monitoring systems to optimise the sustainable and resilience operation of the site, including energy supply and demand and street lighting.
- Facilitation for emerging and automated transport modes.



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Digital systems:

- Travel apps and wayfinding systems facilitating sustainable and active movement choices and modal shift.
- Local social networks to improve community and social engagement and allow businesses and services to engage with their customers.
- Interpretation and augmented reality systems to encourage environmental awareness and understanding of the local context.
- Digital support services to maintain independence for people throughout their lives and changing needs.



Smart city infrastructure integrated into the streetscape (Sheffield New City Centre)

5 /

Village Context Studies

This section provides an overview of the landscape and urban character for the urban fringe and the four key villages and development areas: Durdar, Carleton, Cummersdale and Brisco. It identifies the key features and sensitivities of the areas that can be brought forward into the design of the Garden Village.

5.1 / Carlisle Urban Edge

Area Character

- Existing built form includes:
 - Edge of the historic Denton Holme area - terraced housing and grid street layout.
 - Mix of C20th suburban characters with a mix of informal grid and later cul-de-sac layouts.
 - New housing developments at the periphery.
 - Houses mostly backing onto site.
- Urban areas divided by river corridors leading to the city centre - provides a strong landscape setting.
- Extensive flat, open land on the historic drying fields.
 - No clear east-west connections across river valleys and rail barriers.



KEY

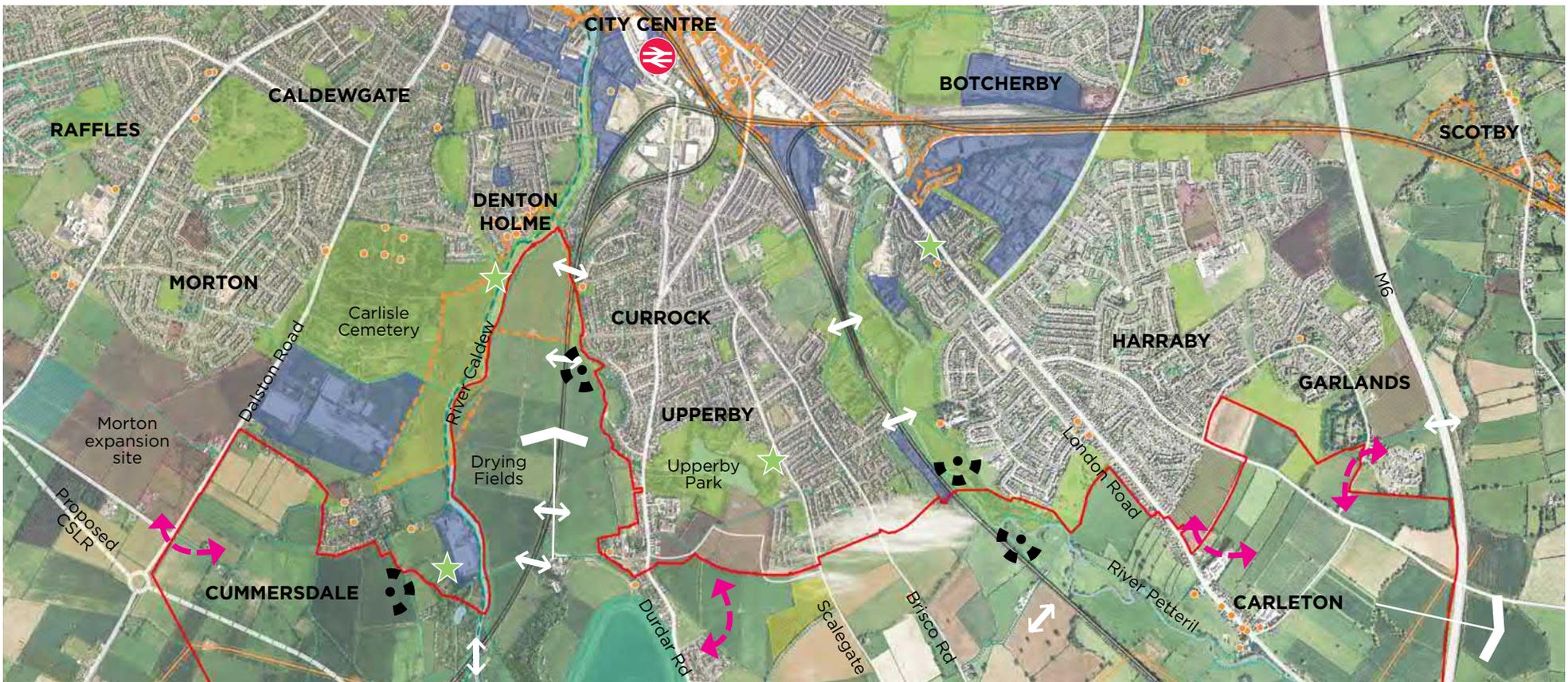
- Positive / neutral landmark
- Public viewpoint
- Potential link to new developments
- Crossing point
- Key views
- Gateway site
- National cycle route
- Public right of way
- Proposed school site
- Proposed housing site
- Local Plan housing site
- Local Plan employment site
- Existing employment
- Woodland
- Public Open space
- Carlisle Racecourse
- Conservation area
- Listed building



Caldew Valley looking towards city centre from Upperby



Caldew Valley from Denton Mill



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5.2 / Durdar

Area Character

- Historic precedent of extensive plantations with only two remaining - Tarn Plantation and Scalegate Road.
- Mature tree and hedge-lined boundaries remain around fields close to the village with woodland wrapping around the racecourse.
- Two Grade II listed buildings north of Durdar: Blackwell House and Stables and Blackwell Farm. No designated heritage assets within Durdar.
- Mixed urban character:
 - Small historic core of two storey buildings west of Durdar crossroads including former inn and smithy;
 - Linear development of large detached homes along Durdar Road and Newbiggin Road - mix of bungalows and two storey houses with deep plots.
 - Suburban-style development backing onto site - mainly two storey, detached and semi-detached single-family housing in a cul-de-sac layout.
 - Prominent racecourse grandstand building providing views over site.
- Close proximity to key arterial routes and CSLR. Potential to change character of Newbiggin Road once this route becomes less busy.



Southern edge of Durdar



Newbiggin Road and Tarn Plantation



Durdar crossroads



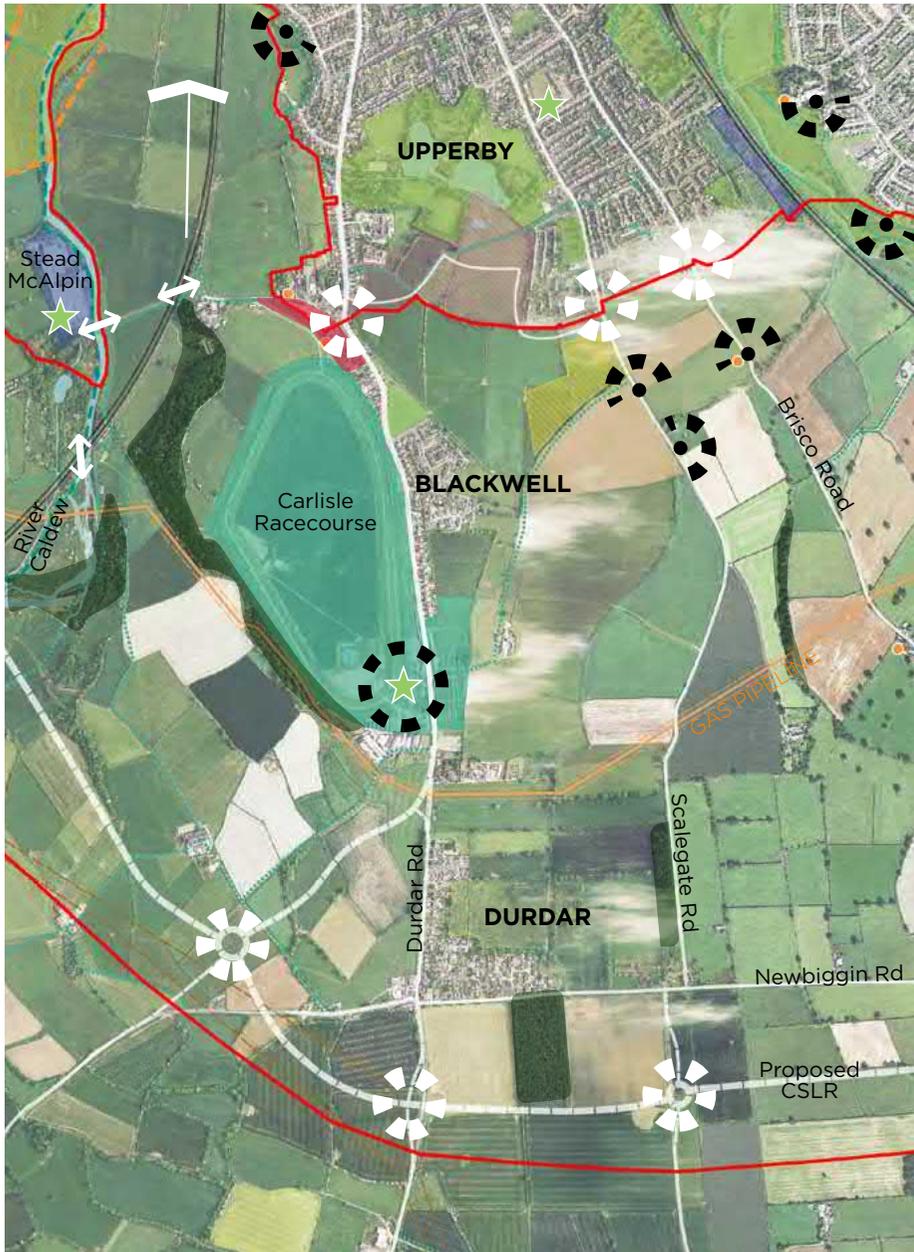
View east from Carlisle Racecourse



Housing on Newbiggin Road



Newbiggin Road, approaching Durdar

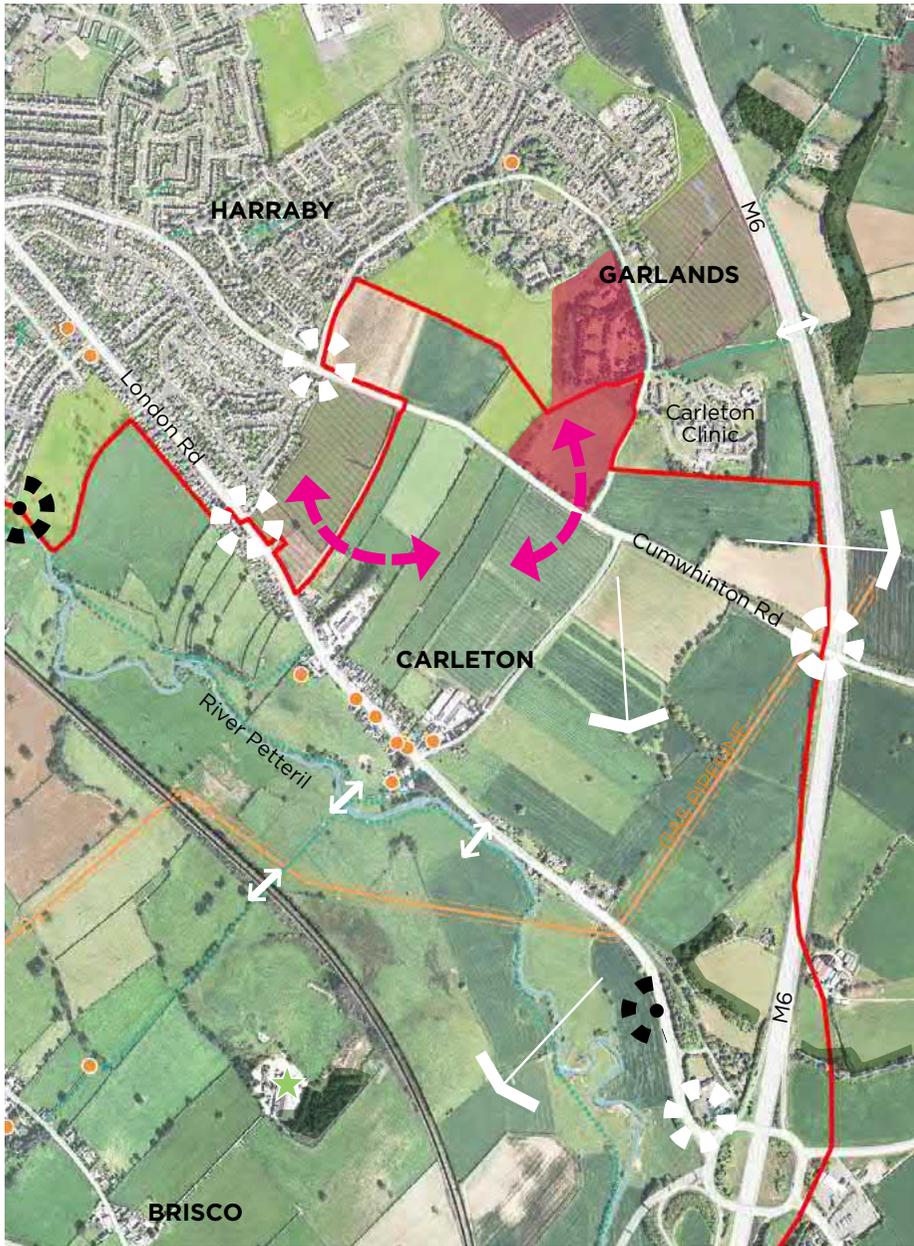


KEY	
	Positive / neutral landmark
	Public Viewpoint
	Potential link to new developments
	Crossing point
	Key views
	Gateway site
	National cycle route
	Public right of way
	Proposed school site
	Proposed housing site
	Local Plan housing site
	Existing employment
	Woodland
	Public Open space
	Carlisle Racecourse
	Conservation area
	Listed building

5.3 / Carleton

- Dispersed and diverse settlement pattern across the area:
 - Carleton - Attractive historic linear village along A6 featuring terraced cottages and farmhouses.
 - Garlands - Attractive re-use of former mental health hospital site and associated buildings set within woodland. Small focus of recent residential development around existing chapel.
 - Harraby - Late C20th-21st suburban developments towards Garlands. Mixed quality of townscape, mainly two storey, detached and semi-detached single-family housing.
- Strong rural, agricultural character with three main farmsteadings addressing the road; terraced farm-workers cottages; and converted agricultural buildings.
- Fine 18th and early 19th century domestic buildings. Eight Grade II listed buildings: The Cottage, The Beeches, 5 Brisco View, Farm Buildings to the East of the Beeches, Orchard House, Croft House, Petteril Villas 1 and 2 (with attractive carriage arch), Outbuilding to south-east of The Cottage and Carleton Farmhouse and barns adjoining. Non-designated assets include the Carleton Mill Cottage.
- Close proximity to key arterial routes - A6 and Cumwhinton Road.
- Partial open aspect over the Petteril valley and towards Northern Pennines. Undulating land and attractive rolling hillsides around Cumwhinton Road. Mix of larger square/ irregular fields and narrow linear plots with hedge and tree-lined field and road boundaries.





KEY	
	Positive / neutral landmark
	Public Viewpoint
	Potential link to new developments
	Crossing point
	Key views
	Gateway site
	National cycle route
	Public right of way
	Proposed school site
	Proposed housing site
	Local Plan housing site
	Woodland
	Public Open space
	Carlisle Racecourse
	Conservation area
	Listed building

5.4 / Cummersdale

- Village located on relatively flat land close to the ridge of the Caldew valley. Large irregular fields to the east and south, and regular linear plots to the west. Hedgerow boundaries.
- Open countryside views out from the hamlet to the east, south and west. To the north the view is interrupted by the large massing of the Pirelli tyre factory.
- Three Grade II listed buildings: Spinners Arms, Cummersdale House and Caldew Bank.
- Village focused on historic core:
 - Victorian housing - small terraced cottages and larger detached homes and civic buildings.
 - Later C20th development of larger family housing backing onto the site - mainly two storey, detached and semi-detached single-family housing.
 - Agricultural core of High Cummersdale.
- New suburban developments appearing south of Morton - potential to form strong functional and movement relationship to the Garden Village along Dalston Road.
- Stead McAlpin site located below village on valley floor - chimney is a strong local landmark.
- Pirelli factory – dominant industrial character within the landscape.
- Association with the print works at Low Cummersdale.



Eastern Cummersdale and Caldew valley



Cummingsdale Road housing



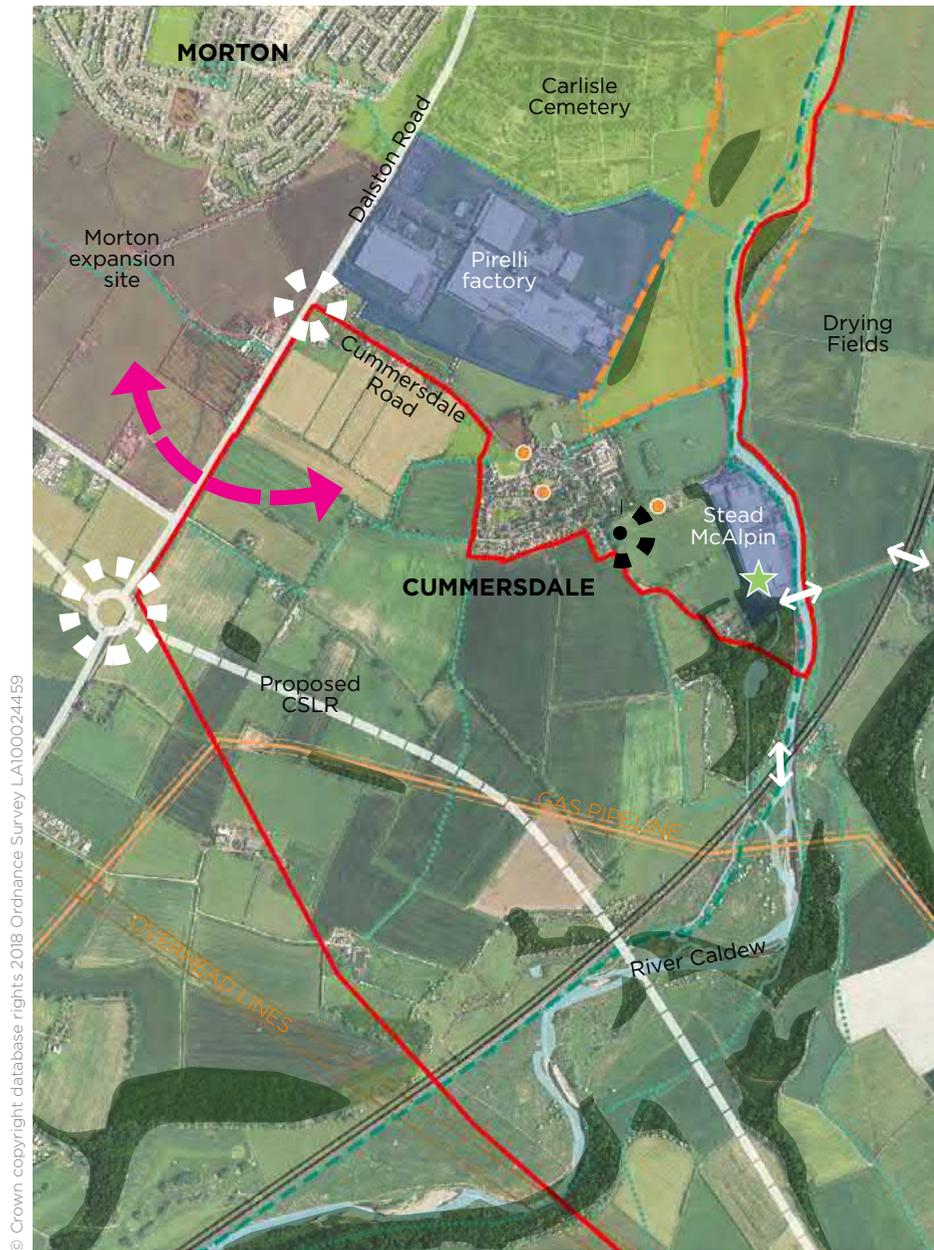
Cummingsdale Road housing



NCN 7 alongside River Caldew



Caldew valley viewed from Caldew Road



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KEY	
	Positive / neutral landmark
	Public Viewpoint
	Potential link to new developments
	Crossing point
	Key views
	Gateway site
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	Proposed housing site
	Local Plan housing site
	Existing employment
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	Carlisle Racecourse
	Conservation area
	Listed building

5.5 / Brisco

- Strong historic core formed by Brisco Hall and its associated farmsteading, and the Georgian farmhouse of Brisco Farm.
 - Views over surrounding land and towards Petteril Valley. Separated from the river by the railway embankment.
 - Narrow valley along Cammock Beck.
 - Localised high point close to the urban edge and localised low point at Lough Farm.
- Six Grade II listed buildings: Brisco Farmhouse, Brisco Hall, Brisco Hill, Langarth, St Ninian's Well and Wooden Walls.
- Mixed field character:
 - Rectilinear field pattern to the east - long, narrow plots reaching back from Brisco Road.
 - Less regular pattern to the west.
 - Trees dotted throughout fields, marking historic boundaries.
- Brisco Common is an important feature
- Historic linear settlement with little later growth. Consultation due on potential designation as Conservation Area.
- Dispersed farmsteads located outside the main village.



View across Petteril Valley towards Carleton



Brisco Common



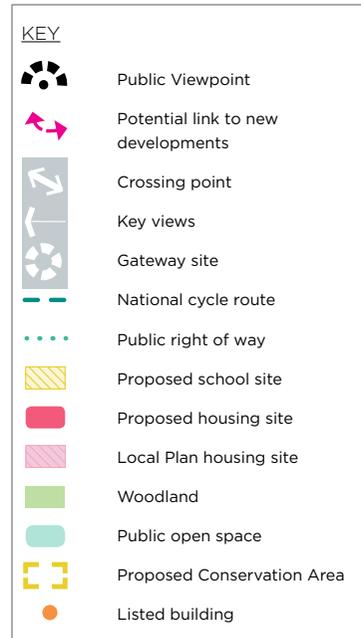
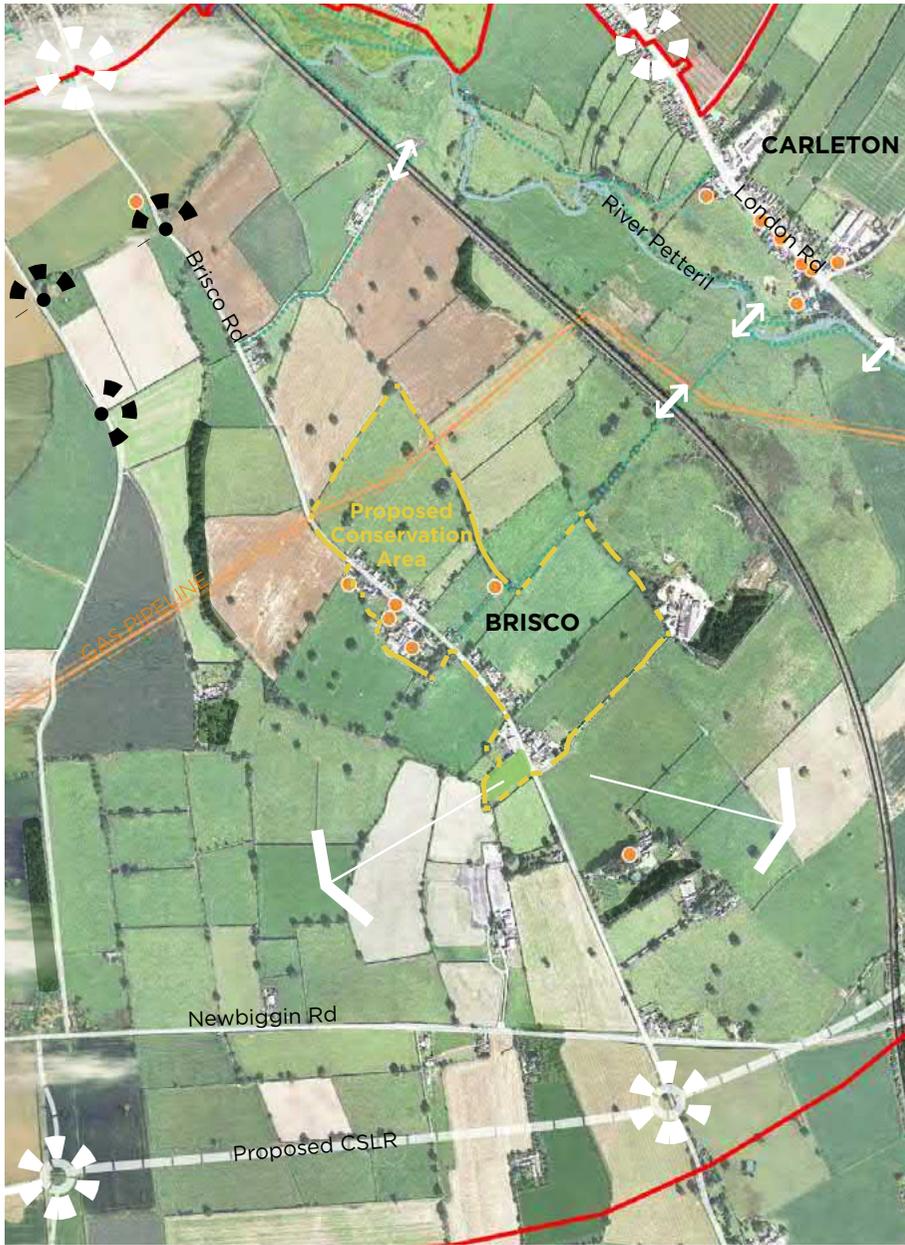
View south-west towards the Lake District



Existing housing at Brisco Road



Existing housing at Brisco Road



6

Land Budget

6.1 / Outline Land Budget

At this early stage of the project, an estimate of the land required to deliver the Garden Villages needs to be calculated. The figures are used as a guide to understand the scale of development that would be required.

The land budget will inform the production of the options and has been informed by the baseline technical studies and village character studies in this report.

Information has been sourced on existing and proposed facilities to create a land use budget. The land use budget will be revised as the project progresses and as the design becomes more fixed.

The elements required to make a successful new settlement are multi-faceted and the land use budget is a simplified set of criteria which normally includes:

- A target number of homes; at this stage it is a collated number rather than separating into affordable, extra care, specialist retirement or any delivery mechanism i.e. self-build or cohousing;
- Education provision;
- Sports and green space provision;
- Local or district centre size;
- Employment target; and
- Open space and circulation assumptions.

6.2 / Homes

The ambition for 10,325 homes has been set at the Stage 1 masterplan stage, prior to Arup's masterplan commission.

The Stage 1 work indicates the following distribution of homes across the four village settlements:

- Cummersdale: 1,225 homes;
- Durdar: 7,000 homes;
- Brisco: 350 homes; and
- Carleton: 1,750 homes.

The indicative distribution will be reviewed as part of the masterplan production and options development.

The land required to deliver this number of homes will be affected by:

- Above and below-ground site constraints;
- Topography of the land;
- The density of the housing; and
- Character of the villages including designations.

The site constraints are included within the Section 4 of

this Baseline Report and include the gas main, with its easement zones, the overhead pylon lines, existing villages and road infrastructure.

It is possible to relocate the services that run through the site to increase the developable area, however, there is a cost and time required to achieve this. The possibility would need to be explored during the delivery and viability testing review.

The site is steeply sloping, in places, particularly at the valley edges to the two rivers (Caldew and Petteril). Although it is possible to build on sloping sites, it is more expensive to do so.

The density of the housing will vary across the development. It is likely to be higher at local, and district centres, and lower towards the edges. The land budget scenarios included within this report explore the effect of density on the size of the Garden Village.

6.3 / Education

At the options stage, education provision needs to be integrated into the spatial framework structure. Data on capacity at existing schools and projected pupil numbers has been provided by Cumbria County Council.

Based on the 10,325 homes target and the distribution of development shown in the Stage 1 report, the following provision is likely to be required:

- 10 Form Entry Secondary School at Durdar
- 2 Form Entry Primary Schools:
 - 3no. at Durdar;
 - 1no. at Cummersdale; and
 - 1no. at Carleton (depending on existing provision in Harraby).
 - Any development at Brisco would use the primary and secondary provision within Durdar.

As part of the options development, this geographical spread of schools will be reviewed, and may change, as pupil yields at individual settlements are further understood.

It is assumed that nursery provision will be either within the primary schools, for Preschool age children (3 to 5 years) and that private nurseries will be included within the local centres and district centre.

6.4 / Sports and Green Space

There will be the need for many different types of green space within the new Garden Village. A forest, country park and the greenway are all identified within the Stage 1 work and will be explored during options development.

The Garden Village will have significant amounts of open space. It is worth noting the minimum requirements from existing planning policy. Based on existing policy, for the target of 10,325 homes, this creates a requirement for 86.6ha of open space and 44.7ha of playing pitches. Through development of the options, sports and green spaces will be planned in a more comprehensive and imaginative way in order to promote health and wellbeing and increase access to open green spaces.

At this point in time there is no indication of leisure centres, swimming pools, gyms or indoor requirements. However, Sports England have expressed an interest in working with the design teams bringing forward the Garden Villages and Arup will seek to work with Sports England through the options development stage. The Local Facilities Requirement section of this report considers information already provided by Sports England from their sports facility calculator.

6.5 / Delivery

The illustrative land use budget scenarios have highlighted the need to understand the typology of housing, and resulting density, that will be deliverable within this locality. Arup/Hive will work with Aspinall Verdi to understand the opportunities for a range of housing typologies during the options generation stage.

During this stage it is also important to consider the following:

- The secondary school, and playing pitches, will occupy space within the green gaps between settlements to maximise land for homes within the settlement boundaries.
- Building on some of the lower gradient slopes within Cummersdale and Carleton may be required if there is a need to increase the housing numbers in order to facilitate key community facilities.
- The physical site constraints will have an impact on the land available for development and will need to be designed around, unless funding can be found to divert them ie gas main and pylon lines.
- A range of densities and house types will be needed within neighbourhood and these will be advised by Aspinall Verdi's studies.
- The delivery of supporting community infrastructure should be considered early and distributed between neighbourhoods to provide access to education, green space and community indoor and outdoor spaces.

6.6 / Outstanding Information

There are areas where work is ongoing including:

- Local and district centres: the local centres, and district centre, commercial, and residential land uses, and size, will be informed by the viability and delivery workstreams.

Assumptions will be made at the options stage including: that the number indicated within the original Stage 1 report are feasible, and that the locations of these can be tested within the options, and preferred option, stages.

- Employment: Further economic and employment land recommendations to be advised by Carlisle City Council.
- Healthcare: It is anticipated that additional provision for healthcare will need to be provided in Durdar. Discussions with the local NHS Trust and other healthcare providers are ongoing to establish the quantum and nature of provision to be provided.

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Case Studies & Precedents

This section provides a series of national and international case studies and their relevance to the development of the masterplan. Implications for St Cuthbert's and their relationship to each of the nine principles outlined at Stage 1 are included alongside each case study.

Northstowe New Town (Cambridgeshire, UK)

Client Gallagher Longstanton Ltd. and English Partnerships
Site Area 425ha
Quantum of Development 10,000 dwellings, 136,000m² of employment, 50,000m² of retail floorspace and open space, leisure and recreational activities

Description

Northstowe is the largest new settlement being built in the UK. Located within the unique fen landscapes of Cambridgeshire on a former airfield, Northstowe will provide 10,000 new homes as well as employment, retail, leisure and open space, and recreational facilities. It will promote a sustainable lifestyle based on green modes of transport and smart technology, with employment underpinned by Cambridge's knowledge institutions and innovation industries.

Residents will benefit from the Cambridge Guided Busway public transport route connecting Northstowe to Cambridge and the nearby market towns of St Ives and Huntingdon. Northstowe is designed around multi-functional green spaces which structure permeable and well-connected residential areas by incorporating a rich network of footpaths, bridleways and byways linking to adjacent towns and the wider landscape.

Relevance for St Cuthbert's

Built around public transport and well-integrated with its natural environment through its green corridors, the masterplan encourages a healthy, low carbon lifestyle while enhancing biodiversity.

Aligns with the following St Cuthbert's guiding principles

- **Principle 1: Start with the Park**
- **Principle 2: Locally Distinctive**
- **Principle 6: Healthy Environments**
- **Principle 7: Smart & Sustainable Living**
- **Principle 8: Integrated Sustainable Transport**





Wellcome Trust Genome Campus (Hinxton, Cambridgeshire, UK)

Client Wellcome Trust

Site Area 110ha

Quantum of Development Up to 150,000m² of research and development, office and workspace 31,100m² of education, community and leisure uses

Description

The Wellcome Genome Campus is the world's leading centre for genomics research. The masterplan for the expansion of the existing campus sets a development framework for a 21st century living and working research community. Spread over 160ha in rural South Cambridgeshire, the future campus will be an integrated district of genome and bio-data related research institutes, start-up and mature companies, publicly accessible amenities, and residential accommodation for its local as well as globally mobile workforce.

Stewardship of the environment, well-planned public spaces and community facilities are an essential element of the masterplan to create an exemplary environment for healthy living and working setting, encourage collaboration, and attract and retain the best global talent. Once completed, it will provide up to 1,500 homes, 4,300 new jobs, 16ha of woodland, 2.7ha of public common, improved walking and cycling connections, and a 10% minimum gain in biodiversity.

Relevance for St Cuthbert's

Well-designed public spaces and community facilities are essential for creating a healthy living and working environment for a thriving population and will help to attract and retain talent.

Aligns with the following St Cuthbert's guiding principles

- **Principle 1: Start with the Park**
- **Principle 2: Locally Distinctive**
- **Principle 3: Quality Homes and Lifetime Neighbourhoods**
- **Principle 4: Community Focussed**
- **Principle 5: Innovative Employment**
- **Principle 6: Healthy Environments**
- **Principle 7: Smart & Sustainable Living**
- **Principle 8: Integrated Sustainable Transport**
- **Principle 9: Exemplary Delivery & Stewardship**





Xiongan Concept Masterplan (Hebei Province, China)

Client Administration Committee for the Xiongan New Area

Site Area 32km²

Quantum of Development 6 districts; 230 x 360m superblock structure; 38 million m² built area; and 15 million m² green space

Description

Xiongan, a new city in southern China, is set to be the first city in the world to actively work with its natural environment to repair historically damaged ecosystems. Arup's masterplan for this mixed-use development will relieve Beijing of non-essential functions as the capital and ease growth pressures on the surrounding mega-cities. It will provide an innovative environment for hi-tech and knowledge intensive industries. The first phase includes the Central Business District, housing for up to 25,000 residents as well as ecological areas and green space.

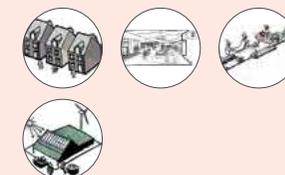
Xiongan was designed to adapt with age and to accommodate changing needs of society while moving away from the resource intensive, environmentally harmful urban systems typical for the last three decades of global growth. Designed as a restorative system, it shows how the urbanising world can live within its means.

Relevance for St Cuthbert's

The restorative approach focusses on improving the environment found through development instead of minimising the (negative) impact the new city has on the environment. This thinking is leading the way towards a more sustainable and responsible way of development that is aligned with achieving the Sustainable Development Goals (SDG's).

Aligns with the following St Cuthbert's guiding principles

- **Principle 2: Locally Distinctive**
- **Principle 5: Innovative Employment**
- **Principle 6: Healthy Environments**
- **Principle 7: Smart & Sustainable Living**





Madinat Al Irfan Masterplan (Muscat, Oman)

Client Oman
Site Area 624ha
Quantum of Development 5 million m² of mixed-used development

Description

The Madinat Al Irfan urban district is a 624ha new city close to Muscat Airport. It will establish a new central business district for the Muscat capital region with over 5 million m² of mixed-use development. Phased over the next three to four decades, it will help to catalyse the growth of the region by creating a new business and tourist destination supporting the government's goal for economic diversification.

The masterplan was driven by a desire to work with the existing topography and maximise value, minimise cost and minimise carbon. Strategic moves at the project creation stage in terms of site selection, development use, density and connectivity made the biggest contribution towards achieving these goals.

Careful analysis of slope and aspect allows the built form to work with existing conditions and promote the distinct landscape character while cutting cost. Location and planning of all open spaces and streetscapes anticipate shading from built form, solar orientation, wind direction and ventilation.

Energy and water use will be cut by half compared to BAU through the inclusion of photovoltaics, district cooling, dense urban form, reuse of treated water for irrigation and smart meters. Human-scaled streets, compact neighbourhoods, cycle/walking networks and mixed-use urban blocks integrated with public transport will encourage less dependency on cars. A new model for implementation and governance has been proposed which includes parameter plans, design codes, masterplan guidelines and review processes to ensure the project's long-term success.

Relevance for St Cuthbert's

An integrated approach aligning masterplanning and infrastructure strategies early in the process has led to the creation of a human scale place in harmony with local conditions that maximises value while optimising cost and reducing its environmental impact significantly.

Aligns with the following St Cuthbert's guiding principles

- **Principle 2: Locally Distinctive**
- **Principle 5: Innovative Employment**
- **Principle 6: Healthy Environments**
- **Principle 7: Smart & Sustainable Living**
- **Principle 8: Integrated Sustainable Transport**





8

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Next Steps

8.1 / Next Steps

This Baseline Report represents the completion of Stage 1 of the commission for the Framework Masterplan. The next steps in developing the Framework Masterplan are summarised below:

Stage 2a: Initial Options development and consultation

Options will be developed based on the outcome of the baseline process taking into account all of the existing evidence produced to date, and the Stage 1 Vision and Concept Framework.

The options stage will be led by the landscape, urban design and architecture specialisms working from the green infrastructure elements to create a strong green infrastructure framework. This stage will test appropriate land uses, locations of employment land and social infrastructure, against the 9 principles, and how each option supports its aspiration.

Viability testing will also form part of the criteria, with the support of the appointed viability consultants, as well as the consultants appointed for the sustainability appraisal and Habitat Regulations Assessment.

Three options will be developed, with consideration of the baseline, both physical and character of place, each underpinned by the key drivers and principles, but with alternative structures to create a variety of types of places.

Each option will encompass a spatial framework, identifying key characteristics, land uses, land capacity, urban design strategies and integrations with the wider movement framework. This output will be collated into an Initial Options Report, which will form the basis of a public consultation.

Stage 2b: Preferred Option development

Following the close of the public consultation and a review of all feedback, development of the preferred option will commence. The spatial framework will be developed with input from the full multi-disciplinary team, bringing together key outputs including assessments of: transport, drainage, landscape and visual strategy, ecological; utilities; health impacts and consideration against landowner viability.

Stage 3: Draft Masterplan Framework

The outputs of Stage 2b will be brought together and used to develop an overarching framework masterplan. This process will be used to embed the place specific characteristics, supporting local identity and using contemporary design to create places for the future. This process will include forming the key spaces within the masterplans, their purpose, geometry, connectivity and integrate the overarching technical strategies embedding them in the place. Conceptual ideas will be identified to give meaning to the spaces, demonstrated through illustration, and, or precedents, and will support the Garden Community narrative and realisation of the St Cuthbert's principles.

This will be supported by key outputs including a:

- Sustainability Strategy;
- Green and Blue Infrastructure Framework;
- Movement Framework and Access Strategy;
- Urban design framework;
- Design Guidance;
- Infrastructure Schedule;

and will be subject to a further round of public consultation.

Stage 4: Final Masterplan Framework

The feedback from public consultation will be fed into the final Masterplan Framework, associated reports and advice will be given on relevant planning policies.

9

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Appendices

We shape a better world

ARUP