CARLISLE CITY COUNCIL

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# Economic Growth Scrutiny Panel

**Agenda Item:**

**A.4**

| | |
|---|---|
| Meeting Date: | 26 November 2020 |
| Portfolio: | Economy, Enterprise and Housing |
| Key Decision: | Yes |
| Within Policy and Budget Framework | No |
| Public / Private | Public |

| | |
|---|---|
| Title: | The St Cuthbert's Garden Village Masterplan Framework |
| Report of: | Corporate Director of Economic Development |
| Report Number: | ED 44/20 |

**Purpose / Summary:**

To provide the Panel with a summary of the key principles arising from completion of the Masterplan Framework for St Cuthbert's Garden Village.

**Recommendations:**

To consider the final St Cuthbert's Garden Village Masterplan Framework and to agree its content as evidence to inform the Garden Village Local Plan - forwarding any appropriate observations to the next meeting of the Executive on 14 December 2020.

**Tracking**

| | |
|---|---|
| Executive: | **14/12/20** |
| Scrutiny: | |
| Council: | |

## 1. BACKGROUND

**1.1** The adopted Carlisle District Local Plan laid the foundations for St Cuthbert's Garden Village (SCGV). It identified the broad area to the south of the City for a major housing led mixed-use development. This was subsequently accepted into the Government's Garden Villages, Towns and Cities Programme in January 2017.

**1.2** As a Garden Village, it is expected that St Cuthbert's should be a unique and high-quality development, with three high level aims:

- The delivery of high quality homes and jobs needed in the area over the long term to enable the growth ambitions of Carlisle and the Borderlands;
- The comprehensive provision of infrastructure for transport and telecommunications, education, health, community and cultural infrastructure required to create sustainable communities; and
- Ensuring the creation of quality places including the conservation and enhancement of the natural and historic environment, including landscape, together with an effective long-term approach to local stewardship.

**1.3** Project governance was established in May 2017 and identified four key workstreams: Masterplanning; Plan Making; Carlisle Southern Link Road; and Delivery.

**1.4** Preparation and completion of the Masterplanning workstream has been delivered in two stages. **Stage 1** developed concept proposals and built the vision for SCGV which concluded in early 2019 following extensive public consultation.

**1.5** **Stage 2** which is the subject of this Report has now concluded. Drawing from Stage 1, the Masterplan Framework for SCGV provides the technical detail such as the identification and selection of site allocations and land use designations as well as detailed strategic drainage, movement and green infrastructure frameworks. Stage 2 was itself completed over several phases delivering a baseline report, a range of technical information and the development and testing of options.

**1.6** Robust and ongoing public and stakeholder engagement has underpinned and informed both Stages of the masterplanning process. This included a widespread public and stakeholder engagement on draft options between September and October 2019 and technical stakeholder engagement during the summer of 2020.

**1.7** To date, this Panel has been advised on progress through a series of reports (*ie* Reports ED22/18, ED06/19, ED28/19, ED 17/20).

**1.8** The Masterplan Framework comprises three documents: the main Masterplan Framework including detailed framework plans (Appendix 1); an Infrastructure Schedule (Appendix 2); and Design Guidance (Appendix 3).

## 2 THE FINALISED MASTERPLAN FRAMEWORK (APPENDIX 1)

### 2.1 The Spatial Distribution of Development

**2.2** The Masterplan Framework appraised several spatial alternatives for the distribution of homes, jobs and community infrastructure. This took account: landscaping (such as topography and physical features); the need to retain a village-like character; sustainable mobility (prioritising walking cycling and public transport to new local centres, schools and services); and provision of a range of housing densities and usable open spaces and green infrastructure. The Masterplan Framework recommends the following broad distribution of development across the lifetime of the project, but broken down into five phases:

| | Durdar | Edge of Carlise | Carleton | Cummersdale | Total |
|---|---|---|---|---|---|
| Approx no. of homes | 7,150 | 500 | 1,700 | 975 | 10,325 |
| Av. Density per ha | 32 | 25 | 30 | 22 | |
| Commercial | 44,000sqm | - | 1,000sqm | 975sqm | 46,000sqm |
| Primary schools | 3 no. 2FE | - | 1no. 1FE | 1no. 1FE | 5 |
| Secondary Schools | 1 no. 10FE | - | - | - | 1 |

**2.3** ***Cummersdale:*** would retain its rural character with lower housing densities to reflect its historic character and retain views to the Lake District. A green buffer would lie between the southern edge of the existing village and the new development which will preserve views of the chimney to the east. Open space on the western edge of the existing village would build upon the 'Start with the Park' principle and create a gathering space for both new and existing residents. New shared facilities, including a primary school, local shops, health facilities and amenities would also provide an additional focal point for the communities.

**2.4** ***Durdar:*** would be the largest of the villages acting as main 'district centre' and public transport hub for local communities. Facilities would be clustered around a neighbourhood square with a secondary and primary school, shops, health and community facilities which would also provide the focus for new employment. It would provide for a wider range of house types with higher densities focussed in and around the local and neighbourhood centres. The Masterplan Framework notes that careful consideration would need to be given to where Durdar meets the existing urban edge of Carlisle and proposes that new development to the south of

Ascot Way would frame an area of green open space at the core of this neighbourhood, connecting to Newman School and Blackwell Common and creating a view corridor towards Cannock Hill, forming a key green gateway into the Garden Village.

**2.5** ***Carleton:*** would provide the opportunity for further growth to create a new shared local centre with a primary school, local shops, health and community facilities. This local centre with open greenspaces at its core, would be accessible to everyone and visible from multiple viewpoints. Green corridors would preserve distant views and would incorporate high quality planting. A network of greenspaces would connect to the River Petteril and the proposed 'Greenway' discussed below.

**2.6 Green and Blue Green Infrastructure**

**2.7** The Masterplan Framework acknowledges that high quality, accessible and interconnected green and blue infrastructure is fundamental to SCGV with regards to healthy living; providing opportunities for active travel, recreation and culture; addressing climate change; and creating opportunities to retain and enhance biodiversity. The green and blue infrastructure would therefore provide a coordinated network of multi-functional and accessible spaces.

**2.8** ***Open Spaces:*** would include playing pitches, natural and semi-natural spaces, allotments, parks and gardens, and play areas.

**2.9** ***Sustainable Drainage Solutions:*** would play an integral role to manage surface water runoff, flooding and pollution and a drainage strategy is proposed for the site.

**2.10** ***The Greenway:*** would comprise a multi-use area of up to 100m in width joining the three villages and creating links into Carlisle. This would be a planted, car free space and incorporate sports pitches, play areas, resting points and event spaces. It would be a key placemaking feature for the entire SCGV and is fundamental to the 'Start with the Park' principle.

**2.11** ***Ecology:*** building upon the emerging statutory requirement for new development to provide a minimum net gain in biodiversity of 10%, the Masterplan Framework seeks habitat restoration alongside the creation of new biodviersity assets. This equates to some 93ha of habitat retention/enhancement and 5.10km of hedgerow enhancement. In addition, the Masterplan Framework identifies some 94ha of potential new habitat creation for new areas of woodland, grassland and reedbeds.

**2.12 Urban Design**

**2.13** Under this theme, the Masterplan Framework places great importance on making the most of key gateways, landmarks and features such as the Racecourse, Cummersdale's industrial heritage, Cammock Hill and those points where the proposed Greenway crosses roads and the River Caldew.

**2.14** It details the treatment of built edges between the new and existing built up areas (including the Carlisle South Link Road) that would serve as multi-functional buffers in terms of noise and visual mitigation, providing meeting spaces and opportunities for informal recreation. It recognises the changing topography and the need to design future development (in terms of building heights) to minimise visual impacts and optimise views and long distance vistas.

**2.15 Movement and Access**

**2.16** The Masterplan Framework utilises delivery of the Carlisle Southern Link Road to provide direct vehicular access into SCGV from the south and to relieve traffic flows from existing radial corridors north of the Garden Village into the City Centre. This would allow public transport, walking and cycling to be promoted as the primary modes of transport both within the Garden Village and externally.

**2.17** The Masterplan Framework sets out a number of key components, including:

- Enabling active and sustainable travel as the primary transport mode to/from and through the Garden Village;
- Strategic east-west connectivity utilising the proposed 'Greenway' linking up the Garden Villages and connecting to existing communities;
- The development of active neighbourhoods across the Garden Village;
- Mobility hubs integrated within local centres providing a range of transport interchange facilities;
- Delivery of north-south corridors that enable sustainable transport modes;
- Improving connectivity to and from the City Centre by sustainable transport modes; and
- Delivering supporting infrastructure across the Garden Village to support residents in making sustainable transport choices.

**2.18 Sustainability**

**2.19** To ensure the Masterplan Framework delivers against the overarching vision and provides environmental, social and economic benefits to the locality, a sustainability

strategy describes how SCGV would be developed in a sustainable manner. It draws on a number of key aspects including: embedding energy efficiency and low carbon initiatives into the design, layout and construction of new buildings; sustainable and active travel; and drainage.

**2.20 Phasing of Development**

**2.21** Informed by the technical studies and consultations with infrastructure providers and landowners, the final limb of the Masterplan Framework sets out an indicative phasing strategy to deliver SCGV. Whilst further considerations need to be taken into account (principally regarding development viability), it suggests early phasing should: focus on expanding current settlements; utilise existing infrastructure capacity in the early phases, whilst ensuring any new development contributes to strategic wide infrastructure; and ensure the quality standard is high for future development phases to follow. This first phase would be focused around Carleton, Cummersdale and the southern edge of Carlisle

## 3 SUMMARY OF THE INFRASTRUCUTRE SCHEDULE (APPENDIX 2)

**3.1** The Infrastructure Schedule summarises the strategic infrastructure required to deliver the phased delivery set within Masterplan Framework. It draws from infrastructure requirements that have been gathered throughout the Masterplan Framework process, as well as information provided by the District and County Councils, key stakeholders and infrastructure providers. It details the provisional infrastructure requirements including:

- Community (eg primary and secondary education, health and community facilities);
- Transport (eg on and off-site highway requirements, footways and cycleways);
- Green (eg open space, playing pitches and ecological mitigation);
- Drainage; and
- Utilities.

**3.2** The Infrastructure schedule provides a snapshot in time based on the best available information. Infrastructure requirements will however change in the short, medium and long term. As far as possible, the Infrastructure Schedule has sought to determine the trigger points and the costs of delivering the respective infrastructure.

## 4. SUMMARY OF THE DESIGN GUIDANCE (APPENDIX 3)

**4.1** The Design Guidance draws from the nine SCGV principles and placemaking drivers set out within the Masterplan Framework to inform the following parameters:

- A landscape approach that highlights a series of north-south green fingers that follow the natural valleys, surface water flows, and low-lying topographies;
- A distinctive village-like character;
- A variety of residential densities to bring distinctive characters;
- A variety of usable open spaces and green infrastructure features;
- A sustainable mobility approach with a focus in promoting walking and cycling.

**4.2** A key feature of the Design Guidance has been to set bespoke design principles for Cummersdale, Carleton and Durdar. Each village is sub-divided into more specific 'character areas' which have a recognisable and coherent identity and share a set of design elements and qualitative characteristics. It then provides a brief narrative description of each character area and key features to be considered to inform more detailed guidance or designs within the relevant character area.

## 5. ROLE AND STATUS OF THE MASTERPLAN FRAMEWORK

**5.1** As detailed in a separate agenda item before the Panel, the suite of Masterplan Framework documents comprises the main evidence base which has been used to inform the preparation of the St Cuthbert's Local Plan Preferred Options and the draft Strategic Design Supplementary Planning Document (SPD). The Masterplan Framework also sits alongside a wider suite of existing evidence which has also been used to inform the draft Local Plan policies.

## 6. RISKS

**6.1** A dedicated risk register is kept and regularly reviewed as part of the overall project management approach. The main risk continues to be centred on the availability of adequate resourcing (in terms of both staff time and budgetary provision) for undertaking the technical work and further engagement needed to maintain momentum and progress of each of the key project strands.

**6.2** The overriding risk is that a failure to plan for the growth of SCGV would result in growth occurring to the south of the city in a much more fragmented and incremental nature. This would prejudice the delivery of the necessary infrastructure needed to

support new communities; impact on the sustainability and overall quality of place; undermine strategic ambitions; and risk not delivering the mix of development needed nor at the pace required.

## 7 CONSULTATION

**7.1** Progress to date has been underpinned by robust, extensive and innovative engagement with this having added clear value to the vision and concept proposals, and options plans for the Garden Village. This has included community engagement, dialogue with key stakeholders including infrastructure providers, dialogue and facilitated sessions with the local Parish Councils and with Members including via the dedicated Members' Advisory Group. In addition, there is an ongoing dialogue with all the key landowners within the area.

**7.2** The most recent consultation in Autumn of last year on the options plans for the Masterplan Framework saw a wide range of community drop in events in a variety of locations throughout the area together with more focussed stakeholder and landowner workshops. The feedback report from this stage has been published and is available on our web site. Covid restrictions led to a more focussed consultation in Summer 2020 with technical stakeholders such as United Utilities, the Environment Agency, Natural England and departments within the City and County Council.

## 8. CONCLUSION AND REASONS FOR RECOMMENDATIONS

**8.1** Progress remains on track to deliver the key components that will support the delivery of St Cuthbert's Garden Village. The suite of Masterplanning Framework documents comprise a significant part of the evidence base which has been used to inform the emerging Local Plan for the Garden Village which warrants scrutiny and endorsement by this Panel and the Executive. It is an obligation of the HIF funding agreement that the Masterplan Framework is finalised and it is therefore important that the programme of work leading to the adoption of the emerging Local Plan remains on track.

## 9 CONTRIBUTION TO THE CARLISLE PLAN PRIORITIES

**9.1** St Cuthbert's Garden Village will have a significant influence in terms of shaping how Carlisle will grow and function long into the future. Accordingly, it will have a significant, direct and positive impact on a number of Carlisle Plan priorities including:

• *"supporting the growth of more high quality and sustainable business and employment opportunities"* – through identifying new sites for development and opportunities to better balance the local economy;
• *"addressing Carlisle's current and future housing needs"* – through being the single largest development site and therefore contributor to supply across the latter stages of the current Local Plan period and much of the next one, including affordable and specialist housing;
• *"working more effectively with partners to achieve the City Council's priorities"* – through recognition that the scale of the project requires the input, commitment and direct support of a wide array of stakeholders and partner agencies.

| | | | |
|---|---|---|---|
| **Contact Officer**: | **Neil Cole** | **Ext:** | **7191** |

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| **Appendices attached to report:** | **Appendix 1: St Cuthbert's Garden Village Masterplan Framework**<br>**Appendix 2: St Cuthbert's Garden Village Masterplan Framework – Infrastructure Schedule**<br>**Appendix 3: St Cuthbert's Garden Village Masterplan Framework – Design Guidance** |

**Note: in compliance with section 100d of the Local Government Act 1972 the report has been prepared in part from the following papers:**

- **ED22/18 Report to EGSP on St Cuthbert's Garden Village**
- **ED06/19 Report to Executive on Garden Village key next steps.**
- **ED28/19 Report to Report to EGSP on St Cuthbert's Progress Update**
- **ED 17/20 Report to Leader on St Cuthbert's Garden Village – Key Next Steps**
- **ED 42/20 Report to Report to EGSP on St Cuthbert's Garden Village Local Plan consultation**

**CORPORATE IMPLICATIONS:**

**LEGAL –** response awaited.
**PROPERTY SERVICES –** response awaited.
**FINANCE –** response awaited.
**EQUALITY –** response awaited.
**INFORMATION GOVERNANCE –** There are no Information Governance implications with this report.

Appendix 1

# St Cuthbert's Garden Village

## Masterplan Framework

### Final Masterplan Framework

October 2020

Carlisle City Council

CARLISLE CITY COUNCIL www.carlisle.gov.uk

St Cuthbert's Garden Village Carlisle

HIVE LAND & PLANNING

ARUP

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SCGV-ARP-XX-XX-AX-RP-00004 rev02
Issued: October - 2020

# 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 has been active in the promotion of the project as an ambitious and exciting opportunity to develop a series of communities which are future-proofed and forward thinking.

Ove Arup and Partners (Arup), supported by Hive Land & Planning, have been commissioned by Carlisle City Council to prepare a Masterplan Framework for St Cuthbert's Garden Village. This builds upon the work previously undertaken by the Council to establish the overall Vision, Concept and Guiding Principles for the development.

The Masterplan Framework will critically inform and support the preparation of the St Cuthbert's Local Plan and Supplementary Planning Documents. Its primary role will be as evidence guiding future detailed masterplans, design stages and policy documents whilst serving as a material planning consideration for development proposals that will deliver against the vision and objectives for the Garden Village.

This document is the St Cuthbert's Garden Village Framework Masterplan. It should also be read alongside the St Cuthbert's Garden Village Design Guidance document and Infrastructure Schedule.

St Cuthbert's Garden Village must deliver on the overarching vision of providing "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."

**St Cuthbert's Garden Village Vision**

The Masterplan Framework Document is structured as follows:

- Section 1: St Cuthbert's Masterplan Framework Development, describes the influences and processes which have created the current Masterplan Framework

- Section 2: Spatial Framework Concept, sets out the key design influences that should guide future development and the overall illustrative Masterplan

- Section 3: Land Use Framework, establishes the strategic location and extent of the different types of development proposed.

- Section 4: Green and Blue Infrastructure Framework, considers issues including greenspace, landscape, planting, food production, ecology and sustainable drainage.

- Section 5: Urban Design Framework, identifies the key urban design features to be taken into consideration in any future development.

- Section 6: Movement Framework and Access Strategy, considers how pedestrian, cycleways and bridleways, and vehicles should move and access the future development

- Section 7: Sustainability Strategy, sets out how the Garden Village will be developed in a sustainable manner to ensure it delivers against the overarching Vison and provides environmental, social and economic benefits

- Section 8: Next Steps, describes how the Masterplan Framework will be finalised and how the City Council will move towards delivery.

# 1 /

# St Cuthbert's Masterplan Framework Development

# 1.1 / Strategic Context

This is an exciting time for Carlisle. The City Council has set a very ambitious growth agenda and is now delivering against it. The St Cuthbert's Garden Village is fundamental to achieving this growth and offers a once in a generation opportunity for the City.

Carlisle occupies a central position in the Borderlands area. It is the only city within the region and, supported by it transport linkages, is a focus and driver for economic activity across a significant and largely rural catchment in north Cumbria, south west Scotland and Northumberland.

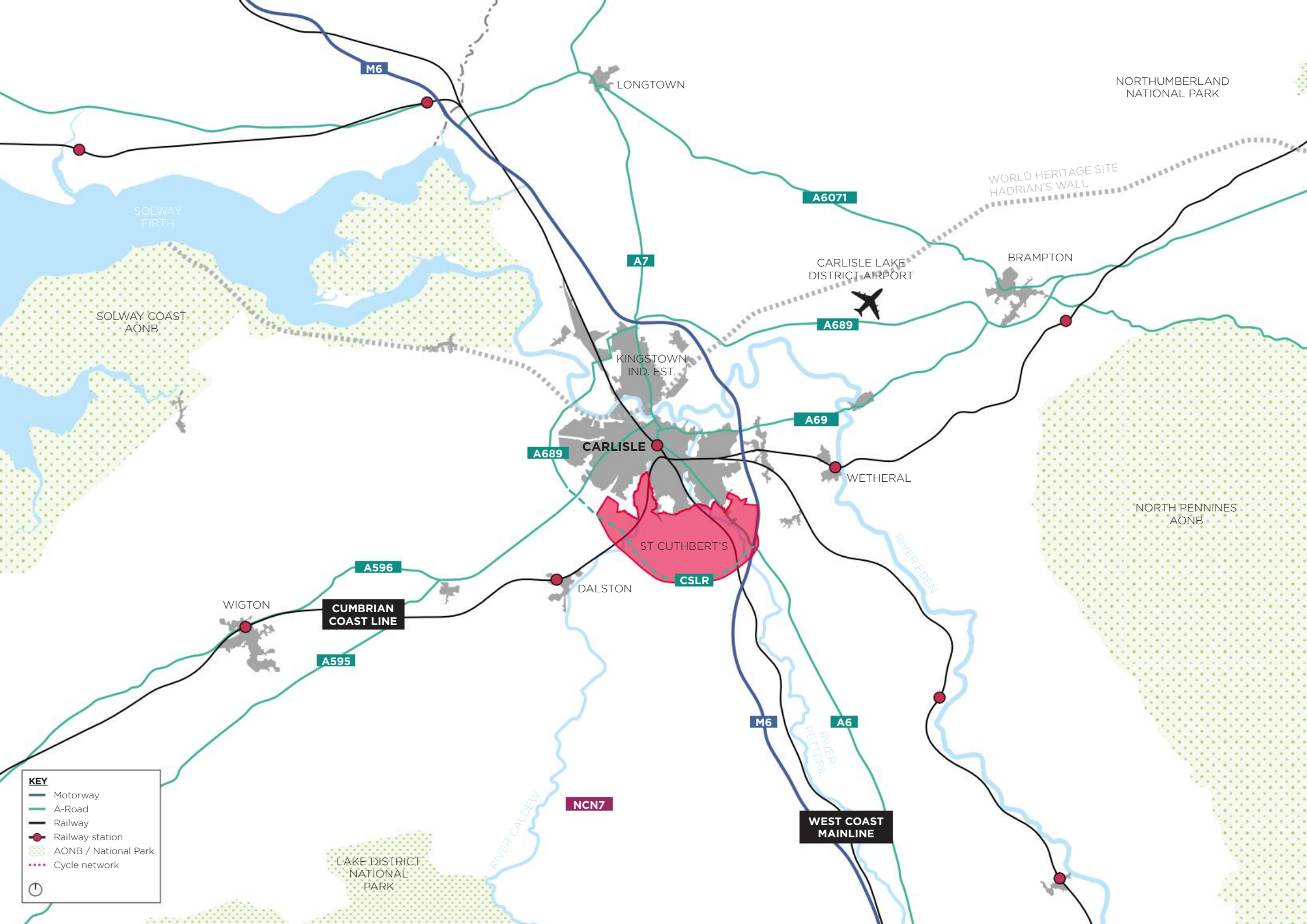
Over recent years the City has overcome challenges to see sustained growth. The area has welcomed the expansion of key employment sites including the Kingmoor Park Enterprise Zone and Durranhill and Rosehill Industrial Estates. We have seen the redevelopment at Carlisle Airport and restarting of commercial passenger flights, a focus on regenerating the City Centre and the continued expansion of the University of Cumbria and our strong educational offer. Echoing this growth trend, Carlisle has experienced its highest ever housing completion rates, helped in part by the active promotion of opportunities to housebuilders new to the area.

However, despite this level of growth, Carlisle continues to have an ageing demographic. To allow the City and economy to continue to flourish and grow in a sustainable way, this must be addressed. The solution to reversing this population trend is both multifaceted and complex. One fundamental requirement, however, is the provision of high-quality housing in strong, diverse and attractive communities.

The scale and location of St Cuthbert's Garden Village provides a genuine opportunity to make a difference in this regard, providing it is delivered in a well-planned and coherent way.

It is important however the Garden Village is not viewed in isolation. It is part of a much wider vision which must be supported by local communities and stakeholders. Its delivery is central to the success of the Borderlands Inclusive Growth deal, Cumbria Local Industrial Strategy and vice versa. The Garden Village will only be fully realised if it is fully integrated with the Carlisle Southern Link Road and improvements to Carlisle Station, its rail connectivity and aspiration to become true sub-regional hub. It must also embrace the Borderlands cross cutting themes, including futureproofing development in terms of digital, health and wellbeing and energy supply.
We must also not pursue growth at the expense of resilience. In 2019 Carlisle City Council declared a Climate Change Emergency and the move to zero carbon is fundamental to the Garden Village.

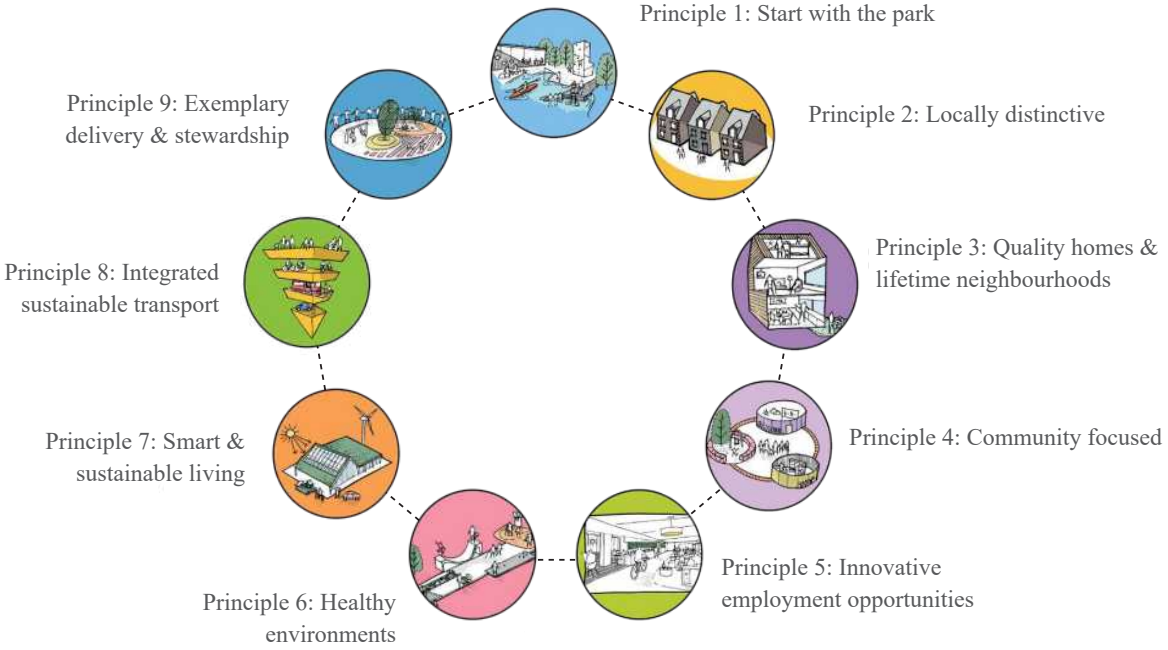
We can also not fail to acknowledge that at the time of writing this report we are facing significant and unsettling challenges and uncertainty generated by the Covid-19 pandemic. Whilst the long terms impact in terms of our economy and resilience are not yet fully understood, the future Garden Village communities have the opportunity to reflect upon and embed resilience in a proactive way and assist in our future economic recovery.


M6
LONGTOWN
NORTHUMBERLAND NATIONAL PARK
WORLD HERITAGE SITE HADRIAN'S WALL
A6071
SOLWAY FIRTH
A7
CARLISLE LAKE DISTRICT AIRPORT
BRAMPTON
SOLWAY COAST AONB
A689
KINGSTOWN IND. EST.
A69
CARLISLE
A689
WETHERAL
NORTH PENNINES AONB
ST CUTHBERT'S
RIVER EDEN
A596
CSLR
DALSTON
WIGTON
CUMBRIAN COAST LINE
A595
M6
A6
RIVER PETTERIL
NCN7
WEST COAST MAINLINE
RIVER CALDEW
LAKE DISTRICT NATIONAL PARK
KEY
Motorway
A-Road
Railway
Railway station
AONB / National Park
Cycle network

# 1.2 / St Cuthbert's Garden Village Concept & Vision

Before commencing work on the Masterplan Framework, Carlisle City Council developed a series of Guiding Principles, Key Drivers and an overall Concept Framework, all of which were subject to and guided by significant public and stakeholder engagement.

The Masterplan Framework takes forward and develops this work.




## 1.2.1 / Guiding Principles

The 9 Guiding Principles are:

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.
2. **Locally Distinctive:** Support local distinctiveness in the design of buildings, streets and spaces to create memorable and unique places to live.
3. **Quality Homes and Lifetime Neighbourhoods:** Promote a mix of high-quality homes in distinct and integrated lifetime neighbourhoods.
4. **Community Focussed:** Focus inclusive communities around a hierarchy of excellent facilities clustered around village centres.
5. **Innovative Employment:** Support a variety of entrepreneurial and creative employment and skills opportunities.
6. **Healthy Environments:** Promote health and well-being through accessible facilities and healthy lifestyles for all ages.
7. **Smart & Sustainable Living:** Support low carbon living through sustainable planning, transport and energy.
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 Carlisle Southern Link Road.
9. **Exemplary Delivery & Stewardship:** Continue to positively engage a range of people and communities in design, delivery and stewardship.

# 1.2.1 / Key Drivers

In addition to the nine principles, Carlisle City Council, identified five key drivers that must underpin and inform the future community of St Cuthbert's. The five key drivers aim to maximise the potential for new and existing residents alike to benefit from the qualities and amenity of environments created by the Garden Village.

The five key drivers are:

### 1. The creation of a healthy environment –

building on Carlisle's designation by the World Health Organisation as a World Healthy City, St Cuthbert's must be a place that encourages and facilitates a healthy lifestyle. Walking and cycling, supportive neighbourhoods, planned educational facilities and a strong sense of community spirit can all improve health and wellbeing. Garden Villages are attractive to anyone seeking a green and pleasant place to live and can help to reduce lifestyle-related illness. The Masterplan framework should draw on the Town and Country Planning Association guidance on Healthy Living Elements 1-6. [1]

1. Movement and Access
2. Open Spaces, play and recreation
3. Food environment
4. Buildings
5. Neighbourhood spaces and infrastructure
6. Local Economy

### 2. A community that makes full use of the fantastic landscape quality –

delivering a comprehensive network of natural and public open spaces and places that are easily accessible and provide a wide range of activities for all .

### 3. A community that has a range of employment opportunities –

linking into the wider employment offer of Carlisle creating opportunities for new sectors and innovation in employment. St Cuthbert's will need to both assist in retaining the existing and attracting new working age population of Carlisle and be a place that attracts new employees.

### 4. A place that is well connected –

within the new community, with Carlisle, and out to the surrounding countryside. Any frameworks should have a focus on walkable neighbourhoods, sustainable transport, active travel modes, and the future of different transport methods.

### 5. A place that is future proofed –

St Cuthbert's will be developed over a number of years and must be designed to accommodate new and emerging technologies around built form, transport, renewable energy, sustainable drainage, and various aspects of city operations and governance.

# 1.2.3 / Concept Framework

Using the nine Principles and Key Drivers, Carlisle City Council, through extensive public engagement, developed a concept framework for the Garden Village.

### Concept Framework Summary

### Landscape Framework

Existing communities and new Garden Village will be set within an enhanced landscape framework including farmland, woodland, parkland, riverside / wetlands and the 10-kilometre St Cuthbert's Greenway.

### Durdar

Durdar will be the larger of the St. Cuthbert's settlements acting as a 'district centre' and a hub for local communities.

### Carleton / Junction 42

Carleton– with views and access to the River Petteril - will sensitively expand the existing settlement of Carleton including a new village centre on the A6 Roman Road.

### Cummersdale

Cummersdale will be a new innovative community developed around a mixed-use centre north east of the junction of the proposed link road.

### Brisco

The village will offer some potential for restricted expansion between the proposed Greenway to the north and high ground to the south.

Primary Stage 1 Outputs


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

## 3.5 CONCEPT FRAMEWORK PLAN

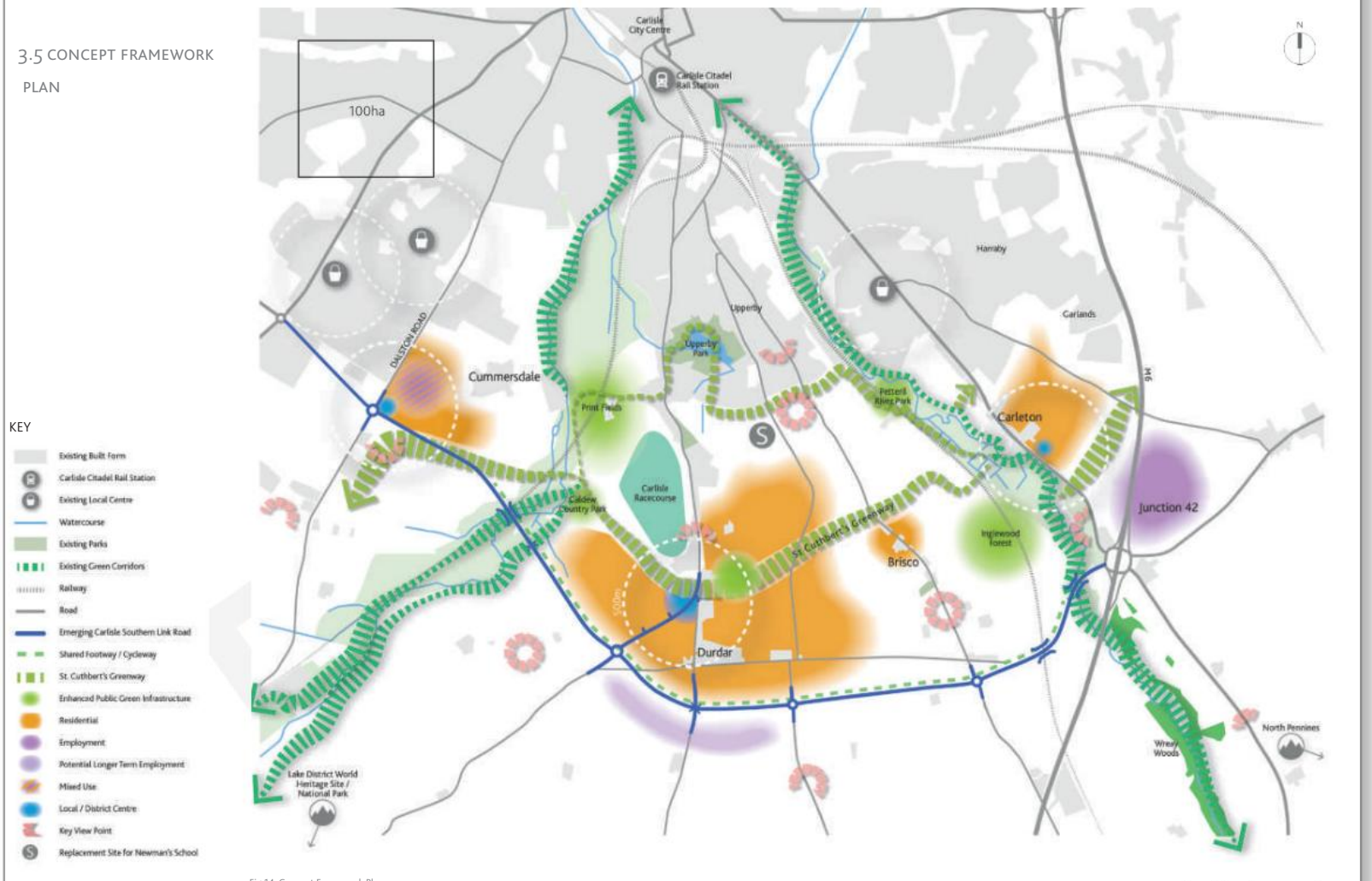



Fig 14. Concept Framework Plan

GILLESPIES

40

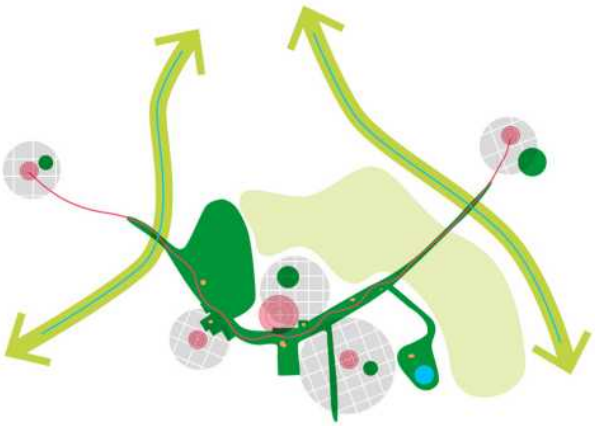
# 1.3 / Generating the Options

In September 2019, guided by the Vision and Concept work and informed by collection of additional technical information and stakeholder consultation, the St Cuthbert's Garden Village Options Report was prepared.

The Report set out three alternative scenarios for the future development of the Garden Village which was subject to public consultation.

The three Options are summarised below:

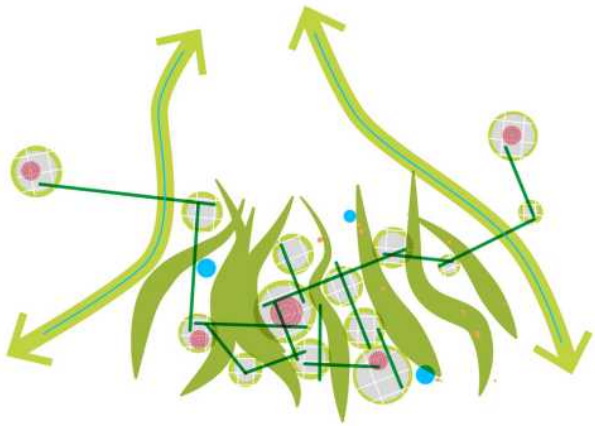
## Option 1:



## Compact Communities

- Three compact communities
- More 'urban 'character forming distinct settlements within the surrounding rural landscape.
- Central east-west Greenway connecting the new settlements for active outdoor uses,
- A district centre in Durdar - dense, linear, and mixed-use

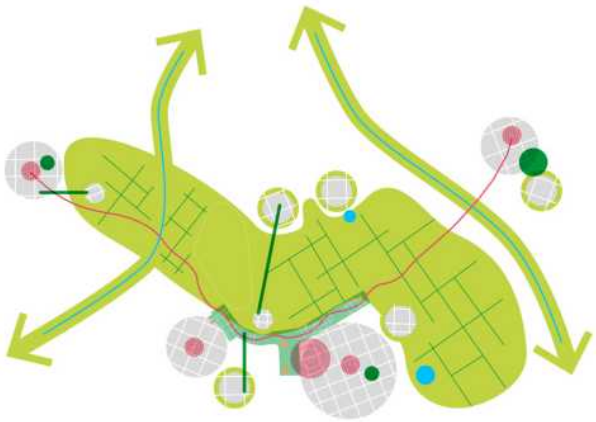
## Option 2:



## Connected Communities

- Dispersed village clusters set within a more natural landscape.
- • A more ‘rural’ village-like character.
- A softer built edge to the surrounding landscape.
- A series of local retail centres and key services connected by clearly marked walking and cycling routes.
- An open space network with green spaces of varying character and functions weaving through built settlements.

## Option 3:



## Edge Communities

- Three neighbourhoods concentrated around Durdar, Cummersdale and Carleton.
- A mixed character with a more urban quality and higher density in Durdar.
- A landscape approach that is anchored around farming and food growing.
- Greenway as an element to enhanced farming and growing opportunities.
- A series of interconnected local centres.

# 1.4 / Refining the Options

In order to refine the three options and develop the preferred option presented in the Masterplan Framework; a number of key steps were taken. These included:

- Public and Stakeholder Engagement in Autumn 2019
- Consideration of land ownership issues and impacts upon deliverability
- Ongoing consultation with the St Cuthbert's Garden Village Strategic Board
- Review by Carlisle City Council's appointed consultant teams relating to viability, Sustainability Appraisal and Habitats Regulations Assessment
- Two Design Panel reviews

A detailed summary of the feedback gathered through consultation and review can be found on the St Cuthbert's Garden Village website. An assessment of each of the Options against the St Cuthbert's Garden Village Vision, Principles, Key Drivers and overall SWOT analysis can be found in Appendix 1 of this report.

Following detailed review and careful analysis of all outputs of the above, the St Cuthbert's Garden Village Project Steering Group and Strategic Board agreed upon a set of refinements and assumptions on which the Masterplan Framework should be taken forward, recognising that some aspects would be iterative through the design process. The key points agreed are summarised below.

At a strategic level, it was agreed that the preferred option should be based on the following principles derived from Options 1, 2 and 3:

Option 1: a focus of development and higher densities at Durdar.
This approach aligns with the Stage 1 concept masterplan and the majority of stakeholder preferences expressed at public stakeholder events. The density and layout support sustainable transport and active travel and the creation of walkable mixed-use communities, whilst also creating the potential to support a mixed-use district centre in Durdar.

Option 2: the landscape principles, including weaving in areas of open space into communities, and the creation of smaller more distinct communities.

This supports the strong and compelling vision of a new community and embedding the 'Start with the Park' principle. Well defined green infrastructure pathways through the site allow for overland flow and existing above ground drainage features to be accommodated. It provides maximum potential for integrating natural capital benefits into the new community and has the potential to be highly appealing to working age people and young families looking for
professional opportunity as well as quality of life.

Option 3: including development on the southern edge of Carlisle, (excluding Cammock Hill) as well as Cummersdale and Carleton

Development at Carleton and Cummersdale aligns with the Stage 1 concept Masterplan and development in these locations has potential for early phase development both utilising and enhancing existing physical and social infrastructure. Additional land to the southern fringe of Carlisle, which was not in the Stage 1 concept masterplan also provides this benefit, through for example the provision of the new St John Henry Newman Catholic School (secondary).

A more detailed series of principles to guide the development of the preferred options were also agreed at this stage. These included:

- Employment land included at the Stage 1 concept masterplan to the south of CSLR will be removed and employment land will be distributed throughout the Garden Village to promote sustainability and better deliver the principles of the Garden Village

- The overall design concept will not be determined by any individual land ownership, but should align to land ownership parcels where possible to support deliverability

- The opportunity for a new local centre parallel to Durdar Road will be considered for inclusion, with other community facilities to be co-located

- The St Cuthbert's Greenway will be a new strategic east – west link across the Garden Village that uses existing infrastructure to provide a walking and cycling route to connect all three areas, as well as increasing access to public and open green spaces and access to the wider

countryside. The Greenway will link to existing walking and cycling routes that allow access to and from the City Centre.

Following the agreement of these assumptions, further detailed technical analysis relating to drainage, utilities, landscape, ecology, health impact and transport was undertaken, and the Masterplan Framework presented in this report was developed.

Appendix 2 provides an assessment of the Masterplan Framework against the nine Guiding Principles.

# 2 /

# Spatial Framework Concept

This section describes the overarching design principles of the Masterplan Framework design and the density approach.

# 2.1 / Key Design Moves

The development of St Cuthbert's Garden Village Masterplan Framework is underpinned by five key design moves.

These key design moves summarise the main qualities of this unique context. They are driven by the physical context and should be considered in conjunction with the Stage 1 Vision Guiding Principles and Key Drivers.

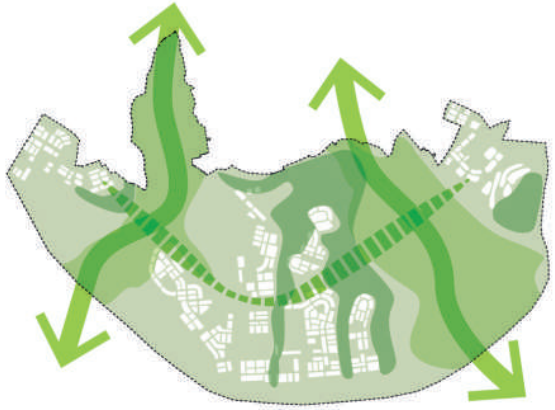
## 1.

### RETAIN KEY ASSETS OF THE SITE

The design of the Garden Village should draw on the area's industrial heritage, the identity of local places like Brisco, and the uniqueness of destinations like the Carlisle racecourse. Equally, the expansive views towards the Lake District National Park and the North Pennines AOB should be preserved and enhanced as part of the character of St Cuthbert's Garden Village..

## 2.

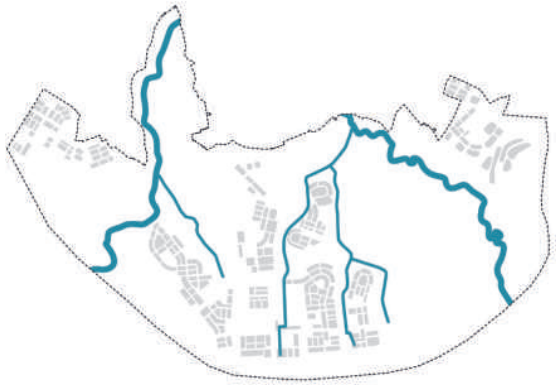
### PRESERVE AND ENHANCE DISTINCTIVE LANDSCAPE QUALITIES



The Garden Village sits within a distinctive landscape in the adjacencies of two rivers, the Caldew and the Petteril. Alongside the ecologically rich riverine landscape and vegetation, the site has an agricultural character with a patchwork of fields covering a majority of the land. These qualities should be key drivers of the Masterplan design.

## 3.

### INTEGRATE WATER COURSES



Integrating existing water courses into the design is key to ensuring a future proofed development that is resilient to the impacts of climate change. The Masterplan should be guided by the requirements of existing catchment areas and prevent any increase in discharge to downstream receptors.

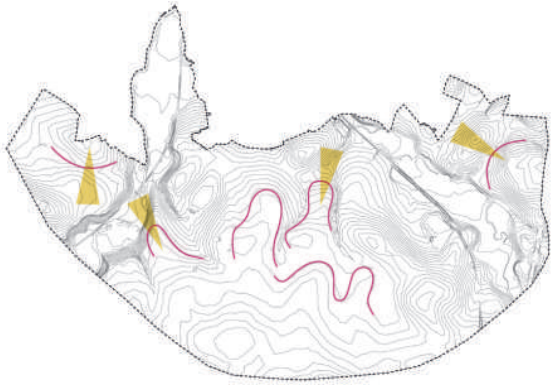
## 4.

### PROMOTE SUSTAINABLE AND ACTIVE MOBILITY

Designing accessible and walkable communities should be at the core of the design in order to achieve a sustainable development. The design should promote walking and cycling, with a network of connected clusters and local centres accessible by walking and cycling routes with the Greenway at its core.

## 5.

### WORK WITH TOPOGRAPHY



Working with the undulating topography of the area will ensure that the masterplan is respectful of the landscape, works well with drainage flows and water catchments, and able to integrate key views into the new development.

# 2.2 / Spatial Framework Concept

The Masterplan Framework takes forward the established St Cuthbert's Concept and Vision, informed by additional technical information and consultation around potential options.

The Masterplan Framework aligns closely with the Concept and Vision, adding further detail and guidance for future development.

In taking this approach, the spatial distribution of the residential, employment and community development is focussed on Durdar, with smaller communities at both Cummersdale and Carleton. Green and blue infrastructure enhancement in and around the built communities is of fundamental importance.

In a departure from the Vision and Concept work, the Masterplan Framework excludes employment land to the south of the proposed CSLR and residential development close to Brisco. It has also included development opportunity to the southern urban edge of Carlisle. Both of these changes were made following feedback received during the stakeholder and public consultation process.

Key design features and placemaking drivers of the preferred option are:

- A landscape approach that highlights a series of **north-south green fingers** that follow the natural valleys, surface water flows, and low-lying topographies of the site.
- **A distinctive village-like character** within the built areas and in the design of the main village green and surrounding open spaces.
- **A sustainable mobility** approach with a focus in promoting walking and cycling with the Greenway as a main route.
- **A variety of residential densities** that will bring distinct character to the different areas
- **A variety of usable open spaces as well as green infrastructure features** (swales, ponds, meadows, wetlands) weaving through built settlements

The plan on the next page illustrates the indicative design for St Cuthbert's Garden Village as a result of the process described in the previous chapter.

The following land use budget provides an estimate of areas relating to land take, housing, open areas and social infrastructure requirements. Further detail on the character and distinctiveness of these areas is provided within the St Cuthbert's Garden Village Design Guidance, which should be read alongside this Masterplan Framework. Further detail will also be provided in the St Cuthbert's Garden Village Design Supplementary Planning Document.

| *Overview* | | *Durdar* | *Edge of Carlisle* | *Carleton* | *Cummersdale* | *Total* |
|---|---|---|---|---|---|---|
| *Land Use* | Land take (HA) | 216 | 20 | 56 | 43 | **335** |
| | Average Density (DPH) | 32 | 25 | 30 | 22 | **30** |
| | Approx no. of Residential units | 7,150 | 500 | 1,700 | 975 | **10,325** |
| | Commercial* (sqm) | 44,000 | - | 1,000 | 1,000 | **46,000** |
| *Social Infrastructure* | Primary schools (equivalent) | 3no. 2FE / | - | 1no. 1FE / | 1no. 1FE / | **5** |
| | | 6 ha | - | 1 ha | 1 ha | |
| | Secondary schools | 1no. 10 FE / 10.5 ha | - | - | - | **1** |

** Employment details:*
*Carleton – 1,000sqm (mixed use / flexible office space)*
*Cummersdale – 1,000sqm (managed workspace)*
*Durdar – 40,000sqm spread across a few sites within Durdar (with additional 4,000sqm of workspace / office collaboration space close to district centre )*
*Junction 42 remains an important long-term strategic opportunity site for employment in Carlisle, but has not been included in these calculations as it is outside of the Garden Village boundary*

# ILLUSTRATIVE MASTERPLAN

# 2.3 / Village Character Design Principles

The following pages provide an overview of how the key design moves have informed the conceptual design of each area. These will help inform the Design SPD proposed by Carlisle City Council. Further information can be found in the Design Guidance that sits along this report.

**1. Cummersdale:**

The historic village of Cummersdale provides the setting for this part of the Garden Village. The existing settlement has developed over centuries, overlooking the River Caldew and driven by its mills, innovation and textiles heritage.

The Garden Village at Cummersdale respects this proud history, retaining the historic core's distinct identity and complementing this with sensitive development. The development takes on a rural character and the careful integration of green fingers and corridors preserve the views to the Lake District and enhance the rural identity. When compared to other locations within the Garden Village, the densities of development are lower.

This is in direct response to concerns from existing local residents as well as to preserve views to the Lake District and ensure strong integration with the landscape. As development approaches the river valley, densities lower further, responding to the local topography and views.

A green buffer lies between the southern edge of the existing village and the new development which will preserve views of the chimney to the east. Open space on the western edge of the existing Cummersdale village builds upon the 'Start with the Park' principle and creates a gathering space for both new and existing residents. New shared facilities , including a primary school, local shops and amenities also provide an additional focal point for the communities.

A green network of open spaces connects Cummersdale with the River Caldew, further north into Carlisle or east along St Cuthbert's Greenway to Durdar.

Densities are on average lower than elsewhere in the Garden Village. This directly responds to a number of factors including the character of the historic settlement of Cummersdale, and the importance of protecting views to the Lake District and ensuring strong integration with the local landscape.

1. The concept design has identified three different character areas for this development. They have specific qualities that relate to their context and location. More details on CU.01, CU.02 and CU.03 can be found in the Design Guidance document.

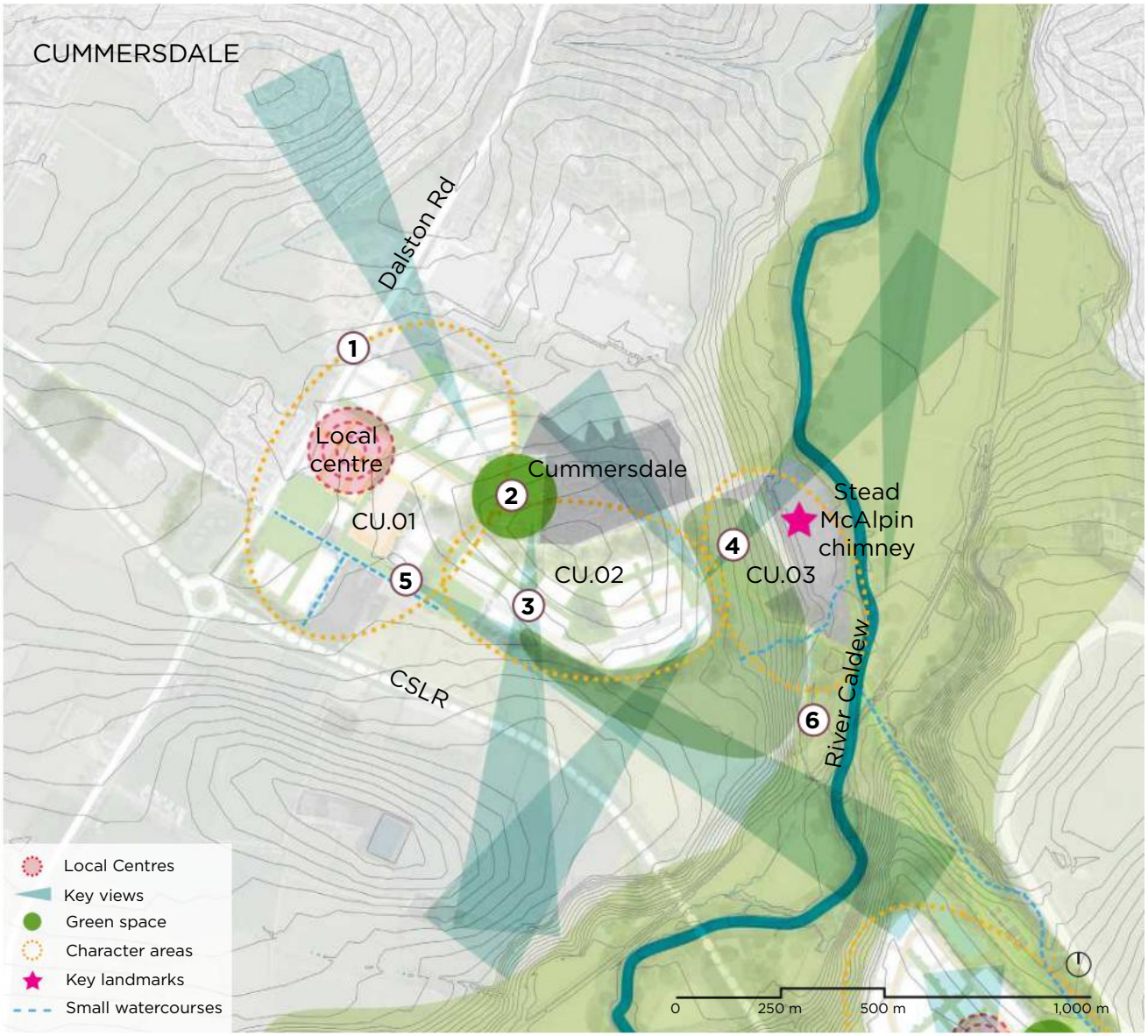
2. Building on the principle 'Start with the Park', the development at Cummersdale creates a large area of open greenspace at its heart that will enhance the social cohesion between the new and the existing residents of the village.

3. The integration of green corridors in the development will help to preserve the unique views from this area towards the Lake District.

4. The new areas of development are informed by the characteristic topography of the area, leveraging the singular views towards the adjacent River Caldew and its landscape and enhancing the industrial heritage around the Stead McAlpin Printworks site.

5. Following the drainage strategy, the design carefully considers and integrates the areas as key part of the green and blue infrastructure.

6. The Stead McAlpin Printworks site on the banks of the River Caldew presents a strategic regeneration opportunity with biodiversity net gain potential and alternative uses for contributions to the Greenway and St Cuthbert's key guiding principles, sustainable transport and healthy environments.



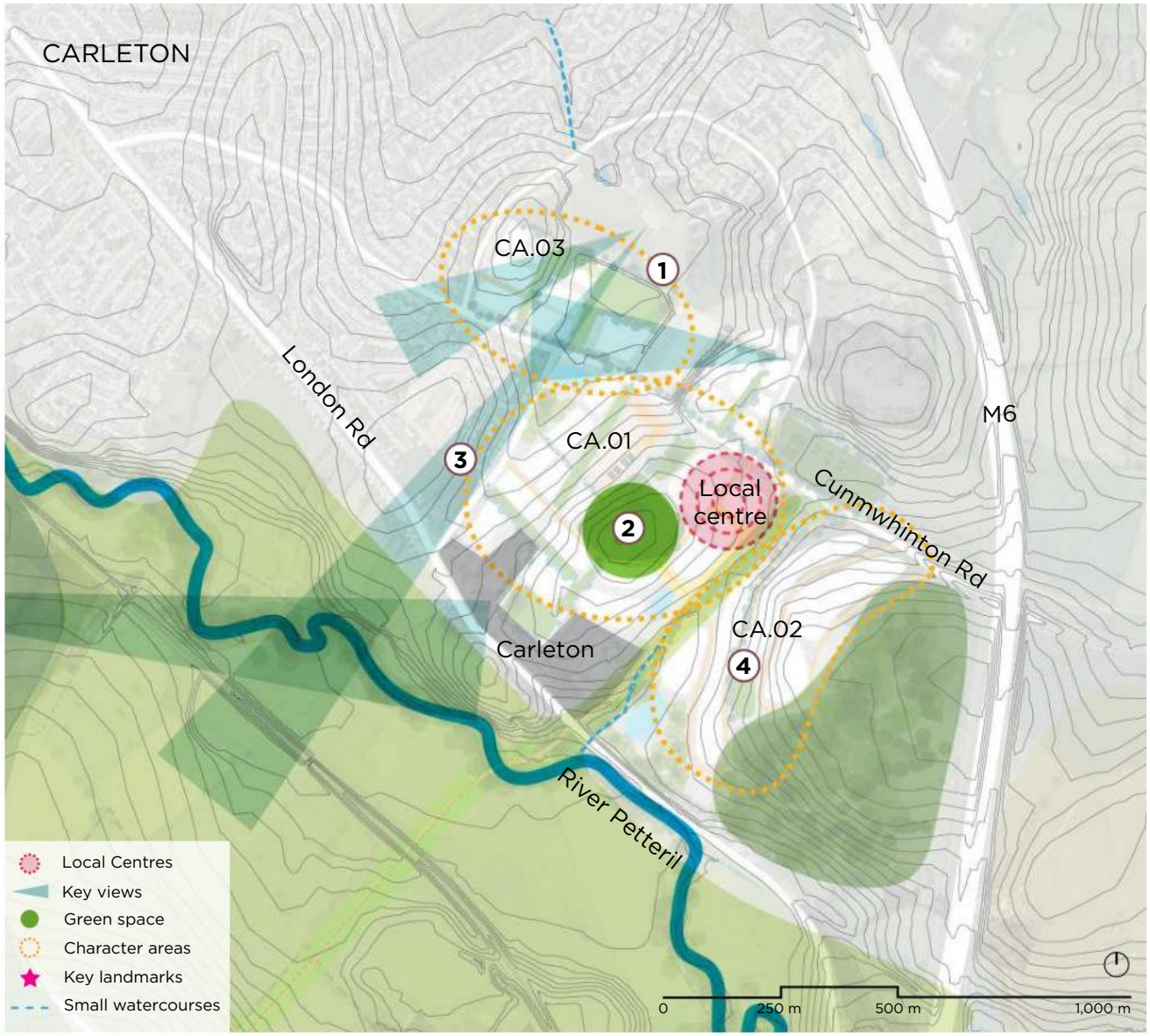
# 2.3 / Village Character Design Principles

**2. Carleton:**

Carleton is already an established popular and growing neighbourhood accessed from the A6, welcoming you to Carlisle from the south and the M6. This area of the Garden Village provides the opportunity to further integrate with existing neighbourhoods and create a new, shared local centre with a primary school, local shops and community facilities. The local centre will have a large open greenspace at its core, accessible to everyone and visible from multiple viewpoints due to its location on a hill. As development approached the M6, it will respond to the steep topography providing the opportunity for distinctive architectural typologies.

The new development will be of mixed character, being more urban to the centre and more rural as it connects the surrounding landscape. The development includes green corridors to preserve distant views and will incorporate high quality planting. A network of greenspaces connects to development to the River Petteril and the Greenway.

The proposed densities in Carleton respond directly to the existing built form and landscape, with higher densities and more urban character within and surrounding the local centre, become lower density as it moves outwards and connects with the wider rural context.



1. The concept design has identified three different character areas for this development. They have specific qualities that relate to their context and location. More details on CA.01, CA.02 and CA.03 can be found in the Design Guidance document.

2. Similar to Cummersdale, the new development in Carleton will have a large open greenspace at its heart. In this case, the park sits on one of the hills that are characteristic of the local area, visible from the surrounding locality and communities

3. In this area, the key views are preserved by working with the topography taking advantage of the high points and using the gentle slopes for development.

4. The topography of Carleton with gentle hills overlooking the River Petteril is one of the key differentiators that shapes the character of the area. The new development leverages this unique landscape by adapting the urban structure, building heights and shapes.

**3. Durdar:**

Durdar will be the larger of three settlements and will act as a 'district centre' and a hub for local communities, including the adjacent neighbourhoods of south Carlisle. It forms the heart of the Garden Village – a place to come together. Facilities are clustered around a neighbourhood square and the Greenway – a secondary and primary school, shops and health facilities. The centre provides a location for local employment and start-up businesses.

Durdar will be a new gateway and a tree-lined approach to both St Cuthbert's and Carlisle, accessed from the new southern link road. Sustainable transport will take priority supporting a pedestrian friendly environment.

Distinctive neighbourhoods within Durdar provide a full range of homes – apartments around the district centre, family housing, affordable homes and larger detached houses forming a new sensitive countryside edge, allowing Carlisle to nestle into the landscape. The neighbourhoods are connected through green corridors that respond directly to the topography, landscape and watercourses of the area.

The Greenway is especially relevant in Durdar as it acts as the link between the north and south areas of development. It will have a key role as a placemaking element in the initial phases of development, serving not only new Durdar community, but also to the adjacent neighbourhoods in Carleton and Cummersdale.

In Durdar, higher density development is focused in and around the local and neighbourhood centres to create a more urban character. As shown, there will be the greatest variety in densities across Durdar as the different neighbourhoods and development parcels respond directly to the green and blue corridors which run through the site, which in turn are dictated by the existing local landscape and topography.

Careful consideration will need to be given to where Durdar meets the existing urban edge of Carlisle. New development to the south of Ascot Way will frame an area of green open space at the core of this neighbourhood, connecting to Newman School in the east and creating a view corridor towards Cammock Hill and forming a key green gateway into the Garden Village.

# 2.3 / Village Character Design Principles

1. The concept design has identified three different character areas for this development. They have specific qualities that relate to their context and location. More details on DU.01, DU.02 and DU.03 can be found on the Design Guidance document.

2. The Greenway has the potential to become the main open space bringing people from all the different villages together. More detail on the Greenway can be found in Section 4: Green and Blue infrastructure framework.

3. The largest local centre within St Cuthbert's Garden Village will be located in Durdar. This is referred to as the District Centre. It will be central to the garden village, and it will be a lively place with a variety of public facilities and mixed-use offer serving the different villages. It is located in a strategic location with very good connectivity and next to one of the landmarks of the area, the Racecourse, and with the Greenway at its heart. It will be complemented by smaller neighbourhood centres that will serve the different clusters of residential development within Durdar. Those will have a focus on the community. Further detail on the local centres can be found in Section 3.3 and Section 5of this document.

4. The new areas of development work with the topography, adapting the urban structure to the contours and taking advantage of the views to the surrounding landscape.

5. Durdar includes some distinctive valleys and hills, like Cammock Hill, that provide incredible views of the Pennines and other landscape landmarks. The design works with the topography, preserving those view corridors as an important feature of Durdar's identity.

6. The distinctive landscape of Durdar includes different water courses that run through the valleys. Those water courses have been integrated as part of the green and blue infrastructure of the Masterplan Framework.

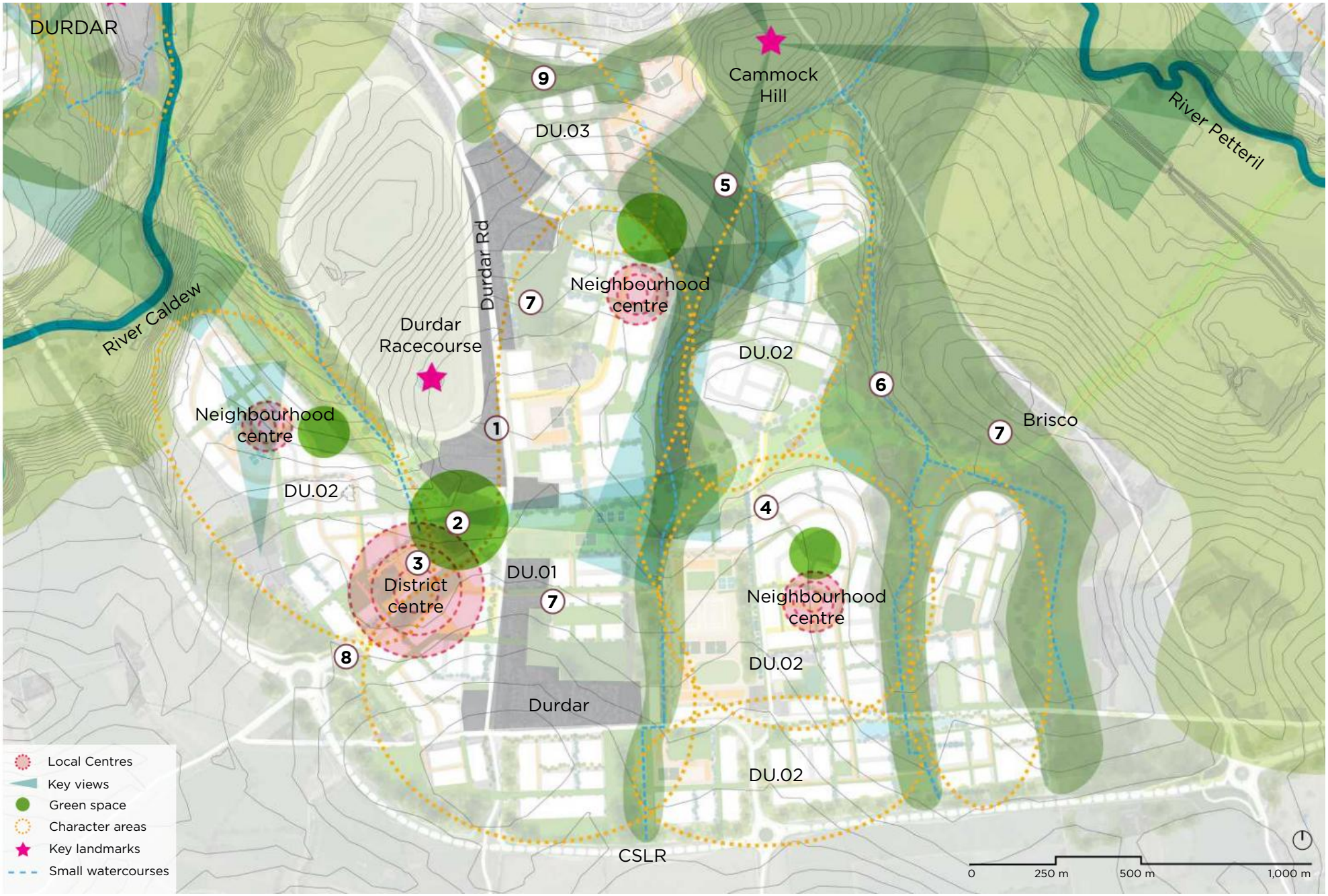
7. Durdar is the main area around which St Cuthbert's Garden Village will be developed. The new development will create different interfaces between the existing and new. Section 5: Urban Design framework included in this document develops various design principles for the definition of those interfaces giving special care to the edge of Carlisle as it will conform one of the gateways to the Garden Village.

8. This is a key interface between the CSLR and the Garden Village. As the main gateway to the Garden Village, the green buffer provides not only biodiversity and landscape enhancements and a clear sense of arrival into the Garden Village for visitors and residents, it also provides space for vital visual and noise mitigation for those living and working there.

### 4. Carlisle Edge

Careful consideration will need to be given to where Durdar meets the existing urban edge of Carlisle. New development to the south of Ascot Way will frame an area of green open space at the core of this neighbourhood, connecting to Newman School and Blackwell Common and creating a view corridor towards Cannock Hill, forming a key green gateway into the Garden Village.

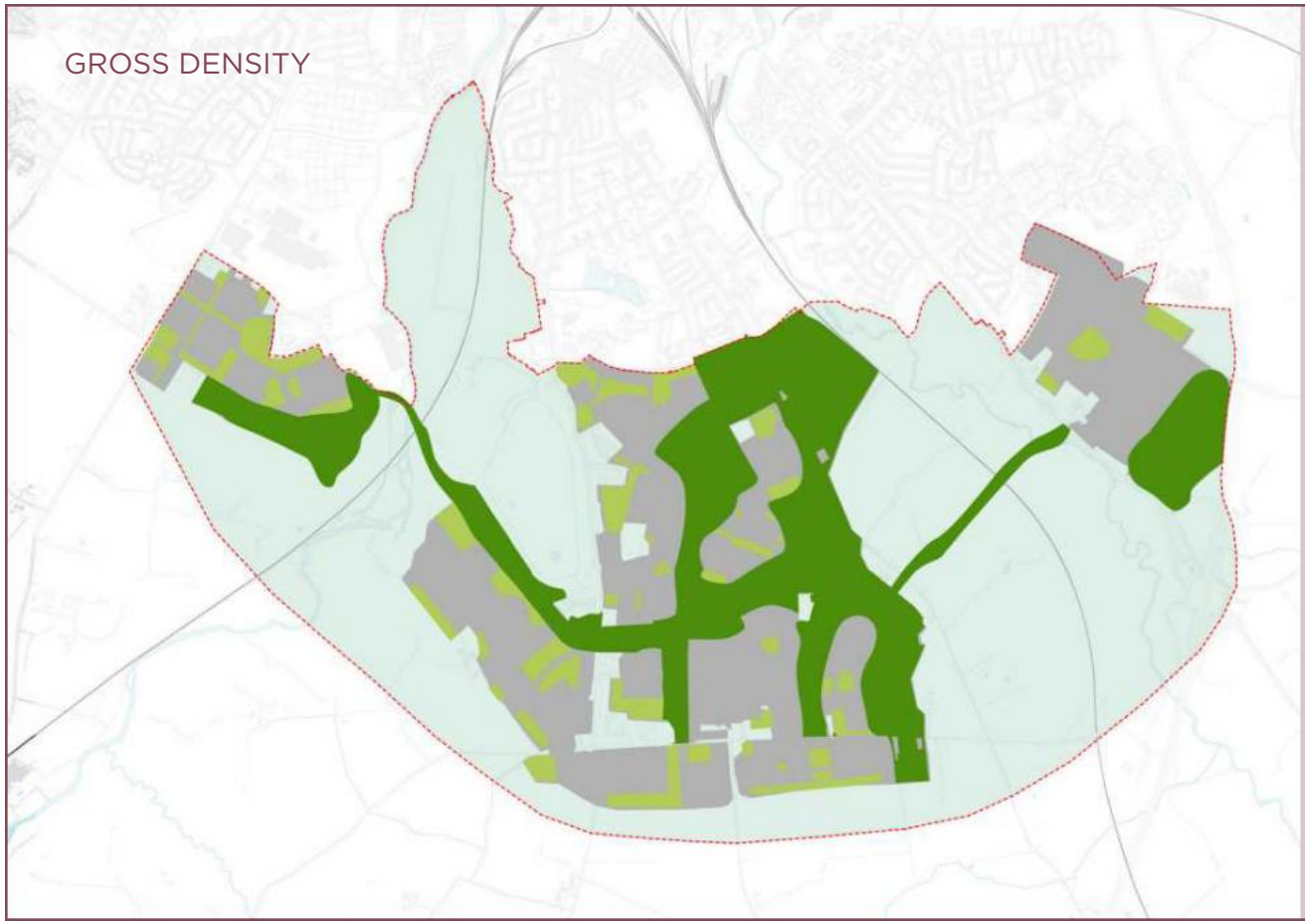
9. This will be a key area of the new development as it is the gateway to St Cuthbert's Garden Village from Carlisle. The green buffer that integrates the attenuation ponds along with the new areas of development framing the space and surrounding the new school will create this welcoming feeling of entering in the Garden Village.


DURDAR
Cammock Hill
River Petteril
River Caldew
Durdar Rd
DU.03
Neighbourhood centre
Durdar Racecourse
DU.02
Neighbourhood centre
Brisco
DU.02
District centre
DU.01
Neighbourhood centre
DU.02
Durdar
DU.02
CSLR
Local Centres
Key views
Green space
Character areas
Key landmarks
Small watercourses
0
250 m
500 m
1,000 m

# 2.4 / Density Approach

The Masterplan Framework for St Cuthbert's Garden Village deploys a range of residential densities and typologies to achieve distinctive and integrated communities. The following diagrams show the basis of assumptions relating to proposed average gross and net densities across the Garden Village.

Densities have been developed depending on the character of the different areas enhancing the identity. Further guidance can be found in the Design Guidance report.




St Cuthbert's Garden Village Gross Residential Density is calculated over a larger land area and includes the following:

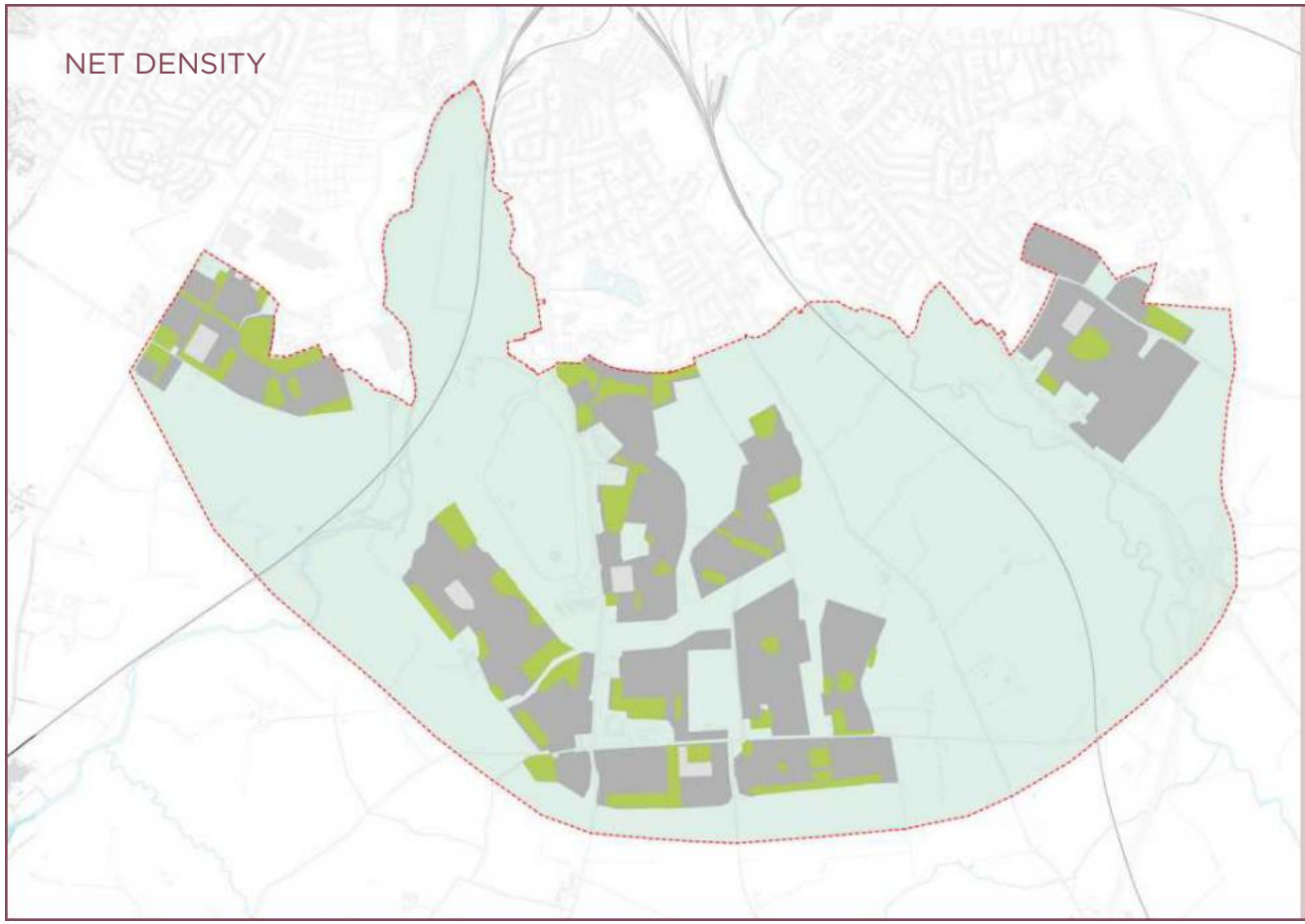
- All developed area
- Primary and secondary school sites
- Access roads
- Strategic open space
  *(Refers to the open space network whose location and preservation is key for the implementation of the proposed landscape concept and masterplan)*
- Structural open space
  *(Refers to the open space within built clusters that have an indicative location and could be modified during future design development stages)*

Strategic open space
Structural open space
Developed area

**18 dph**

Total: 573 ha

## NET DENSITY



St Cuthbert's Garden Village Net Residential Density is calculated over a more compact land area and includes the following:

- All developed area
- Structural open space
  *(Refers to the open space within built clusters that have an indicative location and could be modified during future design development stages)*

The land area used in the calculation excludes:

- Primary and secondary school sites
- Access roads
- Strategic open space
  *(Refers to the open space network whose location and preservation is key for the implementation of the proposed landscape concept and masterplan)*

Structural open space

Developed area

Total: 335 ha

**30 dph**

# 2.4 / Density Approach

The Masterplan Framework envisions a range of residential densities across the Garden Village that vary from 20-25 dph up to 35-40 dph. The range of densities also provide enough flexibility for the future implementation of the Garden Village.

The densities shown are indicative only and do not correspond to the net density applicable to a specific plot, but relate to the average net density of an area, including open spaces. In some areas therefore it is likely that development will exceed 40 dwellings per hectare. The average densities illustrated are an indication of how the overall shape of an area should be to create its own identity, building upon the existing local character, landscape and topography.

This range of density accommodates a variety of residential types and will offer a choice of living options for families, elderly people, young professionals, and other groups. The specific type and design will be deployed to suit the context and character of the area.

The precedents below illustrate how different average densities could look like and indicates how developments, especially around local centres, could have densities higher than 50dph and still create a rural character.

In Cummersdale, the densities are on average lower than elsewhere in the Garden Village. This directly responds to a number of factors including the character of the historic settlement of Cummersdale, and the importance of protecting views to the Lake District and ensuring strong integration with the local landscape. As development approaches the river valley, densities lower further, responding to the local topography and views.

In Carleton, the proposed densities again respond directly to the existing built form and landscape, with higher densities and more urban character within and surrounding the local centre, with lower densities as it moves outwards and connects with the wider rural context.

In Durdar, higher density development is focused in and around the local and neighbourhood centres to create a more urban character. There will be the greatest variety in densities across Durdar as the different neighbourhoods and development parcels respond directly to the green and blue corridors that run through the area as part of the existing local landscape and topography.

Whilst the proposed densities shown have been guided primarily be the landscape, topography and urban design principles of the Garden Village, it should also be noted that the viability work undertaken by Carlisle City Council in developing the Masterplan Framework has indicated that the lower average density dwellings are potentially more commercially viable/deliverable.

Further guidance on each of the village locations can be found in the Design Guidance report.

20 - 25 dph


*Fig. 01*

The Ridings Carlisle

30 -35 dph

*Fig. 02*

Abode Great Kneighton

40 - 45 dph

*Fig. 03*

Accordia Cambridge

50 dph

*Fig. 04*

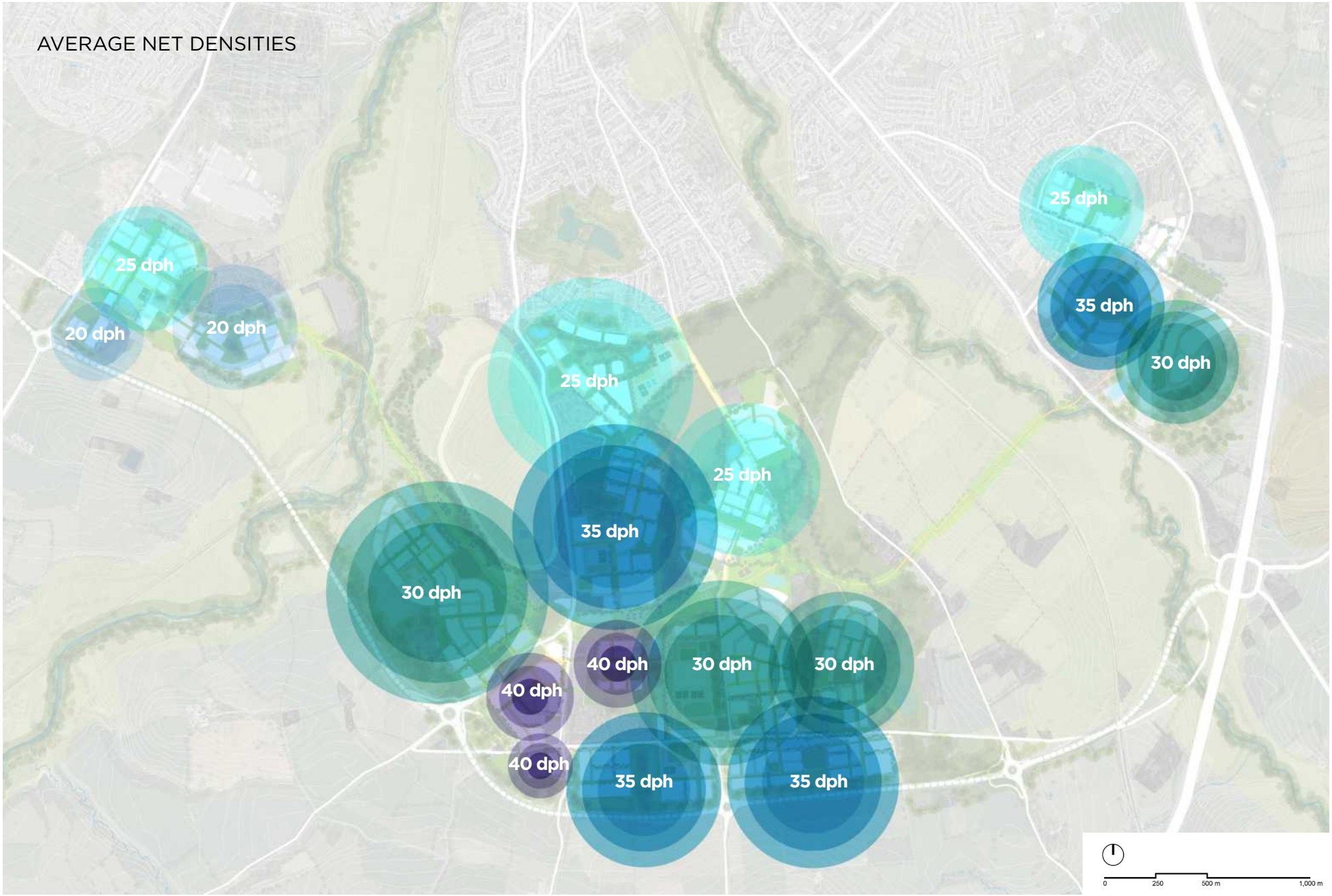
Newhall Be Harlow

> 50 dph

*Fig. 05*

Goldsmith Street Norwich

# AVERAGE NET DENSITIES



# 3 /

# Land Use Framework

This section illustrates the land uses distribution within the Masterplan, their quantums and qualities.

# 3.1 / Residential and Employment

Land Use Plan 01 provides an indicative distribution of the residential and employment development. It also highlights some areas with potential for mixed use.

### 1. Residential

Table 1 shows how the residential use will be distributed in the different villages and the average net densities suggested to create distinctive communities.

### Housing mix

The housing mix is an indication of the different typologies that would be built in the Garden Village with the ambition to be an inclusive development that will allow for various types of residents. The densities proposed reflect a number of considerations including design, integration with the locality and existing communities and viability, with lower density considered generally to be more viable.

### 2. Employment

It is important that places to work are provided in St Cuthbert's, as well as access to other places of work. To fit in with the Garden Village concept, the following locations and types of places for employment are proposed. The location of these areas are accessible to main transport nodes as well as being close to local centres.

### Typologies

There are mainly two typologies that have been proposed for the Garden Village:
- Small business park / employment hub: located in Durdar, next to main transport hubs and surrounded by residential clusters.
- Small office collaboration spaces / flexible office space and managed office spaces: located in the local centres. Additionally, it is contemplated that some groundfloors and some residential typologies could allow for workspaces to make the offer more diverse.

**Table 1: Residential**

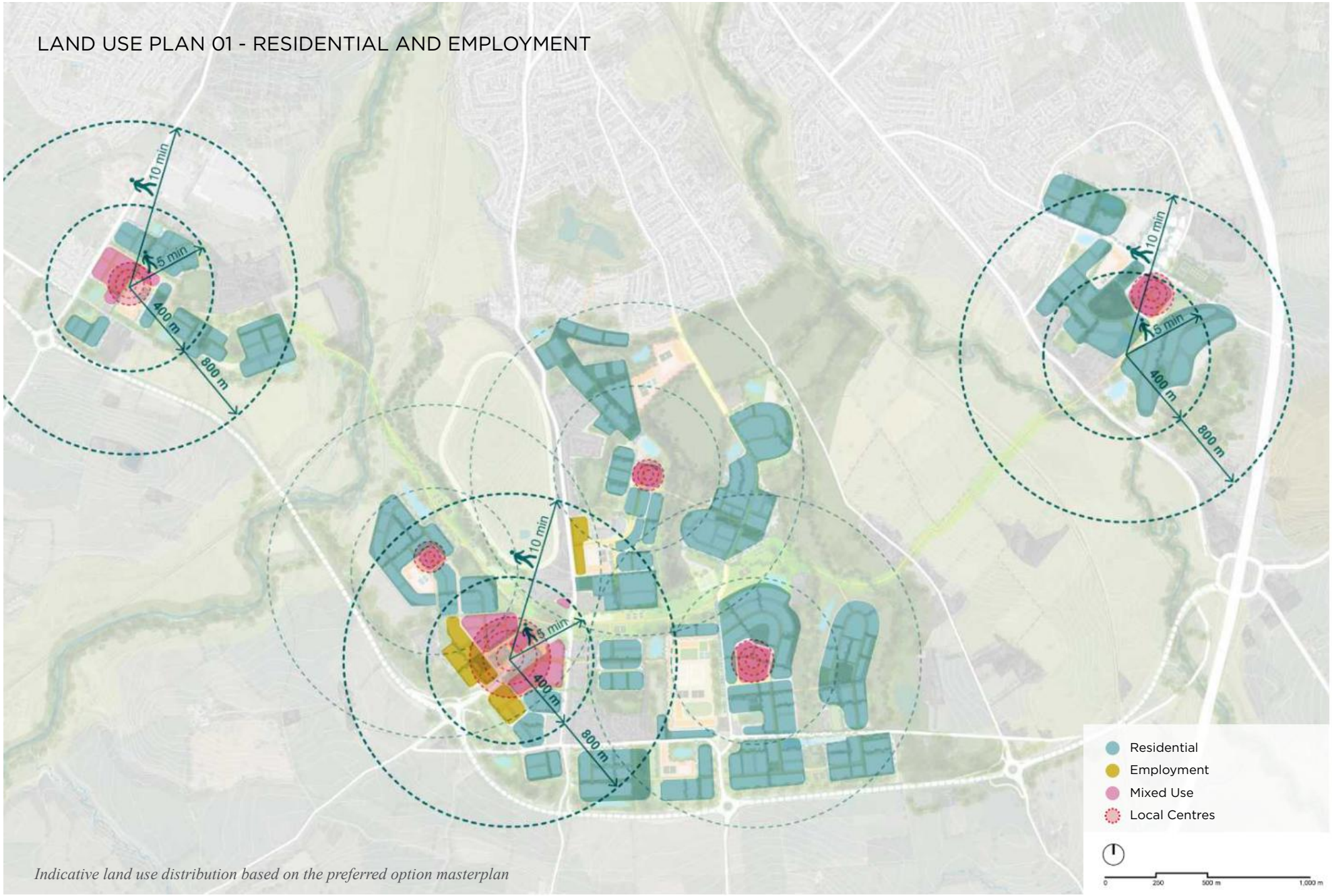
| *Overview* | | *Durdar* | *Carlisle Edge* | *Carleton* | *Cummersdale* | *Total* |
|---|---|---|---|---|---|---|
| *Residential* | Land take (HA) | 216 | 20 | 56 | 43 | **335** |
| | Average Density (DPH) | 32 | 25 | 30 | 22 | **30** |
| | Approx no. of Residential units | 7,150 | 500 | 1,700 | 975 | **10,325** |

| *Typology* | *1Bed* | *2Bed* | *3Bed* | *4Bed and +* |
|---|---|---|---|---|
| Indicative Housing mix | 5-20% | 30-45% | 25-45% | 5-20% |

**Table 2: Employment**

| *Overview* | | *Durdar* | *Carlisle Edge* | *Carleton* | *Cummersdale* | *Total* |
|---|---|---|---|---|---|---|
| *Employment* | Land take (HA) | 5 | | 0.5 | 0.5 | **6** |
| | Approx. built area (sqm) | 44,000 | - | 1,000 | 1,000 | **46,000** |
| | Typologies | 40,000 sqm offices<br>4,000 sqm office collaboration spaces | - | 1,000 sqm flexible office space | 1,000 sqm managed office space | |

# LAND USE PLAN 01 - RESIDENTIAL AND EMPLOYMENT




*Indicative land use distribution based on the preferred option masterplan*

# 3.1 / Residential and Employment

The following pages illustrates possible typologies both residential and employment that could inspire St Cuthbert's Garden Village.

Although the Masterplan Framework does not define the appearance and architectural palette of the buildings, it is expected that the qualities of the new buildings in the Garden Village will enhance the identity complementing the rural setting.

St Cuthbert's Garden Village brings a fantastic opportunity to explore how the unique qualities of its landscape can promote new ways of living and working with closer contact to nature.

It is also recognised that there is an increasing desire for homeworking, a trend which has been accelerated by the Covid-19 pandemic. As detailed design evolves, it will be important that residential typologies allow for the inclusion of workspace in addition to locally managed communal spaces. St Cuthbert's Garden Village, and the principles around open space provide a unique opportunity to embed flexibility for future homeworking and encourage the provision of shared meeting/office spaces, particularly in Durdar, the largest of the local centres. The Garden Village will attract those seeking a change in lifestyle through the provision in live/work units in walkable neighbourhoods and attractive locations allowing companies and employees to thrive.

*Fig. 06, Viken, SE*

*Fig. 07 - 08, Abode Great Kneighton, Cambridge, UK*

*Fig. 09 Newhall Be, Harlow, UK*

*Fig. 10 Goldsmith Street, Norwich, UK*

*Fig. 11 Accordia, Cambridge, UK*

*Fig. 12 Accordia, Cambridge, UK*

*Fig. 13 Ely Court, London, UK*

# 3.1 / Residential and Employment

The design of employment uses will vary significantly but must always reflect the landscape and townscape in which they sit.

*Fig. 14 Wellcome Genome Campus, Hinxton, UK*

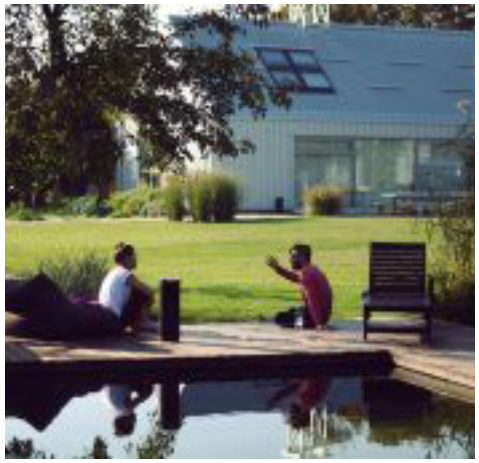


*Fig. 15 - 16, Mokrin House of Ideas, Mokrin, RS*

*Fig. 17 - 18, Glove Factory Studios, Bradford-on-Avon, UK*

*Fig. 19 University Building, Perpignan, FR*

*Fig. 20 Offices on groundfloors, Stockholm, SE*

*Fig.21 Mixed typology, Newhall B, Harlow, UK*

# 3.2 / Open Space Provision

The provision of high quality and accessible open space is fundamental to the successful delivery of the Garden Village. Guided by the principles of Fields in Trust (FIT), the Masterplan Framework identifies a series of open space typologies for St Cuthbert's to ensure that everyone will have ease of access to high quality spaces for sport and recreation. Land Use Plan 02 provides the indicative open space distribution for the Framework Masterplan.

The strategic open spaces of the development could potentially gain Local Green Space designation as part of the future St Cuthbert's Local Plan. This would embed them in the community for the long term and provide a degree of protection, particularly for the strategic open space between the southern Carlisle boundary and the development.

Table 3 provides an overview of the proposed open space provision, based on the Garden Village having a population of approximately 23,000 people.

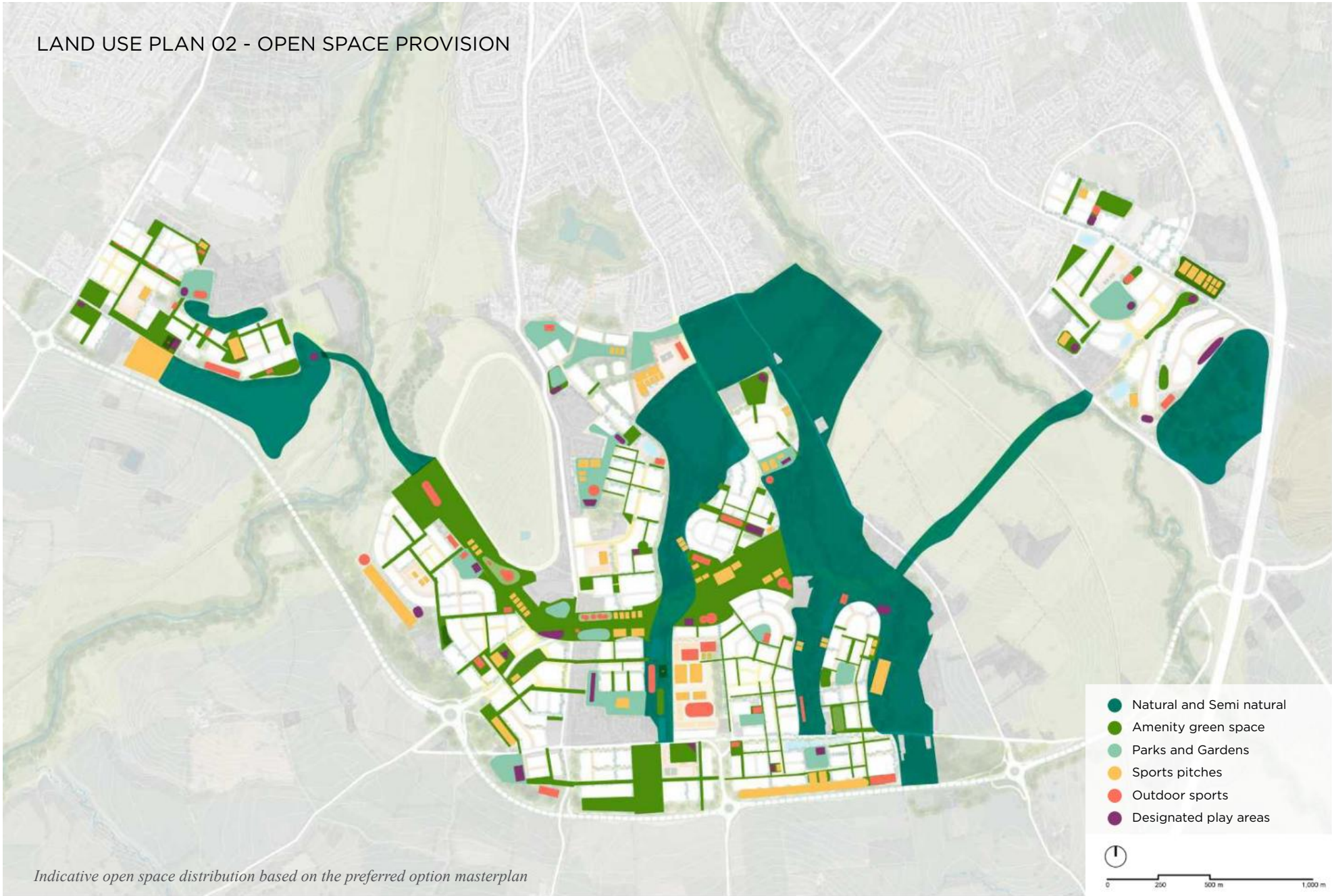
Further detail relating to the Green and Blue Infrastructure Framework is provided in section 4.

**Table 3: Open Space provision**

| *Open space type* | *Area recommended (ha)* | *Area proposed (ha)* | *Average distance from dwellings (m)* |
|---|---|---|---|
| Playing pitches (football, rugby, hockey) | 27.75 | 27.75 | 1,200 |
| Other outdoor sports (athletics, tennis) | 9.25 | 10 | 1,200 |
| Other outdoor provision (MUGAs, skate parks) | 6.94 | 7 | 700 |
| Designated play areas | 5.78 | 6.5 | 100 |
| Parks and Gardens | 18.5 | 21.5 | 710 |
| Amenity green space | 13.88 | 15 | 480 |
| Natural and Semi-natural | 41.63 | 188 | 720 |
| TOTAL | **123.73** | **225** | **-** |

** Estimated population of 23,000. Quantity guidelines should not be interpreted as either a maximum or minimum level of provision; rather they are benchmark standards that can be adjusted to take account of local circumstances.*

# LAND USE PLAN 02 - OPEN SPACE PROVISION




*Indicative open space distribution based on the preferred option masterplan*

# 3.2 / Open Space Provision

The following pages show some illustrations and definitions and functions of the main categories of green spaces that will be provided in St Cuthbert's Garden Village following the Fields in Trust Guidance:

### Natural and Semi natural green space

Definition: Woodland, scrub, grassland, wetlands, open and running water, and open access land.

*Fig. 22*

*Fig. 23*

### Parks and Gardens

Definition: Formal green spaces including urban parks, country park.

*Fig. 24*

### Amenity Green Space

Definition: Informal recreation spaces, communal green spaces in and around housing, and village greens

*Fig. 25*

*Fig. 26*

## Play designated Areas

Definition: Designated areas for children and young people containing a range of facilities and an environment that has been designed to provide focused opportunities for outdoor play comprising casual or informal playing space within housing areas.

*Fig. 27*

*Fig. 28*

## Sports fields

Definition: Pitch sports including soccer, rugby union, rugby league, hockey, lacrosse or cricket.

*Fig. 29*

## Other Sports provision

Definition: Courts and greens comprising natural or artificial surfaces, including tennis courts, bowling greens, athletics tracks and other outdoor sports areas

*Fig. 30*

*Fig. 31*

# 3.3 / Social Infrastructure and Local Centres

For the communities in the Garden Village to work, it will be essential that they have access to the right social infrastructure such as schools, leisure facilities and healthcare. Land Use Plan 03 and Table 4 provide an indication of the amount and location of the social infrastructure required.

Social infrastructure will be distributed across the Gardev Village with a focus upon the local centres as set out in Table 4. . Durdar incorporates the Garden Village's district centre along with three smaller neighbourhood centres. Carleton and Cummersdale also have their own local centres, proportionate to the catchments they will serve.

The local centres are distributed such that they are within 5-10 min walk of all Garden Village residents. In addition to the social infrastructure it is likely that additional services such as retail and employment uses will be present in the local centres.

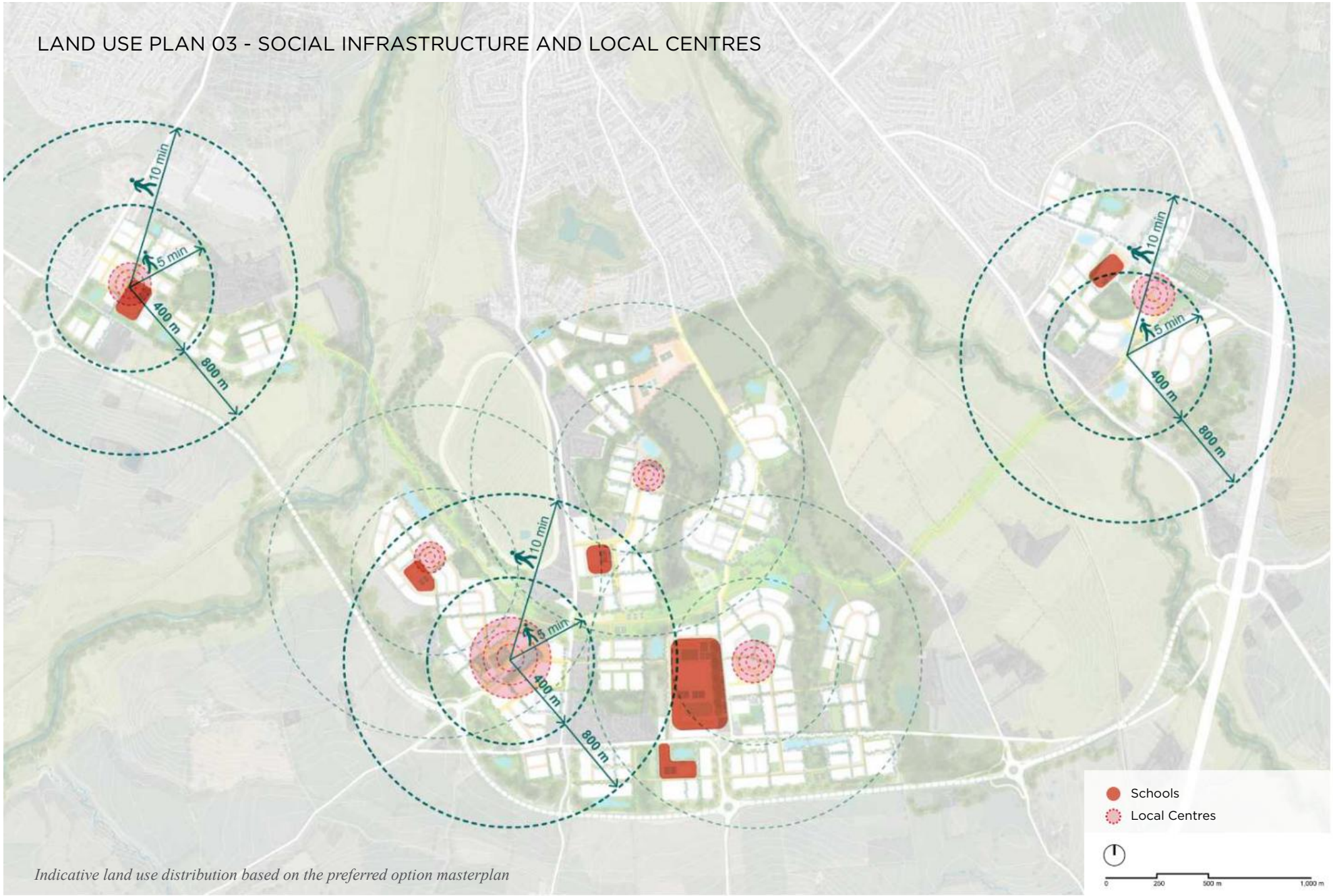
Community facilities include spaces for communities to meet and undertake various activities. This could be a facility such as a village hall. The number of General Practitioners' practices has been calculated based on the average number of patients per practice in North Cumbria. Further details on the calculations for community facilities can be found in the infrastructure schedule.

The Council will need to update employment, retail, leisure and social infrastructure evidence bases as the Local Plan and future proposals for delivery progress.

**Table 4: Social Infrastructure**

| *Overview* | | *Durdar* | *Carleton* | *Cummersdale* | *Total* |
|---|---|---|---|---|---|
| *Education* | Primary schools (equivalent) | 3no. 2FE / 6 ha | 1no. 1FE / 1 ha | 1no. 1FE / 1 ha | **5** |
| | Secondary schools | 1no. 10 FE / 10.5 ha | - | - | **1** |
| *Community Facilities* | Health- General Practitioners Practices | 3 units | | | **3** |
| | Emergency Services | 3 units | | | **3** |
| | Community Facilities | 1 community centre / hub | | | **1** |
| | Cemetery | 1 unit | | | **1** |

# LAND USE PLAN 03 - SOCIAL INFRASTRUCTURE AND LOCAL CENTRES

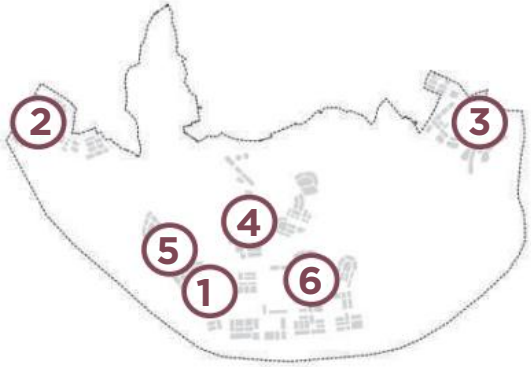



*Indicative land use distribution based on the preferred option masterplan*

# 3.3 / Social Infrastructure and Local Centres

The following illustrative plans show an indicative distribution of local facilities in the local centres of the Garden Village. The new local centres will be in line with the following hierarchy:

- Durdar (1) - district centre
- Cummersdale and Carleton (2 and 3)– local centres
- Durdar (4,5 and 6) – neighbourhood centres

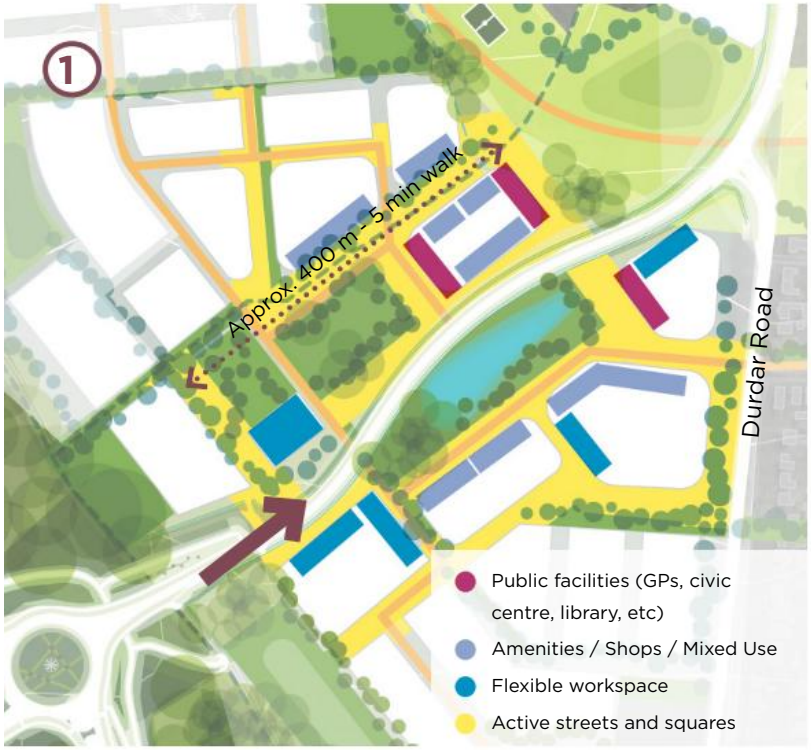



## Durdar

Durdar will have the largest centre within the Garden Village, supported by smaller neighbourhood centres. The district centre will not just serve the new developments within Durdar, but will also attract visits from the wider Garden Village communities and beyond. It will have a key role in bringing together and creating an identity or the St Cuthbert's Garden Village as well as providing access to a wide range of social, leisure, amenity and employment facilities including both primary and secondary schools.

Durdar district centre sits at the heart of the Garden Village and the Greenway is a fundamental placemaking feature in this location, providing a key space for interaction and community facilities as well as connections to wider communities. It also has the potential to be a key central feature of St Cuthbert's as a whole. The district centre also acts as a key node and gateway into the Garden Village from the south and the Carlisle Southern Relief Road whereby it will be essential that detailed design considers the role of frontages and landmark features to frame this space. The frontage of Durdar centre will be in part located along the CSLR spur road. The design of this linkage will need to promote access but provide appropriate screening from the CSLR.

Durdar neighbourhood centres (4,5,6):
These smaller centres will provide access to daily needs for the adjacent communities.



## Cummersdale

Cummersdale Local Centre will serve the new residents of the Cummersdale Garden Village community, the existing residents of Cummersdale and the residents in existing and future housing developments to the west of Dalston Road. This will both create the critical mass for the proposed social infrastructure and promote opportunities for social interaction and cohesion between the different neighbourhoods and communities.

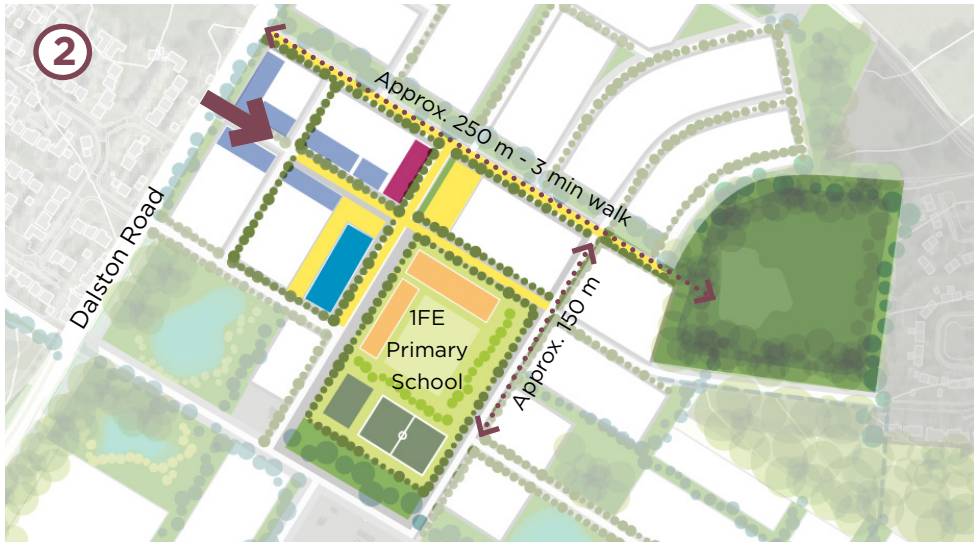
The local centre sits in an accessible location, being within a walkable distance from both new development and the existing Cummersdale village. It includes a park at its heart, a key placemaking feature and gathering space for new and existing residents.

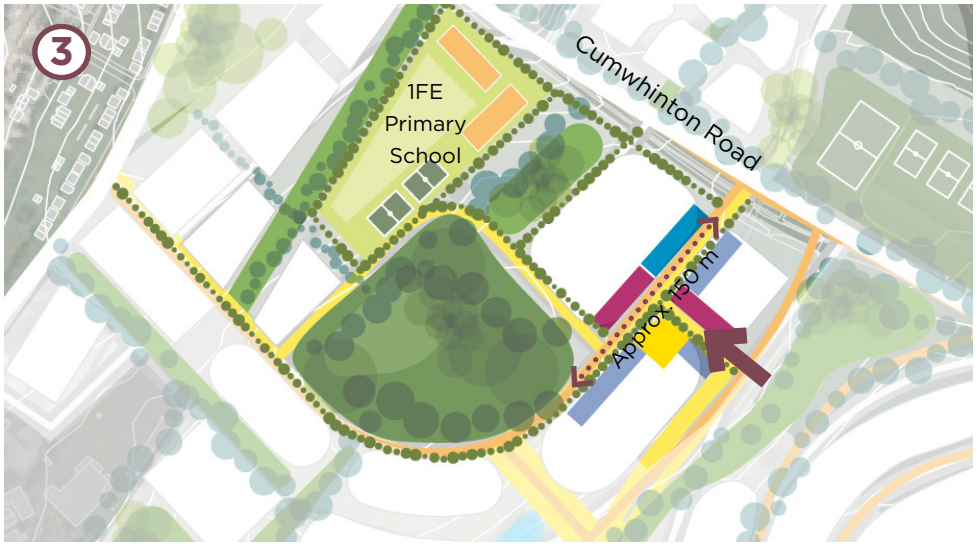
The main street of this local centre connects to and has the potential for frontage onto Dalston Road. This creates opportunity for growth of the local centre and to maximise visibility with well-designed frontages and a landmark, promoting connectivity between communities.

## Carleton

Carleton Local Centre will serve the new residents of the Carleton Garden Village community, the existing Carleton village and the neighbourhoods in the existing adjoining residential areas of Carlisle. It will include a variety of leisure and social facilities to bring together and enhance social cohesion among the different communities. Whilst the location of the primary school as shown is indicative, it is important that it is fully integrated within the local centre.

As with all the local centres, the 'Start with the Park' principle will see that a park is at the centre of the new development at Carleton, surrounded by key community facilities such as the proposed primary school public facilities and amenities. The main streets of this local centre connect to Cumwhinton Drive and provide easy access to the A6.



# 4 /

# Green and Blue Infrastructure Framework

This section sets out the approach to be taken to landscape, ecology and drainage across the garden village to ensure that future development is underpinned and defined by its green and blue infrastructure.

# 4.1 / Introduction

The Garden Village concept is one that recognises the unique benefits of green space and the connections between them to establish a distinct sense of identity. A green and blue infrastructure approach extends this understanding, utilising natural solutions to build resilience and address city wide issues of climate change, flood, drought and pollution.

By positively using nature, St Cuthbert's will create a linked ecosystem, encompassing parks, streets, residential spaces, woodlands, fields and waterways, in turn promoting a healthy, biodiverse and socially cohesive environment, whilst providing essential engineering functions.

From large scale strategic establishment of a St Cuthbert's Greenway, to small scale enrichments through extended hedgerows, St Cuthbert's provides the opportunity to demonstrate how a Garden Village has a wider custodian role; to enhance the ecological function of an area and to support the community and wildlife that inhabit and surround it.

Hedgerows and trees will play a vital role in creating green links across the Garden Village and wherever possible be retained. Whilst ecological surveys will reveal specific species and habitats to be preserved and supported across site, the masterplan will seek to move beyond this, creating areas such as wetlands which are not currently present, but which would be valuable additions.

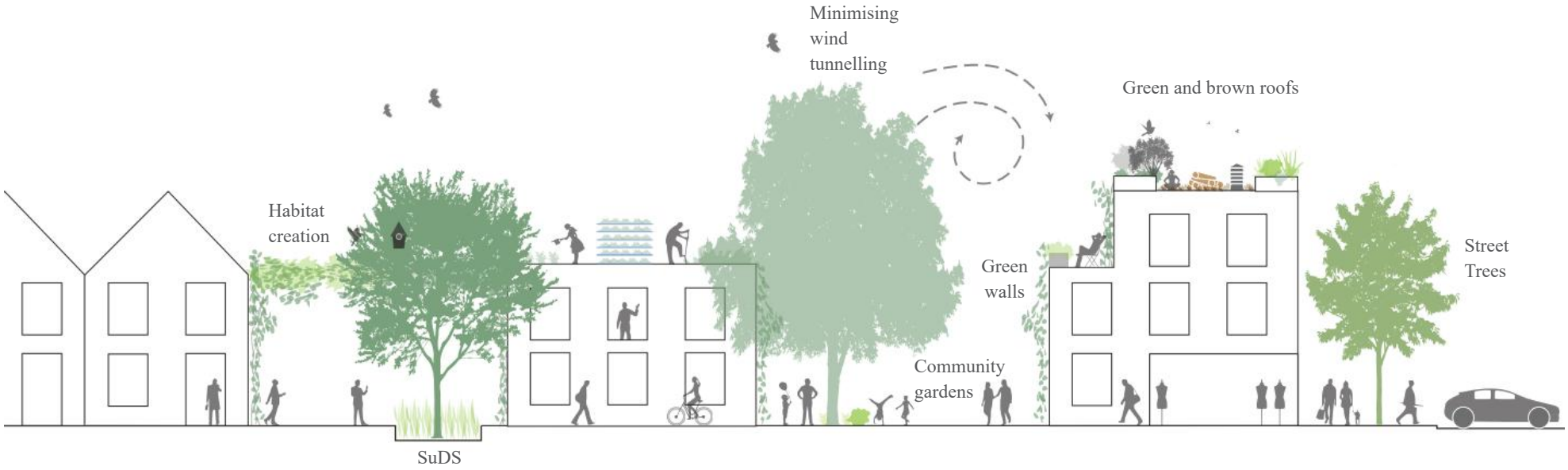
The Strategic Open Space that the Masterplan Framework defines plays a crucial role in mitigating against flooding, climate change and ensuring the development establishes a biodiversity net gain. This zone will additionally preserve the rural character of the settlements, allowing close access to the countryside for all residents and serving as a green buffer which will conserve this space between the City and the Garden Village for the future.

*Fig. 32 Queen Elizabeth Olympic park where green infrastructure was the driver of a large scale development with proven success years later.*

*Fig. 33 Vauban, Freiburg. Softened edges between public and private keep a continuous green buffer through residential areas.*

*Fig. 34 Small spaces that create opportunities for shelter, nesting and foraging can be provided across the site and form part of a holistic green infrastructure strategy.*

## Multilayered and integrated green infrastructure




*Green infrastructure should be combined across multiple scales to increase the benefits that can be achieved. Opportunities for green infrastructure to be incorporated at building and street level can tie into wider strategic green infrastructure network to improve biodiversity and habitat connectivity. This also offers benefits associated with tackling climate change such as providing shading and air cooling as well as reducing surface water run-off and increasing access to nature.*

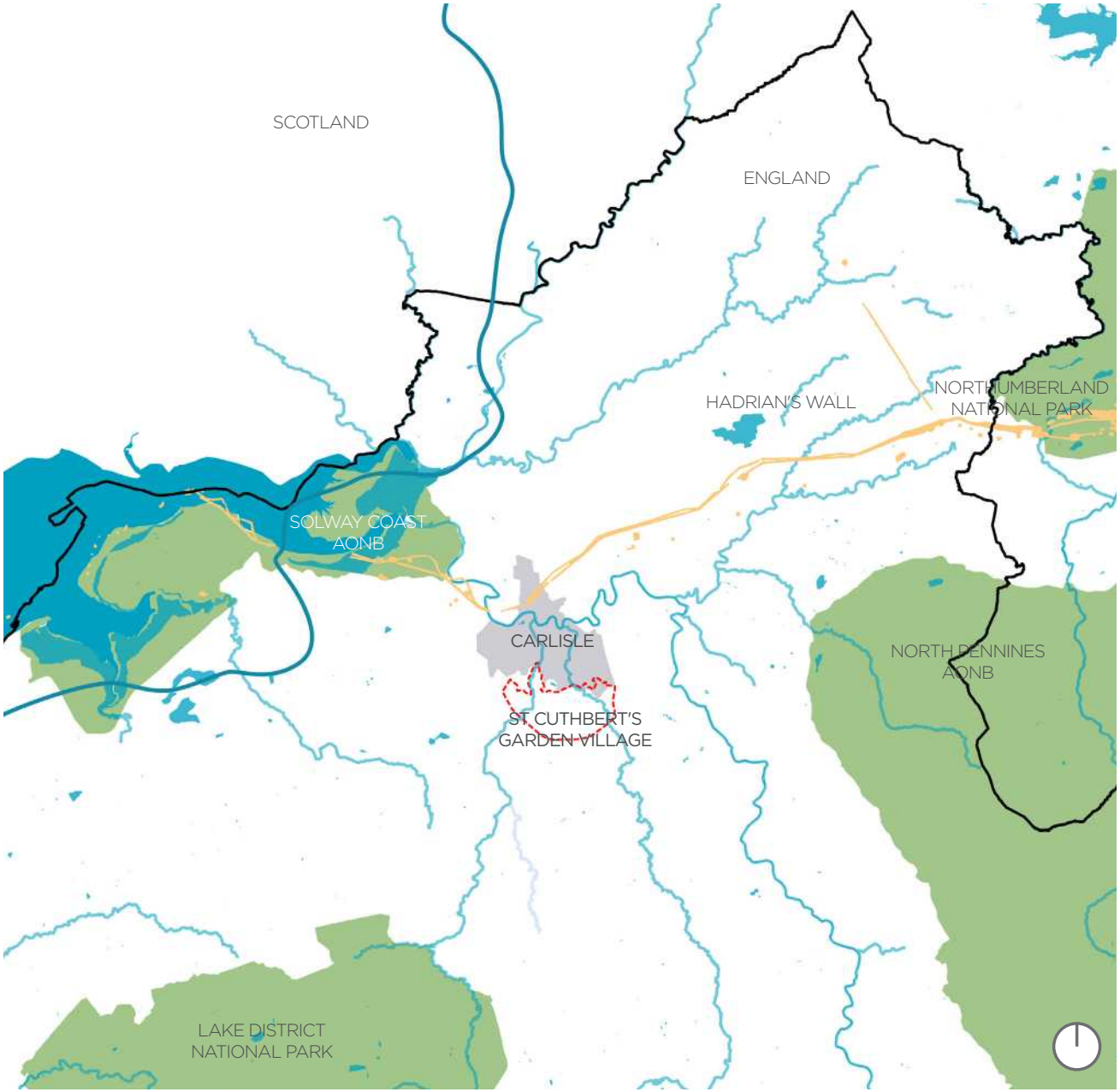
# 4.2 / Context

## Wider Context

The Garden Village is located within close proximity to a series of great natural landscapes including the Solway Coast Area of Outstanding Natural Beauty (AONB), the Lake District National Park (UNESCO World Heritage Site), Hadrian's Wall, the North Pennines AONB, Northumberland National Park and the Scottish Borders.

Located adjacent the southern edge of Carlisle City, the Garden Village has the opportunity to provide greater connection between the City and the wider natural landscape, through the use of quality green infrastructure to bridge the gap between the City's urban centre and rural surrounding.

The Garden Village can contribute to achieving the ambition of the Carlisle Green Infrastructure Strategy (CGIS) 2011, which set out principles of growth for the City whilst responding to the it's unique setting. One of the key aims of the CGIS was to reframe the City as a gateway to these great surrounding natural landscapes, harnessing the existing green infrastructure that is in place. The Garden Village masterplan capitalises on this, demonstrating how new development can protect surrounding green infrastructure, improve access to landscapes and highlighting the unique context that it sits within.




*St Cuthberts in the wider landscape context*

## Principles

The Green and Blue Infrastructure strategy reinforces three of the nine core principles of St Cuthbert's Garden Village as defined in Stage 1:

### 'Start with the park'

The landscape will seek to create a comprehensive blue and green infrastructure network. Working to retain and enrich existing assets including hedgerows, woodlands natural drainage channels, the landscape will aim for a environmental net gain. Ecological connections along and between the river valleys of the Caldew and Petteril will be reinforced.

A comprehensive SuDS plan will incorporate a dynamic, flood resilient landscape that attenuates and filters water, and planting will be selected to reflect the Cumbrian context whilst improving climate resilience. The landscape design will work to retain existing views, and access to places of interest, responding sensitively to the character of the area and maintaining a sense of connection to the wider rural landscape.

### Healthy environments

St Cuthbert's Garden Village will take every opportunity to enable healthy lifestyles for its residents and neighbouring communities. By creating appealing, safe green routes between the City and country and across the settlement, active travel for commuting and recreation will be encouraged. Streets will be human scaled and comfortable to walk, away from air pollution and traffic noise with a focus on routes to schools and community facilities.

There will be generous provisions for a wide variety of sports, leisure and recreation, catering to all ages and abilities. The landscape will maximise meeting points and places for social interaction. Food production will play a central role in the landscape strategy, enabling residents to take ownership of this area of health as well as providing a focus for community cohesion.

### Community focused

Stewardship and co-creation are essential to the foundation of community focused design. Creating opportunities for shared tending and development of community assets will enhance a sense of ownership and engagement within the villages.

The landscape design will endeavour to enhance local character and distinctiveness, allowing for varying characters across the three centres. Working sensitively in relation to the existing communities, the development is an opportunity to employ those in the region and to celebrate the skills, crafts and materials of the area. Local employment opportunities and locally sourced materials and services are key to a community embedded design.

# 4.3 / Green and Blue Infrastructure Framework

The Green and Blue Infrastructure Framework provides a multifunctional, ecologically rich, connected landscape that enhances and celebrates the existing character and assets of the area. The landscape will support healthy living, providing opportunities for active travel, recreation and culture, centred around inclusive community involvement and stewardship at its core.

Taking an eco-centric approach, the development will work towards a minimum of 10% biodiversity net gain and will maximise the retention and enhancement of existing habitats. The use of green infrastructure will ensure that the Garden Village is resilient to climate change and allow for sustainable growth.

This will allow for its evolution as a low carbon community, providing opportunities to attract investment for social and economic return through tourism and other investment streams. North-south and east-west connections will be reinforced and two main nodes will offer opportunities for enhanced access and activation.

**Focus areas**

The strategy can be broken down into six areas of focus, which are detailed through this section:

1) Sustainable Drainage Solutions

2) Heritage Assets and Character

3) Strategic Planting

4) Accessibility

4) Ecology

5) Food Production

# GREEN AND BLUE INFRASTRUCTURE FRAMEWORK

# 4.3.1 / Focus 1: Sustainable Drainage Solutions

A major influence in the design and layout of the Masterplan Framework has been understanding flood risk and embracing the existing water resources and blue corridors within the site. Our approach throughout has been to replicate the existing site catchments, preventing any increases in flooding downstream and making use of Sustainable Urban Drainage Systems (SuDs).

### Objectives

- Align the development to a SuDS hierarchy
- Work with natural process
- Design a performative landscape that contributes to flood attenuation and resilience
- Create multi-functional spaces incorporating SuDS at small and large scale
- Plant species for phytoremediation and filtration
- Plant trees and hedgerows to mitigate flooding and soil erosion

SuDS manage surface water runoff, flooding and potential pollution close to its source whilst also providing protection of our water resources. In consideration of SuDS, surface water should be controlled, treated and then disposed of by either a combination of infiltration, evaporation and controlled discharge into watercourses or lastly drainage systems.

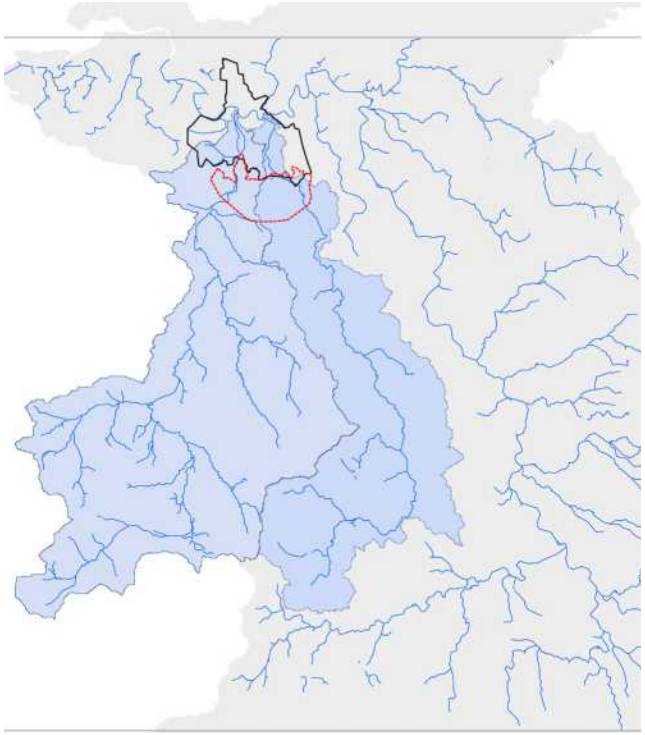
In addition to flood management and increased resilience, SuDS also provide an opportunity to deliver multiple sustainable benefits, related to broader quality of life indicators. The additional benefits include bio-diversity, improvements in air quality, reduction in potable water usage, human connection with the water environment and reduction in energy consumption.

The drainage strategy fundamentally focuses on the benefits, and therefore incorporation, of at-source SuDS. To reinforce the use of appropriate SuDS, a SuDS matrix provides a shopping list of solutions and ranks their suitability. In addition, a drainage hierarchy for the site is proposed that developers should follow in designing drainage. This prioritises the use of building features which reduce the volume and rate of run-off through systems such as water recycling, harvesting and green/blue roofs. The next approach is to soft landscaping features, followed by hard landscaping features. Below ground features such as tanks etc are not encouraged and should only be used where other features are not applicable.

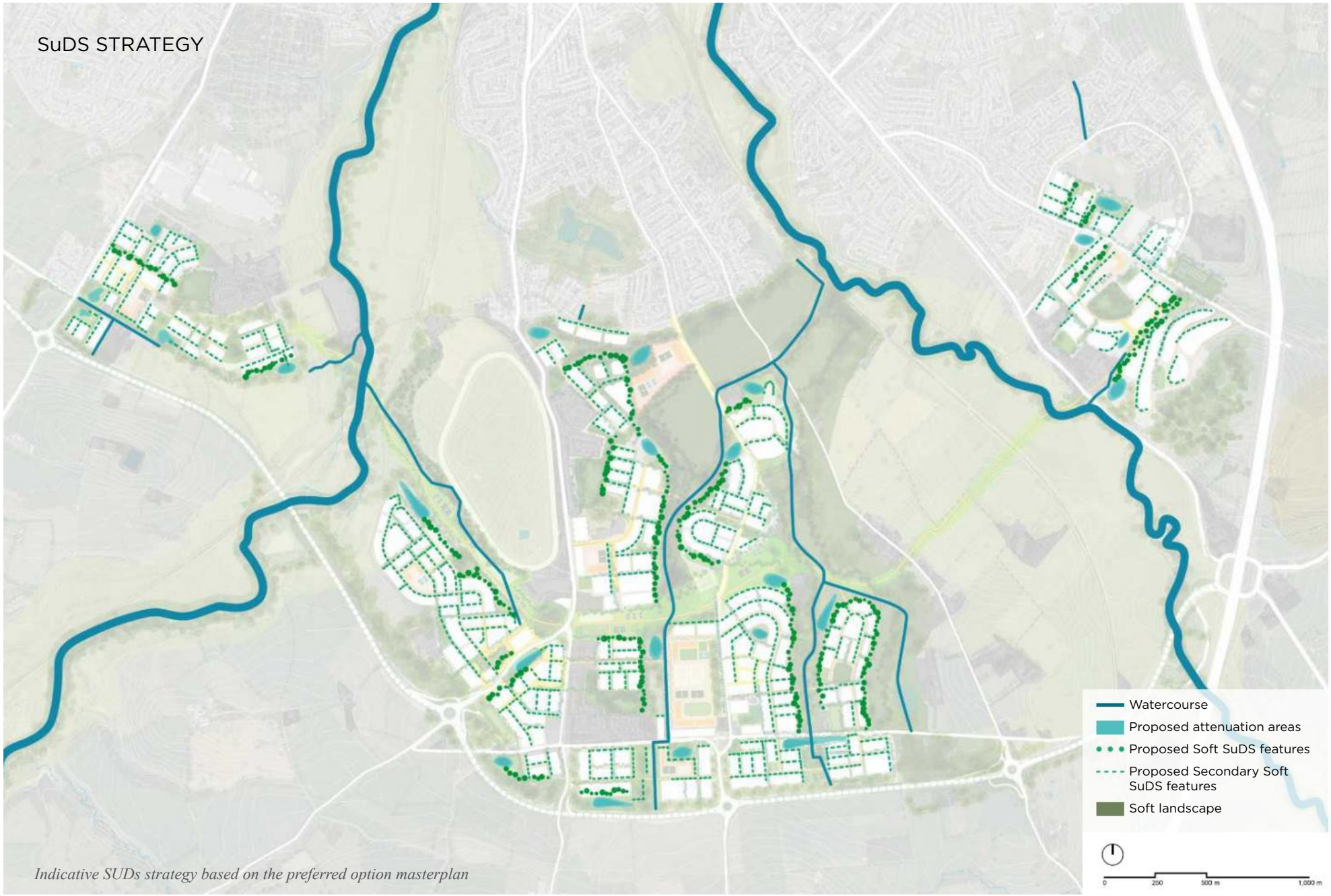
This hierarchy is also shown diagrammatically, and also includes a more traditional approach of 'downstream' attenuation areas. However, these are only shown to demonstrate robust spatial planning of the masterplan and it is not intended for these to be incorporated as a matter of course, ie they are very much a 'last resort' solution.

The location and detail design of SuDS will be dependent on a number of factors such as ground conditions (contamination, infiltration rate, ground water level), public usage and local habitats.

In addition to SuDS 'at source', through the semi-natural areas, strategic planting with hedgerows and trees will perform an important natural flood management function by intercepting rainfall, slowing run off and increasing infiltration. The steep valley slopes will be key areas to plant hedging along with woodland to both stabilise the soil and to intercept run off before reaching the waterways.



*The Caldew and Petteril catchments within the wider Eden Valley Catchment*




*Indicative SUDs strategy based on the preferred option masterplan*

## SuDS Hierarchy

The following table provides a summary of available SuDS and assesses their suitability for inclusion within the St Cuthbert's Garden Village development.

The suitability of each of the SuDS is reviewed in the Matrix and will be dependent on location, topography and catchment size. The design of each plot should assess the suitability of SuDS types on a site by site basis, following the hierarchy:

1. Water re-use
2. Soft landscaping features – where possible using infiltration
3. Hard landscape features
4. Below-ground features

Source control measures to reduce the volume and rate of run-off are to be incorporated during design development of the plots. Consideration should be given towards SuDS such as green/blue roofs, permeable paving, rain gardens and infiltration trenches. Finally, opportunities for water reuse should be reviewed on a plot by plot basis.

Where larger areas of soft landscaping are introduced and appropriately located, rain gardens, ponds, wetlands, and areas for bio retention should be considered as part of the downstream landscaping strategy.

## Proposed storm water attenuation

The drainage strategy has calculated the approximate volume of attenuation required to restrict the post development discharge to the existing green field rates.

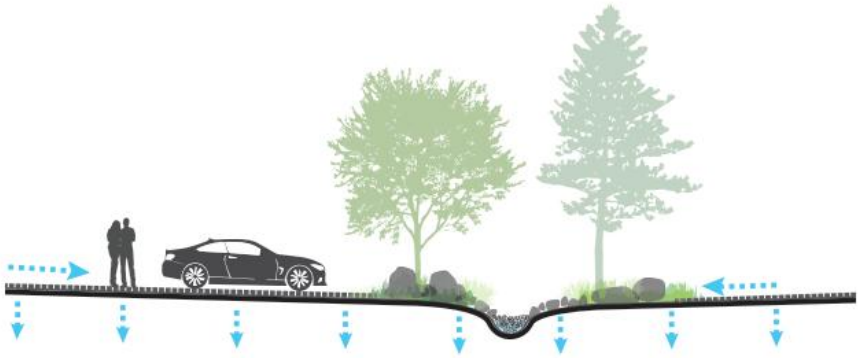
These calculations have included a 40% increase in rainfall due to climate change in line with Climate Change Peak Rainfall Intensity Allowances.

The basins and ponds that have been shown on the masterplan have been based on all attenuation being provided downstream however this storage should be distributed the SuDS features throughout the site. This is a conservative approach to ensure sufficient space is safeguarded down steam and allows flexibility for possible increase to the impermeable areas or for climate change allowances.

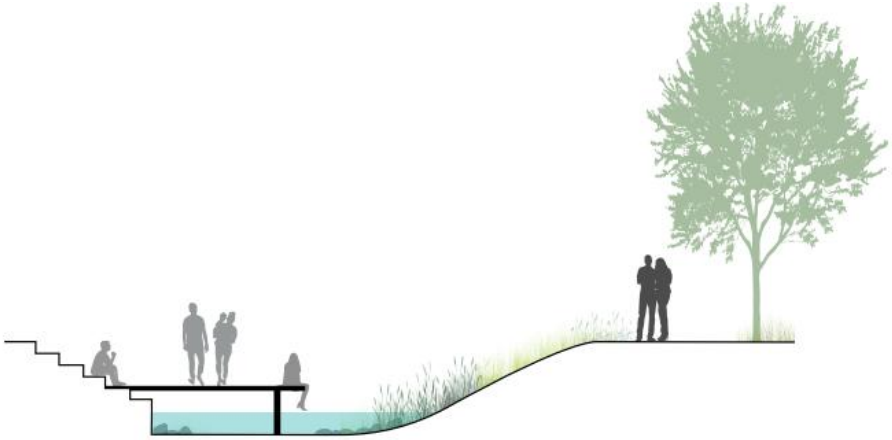
| Suitability: High / Medium / Low | Grey Water Recycling | Rain Water Harvesting | Blue Roof | Green Roof | Infiltration Trenches | Bio-Retention | Rain Gardens | Bioswale | Detention Basins | Ponds / Wetlands | Porous Pavements | Hydro-Dynamic Separators (HDS) | Kerb Drain, Rills and Channels | Storage Tank | Geocelular Tank |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Suitability for SCGV (Off-Plot) | Low | Low | Low | Low | Medium | Medium | Medium | Medium | Medium | Medium | Medium | Low | High | High | High |
| Suitability for SCGV (On-Plot) | Medium | Medium | Medium | Medium | Medium | High | High | Medium | Medium | Low | High | High | High | High | High |
| Cost | Medium | Medium | Medium | Low | High | High | High | High | High | Low | Medium | Low | High | Low | Low |
| Limited Space | Medium | Medium | High | High | High | Low | High | Medium | Low | Low | High | High | High | Low | Medium |
| Water Quality | Medium | Low | Low | High | High | High | High | Low | Low | High | Medium | High | Low | Low | Medium |
| Reduce Runoff | Medium | Medium | High | High | Medium | High | Medium | Medium | High | High | Medium | Low | Low | High | High |
| Storage | Low | Low | High | High | Low | Low | Low | Low | High | High | Low | Low | Low | High | High |
| Maintenance | Medium | Medium | Medium | Medium | High | Medium | Medium | High | Low | High | Medium | Low | High | High | High |
| Aesthetic Value | / | / | / | High | Medium | High | High | Medium | High | High | Medium | / | High | / | / |
| Adoptable by United Utilities | / | / | / | / | High | / | / | High | High | High | / | Low | / | High | High |
| Adoptable by Highways | / | / | / | / | High | High | Low | Medium | High | Medium | Low | Low | Medium | High | High |
| Adoptable by CCC (where in CC land) | / | / | / | / | High | High | High | High | High | High | High | Low | High | High | High |
| Maintainable by Plot Owners | High | High | High | High | High | High | High | High | High | High | High | High | High | High | High |
| Maintainable by a Maintenance Contractor | High | High | High | High | High | High | High | High | High | High | High | High | High | High | High |

*SuDS Matrix*

## Soft Landscaping SuDS Examples



*Small scale: Swale and permeable paving within a car parking area*



*Medium scale: Attenuation feature integrated into the landscape*

*Large scale: Detention basin within a park*

*Fig. 35 Multi functional SuDS areas at the Brooklyn Botanic Garden.*


*Fig. 36 Grangetown, Cardiff, where a neighbourhood has transformed parking spaces and pavements to attractive and functional SuDS features.*


*Fig. 37 University of British Columbia Vancouver Campus*

*Fig. 38 Green Park, Reading*


*Fig. 39 University of British Columbia Vancouver Campus*

*Fig. 40 St Jacques Ecological Park*

*Fig. 41 The attenuating pond at Sutcliffe Park, London. A park focal point which provides an ecological habitat whilst managing water from the nearby development.*

*Fig. 42 Lilac Grove, Leeds. Shared green spaces between houses serve as natural filter and storage tanks for water reuse.*

*Fig. 43 Bluffers Park Wet Pond, Toronto*

*Fig. 44 Bill and Melinda Gates Foundation*

# 4.3.2 / Focus 2: Heritage Assets and Character

The green and blue infrastructure network will build sensitively upon the existing character of the landscape and tie into the wider assets within the area, in order to maintain and enhance a sense of identity.

### Objectives

- Retain and create views. Both far, to the Lake District and Pennines but also locally, to the valleys, woodlands and across low open farmland
- Maintain and enhance access to heritage and cultural assets within and outside the Garden Village eg. archaeological findings at Cummersdale, listed buildings at Brisco
- Sensitively incorporate areas of conservation and historical value including the patterns of traditional field enclosures
- Design within the natural topography of the site eg. safeguarding hills for far reaching views

The area has a distinct rural character. Lying elevated on agricultural land between two river valleys, it has far reaching views across gentle undulating terrain towards the Lake District National Park (south west) and the North Pennines AONB (east). Existing village settlements are interspersed with rolling farmland landscape. The three main existing villages of Cummersdale, Durdar and Carleton are separated by the River Caldew and River Petteril which flow north from the Lake District. These river valleys were key to the industrial heritage of the area.

The site comprises a number of landscape features and designations. Areas of ancient woodland form part of a wider network of hedges, woodlands and trees, following the rivers and along agricultural fields. These existing landscape features are to be preserved and enhanced.

Existing green infrastructure links include the cycle route from the City Centre to Dalston following the River Caldew and a network of Public Rights of Way. Wherever possible these connections will be preserved and expanded upon.

Other heritage assets that St Cuthbert's Garden Village will be enhanced through the design of the green infrastructure include:

### Cummersdale
- Historic farms and cottages
- Evidence of Roman fort and enclosure with high potential for other archaeological finds
- Industrial heritage: cloth mills, dye works and cotton mills
- Pirelli tyre factory and Stead McAlpin factory and chimney
- Views towards the Lakeland Fells, Pennines, Dixon's Chimney and the Racecourse

### Durdar
- Open, undulating landscape
- Limited woodland cover, remnants of tree plantations include Tarn Plantation and Cat Wood
- Field patterns with hedgerow boundaries and mature trees
- Long views towards the North Pennines over the River Petteril Valley, River Caldew Valley and glimpses towards Carlisle

### Carleton
- Rural and agricultural character
- Medieval narrow field strip layout
- Sparse woodland cover

### Brisco
- Conservation area with many listed buildings and a strong village identity

### Toddhills Wood
To the south west of the racecourse lies a stretch of semi-ancient woodland which will sit along the northern edge of the Greenway. Creation of the Greenway will improve access to this valuable resource.

### River Eden and Tributaries SAC and SSSI
The Rivers Caldew and Petteril are tributaries of the River Eden, and as such are designated SAC and SSSI. They have an existing rich habitat and the Caldew valley has a well-connected cycle route leading out from Carlisle's urban centre.

### Wreay woods
A ancient broad leaf woodland on the riverside, just past the boundary of the site to the south west. For the Carleton and Durdar areas in particular this is a great asset in close proximity. Wraey woods are a Cumbria Wildlife Trust Nature Reserve. Red squirrel and roe deer use the wood and otters are present on this stretch of the River Petteril.

# GREEN INFRASTRUCTURE - HERITAGE ASSETS AND CHARACTER

# 4.3.3 / Focus 3: Strategic Planting

Planting will be used for various functions and will underpin complementary areas of focus for the green infrastructure strategy. These functions provide a sense of identity, mitigate noise and address the visual impact of development, and enforce or create new views.

### Objectives

- Minimise visual and acoustic impact
- Retain and frame existing views
- Create appropriate buffers for long term character setting, identity and resilience
- Consider the natural topography of the site
- Design amenity spaces and verges to be low maintenance but biodiversity rich

### Visual and acoustic impact mitigation

Studies[1] have found that both the visual and physical impact of planting can contribute in acoustic mitigation and so should be considered alongside each other. Design and planting proposed in the scheme has been laid out to avoid the potential impact of known and future noise generating elements. Dense woodland screening located strategically to buffer noise from the CSLR and on the Cummersdale edge to address rail freight. The edges of all development plots can be visual screened with planting so that the view towards them is softened into the surrounding rural context.

### View framing

Long views towards the North Pennines and the Lakeland Fells should be preserved and the design of view corridors can enhance these views. Shorter views across the area such as towards Dixon's chimney should also be created and framed. Carlisle City Council has identified 12 key views which all development should take into account. Sensitive planting of trees and hedging can draw attention to desired features and focal points throughout the development. Species selection will be important to ensure that trees are in character with the landscape and that the growing habits and final heights of vegetation are considered.

### Green Edges

The main strategic green space of the development will be an essential buffer to St Cuthbert's from the urban area of Carlisle, and ensure the long term rural identity of the Garden Village. Focused habitat enhancements in this area will make this a valuable and accessible asset. On a smaller scale, such buffers should be created for each development area where it meets the natural environment. An example of this is Cummersdale, which has an existing woodland boundary close to the Pirelli factory. This boundary could be extended and strengthened to relate to the increased development proposed.

The woodland edge is a part of the identity of Cummersdale and so reinforcement of it is within character.

The character of Durdar is more open, and hedgerow screening would be particularly appropriate to tie in with its surrounding characteristic fields patterns.

### Topography

Planting will be used to enhance the visual amenity and accessibility of retained landscape features such as hills that have far reaching views. Appropriate planting can stabilise slopes to prevent erosion and provide aesthetic interest on approach trails.

### Structural planting typologies

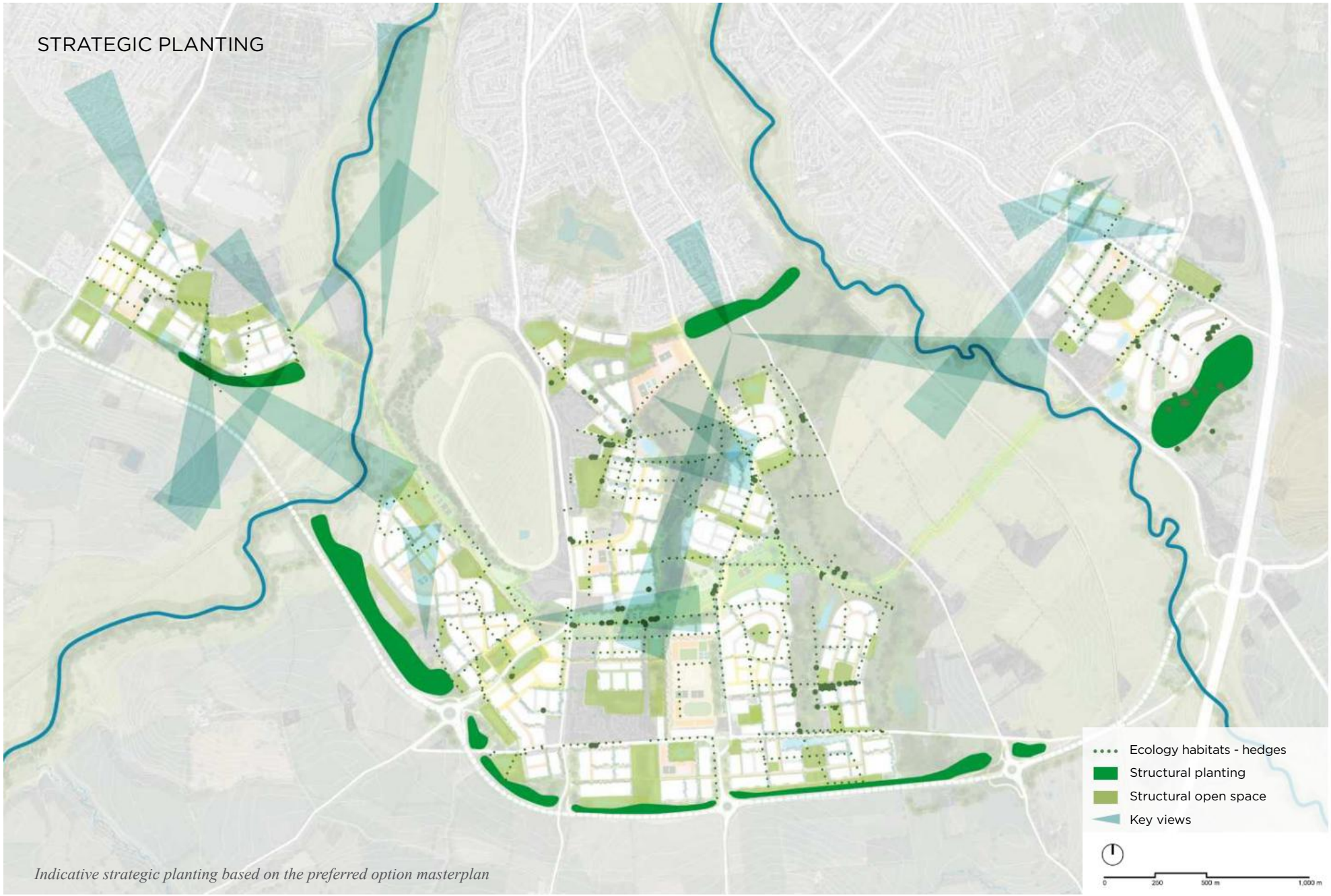
Whilst the majority of strategic planting will be trees and woodland; hedging and grasslands will also play a role. Large scale amenity spaces i.e. road verges can be planted with wildflower to reduce maintenance, increase biodiversity and visually soften infrastructure.

The planting palette will be based around native species to benefit wildlife and be in keeping with existing visual character. For further information see planting information within the Ecological Strategy.

*(1) https://www.sciencedirect.com/science/article/pii/S0169204614000255*

*https://www.researchgate.net/publication/260439335_The_effects_of_audio-visual_factors_on_perceptions_of_environmental_noise_barrier_performance*

# STRATEGIC PLANTING




*Indicative strategic planting based on the preferred option masterplan*

# 4.3.4 / Focus 4: Accessibility

The Green and Blue Infrastructure Framework proposes new links and upgraded routes to improve connectivity, and the quality of access across the site. A new multi-modal, greened route, the Greenway, will link destinations, encourage recreational and active travel both across and beyond the development.

### Objectives

- Link neighbourhoods, communities, assets and centres
- Enhance PRoW and cycle network connections between Carlisle and the countryside
- Promote active travel, create attractive routes and comfortable walking environments
- Improve safe access to shared community assets such as the Rivers Caldew and Petteril and the woodlands

Creation of the Greenway will form a strong east-west route, connecting the villages of Cummersdale, Durdar and Carleton. An existing national cycle path and PRoW follows the Caldew River and a proposed extension of a PRoW along the Petteril River would connect central Carlisle in a green loop.

Please see the following pages for more details on the Greenway.

### Opportunity nodes

#### Stead McAlpin Printworks

The Stead McAlpin Printworks site on the banks of the River Caldew presents a strategic regeneration opportunity with biodiversity net gain potential and alternative options for contributions to the Greenway and St Cuthbert's key guiding principles, sustainable transport and healthy environments. There is the potential to open this land to the community and provide a unique waterside park to celebrate and encourage pride in the industrial heritage of the area. The site was put forward as a location for future development by the current owners as part of the Garden Village consultation process.

#### Carleton Footbridge

A new footbridge across the River Petteril and the railway would improve pedestrian and cycle access to Carleton from Durdar, and make use of the existing PRoW which links to Brisco. This could tie into potential future routes along the River Petteril.

*Fig. 45 The Rivers Caldew (pictured) and Petteril and their green corridors are valuable natural assets to the community.*

*Fig. 46 Cummersdale shingle banks, an ecologically important part of this protected stretch of the river.*

*Fig. 47 Spen Valley Greenway: an example of how a new connection can provide multiple benefits.*

# ACCESSIBILITY

# 4.3.4.1 / The Greenway

## The Greenway

At the heart of St Cuthbert's will run the Greenway, a connective, multiuse area up to 100m wide that joins the three settlements of Cummersdale, Durdar and Carleton and creates links into Carlisle. This planted, car free space will traverse across water, through woodland and past fields. It will incorporate sports pitches, play areas, resting points and event spaces, programmed at its centre, then more natural and loose as it reaches the outer edges. It is a key placemaking feature for the whole of the Garden Village, fundamental to the 'Start with the Sark' principle.

The Greenway can support market days, celebrations and sports activities. Being accessible from all neighbourhoods, it will act as a car free, green community spine along which to commute, promenade, meet and play.

An ecologically rich space, planted with native trees, swathes of wildflowers and integrated swales, it will act as an east- west corridor linking habitats for birds, bats and pollinators across the valleys.

The Greenway will encompass many of the Fields in Trust typologies along its course and will be the principle green space at the core of the Garden Village, creating the vibrancy and sense of community which will be central to the character of St Cuthbert's.

A high-pressure gas pipeline runs underneath parts of the Greenway. Areas above this will be designed in accordance with regulations on vegetation types and root depth, access for maintenance and limitations on the volume of people that use this space. Spaces for markets, events and congregating will not be positioned over this line and will be accommodated for where it is permissible.

It is recognised there are number of significant railway infrastructure and waterway constraints to overcome to achieve the full potential of the Greenway. Whilst the use of existing infrastructure - including the footbridge to the south east of the Stead McAlpin site, the underpass to the north of the racecourse, the public right of way railway crossing at Woodbank Farm and the crossing at Mill Cottage over the River Petteril – has been assumed in the Masterplan, there is the need for enhancements to ensure the crossings are accessible for all and in some instances create new landmarks and features.

The first phase of the Greenway will be delivered in Carleton and Cummersdale, with links to National Cycle Route 7 and to the CSLR in both villages. This will ensure residents benefit from early east-west sustainable transport connections the Garden Village before the rest of the Greenway is delivered in subsequent phases. Further information regarding the phasing of the Greenway can be found in the Infrastructure Schedule.

*Fig. 48 The Francois Mitterand Strip in Rennes. An 840m long and 50m wide avenue with generous provisions for pedestrians, cyclists, sport, play and events.*

*Fig. 49*

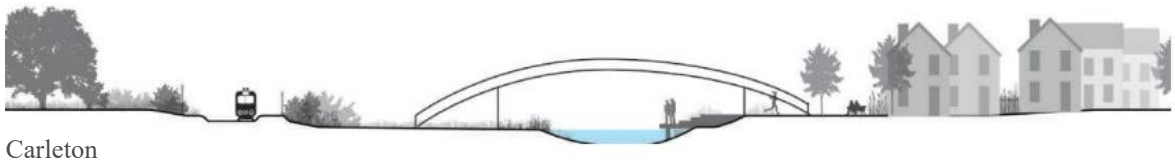
*Fig. 50*

*Fig. 51*

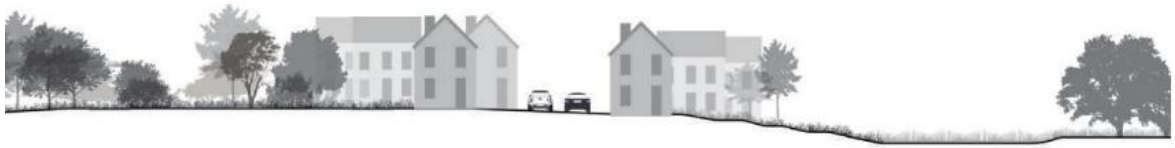
Illustration of the Greenway

# 4.3.4.1 / The Greenway

These pages provide some illustrative plans and sections on how the Greenway could be designed:



Carleton



Brisco

Durdar

Cummersdale


ss
hes
Existing
woodland
Green Park
Skatepark
Sports
Facilities
Natural
Area
Road
Attenuation
pond
Brisco
Open
fields
River Petteril

# 4.3.5 / Focus 5: Ecology

### Ecological Strategy

The ecological strategy for the development is to retain as much existing habitat as possible and to achieve a minimum biodiversity net gain of 10%. This will be achieved through creation of ecologically valuable, diverse and connected habitats.

### Objectives

- Habitat preservation, restoration and creation for biodiversity net gain (minimum 10%)
- Plant trees and enrich hedgerows to improve ecological links both within the site and in the wider landscape.
- Habitat creation for a range of wildlife
- Habitat creation and enhancement of the river corridors.
- Improve the health of the waterways
- Located native species
- Plant species for climate adaption
- Enhance depleted agricultural land

The site is primarily agricultural, comprising arable or improved grassland fields intersected by hedgerows and watercourses/ditches, with occasional areas of woodland.

The semi-natural broadleaved woodland within the survey area qualifies as Section 41 (S41) Priority Habitat (under the Natural Environment and Rural Communities Act). Patches of broadleaved woodland and scrub are also important habitats as they provide foraging, commuting and nesting/roosting resources for a range of fauna. Other habitats of higher value recorded throughout the survey area include hedgerows, watercourses, water bodies (wet ditches) and scattered trees. Of particular note are the over-mature and veteran trees which were recorded within a number of hedgerows. Loss of these trees should be avoided. Species should be of local provenance where possible.

### Habitats to retain/protect/create

The habitats recorded on site include:

- Semi-natural broad leaved woodland.
- Broad leaved and mixed plantation woodlands.
- Scattered broad leaved trees.
- Dense and scattered scrub.
- Improved and poor semi-improved grassland.
- Tall ruderal vegetation.
- Standing water.
- Running water.
- Arable.
- Intact and defunct species-rich hedgerows.
- Intact and defunct species-poor hedgerows.
- Earth banks.
- Dry ditch.

The more notable areas of these surveyed habitats are outlined below.

### Trees and woodland

#### Ancient Woodland

One area of semi-natural ancient woodland is at Toddhills Wood to the west of Carlisle Racecourse. This woodland should be retained and protected from disturbance throughout the proposed development.

#### Priority Habitat

S41 priority habitat deciduous woodland is located within the survey area at Toddhills Wood and Peastree Wood (west of Carlisle racecourse), Tarn Plantation (south of Durdar) and Cat Wood (east of Durdar).

#### Broadleaved and mixed plantation woodlands

Areas of plantation woodland were recorded to the south and east of Durdar. The broadleaved woodland plantation included oak, ash, beech, alder, willow, holly and hawthorn. Mixed woodland plantations also included species such as Scot's pine, and European larch.

#### Semi-natural broadleaved woodland

Discrete pockets of broadleaved semi-natural woodland were recorded within the survey area. The woodlands vary in age and character. Species recorded throughout the woodlands include pedunculate oak, other oak species, ash, sycamore, beech, alder, and willow. Under storey species included hawthorn, holly, hazel, elder and honeysuckle.

#### Scattered broadleaved trees

Scattered trees were recorded throughout the survey area. Species recorded include oak, ash, sycamore and silver birch. Mature and over-mature trees are also present in numerous hedgerows, recorded on the Phase 1 habitat map as species-rich or species-poor hedgerows with trees. Over-mature and veteran trees were recorded throughout the survey area.

## Hedgerows

Hedgerows were recorded throughout the survey area. Where hedgerows had four or more woody species, they were mapped as species-rich in accordance with hedgerow survey guidelines. Species-poor hedgerows have been mapped where fewer than four woody species were present. Defunct hedgerows were recorded as those which contained gaps that made them no longer stock-proof. Species recorded within the hedgerows include hawthorn, elder, holly, ash, oak, common dog-rose, gorse and blackthorn. Bramble, honeysuckle and ivy were also frequently recorded throughout the hedgerows.

Where undisturbed strips of ground flora were present around the hedgerows, these contained typical woodland/hedgerow flora including foxglove, herb robert, common hogweed, red campion, cleavers and fern species. The ground flora of several hedgerows was found to be limited by the surrounding improved grassland or arable habitats. Many of the hedgerows were recorded to be heavily managed/maintained and had been recently flailed.

Further hedgerow surveys should be undertaken to assess the value of the hedgerows within the survey area under The Hedgerow Regulations 1997, to determine whether any are classed as "Important Hedgerows". Surveys should be undertaken on all hedgerows not previously assessed and completed in accordance with the DEFRA Hedgerow Survey Handbook.7

## Biodiversity Net Gain

A Biodiversity Net Gain assessment was undertaken using the Defra and Natural England Biodiversity Metric 2.0. The assessment quantifies the impact of habitat loss across the survey area in more detail and demonstrates the amount of habitat retention, enhancement and creation required to achieve a net gain of biodiversity.

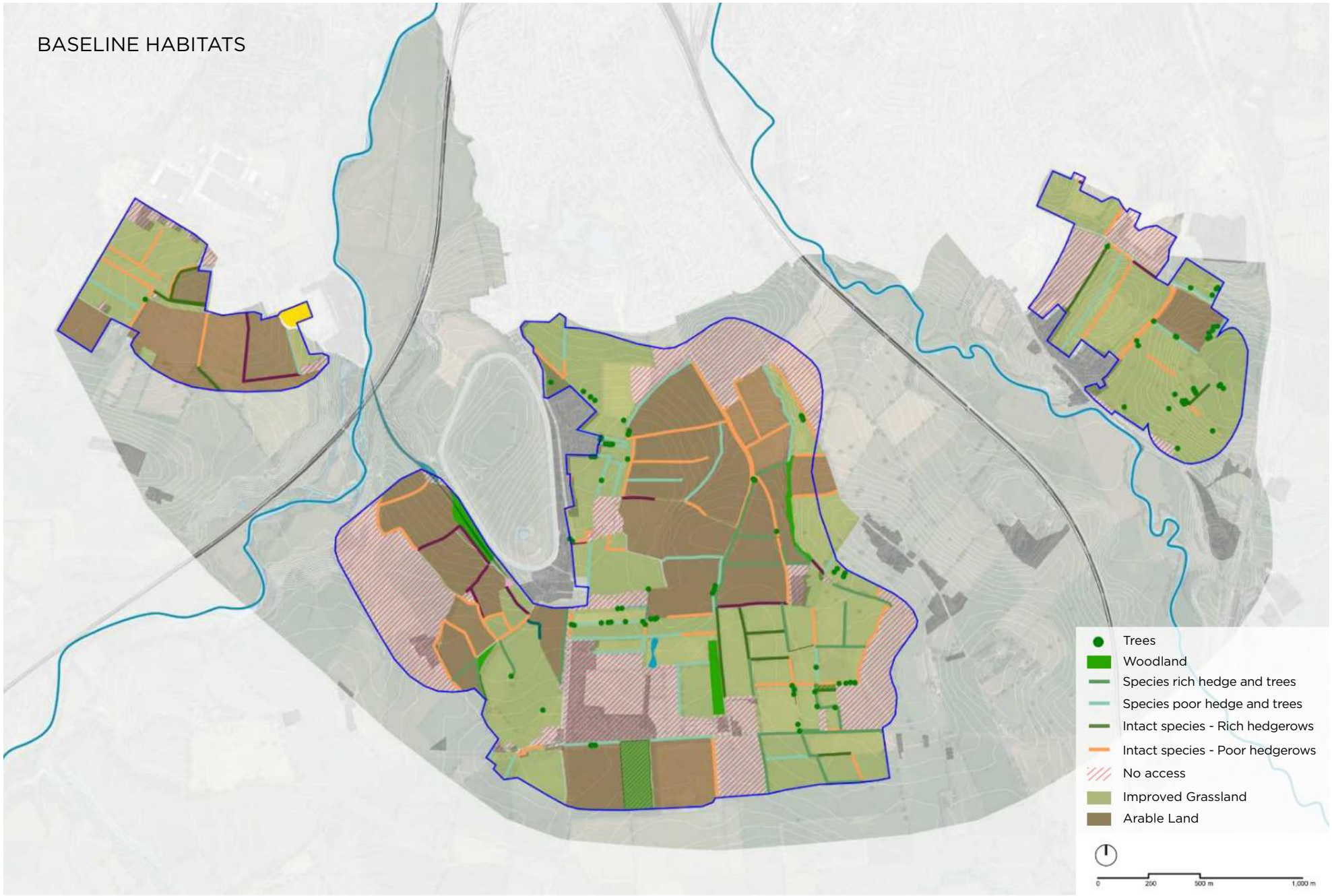
The Biodiversity Net Gain assessment established a baseline calculation of Biodiversity Units on site (comprising Habitat, Hedgerow and River Units). The assessment assumed loss of all habitats within the main areas identified for development within the masterplan this is a worst-case assumption and it is recommended that hedgerows and trees within the site should be retained wherever possible. Areas of habitat that could be retained and enhanced within the wider proposed masterplan were then identified followed by potential habitat creation measures that could compensate for the deficit in Biodiversity Units and provide a 10% net gain.

The assessment proposes 93.92ha of habitat retention/enhancement and 5.10km of hedgerow enhancement within the area of retained semi-natural green space identified in the masterplan. In addition to this, 93.69ha of potential habitat creation has been identified to deliver a 10% net gain in biodiversity, including areas of woodland, grassland and reed bed creation.

The assessment also requires further hedgerow creation to achieve 10% net gain. As plans progress, it is recommended that an updated Biodiversity Net Gain assessment is undertaken for individual plots brought forward for development to identify potential areas of green space and soft landscaping that could contribute to the results of the Biodiversity Metric. In addition, some areas of the site were not assessed due to access limitations. These are indicated on the baseline maps.

Note: *This is a high-level assessment and not all areas of the masterplan have been surveyed and included in the baseline, therefore further assessment will be needed to refine the calculations.*

# BASELINE HABITATS



# PROPOSED LANDSCAPE HABITATS


Note:
Existing woodlands and hedgerows should be retained within the proposed development where possible.
This diagram indicates the existing habitats that could be retained within the illustrative masterplan.

## Ecological connectivity within the development

Plot development offers the opportunity to integrate environmental design solutions to buildings, infrastructure and parking areas, enhancing the ecological quality of the district. Roof level green corridors, facade greening and improved permeability can support sustainable drainage, biodiversity and micro-climate adjustments, whilst contributing to an inspiring and attractive setting that supports health and well-being.

An approach to building and land use that maximises drainage in situ and creates and protects biodiversity will be adopted. Sustainable use of land and surfaces will reinforce the environmental profile of St Cuthbert's and will embed the development in the guiding principles of the Garden Village movement.

### Linear routes

The linear routes alongside roads, pathways, field boundaries and waterways are important sight lines for nocturnal feeders. Attention will be paid to the continuity of these routes, so that they are not unduly broken by the development and that they are sensitively managed with regards to maintenance and lighting.

### Amenity spaces

Roadside wildflower strips, rain gardens and swales, permeable paving, multi-use parking areas, extensive roofs and biodiverse native tree planting will be encouraged across the site. Plots that function as living infrastructure will support wildlife and resilience whilst embedding the site in its rural, village context.

Many naturally inspired areas such as wildflower road verges and native hedgerows have the advantage of tending to be lower in cost to maintain once established than more traditional boundary and verge. treatments.

### Micro habitats

The smallest and least accessible of spaces can contain valuable micro habitats. Throughout the site such habitats will be created. These will include bat and bird nesting boxes, insect hotels, and extensive (brown) roofs which can provide for invertebrates. Log piles, bird perches and areas allowing for natural plant colonisation and succession will be encouraged. There is evidence of barn owls and various bat species in the area so efforts will be made to support their continued presence.

*Fig. 52 Sedum roof*

*Fig. 53 Barn owl*

*Fig. 54 Integrated nesting opportunities*

## Hedgerows

The current pastoral field patterns are delineated by hedges, which create the visual character of the area whilst providing connected wildlife habitat through the shelter and food they provide. Through out the natural areas but also within residential plots, retention, enhancement and creation of new hedgerows will be encouraged. Preservation of existing hedgerows and filling hedgerow gaps will embed the development in its rural character. Many of the hedge species such as hawthorn can also feature on the plots as small trees, providing additional connective wildlife spaces and continuity of character.

## Trees and woodland

Native tree planting and retention is key to the site's long term biodiversity enhancement goals. Existing wildlife such as barn owls and bats will be in mind as tree communities are planted to provide commuting routes and foraging provision. In order to encourage biodiversity, native trees and those already seen on site will be used as much as possible.

## Riparian Buffer Strips

In addition to hedgerows, riparian buffer strips are characteristic of the area and are found close to watercourses (4-12m from the bank). Whilst sharing many species with field hedges, they can contain long grasses and riparian trees. The River Petteril has had over 17km of riverbank enhanced with buffer strips (2009 -14) by conservation groups and this is a practice that will be continued to the benefit of water quality and riparian wildlife.

*Fig. 55 Ribes: Edible wild red current is already commonly found in local hedges, scrub and woodlands*

*Fig. 56 Betula pubescens: Native to the region. Though not long lived, a fast grower which can help to establish buffer areas and woodland*

*Fig. 57 Quercus petraea: Native to the region, the dominant tree of nearby Wraey woods and other portions of ancient woodland*

# 4.3.6 / Focus 6: Food Production

The community will be connected to food production through the provision of space to grow, use of edible planting in incidental and amenity space and by creating links with the surrounding farm and produce networks. Whilst supporting community cohesion, health and wellbeing and biodiversity, this approach can address wider food security resilience.

### Objectives

- Connect to the area's past and current agricultural heritage
- Embrace a core value of the Garden Village movement that sees food as a shared resource and food production as a shared activity
- Create community orchards and allotments
- Encourage agroforestry amongst woodland
- Plant edible streets and hedgerows
- Promote gardening in the community as beneficial to physical and mental wellbeing
- Encourage community education, workshops and school programmes

### Small scale

Gardens and residential courtyards can provide food growing opportunities close to home. Encouragement will be made for generous allocation of space for food growing within plots, and for edible plants to be present in play and family spaces so that learning about how food is produced can become part of the everyday.

### Local scale

Allotments, community orchards and the use of edible trees and hedges on streets and in parks can connect people to food production and their local community. A study in Leicester found that allotment gardening on just 1.5% of land within a city can provide fresh produce for 3% of the population. Organisations such as The Orchard Project and Incredible Edible[(2)] can offer support for new communities to develop community growing. Forest and farm schools can continue the educative opportunities for children and local maps such as those of Fallen Fruits[(3)] can encourage people to forage and explore.

### Regional scale

There is great potential for the surrounding farms to build connections with the community though farmers markets, vegetable delivery schemes and with open farmsteads. Strong regional connections with food producers provides resilience against food security threats, whilst reducing transport miles and supporting local businesses. Where new habitats are being created to enhance depleted agricultural land, methods like agroforestry could be put in place to keep land productive whilst improving biodiversity.

*(2)*
*https://www.theorchardproject.org.uk/*
*https://www.incredibleedible.org.uk/*
*(3)*
*http://fallenfruit.org/projects/public-fruit-maps/*

*Fig. 58 Incredible Edible Todmorden demonstrates the wealth of spaces that can be used for food growing once a community feels they can take ownership of them*

*Fig. 59 Agroforestry supports biodiversty whilst accomodating agriculture*

*Fig. 60 Stirley Community Farm, Yorkshire*

*Fig. 61 Parkfarm, Brussels*

*Fig. 62 Manchester Orchard Project. Community food growing can support pollinators as well as the community*

*Fig. 63 Stirley Community Farm, Yorkshire*

*Fig. 64 Parkfarm, Brussels*

# 5 /

# Urban Design Framework

This section describes in more detail the different design elements within the Masterplan that will shape the place.

# 5.1 / Gateways, Landmarks and Nodes

Gateways, landmarks and nodes, placed in the right locations help shape the character, identity, and legibility of communities within the Garden Village.

Gateways must create a sense of arrival to the place, and their character will be defined by the scale of the buildings, the type of street, and the quality of setbacks and landscapes along them.

Landmarks are distinctive features and assets on or around the site, either natural or built, that should be preserved and enhanced as anchor points for placemaking. Examples include:

- The industrial heritage in Cummersdale is part of the character of the area. Some elements like the brick chimney can serve as a landmark within the masterplan and support wayfinding.
- Carlisle Racecourse: The Garden Village should leverage and build on the presence and role of this key regional destination.
- Cammock Hill: This is one of the distinctive hills in the area with key views to the Lake District and Pennines and should be highlighted.

Key nodes in the Masterplan Framework are:

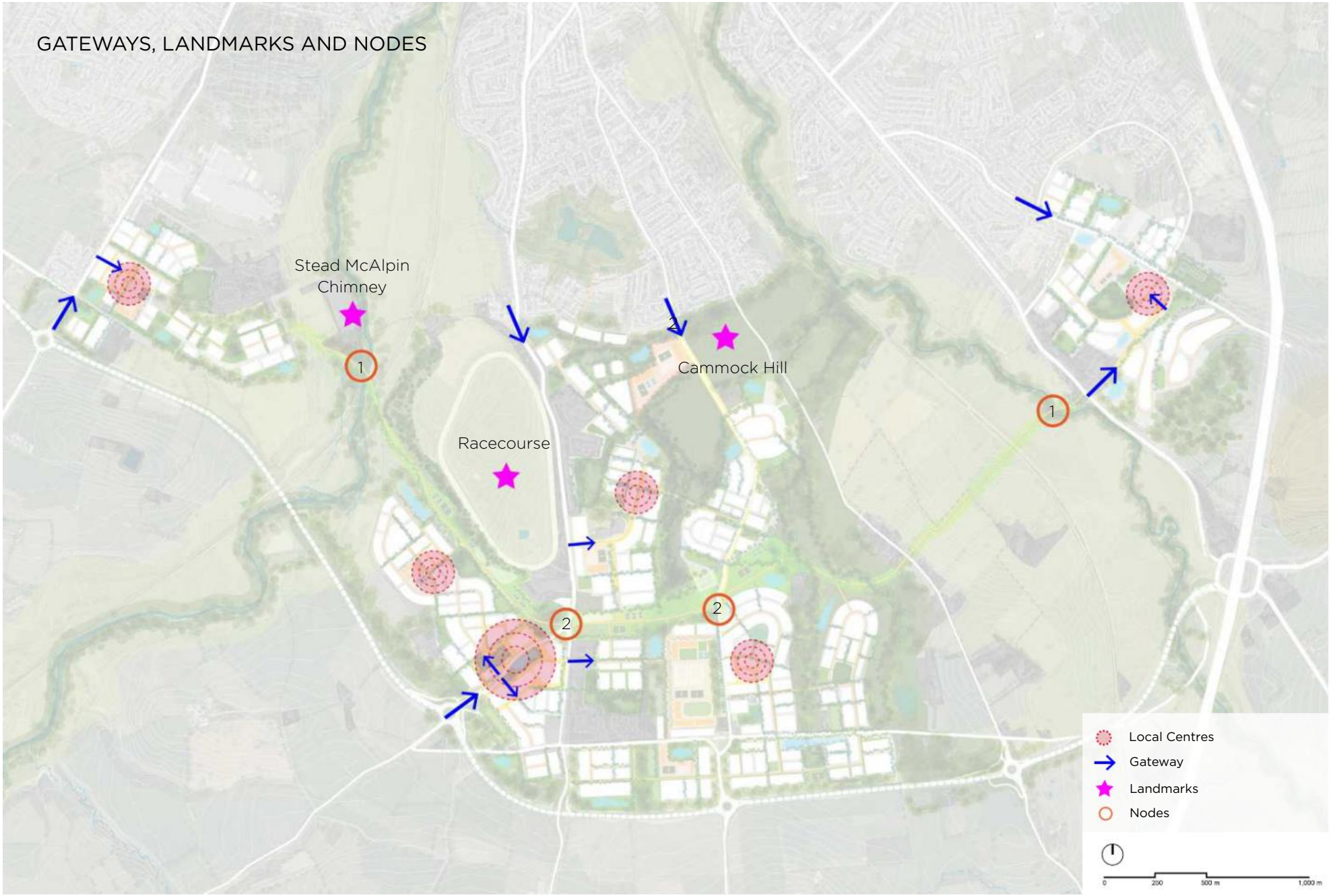
- The junctions where the Greenway crosses with River Caldew and connects with the National Cycling Route and similarly where it crosses the River Petteril. Currently, it is not possible to cross the River Caldew as the footpath ends abruptly where the river has washed it away. Both nodes therefore require an upgrade to improve accessibility but the masterplan should leverage on their potential for placemaking. In Cummersdale, that could be building on its industrial heritage.
- Along the Petteril River, there is no pedestrian bridge at the junction point. If implemented it has potential to be a key local landmark.
- The points where the Greenway is crossed by main roads, and where crossed by Scalegate Road, represent opportunities to prioritise cycling and walking and apply pedestrian focused design elements

Finally, the local centres will be special places that are discussed further in the following page.


*Fig. 65 Carlisle Racecourse, Durdar Rd*


*Fig. 66 Stead McAlpin, Cummersdale*

# GATEWAYS, LANDMARKS AND NODES



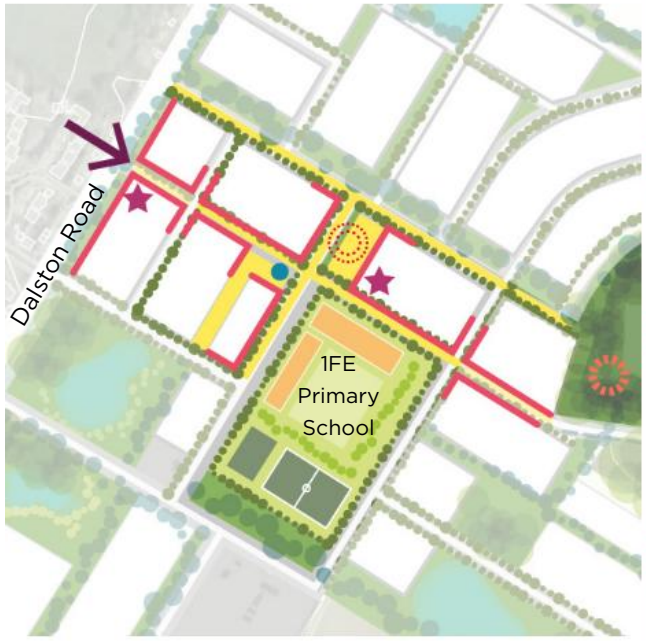
# 5.1.1 / Local Centres: Special Places and Focal Points

The following plans illustrate key design elements that should be considered to enhance placemaking within the local centres.

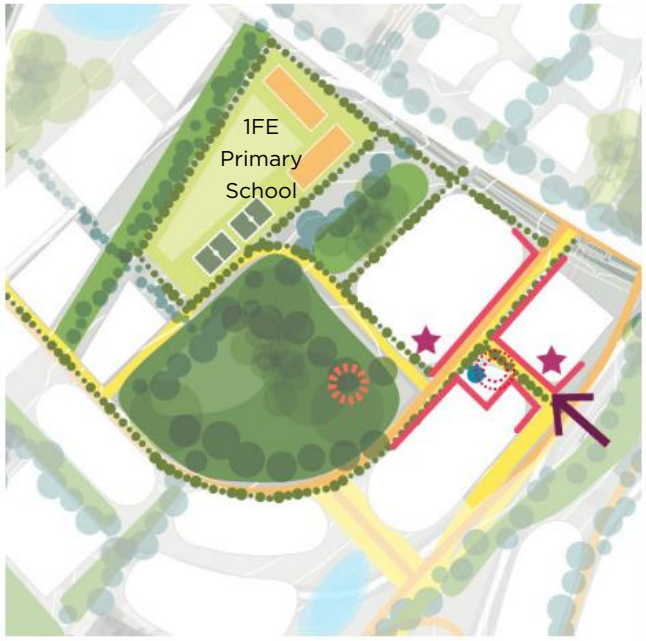
As outlined in the previous pages, each local centre will be a special place within the Garden Village with a recognisable identity. However, there can be a set of shared design features that supports the local centres applying the design principles of the overall project. Each local centre will need to be carefully designed taking into account the specific context and individual qualities of the place, its position and location, and the potential to include and highlight landmarks.

Building in the principle 'Start with the Park' each local centre should be in proximity to a key open space and include a community hub. In order to promote sustainable and active mobility, each local centre should also include a mobility hub that can incorporate cycle parking or bus stations.

### Cummersdale Local Centre




### Carleton Local Centre




### Durdar Local Centre


Gateway
Active frontage
Potential for Landmark
Square / Open Space
Transport Hub
Community Hub

Illustration of a local centre

# 5.2 / Edges

Edges define the natural boundaries of the development within the Masterplan. These refer to the boundaries between different clusters of development or the boundaries of the Garden Village itself. Edges are places of transition and can take different forms and accommodate various functions depending on their location within the wider masterplan.

Four main types of edges have been identified for further consideration. The following pages illustrate those edges and the small key plan shows an indication of the location of each type within the masterplan.

### 1. Green Edges

Green edges are used throughout the Garden Village to create buffers around and in between different clusters of development providing good accessibility to open spaces and enhancing the qualities and landscape setting of each neighbourhood area.

### CSLR Interface:

It is critical that new development has regard to the importance of the interface between the CSLR and Garden Village communities. Vegetated edges will allow  not only biodiversity and landscape enhancements and a clear sense of arrival into the Garden Village for visitors and residents, but also provides space for essential vital visual and noise mitigation for those living and working there.

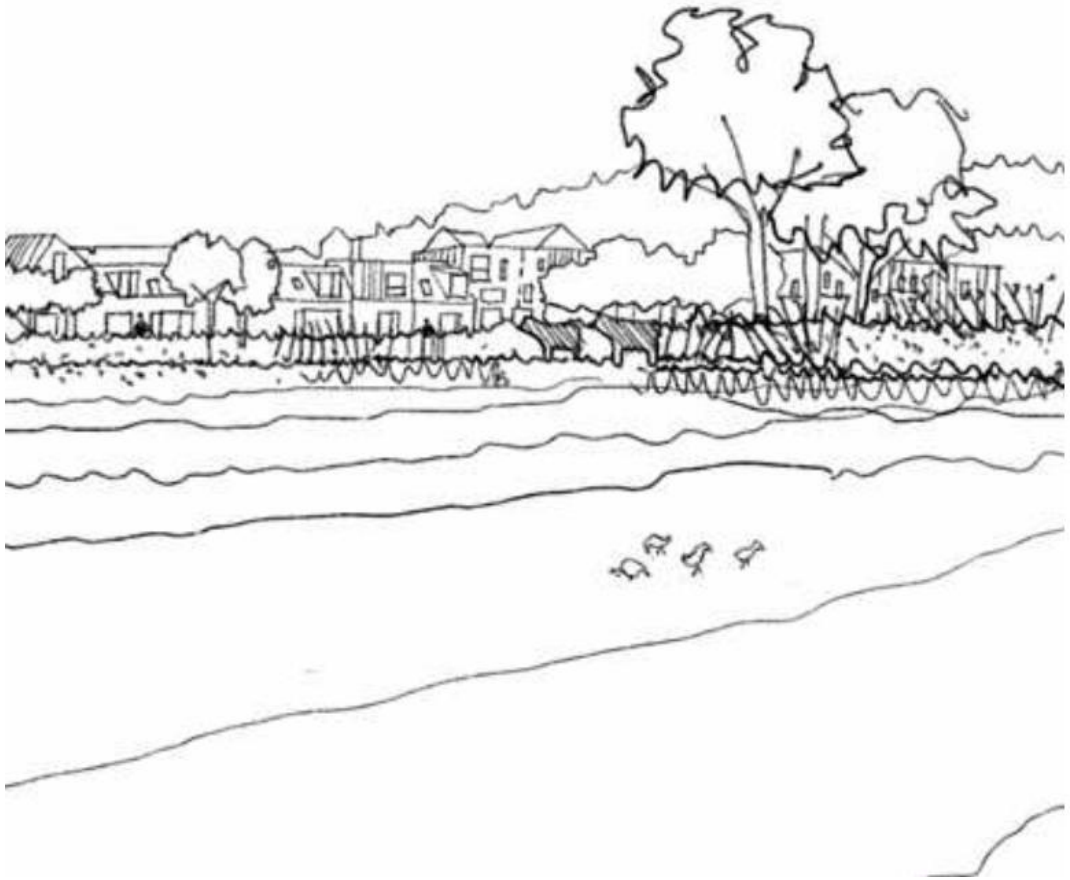


*Fig. 67 Green Edge in Accordia, Cambridge, UK*


*Fig. 68 Agricultural land could act as green edge, Durdar, UK*

*Fig. 69 Green edges can enhance biodiversity and mitigate visual and noise impacts from major roads or rail tracks.*

## 2. Greenway Edges

The Greenway is a key structural element of the Garden Village. It will serve many functions: it will enhance sustainable mobility and active lifestyles; it will be a place for gathering with a variety of spaces for the community; and it will be a biodiversity corridor. Its design should reflect this rich and varied character.

### 3. Urban/Rural Edges

A key design principle for the Garden Village is the provision of good access to open green space for all. The design of the built/open edge will be important to manage. This edge can provide the opportunity to make appropriate transition from private to public space, contain amenities for a diverse group of people, and also provide visual links to open space.

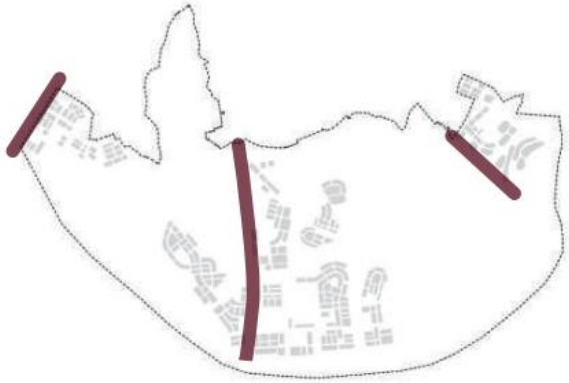


*Fig. 70 Accordia, Cambridge, UK*

*Fig. 71 Residential Block in Berlin, DE*

*Fig. 72 Union Street Urban Orchard, London, UK*

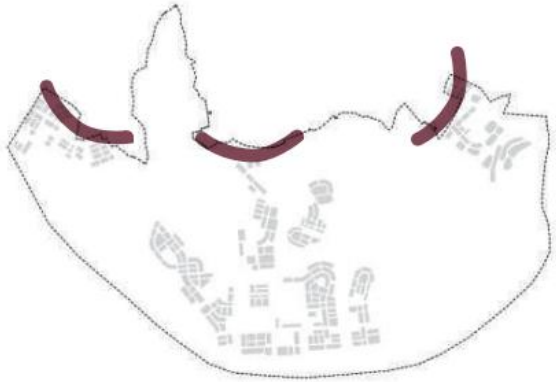
*Fig. 73 Carrowbreck Meadow, Norwich, UK*

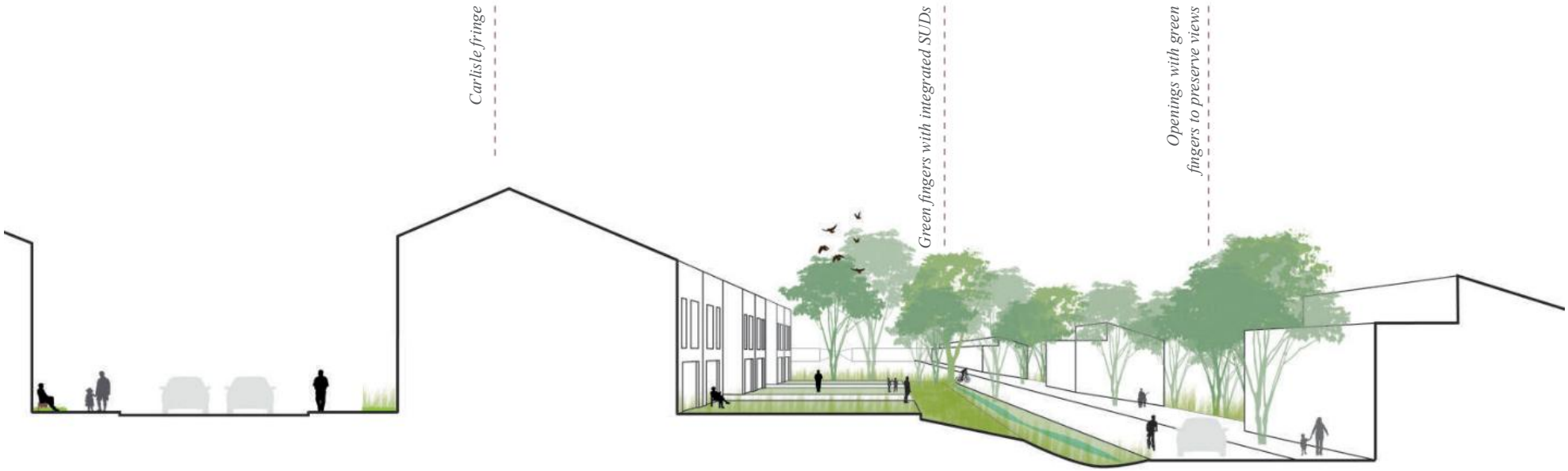
*Fig. 74 HAB Housing, Kings Worthy, UK*

*Fig.75 Saffron Walden, Uttlesford, UK*

## 4. Carlisle Edge

As set out in the Village Character Design Principles, careful consideration will need to be given to where Durdar meets the existing urban edge of Carlisle. Carlisle Edge will determine the quality of the transition between existing Carlisle neighbourhoods and the Garden Village. There should be a gradient from an urban context into a more rural feel.





# 5.3 / Interface New and Existing Development

A sensitive interface between existing developments and new ones is essential as the communities of St. Cuthbert's Garden Village expand and grow.

There are four design directions proposed as part of the Masterplan Framework to address the interface between new and existing development to address the specific context.The scale of the interface will determine the scale and type of the intervention.

### 1. Streets to connect

Streets that are adjacent to existing development and provide access to new ones can act as connectors, and should be designed to function as places for social interaction and community uses.


*Fig. 76 Archipelago Courtyard*

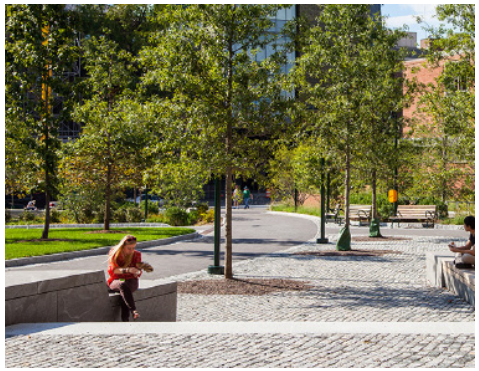


*Fig. 77 Spaces for social interaction*

## 2. Green fingers to integrate

Green fingers or corridors through places can provide spaces for biodiversity corridors, sustainable drainage features, and allow amenity spaces for play and passive enjoyment, bringing all members of the community together.

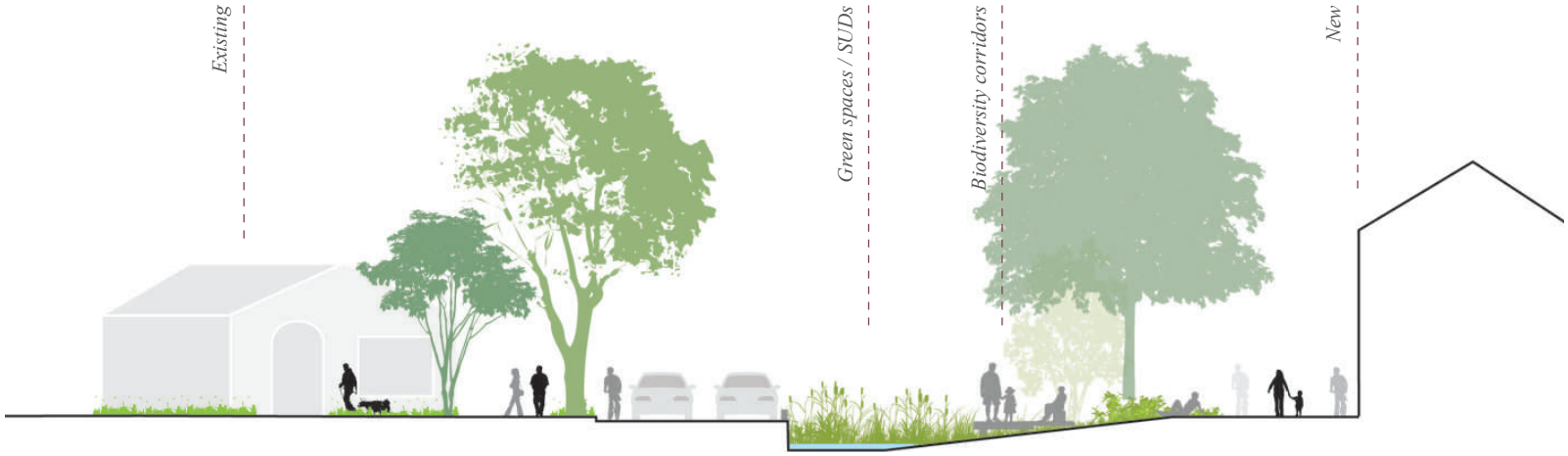



*Fig. 78 Spaces for biodiversity corridors*

*Fig. 79 More london*

*Fig. 80 Sculptural Playground, Schulberg*

### 3. Open Space to gather

Open spaces, linear parks, and smaller parklets can offer places for gathering, formal and informal, for bringing current residents of the villages together with the new residents. For this, they should be strategically placed to animate the interfaces


*Fig. 81 Spaces for gathering*

*Fig. 82 Sports in the park*

*Fig. 83 Spaces for playing*

## 4. Green buffers to preserve

Green buffers can be used to preserve the setting and quality of existing landscapes, agricultural land, the woodlands. For example, adding community allotments and orchard spaces can act as buffer but also provide opportunities for social interaction and public amenity.


*Fig. 84 Spaces for relaxing*


*Fig. 85 Spaces for agriculture*

*Fig. 86 Spaces for community*

# 5.4 / Frontages

Building frontages frame spaces, create a sense of enclosure and support the activation of place. Key frontages that should be carefully considered and emphasized within the masterplan include:

**1. Main streets and open spaces in local centres:**
Visually permeable and active frontages along main streets aid in wayfinding and placemaking and promote safety in the public realm.
**2. Gateways:**
Frontages along the access points to the Garden Village should be well articulated, inviting, and designed to convey a sense of welcome and arrival.
**3. Greenway:**
The Greenway is a wide structural space with playing pitches, community spaces and playgrounds. It is important that this space is framed with active frontages especially around Durdar where it is designed to be a vibrant community amenity.

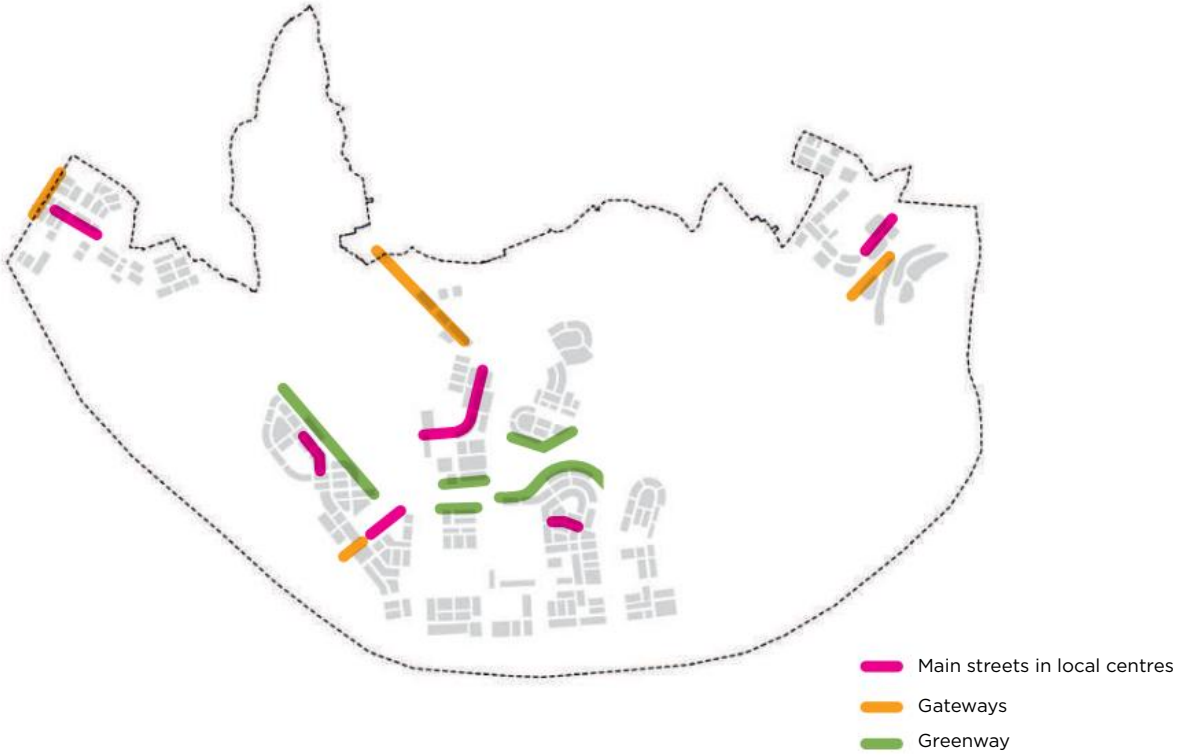



*Fig. 87-88 Active frontages with a rural character framing the streets and square of a local centre*

*Fig. 89 Residential block with active frontages on grounfloors*

*Fig. 90 Residential frontage to a green space*

Illustration of a street with active frontages

# 5.5 / Key Views and Vistas

St Cuthbert's Garden Village sits in an area of outstanding landscape. Its topography, with many hills and valleys offer long views towards the Lake District and the Pennines along with many other views within the site.

As part of this work, a preliminary landscape and visual appraisal has been undertaken to evaluate how to best integrate and enhance some of the key views identified in the following plan.

The three main criteria that have been applied are:

### 1. Working with topography

When designing the different clusters of development topography is an important consideration. Building heights should follow the contours with taller buildings located at lower elevation. This will help minimise visual impact and optimise the potential for views and long vistas.

### 2. Enhancing long views through green corridors

Creating strategic openings within the development, incorporating planting and green edges, can be use to define and enhance long views.

### 3. Celebrating viewing points

Places such as Cammock Hill offers expansive views towards the landscape. These places should be preserved and celebrated by making them more publicly accessible and developing them as local destinations and landmarks.


*Fig. 91 View east to Durdar Road and to the North Pennines Area of Outstanding Natural Beauty*


*Fig. 92 View from footpath on Gilbert Road looking south towards the Lake District fells.*


*Fig. 93 View showing rise of Cammock Hill*

# KEY VIEWS


2
1
Key views
Key views along green corridors
Hills
0
250
500 m
1,000 m

# 6 /

# Movement Framework and Access Strategy

# 6.1 / Introduction

The overall approach taken as part of the Movement Framework and Access Strategy is to build upon the Guiding Principles for the Garden Village that were established in Stage 1 of the Masterplan, most notably to create a place that:

- Starts with the park;
- Is locally distinctive;
- Is community focussed;
- Promotes healthy environments;
- Integrates sustainable transport; and
- Encourages smart and sustainable living.

The strategy utilises the opportunity provided by the delivery of the Carlisle Southern Link Road (CSLR) to provide direct vehicular access to the Garden Village from the south and to relieve traffic flows from existing radial corridors north of the Garden Village into Carlisle City Centre.

This will allow public transport, walking and cycling to be promoted as the primary modes of transport both within the Garden Village and externally.

The Movement Framework and Access Strategy builds upon the Guiding Principles through a number of key components, including:

- Enabling active and sustainable travel as the primary modes of transport to/from and through the Garden Village;

- Strategic east-west connectivity linking the Garden Village and connecting to existing communities.

- The development of active neighbourhoods across the Garden Village;

- Mobility hubs integrated within local centres providing a range of transport interchange facilities;

- Delivery of north-south corridors that enable sustainable transport modes;

- Improving connectivity to and from the City Centre (outwith the Garden Village) by sustainable transport modes; and

- Delivering supporting infrastructure across the Garden Village to support residents in making sustainable transport choices.

Although the Movement Framework and Access Strategy is focussed upon the Garden Village, it is recognised that it is essential that it links into existing and proposed pedestrian, cycle and vehicle networks. In doing so, a coherent and integrated sustainable transport network can be developed to serve the south of the Carlisle urban area and beyond.

A separate strategic modelling paper has been prepared to assess the capacity of the roads and inform the hierarchy of streets for St Cuthbert's Garden Village. This paper is appended to this report. The modelling compares a 'business as usual' scenario to a 'sustainable development scenario' (i.e. a significant shift towards sustainable transport modes achieved through a comprehensive package of mitigation measures as set out in the Movement Framework which would result in an increased number of people walking, cycling and taking the bus, which aligns with the aspirations of the Garden Village). The modelling has informed the package of measures presented in this strategy. The results of the modelling showed that although (given the scale of development proposed) there would inevitably be an increase of cars on the network (which may be significant on some links), the impacts upon junction capacity were more modest and as such, relatively modest improvements would be required at the locations identified in the modelling. The improvements would need to be balanced against the strategy not to encourage additional car trips through increased capacity. As such, much of the improvements are focussed on prioritising and enabling sustainable transport modes rather than increasing capacity.

The Local Cycling & Walking Infrastructure Plan (LCWIP) will provide an understanding of what can be achieved and will be a key document as part of the evidence base to inform the development of the SCGV Local Plan.

The LCWIP identifies the ~Garden Village as an opportunity to look at new ways of delivering cycling and walking infrastructure in Carlisle. The evidence from the LCWIP will then be used to provide robust assumptions in relation to model shift.

The detail and initial designs for the street profiles can be found in the Design Guidance

# 6.2 / Enabling Active and Sustainable Travel

Enabling active and sustainable travel in St Cuthbert's is a key priority and will arguably be the most important means of defining the Garden Village as a distinctive place in terms of placemaking, movement and access.

In July 2020, the UK Government announced a new and ambitious vision for active transport in England. The 'Gear Change' document and accompanying Local Transport Note 1/20 (LTN 1/20) outline the goals and set of principles for achieving a significant modal shift by enabling more journeys to be taken by walking and cycling.

'Gear Change' makes clear the need to embed active transport into the design of new places from the very beginning. The Movement Strategy for St Cuthbert's Garden Village embraces the principles of the new guidelines to ensure that the opportunity to deliver a development which makes walking and cycling the primary transport choice from the start will be realised.

To help achieve this ambition, the Garden Village will be designed around a clear set of principles derived from LTN 1/20 to ensure that:

1. A coherent network is provided for active travel modes from the outset of the development, enabling people to reach their destinations both within and outwith the Garden Village by walking and cycling;
2. Walking and cycling routes connect directly from people's homes to key local destinations, particularly for day-to-day journeys;
3. Routes are safe and are perceived to be safe for all;
4. The design, quality and maintenance of the routes is such that they are comfortable to use;
5. The routes for pedestrians and cyclists are attractive spaces which maximise the opportunities afforded by the location of the Garden Village

It is fundamental to the delivery of the vision for the Garden Village that an ambitious, comprehensive and high-quality network of walking and cycling is delivered in the early stages of development. This will embed sustainable travel behaviours from the outset (preventing car-dependency to set in) and will also help to provide a statement of intent regarding the level of ambition within the development to promote walking and cycling and sustainable travel behaviours more generally.

Connectivity within the Garden Village itself will be important in order to provide a network that enables a walking and cycling culture to be developed for local neighbourhood journeys that are short in distance. As noted elsewhere in the masterplan, the development is designed around the creation of such walkable neighbourhoods. The internal network of routes for active travel should enable this culture and ensure that schools, shops, services and open spaces can be easily accessed by walking and cycling and that this is the natural choice of mode for such journeys.

It is equally as important to ensure that key locations outside of the Garden Village are accessible by walking and cycling (and also that people who live outside of the Garden Village can access St Cuthbert's by these modes). Carlisle City Centre is a primary destination for the city region and is within a relatively short distance of the Garden Village meaning that cycling is a viable option, providing that such journeys are enabled through enhanced infrastructure. However, if this is to be achieved to the scale that is anticipated, the quality of connectivity must be of a level that makes this mode attractive to a wide range of users. Substantive improvements to existing routes outside of the Garden Village are likely to be required to achieve this. Access to open countryside south of the Garden Village will also be an important consideration for leisure cyclists, capitalising on the location of the Garden Village. Connectivity to existing national cycle routes will be important in this regard.

In order to enable sustainable and active travel as the primary modes of transport for St Cuthbert's the following strategy is proposed;

- The delivery of a comprehensive walking and cycling network early in the delivery of the development that provides both strategic access to and from the City Centre as well as local connectivity across the Garden Village;
- The creation of low traffic neighbourhoods within the Garden Village and beyond, in particular within adjacent neighbourhoods to the north to enable walking and cycling journeys and create safe residential streets;
- Effective use of point closures for private vehicles on main routes - to enable wider sustainable transport connectivity;
- Provision of mobility hubs within local centres to support access to key neighbourhood destinations by walking and cycling and reducing the reliance on private car for short and longer journeys.

# 6.2 / Enabling Active and Sustainable Travel

### 6.2.1 Existing and Planned Active Travel Routes

There are existing and planned strategic active travel routes and a number of Public Rights of Way (PRoW) within (or close to) the Garden Village.
National Cycle Network Route 7 runs north-south to the west of the River Caldew. It is a predominantly traffic-free route that connects into Carlisle City Centre, providing an important active travel corridor for the south of the City and beyond. The route provides an important link between the Garden Village and the City Centre, which this Movement Framework & Access Strategy seeks to build upon.

The planned Carlisle Southern Link Road (CSLR) to the south of the Garden Village will provide a 3m-wide pedestrian and cyclist 'shared use' path that will run along the northern edge of the new road. There will be east-west over bridges provided that create a continuous link without crossings for most of this length, from Scalegate Roundabout south-east of Durdar to the A689, linking up to an existing multi-user path that parallels the A689 up to the M6. The multi-user path will cross Brisco Road and Burthwaite Road at-grade.

The multi-user path will also include a new connection along the A6 to the north, up to the petrol station approximately 600m north of Junction 42. It will also connect to a north-south pedestrian / cyclist overbridge over the CSLR at Brisco Road and include a 500m long shared use path to connect with the Cumbria Way / National Cycle Route 7 at a point to the north of the road, in the Caldew Valley.

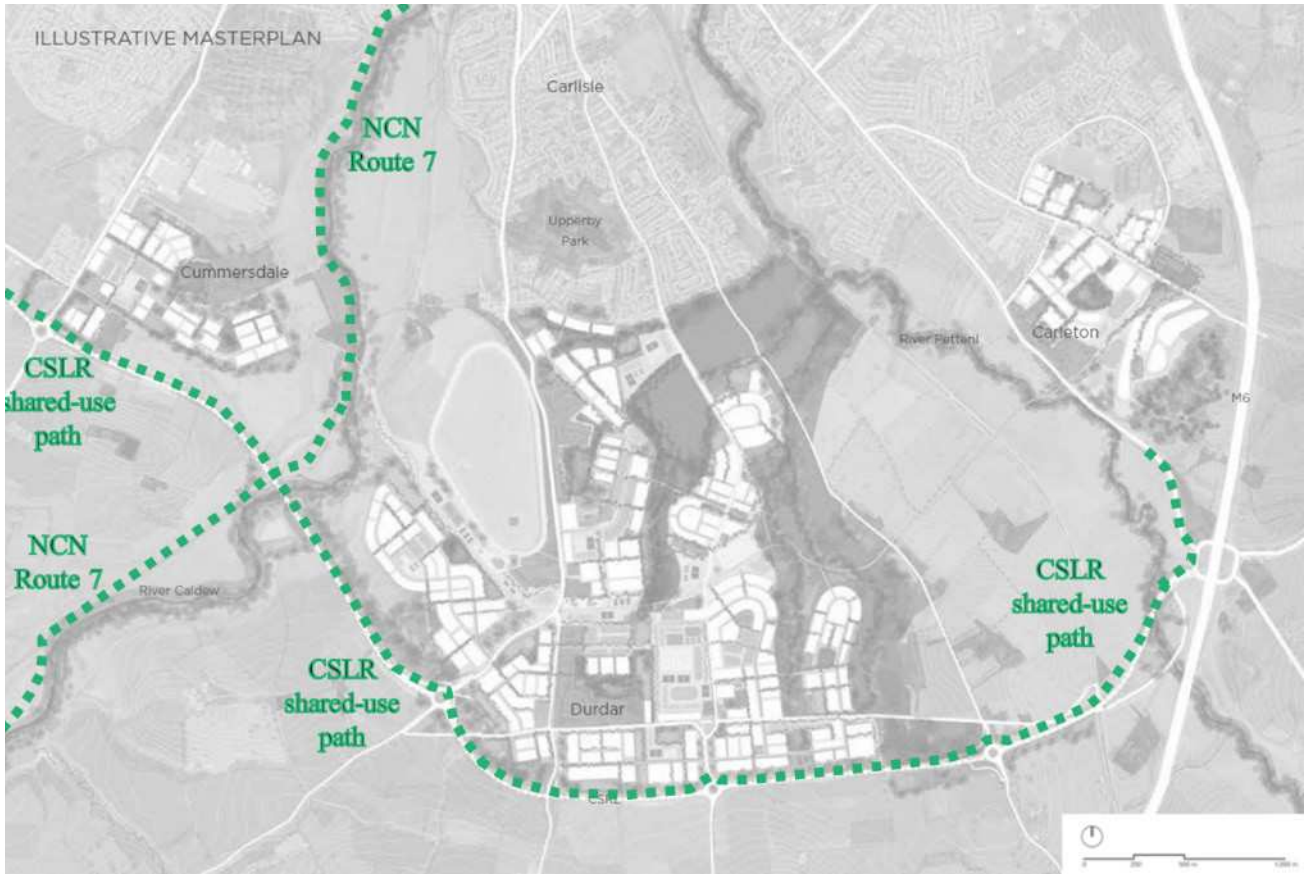



*Figure 1 - Existing/Committed Strategic Active Travel Routes*

This planned strategic walking and cycling infrastructure will complement the wider proposals for the Garden Village and help to provide connectivity between communities and beyond, particularly in early phases of the masterplan as the CSLR will be delivered early in the lifetime of the masterplan. Given the barriers to east-west movement created by the rivers and railway lines, the CSLR potentially has an important role for all modes to connect new and existing communities.

Where practical, PRoW should be retained within the development, though there may be a requirement for limited localised diversions of these routes to incorporate the street pattern of the development. These diversions should seek to minimise any adverse impacts in terms of access and seek to enhance the quality of existing routes where appropriate.

Some of these PRoW provide existing crossings of river and railway routes within the Garden Village area. Some of the key PRoW that would be accommodated within the masterplan include:

- PRoW 129011 – a footpath from Brisco to Carleton that crosses under the West Coast Main Line and over the River Petteril;
- PRoW 129015 – a footpath from Durdar Road (adjacent to Carlisle Racecourse) to Scalegate Road;
- PRoW 129001/129003/129006 – a combination of footpaths linking Durdar to Cummersdale crossing under the Cumbrian Coast Railway Line;
- PRoW 129002 – a footpath from Blackwell to Cummersdale crossing under the Cumbrian Coast Railway Line;
- PRoW 111010 – a footpath crossing over the River Caldew linking PRoW 129001 and PRoW 129002 to Cummersdale; and
- PRoW 129026 – a footpath from Brisco Road to the River Petteril that crosses under the West Coast Main Line before turning north towards a crossing of the River Petteril (via PRoW 109386 and PRoW 109385).

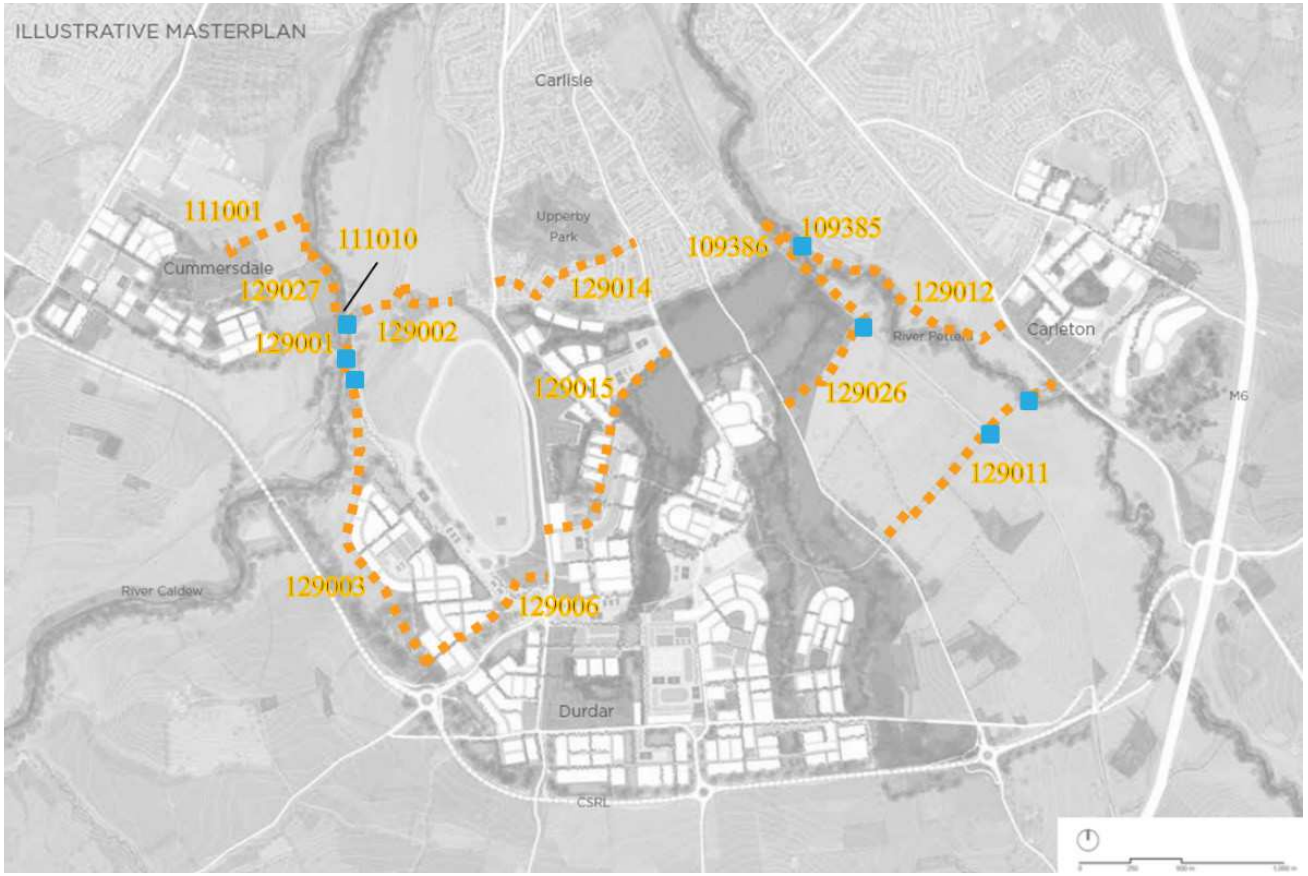



*Figure 2 - Selected Existing Public Rights of Way with River/Rail Crossings*

### 6.2.2 The Greenway

The Garden Village communities would be connected by a proposed new strategic east-west link, the Greenway providing a cycling and walking connection between Cummersdale and Carleton through Durdar.

There are significant railway infrastructure and waterway constraints to overcome to achieve this link. Though existing crossings currently exist, there will be a need to enhance these in particular to ensure accessibility for all.

It is considered that delivering this strategic connection would be essential in order to provide strong internal sustainable connectivity between neighbourhoods and to ensure that existing communities and employment opportunities (such as the potential site adjacent to Junction 42 of the M6) can be accessed without reliance on the private car.

As noted above, the CSLR includes strategic east-west active travel provision in the form of a segregated provision to the north of the new road. This would form a complementary east-west route to the greenway corridor. A connection from the greenway to the CLSR provision is proposed to the west of Durdar which would be of particular importance in the early phases of development prior to the full greenway being established.

Within the existing highway network, Newbiggin Road could become a key east west on-street connection for active travel with the closure of part of the road to general traffic helping to ensure low traffic speeds and volumes to enable and encourage active travel movements.

These strategic corridors would be supplemented by a wider network of walking and cycling routes through the proposed development to create an integrated network of routes to/from and through the Garden Village.


*Figure 3 - Proposed Greenway with River/Rail Crossing Upgrades*


*Fig. 94 Railway underpass*


*Fig. 95 Railway underpass to Durdar*


*Fig. 96 Existing crossing of River Petteril*


*Figure 4 - Proposed Active Travel Network*


*Fig. 97 Entrance to underpass on WCML*


*Fig. 98 Underpass on WCML*

# 6.3 / Creating Low Traffic Neighbourhoods

Within the Garden Village, it is proposed to develop a network of low traffic neighbourhoods. A low traffic neighbourhood is a group of streets bordered by busier vehicle routes in which through access for motor vehicles has been designed out. The inclusion of low traffic neighbourhoods within the Movement Framework & Access Strategy helps to enable walking and cycling as the primary modes for short journeys within the Garden Village. The low levels of traffic that would be experienced within the low traffic neighbourhoods would also help to create a more inviting space for social interaction within the Garden Village.

The proposed network of low traffic neighbourhoods within St Cuthbert's would limit primary vehicular movements to key routes between the CSLR and Carlisle centre (i.e. Dalston Road, Durdar Road and London Road). This could be achieved through strategically located modal filters within the active neighbourhoods which allow cycle and walking movement but prevent through access for cars.

This approach would be applied across adjacent neighbourhoods to create a wider network of neighbourhoods. Adjacent neighbourhoods would be linked together using safe crossings over busier main roads such as Durdar Road and Brisco Road. This strategy would enable walking and cycling for a greater number of journeys over a wider area to, from and within the Garden Village.


*Figure 5 - Potential Low Traffic Neighbourhoods Boundaries and Modal Filters*


*Figure 6 - Proposed Road Crossings and Neighbourhood Connections*

## Mobility Hubs

Mobility hubs are proposed at local centres across the Garden Village. A mobility hub is a recognisable feature within the masterplan, located within local and district centres to serve different and connected transport modes such as public transport and cycling supplemented with enhanced facilities and information to both attract and benefit people moving to/from and within the area. These facilities will help to enable walking, cycling and public transport to be the primary means of access.

A primary mobility hub is proposed within the core of the development, which is anticipated to act as a focal point for transport services within Durdar. This mobility hub would be focused around bus connectivity and could include cycle parking to serve the local centre, ensuring that cyclists had somewhere safe and secure to park their bike whilst using the local centre or when accessing public transport services. In order to reduce car-dependency the mobility hub could provide a car-club facility meaning that should residents need occasional access to a car, they could do so without having to own one. Particular focus could be given to electric vehicles in this context. There may be opportunities to provide shared mobility services or centralised parking in the mobility hub, again helping to reduce the level of private vehicles to be accommodated within neighbourhood streets. Complementary non-transport uses could be provided in these locations. This could include delivery lockers, play areas, cafes and co-working spaces.

A number of secondary, neighbourhood scale, mobility hubs are shown within the masterplan dispersed across the Garden Village. These should be within a convenient 5-minute walk of all residents. Their uses could range from small parklets to facilities with services similar to those described above but on a smaller scale to the primary mobility hub.

This would not only give an opportunity to prioritise sustainable transport but would also provide a chance to foster community connections through integrating pocket parks, places to sit, and small scale commercial units. They would be most effectively located at local centres which generate the greatest demand for the services described above, making sustainable transport choices efficient and convenient.

The secondary mobility hubs could vary in level of provision across the Garden Village with each potentially providing a different range of facilities appropriate to the community that it serves.


*Figure 7 - Provision of Mobility Hubs*

# 6.4 / A Hierarchy of Streets

Within the masterplan a hierarchy of streets is proposed as follows:

- Strategic roads – these will provide access to locations beyond the Carlisle urban area and connect into the wider Strategic Road Network including the M6 and A595
- Main (primary roads) – these will be the main vehicle routes that connect the Garden Village to Carlisle City Centre and the strategic roads.
- Secondary roads would link active neighbourhoods to the main roads and key destinations. These roads would be designed to be low speed and low traffic
- Quiet/residential streets (tertiary roads) would be designed for 10mph maximum speeds and to encourage minimal vehicle usage. Walking, cycling, and socialising/playing would be the dominant uses of these roads.

### 6.4.1 Strategic Roads

The Carlisle Southern Link Road (CSLR) is a new highway link proposed by Cumbria County Council. The link will connect the A595 to the west of Carlisle to the M6 junction 42 along a route to the south of the Garden Village. The link would be a single carriageway with one lane in either direction and a design speed of 60mph.

The CSLR will have a limited number of at-grade roundabouts at the following locations:

- B5299 Dalston Road;
- Durdar Road / Durdar to Dalston Road (west of existing Durdar Road);
- Scalegate Road; and
- Brisco Road.

A new overbridge will also be provided along the alignment of the existing Durdar Road. The CSLR will change the volumes and patterns of traffic using the existing network. Given the significant existing barriers to east-west movement created by the rivers and railway lines, the CLSR has an important role for all modes in connecting the Garden Village.

The CSLR provides an opportunity to review the future role and function of existing road routes between Carlisle and the Garden Village/CSLR for all modes. In addition, the CSLR will effectively bypass Newbiggin Road meaning traffic volumes on this route will reduce significantly. This provides an opportunity to repurpose Newbiggin Road as an active travel focussed route, providing a high-quality east-west link for people walking and cycling, connecting the parts of the Garden Village between the rivers and railway lines. This could require interventions such as modal filters or bus gates to ensure Newbiggin Road is access only to prevent through-traffic.

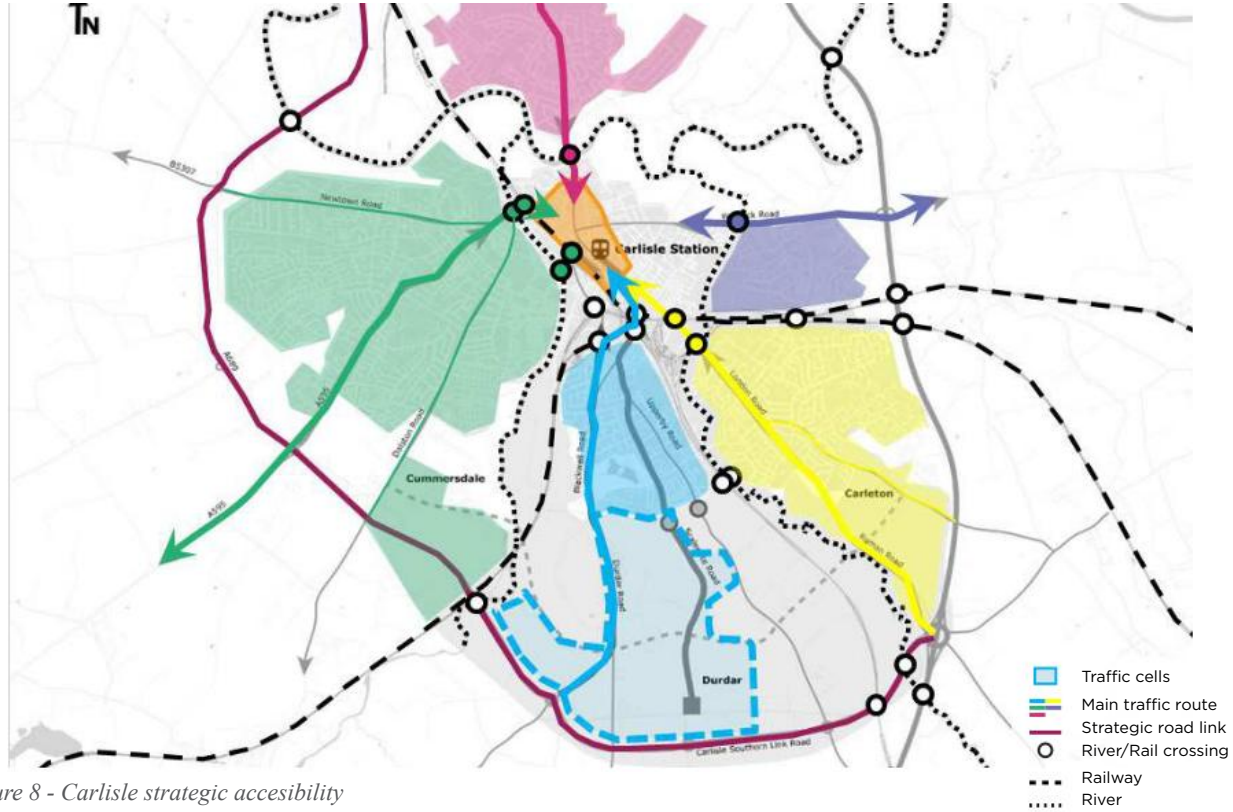
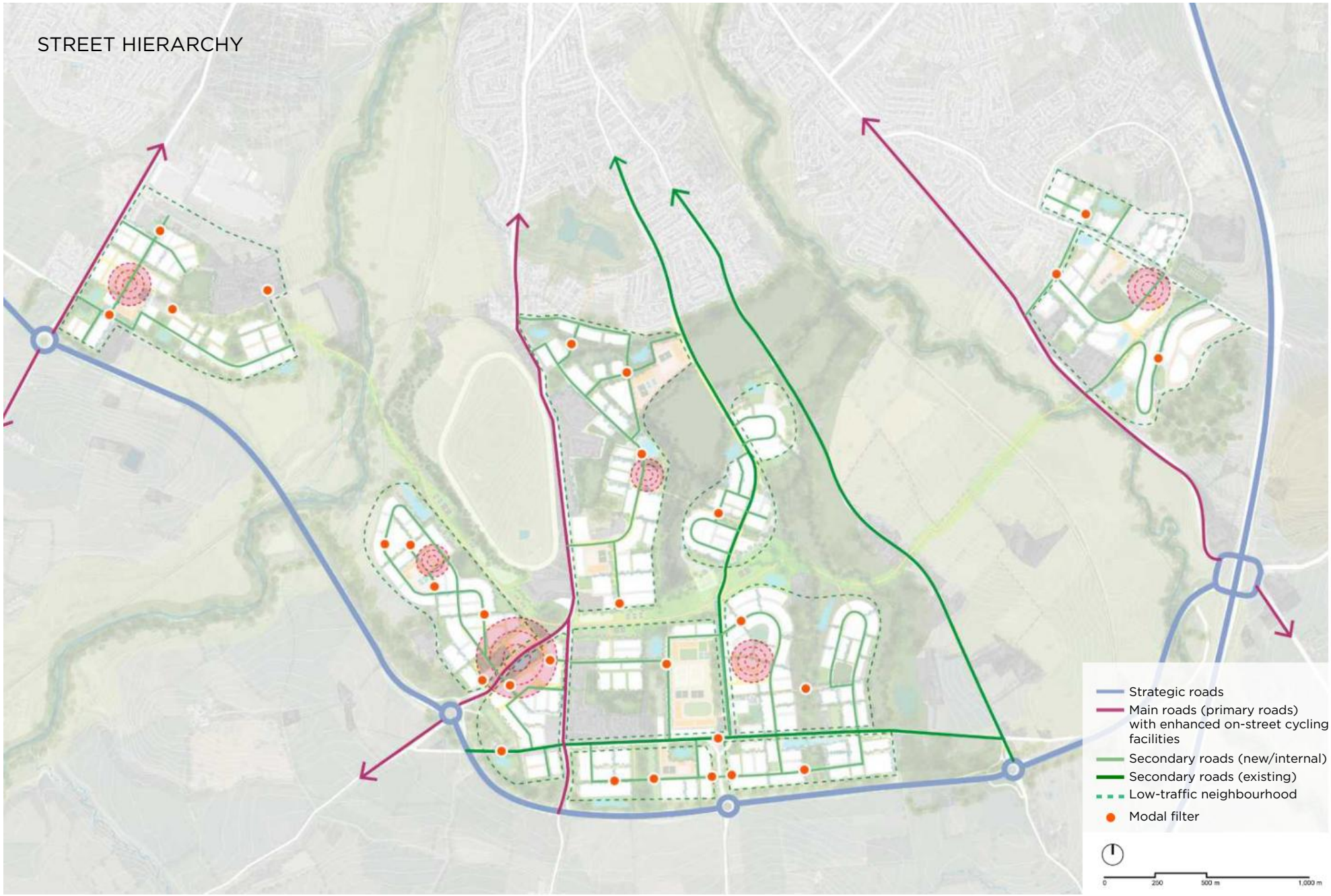



*Figure 8 - Carlisle strategic accesibility*

# STREET HIERARCHY



# 6.4 / A Hierarchy of Streets

### 6.4.2 Main Roads (Primary Roads)

The CSLR, in conjunction with the existing M6 motorway to the east of the City Centre and A689 to the west of the City Centre will create a strategic ring road around Carlisle. The physical barriers of rivers and railways within the City will effectively create a cellular network around the City with each cell having at least one main vehicle route through it.

Dalston Road and London Road are key radial routes between the City Centre and Cummersdale and Carleton respectively. Corridor-wide measures to enhance on-street cycling infrastructure and bus priority will help to prioritise sustainable transport connectivity to/from these neighbourhoods.

The southern cell (blue) of which the central area of the Garden Village forms part, includes three existing radial road corridors:

- Durdar Road;
- Scalegate Road; and
- Brisco Road.

At least one of these corridors would be required to provide vehicular access between the CSLR and areas south of the City Centre. The routes within this southern cell should not need to accommodate strategic access to the City Centre from external locations as this would be likely to use the A6 (yellow route) from the M6 to the east and the A595 (green route) from the west.

The traffic on the radial corridors through the central area of the Garden Village should therefore only be accessing the Garden Village and the existing communities to the south of the City Centre. Access to and from the Garden Village by private car would primarily be to and from the south via the CSLR. Journeys between the Garden Village and the City Centre would be encouraged primarily by sustainable transport modes as set out in Section 6.5.

As set out in Section 6.4.3 , it is proposed that Scalegate Road and Brisco Road are secondary routes with lower traffic volumes and speeds to enable cycling. Durdar Road would be retained as main roads for general traffic use. Due to the spatial configuration of the proposed development, the greatest anticipated increases in traffic flow would be on Durdar Road, with no development proposed to be accessed directly from Brisco Road. The main roads would be intended to function with vehicle speeds of 20mph or above. Footways should be provided on both sides of the carriageway, where practical within available land to encourage and protect walking movements, with a width of at least 2m.

To enable active travel movements, continuous footways could be considered at junctions with minor/residential streets. Buffers between the footway and carriageway could be provided where space allows, potentially supporting the provision of green infrastructure such as street trees and verges.
There is unlikely to be sufficient space to accommodate cycle lanes along either Durdar Road (north of the Racecourse) or Brisco Road and so a ‘minimum’ street section approach may be required.

South of the Racecourse along the new highway that connects the CSLR to Durdar Road, cycle lanes could be provided to provide a segregated connection between the Greenway and the CLSR cycle route.. This new road could be designed closer to the ‘preferred’ street section. Please, refer to the Design Guidance for the illustrations of these street sections.

**On Street Cycle Routes:**

In order to enhance connectivity to/from the City Centre for cyclists, improvements would be proposed along all key radial corridors. Due to the specific character and nature of these routes the type of provision considered would be different. However, the key principles underpinning the improvements to the corridors would be as follows:

- Cyclists will be separated from high-volume traffic flows, both at junctions and on the stretches of road between them wherever possible;
- Cyclists will be treated as vehicles, not pedestrians and will be separated from pedestrians;
- Routes will join together within the City Centre (where a more a comprehensive strategy for improvement is proposed as part of the Local Cycle Walking Infrastructure Plan) and connect into proposed east-west links in terms of the Greenway and the CSLR;
- Routes will be as direct as possible, be logical and be intuitively understandable by all road users;
- Routes and schemes must take account of how users actually behave;
- The route is only as strong as its weakest link and the routes mist therefore be continuous.

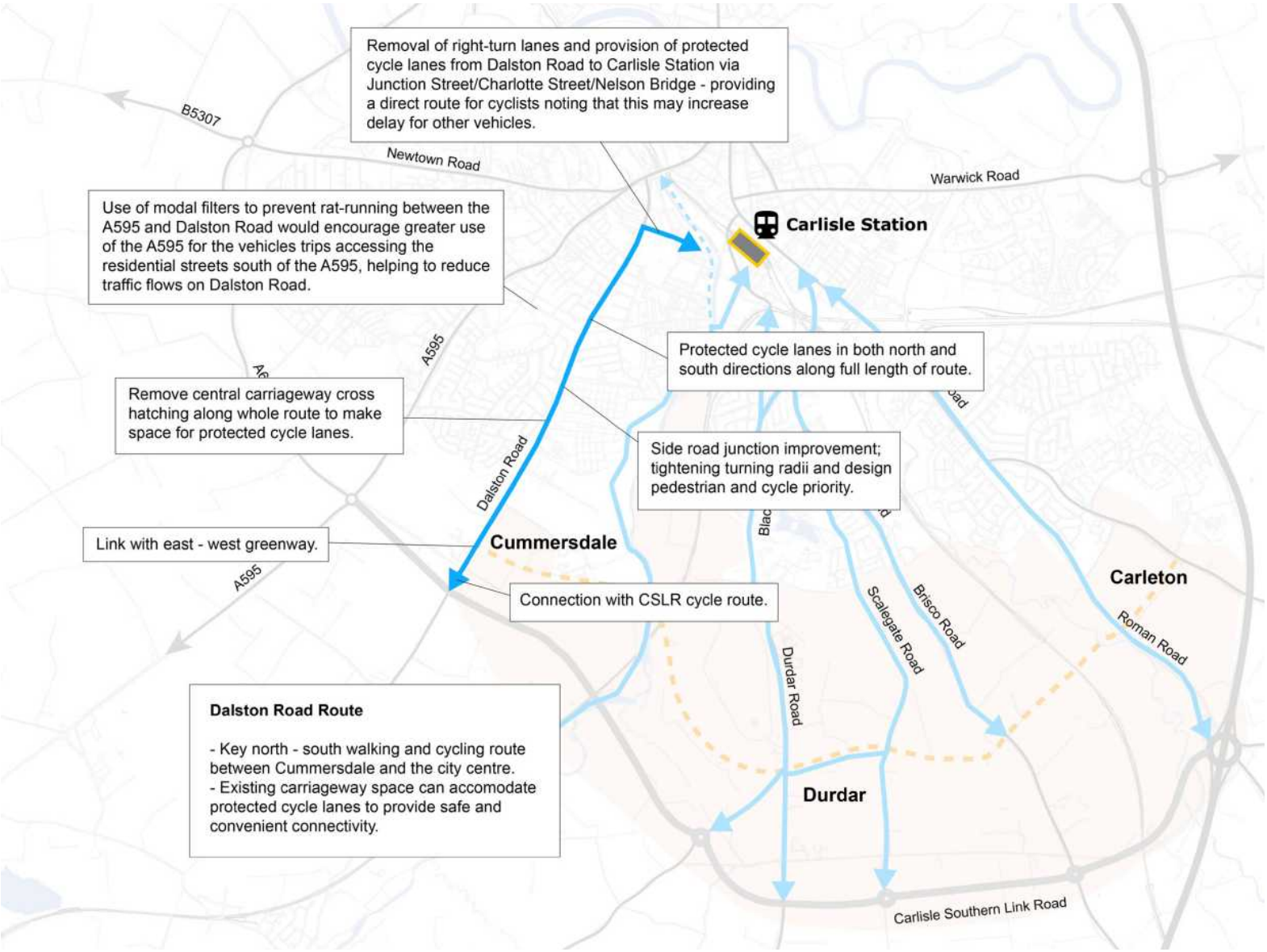
As an early phase of development, the early delivery of an initial phase of the sustainable travel network linking the CSLR and City Centre via enhancements to National Cycle Route 7 and new cycleways on the A6 will help to embed sustainable travel from the outset of development.

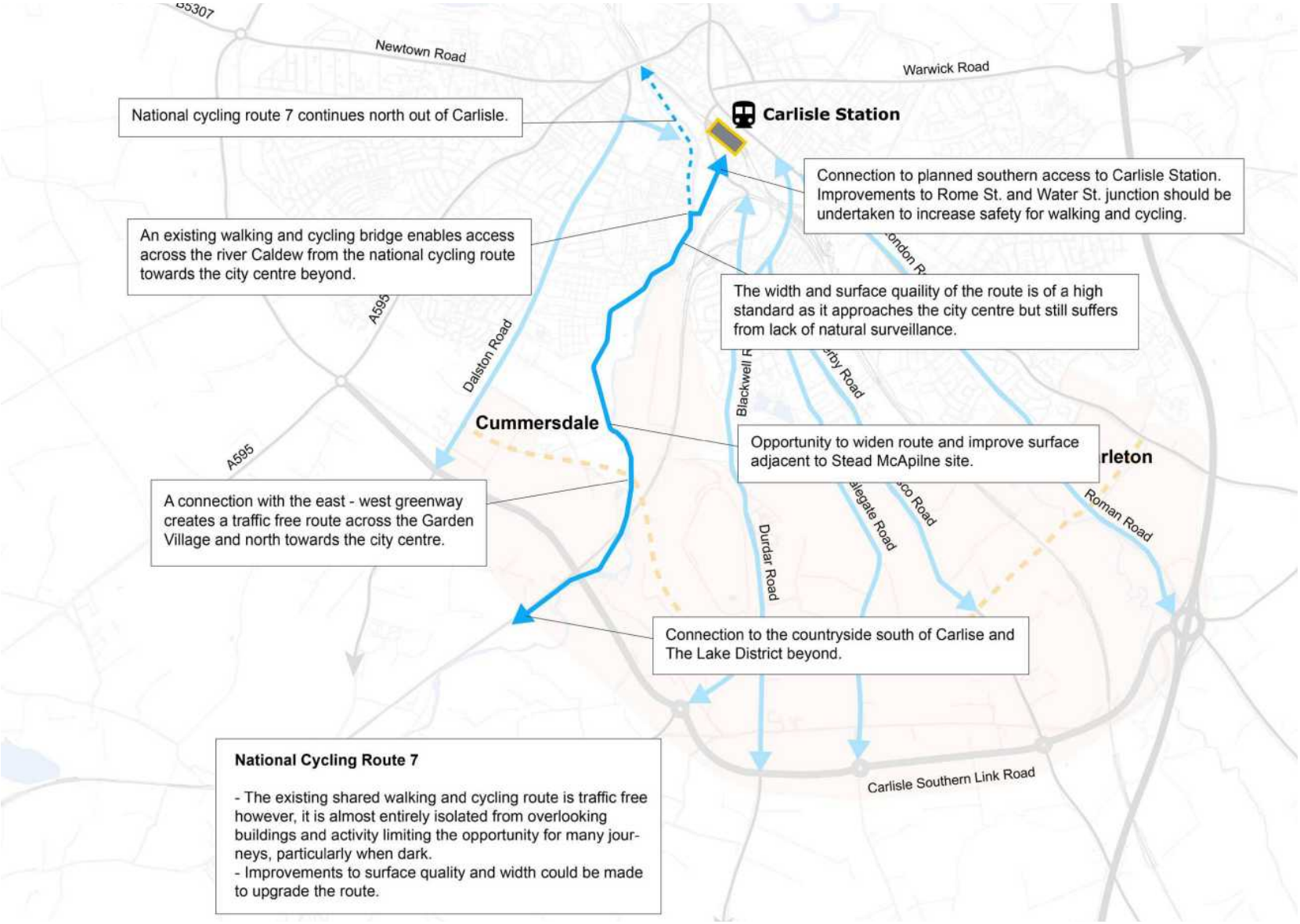
### Dalston Road

Dalston Road is the key radial route to the City Centre from Cummersdale. Walking and cycling connectivity for this part of the Garden Village will be enhanced by improved connectivity to National Cycle Network Route 7, which runs along the River Caldew. This route is recognised as an important strategic link connecting the City Centre to the countryside south of the Garden Village. The traffic-free nature of this route is a positive but as with many off-road routes, there are issues around the suitability of the route during poor weather and after dark. Potential enhancements to encourage greater use of this route could include:

- Route-wide enhancements to the quality of surface, lighting etc;
- Creation of a focal-point/gateway where the route intersects the proposed strategic east-west routes (CSLR and Greenway);
- Widening of the route at specific pinchpoints such as adjacent to the Stead McAlpine site;
- Improved linkages to Dalston Road through the development proposed at Cummersdale.
- Dalston Road provides the alternative, on-road route into the City Centre from Cummersdale. linking to the proposed CLSR cycle corridor. Potential enhancements to encourage greater use of this route could include:
- Removal of central carriageway cross-hatching to provide space for protected cycle lanes;
- Use of modal filters to prevent rat-running between the A595 and Dalston Road an encouraging greater use of the A595 for the residential streets south of the A595, helping to reduce traffic flows on Dalston Road;
- Side-road junction improvements, tightening turning radii and designing in pedestrian and cycle priority;
- Removal of right-turn lanes and provision of protected cycle lanes from Dalston Road to Carlisle Station via Junction Street/Charlotte Street/Nelson Bridge - providing a direct route for cyclists noting that this may increase delay for other vehicles.

# 6.4 / A Hierarchy of Streets



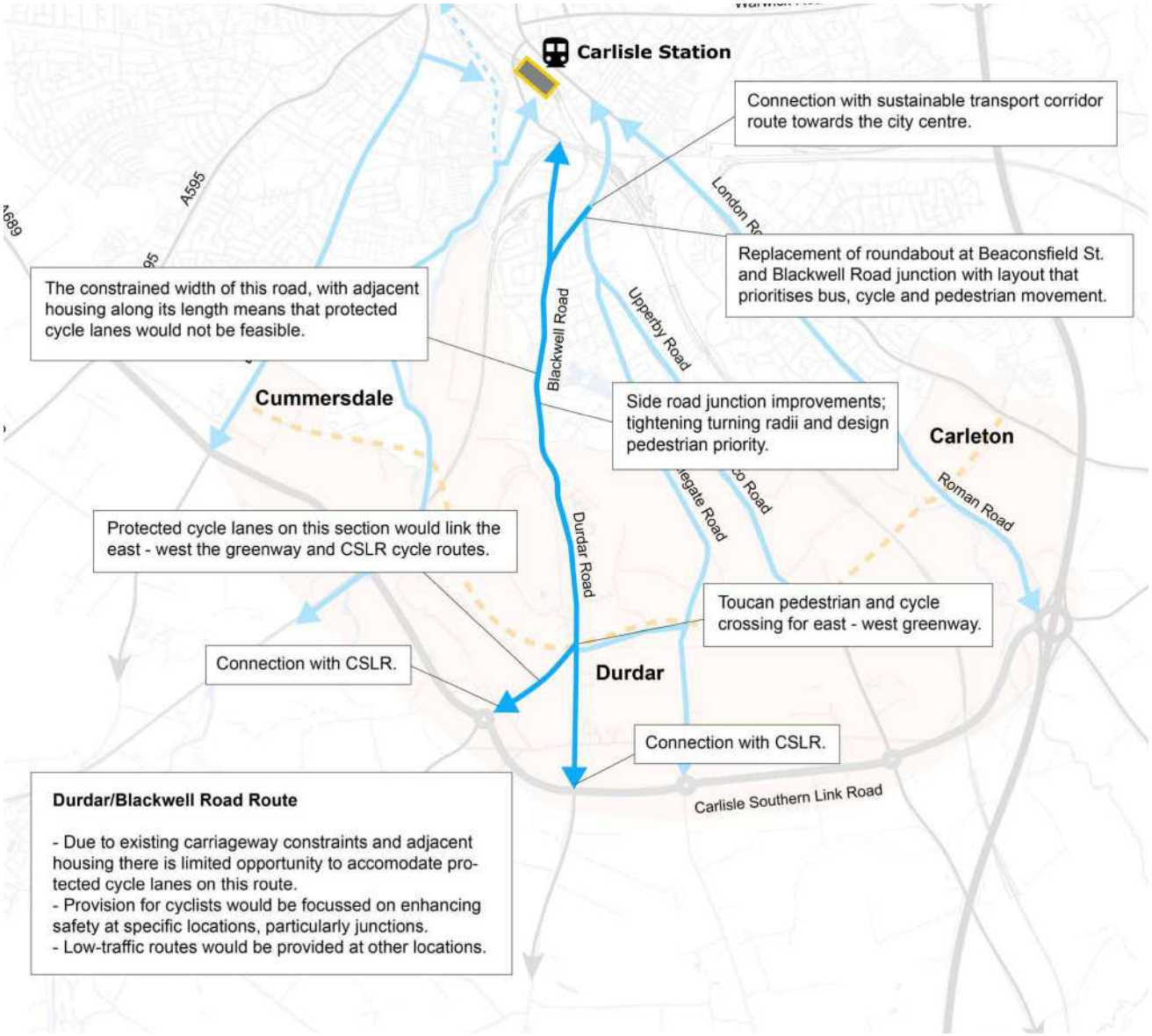

B5307
Newtown Road
Warwick Road
Carlisle Station
National cycling route 7 continues north out of Carlisle.
Connection to planned southern access to Carlisle Station. Improvements to Rome St. and Water St. junction should be undertaken to increase safety for walking and cycling.
An existing walking and cycling bridge enables access across the river Caldew from the national cycling route towards the city centre beyond.
The width and surface quaility of the route is of a high standard as it approaches the city centre but still suffers from lack of natural surveillance.
A595
Dalston Road
Blackwell R
Cummersdale
Opportunity to widen route and improve surface adjacent to Stead McApilne site.
A595
A connection with the east - west greenway creates a traffic free route across the Garden Village and north towards the city centre.
Roman Road
Durdar Road
Connection to the countryside south of Carlise and The Lake District beyond.
Carlisle Southern Link Road
National Cycling Route 7
- The existing shared walking and cycling route is traffic free however, it is almost entirely isolated from overlooking buildings and activity limiting the opportunity for many journeys, particularly when dark.
- Improvements to surface quality and width could be made to upgrade the route.

# 6.4 / A Hierarchy of Streets

### Durdar Road / Blackwell Road

The constrained width of this road, with adjacent housing along its length means that protected cycle lanes would not be feasible. Traffic flows along the corridor would be relatively high, with the route remaining a key public transport corridor with increased bus movements. Provision for cyclists would therefore be focussed on enhancing safety at specific locations, particularly junctions. Low-traffic routes would be provided at other locations. Potential enhancements to encourage greater use of this route could include:

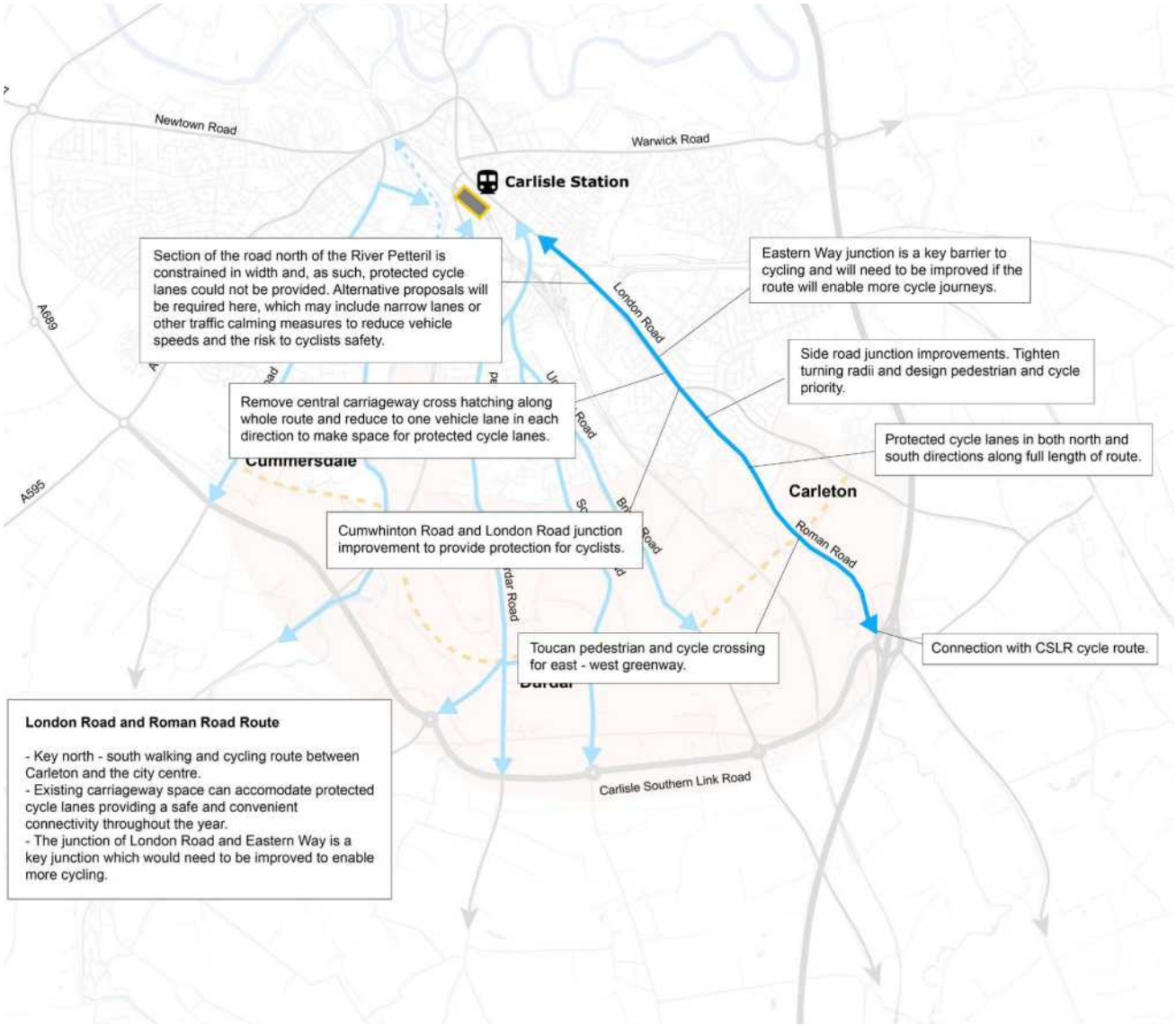
- Segregated cycle route between the existing Durdar Road and the CSLR, connecting the east-west Greenway to the CSLR as part of the strategic cycling network in the area;
- Toucan crossing of Durdar Road at east-west Greenway;
- Side-road junction improvements, tightening turning radii and designing in pedestrian and cycle priority;
- Replacement of roundabout at Currock Road/ Blackwell Road with layout that prioritises bus, cycle and pedestrian movements;
- Replacement of roundabout at Beaconsfield Street/Blackwell Road with layout that prioritises bus, cycle and pedestrian movements;
- Protected cycle lanes at St Nicholas Bridge



## London Road

London Road provides the main route into the City Centre from Carleton and the M6. Improved on-road provision will be required to make this an attractive route for cyclists, linking to the proposed CLSR cycle corridor. Potential enhancements to encourage greater use of this route could include:

- Removal of central carriageway cross-hatching and right-turn lanes to provide space for protected cycle lanes;
- Toucan crossing of London Road at east-west Greenway;
- Junction improvement at junction with Cumwhinton Road to provide protection for cyclists;
- Junction improvement at junction with Eastern Way to provide protection for cyclists;
- There is a section of the road north of the River Petteril that is constrained in width and, as such, protected cycle lanes could not be provided. Alternative proposals will be required here, which may include narrow lanes or other traffic calming measures to reduce vehicle speeds and the risk to cyclists safety.



### 6.4.3 Secondary Roads

Internal and external to the Garden Village, there would be a network of secondary roads linking the active neighbourhoods to the main roads and key destinations. These roads would be designed with a 20mph maximum speed limit.

Where space permits, segregated cycling infrastructure could be provided with continuous footways at junctions between Secondary Roads and quiet/residential streets.

Buffer strips between the carriageway and footways/ cycleways could be created using on-street car parking bays, EV charging points, lighting, or green infrastructure. These roads would primarily be fronted by residential or commercial uses.

#### Scalegate Road

It will be essential that enhanced connectivity is provided between the Garden Village and the City Centre to the north. This connectivity will need to be two-way to enable residents of the Garden Village to access the City Centre, whilst at the same time enabling existing residents of Carlisle to access the Garden Village.

Due to the restricted width of Scalegate Road, there is limited opportunity to provide on-highway interventions to promote sustainable transport modes. As such, in order to help promote the use of sustainable transport modes for longer journeys, along this corridor there is an aspiration to enable sustainable travel modes by maintaining low traffic speed and volumes.

Given the challenges in providing facilities within the carriageway, the route could potentially utilise modal filters such as bus gates to reduce levels of

private vehicle traffic along a direct route between the south of the City Centre and the Garden Village. The corridor would be designed to enable a safer and more inviting route for cycling movements between Carlisle and the Garden Village.

Scalegate Road has been selected as the preferred location for such a route the following reasons:

- The road already has relatively low levels of traffic using it, meaning that there would be a lower requirement to divert existing vehicle trips onto alternative routes;
- Scalegate Road would not be anticipated to experience a significant increase in traffic as a result of the CSLR. Although an access onto the CSLR is proposed at Scalegate Road, this would be intended for local access only with a potential modal filter at Newbiggin Road restricting north-south access;
- The road is centrally located, both within the area proposed for development as part of the Preferred Option and within the southern part of the City Centre, meaning that it would be accessible to the maximum number of new and existing residents;
- The highest density of proposed development within the Preferred Option is located close to Scalegate Road.
- The road passes three existing primary schools north of the Garden Village in addition to the planned school immediately north of the Garden Village and the primary/secondary schools within the Garden Village. Interventions along this corridor could help provide low traffic environments around these schools and connect them to local centres and green spaces with high quality sustainable transport provision – linking to wider social objectives for children's health and wellbeing.

This would complement the other existing, planned and proposed strategic sustainable corridors to create a network serving the south of the City. It is recognised that, to be effective, interventions delivered along the corridor must extend beyond the limits of the Garden Village, particularly to the north providing access to the City Centre. Delivery of this corridor outside of the Garden Village area will be more challenging and will require integration and co-ordination with city- wide transport strategies such as the LCWIP to resolve existing bottlenecks and constraints and ensure that sustainable travel to the City Centre is the preferred option. This is discussed further in Section 6.5.2.

The limited volume of private vehicles using the corridor would mean that reliable bus services and crucially safe on carriageway cycling could be enabled. Successfully delivering this would mean no requirement for cycle lanes. This could provide a safe, direct, and convenient cycle route between the centre of the Garden Village and the south of Carlisle.

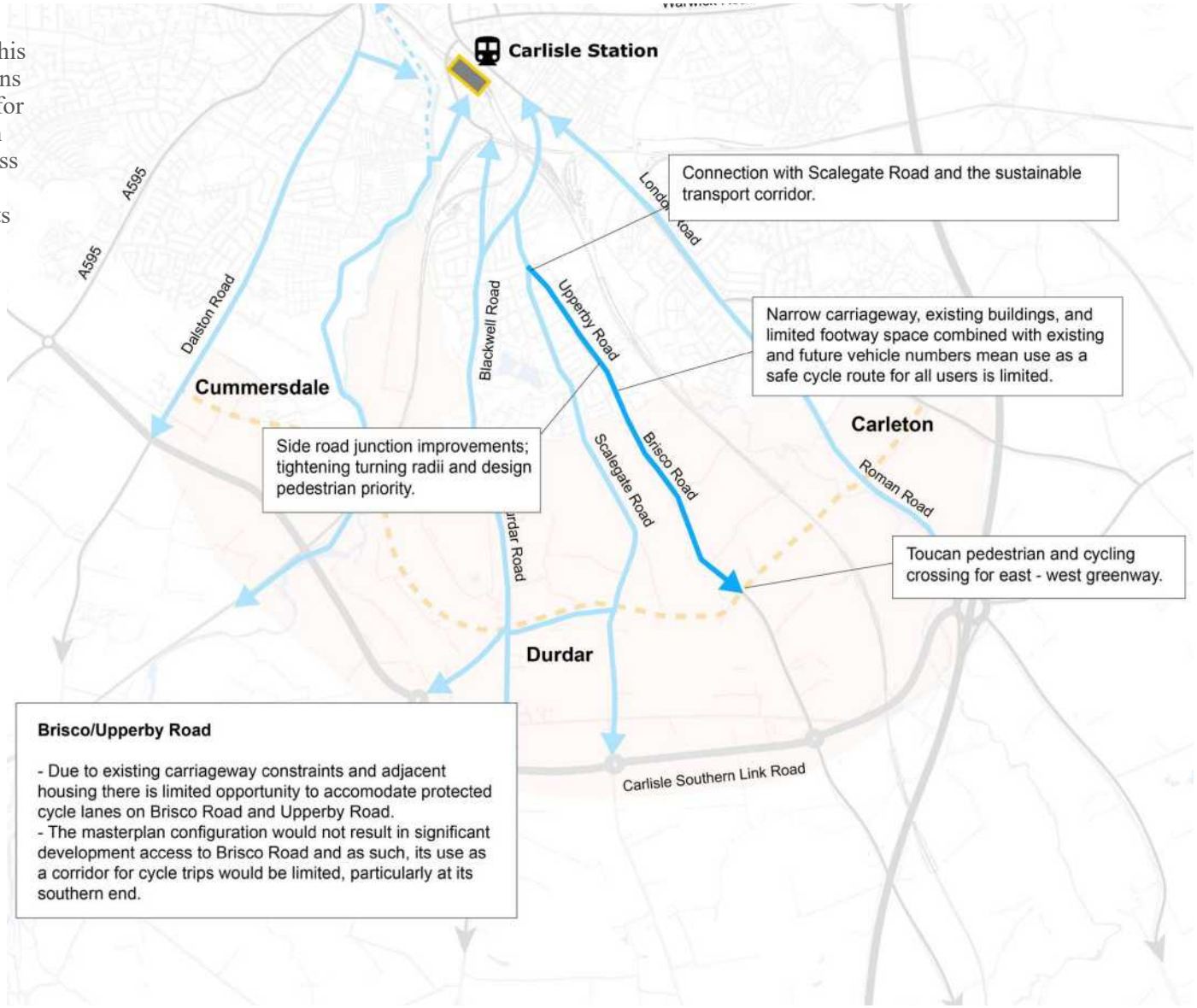
A median strip in the centre of carriageway could be provided to help indicate the different usage of the sustainable corridor in comparison to other main roads. Where practical there should be a buffer between the carriageway and footways, however it is acknowledged that this may not be possible along the full length of then route due to existing space constraints.


*Figure 9 - Strategic Sustainable Transport Network*

# 6.4 / A Hierarchy of Streets

### Brisco Road / Upperby Road

As with Durdar Road, the constrained width of this road, with adjacent housing along its length means that protected cycle lanes would not be feasible for much of its length. The masterplan configuration would not result in significant development access to Brisco Road and as such, its use as a corridor for cycle trips would be limited, particularly at its southern end.



### 6.4.4 Quiet/Residential Streets (Tertiary Roads)

The proposed active neighbourhood cells would permit access by sustainable transport modes, enabling quiet streets to be provided across the Garden Village. Quiet/residential streets could be designed for 10mph maximum speeds and to encourage minimal vehicle usage. Modal filters in the form of bollards, pocket parks, or street trees could be used to restrict vehicle movement to access only.

The design of these streets should indicate that walking, cycling, and socialising/playing are the dominant uses. This could be achieved through traffic calming such as raised tables, build-outs, modal filtering, and minimum possible carriageway widths. Places to sit and green infrastructure such as trees and rain gardens could also contribute to the design of these spaces.

Carriageway space could be designed to provide the minimum practical width of c.6m for two-way movements. Designated parking bays could be provided to minimise pavement parking.

### 6.4.5 Further Development of Proposals

The LCWIP will provide a better understanding of what can be achieved in relation to cycling and walking on the existing road network. This understanding is required so that the assumptions in relation to modal shift are robust and can then be used to define and model what junction improvements may be required.

The highway and transport scope of work will need to include:

- Internal road layout for primary network, cycle network and costings
- Modelling of SCGV traffic flows and impacts for identification of where mitigation is required off-site
- Design and costing of off-site mitigation and infrastructure improvements to support SCGV
- Further modelling to confirm proposed infrastructure will work
- Costed phasing plan for internal road network delivery and off-site mitigation for the Infrastructure Delivery Plan

# 6.5 / City Centre Connectivity

As a key destination for employment and leisure and employment within Carlisle District, the City Centre would be a key destination for residents of the Garden Village. Carlisle Railway Station as well as the Bus Station also form an important public transport interchange for the district. Providing safe and attractive sustainable transport connections between the Garden Village, the City Centre and the Railway Station would be important in encouraging longer distance trips, particularly those outside of the Carlisle District, to be made using sustainable transport modes.

Whilst the transport infrastructure within the Garden Village could be more easily designed to promote sustainable travel towards the City Centre, it will be essential that the transport infrastructure outside of the Garden Village enables the onward journey to be made using these modes of travel.

### 6.5.1 Carlisle Station

The Borderlands Inclusive Growth Deal has secured funding to develop Carlisle Station Gateway and Citadels. This will create a high-profile gateway development for Carlisle to the south of the City, centred around Carlisle Railway Station. There are a number of objectives for the development of the station that are of relevance to the Garden Village. These include:

- Making the station accessible by greener forms of transport;
- Providing high-quality entrances and exits to the station; and
- Making the station user-friendly and accessible, improving parking and drop-off facilities, and easier to navigate around.

Public consultations held in late 2019 and early 2020 identified opportunities to create a southern entrance to the station accompanied by improvements to surrounding streets and junctions to improve access particularly for pedestrians and cyclists. Two design options have been presented, both of which propose new pedestrian access to the station from the south via James Street.

### 6.5.2 Access by Active Travel

The City Centre, and specifically the station, is located approximately 2 miles north of the Garden Village, making it within an ideal distance for residents and visitors to cycle (or even potentially walk). To enable these active travel movements, it will be essential to ensure connectivity between the Garden Village and the City Centre through enhancement of the existing National Cycle Network Route, the provision of quieter, low traffic routes and potential on-street provision where traffic volumes could discourage cycling (for example on the A6 London Road, Durdar Road and Dalston Road)

The continuation of a sustainable corridor along Scalegate Road outside of the Garden Village would be appropriate, though this would be likely to require additional interventions, such as the potential continuation of the active neighbourhoods approach, in order to maintain a quiet, low traffic environment for cyclists.

It may be appropriate to prioritise north-south movements along this route for sustainable transport modes at key points as it crosses existing east-west vehicular routes such as Ridley Road.

At its northern end, Scalegate Road is a no-through route for vehicles. A modal filter here to allow cycle (and potentially bus) access only could allow priority for sustainable transport modes to access onto Boundary Road.

Given the aspiration for a new southern access to the Railway Station, it is important to consider the potential routes for active travel modes between this point and James Street, where a new southern access to the station may be provided. The most direct route to the station would be via Boundary Road / Beaconsfield Street / Currock Road. This route may require interventions to support and enable sustainable transport movements.

- Boundary Road is a through route that carries traffic volumes that could deter cyclists. It would be difficult to provide on-street facilities due to restricted street widths, though measures to reduce traffic speeds could be effective;

- The junction of Boundary Road / Beaconsfield Street is a five-arm mini-roundabout that is not easy to navigate as a cyclist or cross as a pedestrian. Improvements to this junction to enable these modes could provide benefits both to accessibility within this neighbourhood and improved north-south strategic connectivity to and from the Garden Village;

- Beaconsfield Street can currently be used as a through route, though has a weight restriction, limiting its use by heavy vehicles (over 7.5T) and a 20mph speed limit. Whilst it would be difficult to provide on-street facilities due to restricted street widths, there may be potential to further deter or restrict through traffic on this road to maintain low traffic volumes and speeds; and
- Currock Road is a busy road that, due to the commercial land-uses in the vicinity would be likely to experience heavy goods vehicle movements. The road is relatively narrow, especially south of the City Centre, with limited opportunity to provide on-street cycling infrastructure. Alternative considerations to protect cyclists may be required on this section.

The alternative route into the City Centre from Boundary Road is via Blackwell Road/St Nicholas Bridges. This bridge is relatively wide and opportunities to consider dedicated cycle facilities or segregated cycle infrastructure exist. Improvements to junction of this route and Botchergate could encourage this as a primary cycle route between the wider City Centre and the Garden Village.

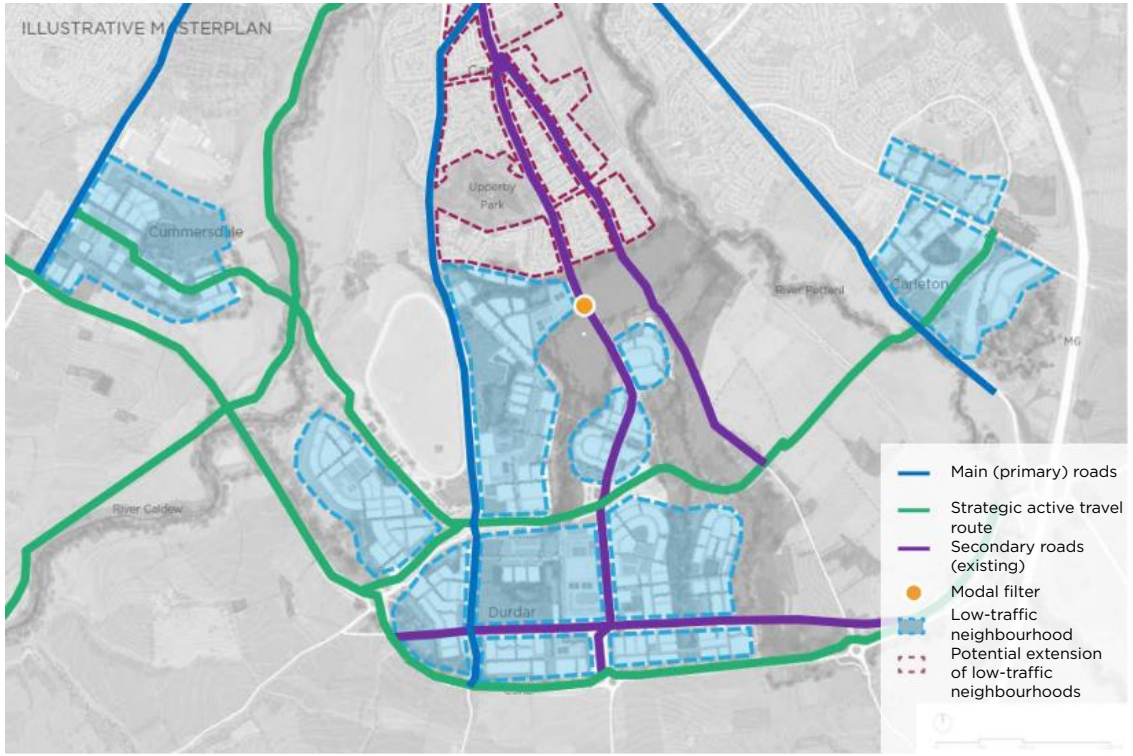



*Figure 10 - Potential Continuation of Active Neighbourhoods Approach Along Corridor*

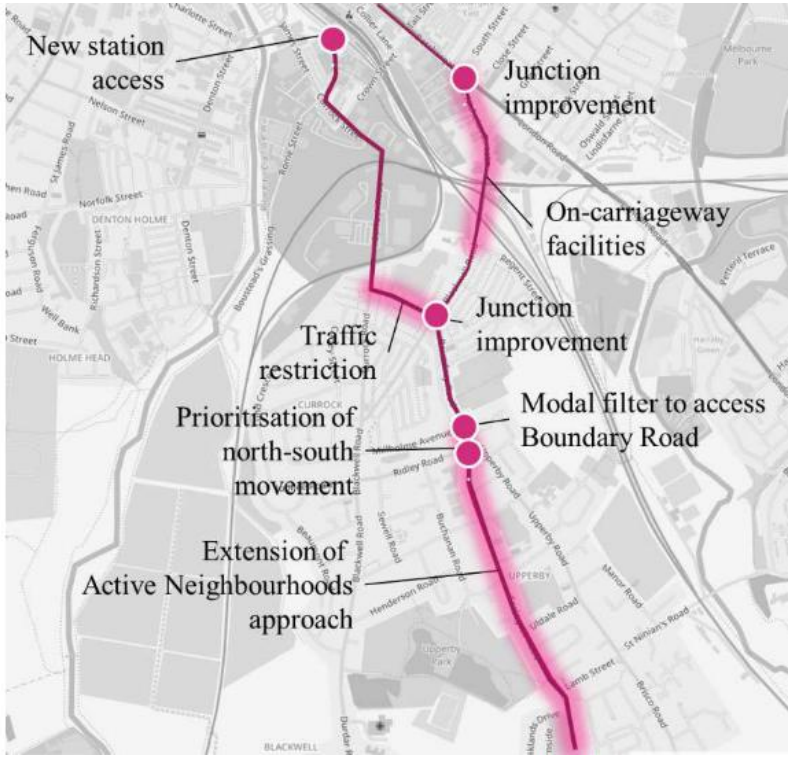



*Figure 11 - Potential Enhancements to City Centre Accessibility*

# 6.5 / City Centre Connectivity

### 6.5.3 Access by Bus

Journeys between the City Centre and the Garden Village that are not undertaken by active travel would preferably be undertaken by bus. Interchange between local buses and rail services will also be important for longer-distance journeys.

Existing bus services from the Garden Village area stop immediately to the north of the Railway Station.

- Services from Cummersdale arrive at the station from the west via Nelson Bridge and Victoria Viaduct.
- Services from Durdar, Upperby and Carleton all arrive at the station from the south-east via the A6 Botchergate:
- Services from Durdar arrive at the A6 Botchergate via Blackwell Road / St Nicholas Street. The services operate a relatively indirect route along a number of residential roads before travelling along Blackwell Road;
- Services from Upperby also arrive at the A6 Botchergate via Blackwell Road / St Nicholas Street. The services currently operate using a one-way loop along Upperby Road/Brisco Road for outbound services, returning to the City Centre via Scalegate Road; and
- Services from Carleton travel along the A6 London Road.

It is anticipated that the existing bus routes to Cummersdale, Durdar and Carleton as shown on the plan below would continue to operate as key bus corridors as described above following the development of the Garden Village. Acknowledging the significant scale of development proposed, it is anticipated that as demand for bus services increases the frequency and level of service on these corridors could increase. This would help to make this mode more attractive as an alternative to car travel.

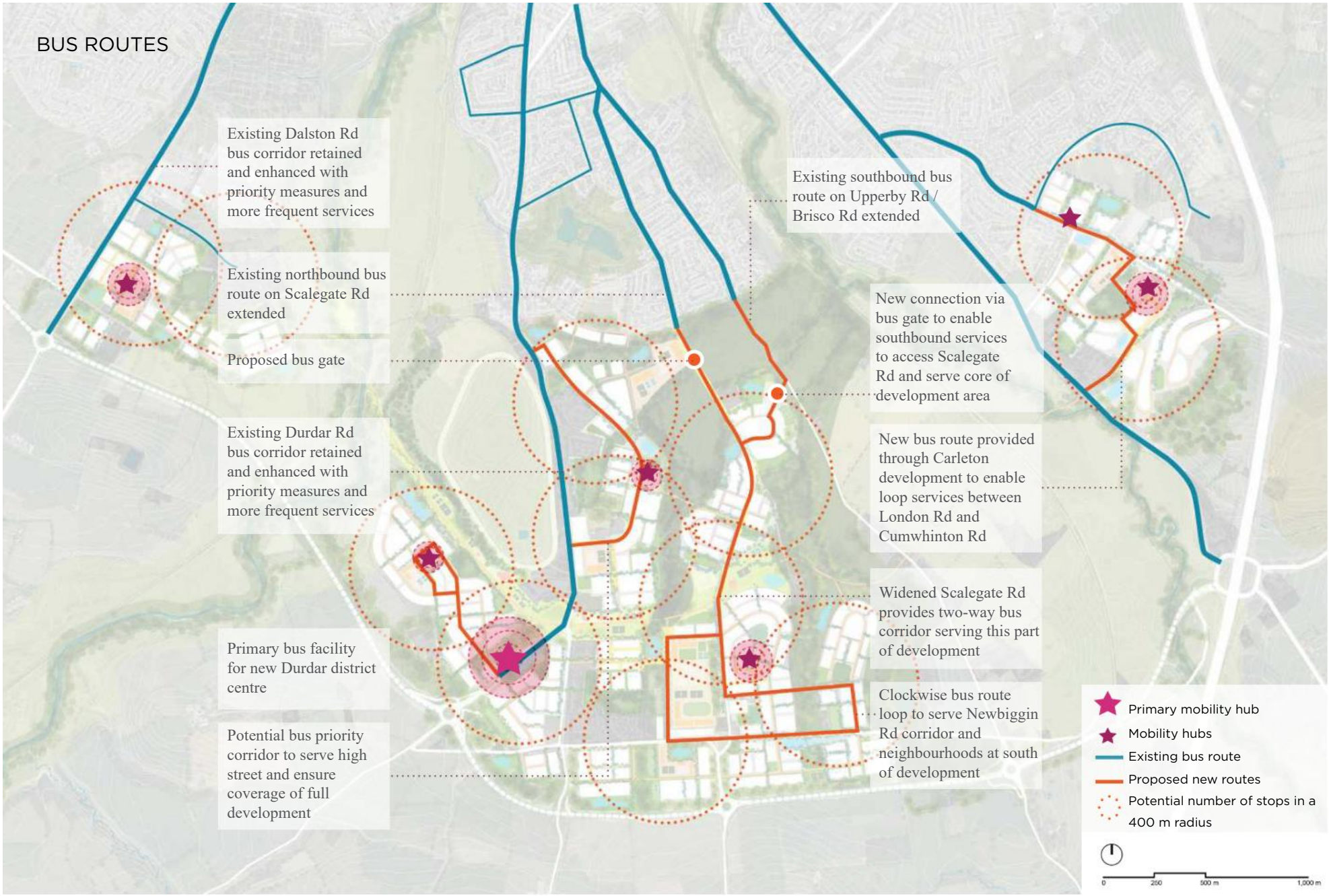
Whilst radial services to and from the City Centre are likely to be the primary focus for the future bus network, there is also potential for orbital services to operate via the CSLR to serve the wider Carlisle area including Kingstown.

There may be opportunities to provide some bus priority measures within the route to Durdar to better serve the proposed development and improve the connectivity for bus services. It is suggested, as show in the plan, that bus stops will be located no further than 400m apart.

Buses on Scalegate Road would naturally feed into the existing bus corridor towards the City Centre. This currently only serves northbound bus services towards the City Centre. Southbound services away from the City Centre travel along Brisco Road. Within the Garden Village, due to the spatial distribution of development proposed it would be preferable for Scalegate Road to have two-way services, terminating at a modal hub.

Limited development is proposed adjacent to Brisco Road. It is therefore not considered appropriate for the southbound services to remain on Brisco Road significantly beyond the point that they currently do. Existing services link between Brisco Road and Scalegate Road via Sunnymeade. Once the Garden Village development is in place it may be appropriate for bus services to continue to operate along both Brisco Road and Scalegate Road within the existing residential areas but for services to combine onto Scalegate Road potentially through a modal filter within the northern part of the Garden Village.

The proposed development within and around Carleton provides an opportunity to connect two existing bus routes, enabling looped bus services to the south east of the City Centre and increasing the potential demand for bus services in this neighbourhood.


BUS ROUTES
Existing Dalston Rd bus corridor retained and enhanced with priority measures and more frequent services
Existing northbound bus route on Scalegate Rd extended
Proposed bus gate
Existing Durdar Rd bus corridor retained and enhanced with priority measures and more frequent services
Primary bus facility for new Durdar district centre
Potential bus priority corridor to serve high street and ensure coverage of full development
Existing southbound bus route on Upperby Rd / Brisco Rd extended
New connection via bus gate to enable southbound services to access Scalegate Rd and serve core of development area
New bus route provided through Carleton development to enable loop services between London Rd and Cumwhinton Rd
Widened Scalegate Rd provides two-way bus corridor serving this part of development
Clockwise bus route loop to serve Newbiggin Rd corridor and neighbourhoods at south of development
Primary mobility hub
Mobility hubs
Existing bus route
Proposed new routes
Potential number of stops in a 400 m radius
0
250
500 m
1,000 m

# 6.6 / Delivering Supporting Infrastructure

As the development is designed in further detail, it will be important to embed the principles set out in this strategy from the outset. This will require a range of development-level infrastructure to be delivered to support and enable travel behaviour choices that are focussed around sustainable travel.

Alternatives to private car travel will need to be provided from the outset and be attractive choices. This includes walking and cycling but also bus travel (e.g. walking and cycling routes to bus stops, cycle parking, bus shelters), bus priority, and shared mobility services (e.g. car clubs).

Car parking must be effectively planned and managed from the outset e.g. through controlled parking zones to prevent issues prevalent across the country of pavement parking which can cause an obstruction and inhibit the independence of many vulnerable people, especially older or disabled people with visual or mobility impairments.

Electric vehicle (EV) charging points will need to be factored into designs to ensure that the neighbourhoods are designed to enable the use of low-carbon transport technology from the outset, e.g. ducting and spaces in carriageways earmarked for EV charging points to ensure they do not take space from footways. Houses with garages/driveways should come with EV charging points as standard.

Secure cycle parking would need to be provided across the Garden Village. Individual dwellings must be designed such that storage of, and access to, cycles is convenient to prevent this from becoming a barrier to cycling. Cycle parking should also be provided at key destinations such as local centres (potentially within Mobility Hubs) but also at other places that people may want to stop and rest or walk, and also outside of the Garden Village (e.g. at Carlisle Station) to ensure that there is suitable provision at either end of the journey. Cycle parking should be suitable for a wide range of cycle types (e.g. e-bikes, cargo bikes, trikes etc) and may also include other facilities for cyclists (lockers for helmets, charging stations etc).

There could be opportunities for innovation/trials to be implemented across the Garden Village, and in particular at the Mobility Hubs. These trials could support the ability of residents to trial new methods of travel, overcoming some of the barriers to implementation of such modes (e.g. expensive initial purchase costs). This could include:

- Electric bikes and scooters;
- Cargo bike share – e.g. community cargo bikes available for people to borrow/hire, e.g. once a week to do the food shop;
- ‘Last mile’ local deliveries from local shops within the Garden Village undertaken by cargo bike; and
- A cycling library to enable people to hire bikes and cycling equipment to try out before purchasing (ideal for cargo bikes and family cycling).

# 7 /

# Sustainability Strategy

# 7.1 / Introduction

This Sustainability Strategy describes how St Cuthbert's Garden Village will be developed in a sustainable manner to ensure it delivers against the overarching vision and provides environmental, social and economic benefits to the local site area, south of Carlisle.

The Sustainability Strategy is a key central document that builds on the vision for the project and presents the sustainability aspirations. At this stage, this Strategy does not include specific sustainability objectives or targets.

The concept of the Garden Village is not new, and they have been part of Britain's urban development history for a long time. The principles of the original Garden Villages included being based on strong industry and employment, and seeking to create well designed, healthy places and affordable homes.

These principles have been carried forward into new wave of Garden Villages to create communities that are vibrant, diverse and affordable.

# 7.2/ Sustainability Overview

At its core, sustainability describes the net positive or negative impacts of a project on the environment and community. A project with a net negative impact each year will deplete resources and not be sustainable in the long term. A project with a net positive impact contributes rather than takes from the local and wider area and is therefore 'sustainable' in the long term.

### 7.2.1 Sustainable Development Goals

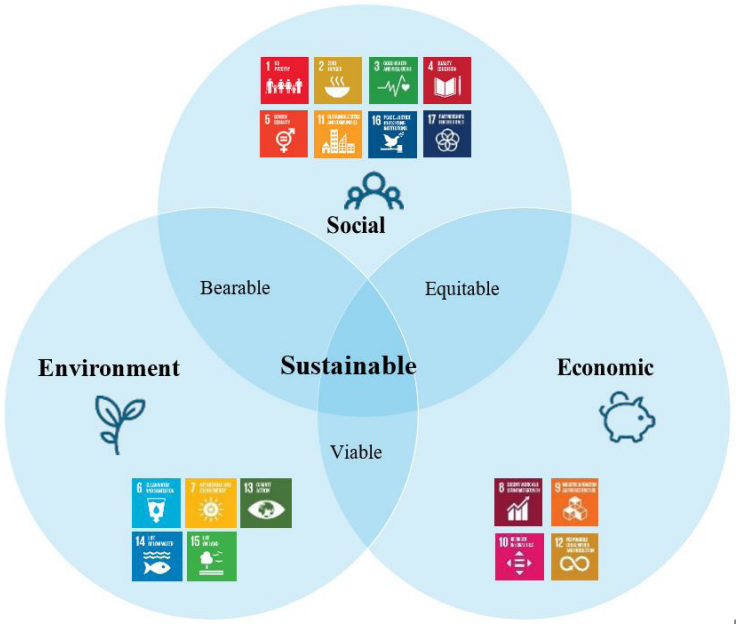
The Sustainable Development Goals (SDGs) are a set of 17 goals developed by the United Nations (UN). The goals cover a broad range of social, economic and environmental issues and set out the main global challenges. The goals provide a universal agenda that is not restricted to developing countries. An increased focus on these issues will provide benefits to all. Section 13 of the report will highlight how the project will influence the SDGs.

A focus on carbon emissions and energy usage are the most commonly recognised ways of being 'sustainable'. These environmental issues are important; however, social and economic factors also contribute significantly to the sustainability of a development.

### 7.2.2 The Three Pillars of Sustainability

When assessing a project's sustainability, the three pillars of sustainability must be considered. The three pillars are: environmental impact, economic impact and social impact. The UN's SDGs address all three pillars of sustainability.


*Sustainable Development Goals*




*The Three Pillars of Sustainability*

# 7.3 / Regulatory Standards and Local Planning Policy

The National Planning Policy Framework (NPPF) was published by the government in July 2018, revised and updated in January 2019.

The document sets out the government's planning policies for England and how these are expected to be applied. This document focuses on the three pillars of sustainability identified in section 2.8 of the NPPF.

The NPPF provides the framework and basis that the local government sustainability policies should build on.

| | |
|---|---|
| *Environmental* | "to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy" |
| *Social* | "to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering a well-designed and safe built environment, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being" |
| *Economic* | "to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure" |

# 7.4 / Regulatory Standards and Local Planning Policy

### Future Homes Standard

The Future Homes Standard is proposed to be introduced in 2025 and details requirements for homes to be future-proofed with low carbon heating and world-leading levels of energy efficiency. The Future Homes Standard has been through consultation, ending in February 2020. The purpose of the consultation was to provide clear vision for implementing the standard and describe the uplift required. This consultation was in parallel to the Building Regulation Consultation for the uplift of energy efficient standards in Part L and Part 6.

### Climate Change Emergency

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 approximately 2049 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.

# 7.5 / Sustainability at St Cuthbert's Garden Village

The performance of the preferred option against the nine principles were described in the Preferred Options report issued in April 2020.

The preferred option masterplan for St Cuthbert's Garden Village creates a series of clusters in close relation to the unique landscape of the context working with the views to Lake District National Park and the Pennines and towards the Solway Firth.

The following page provides an appraisal of the preferred option against the nine principles established in the St Cuthbert's Stage One Vision and Concept Framework. A Red-Amber-Green (RAG) rating has been used to identify areas of weakness that should be refine in more detail in following stages.

Overall, the preferred option performs well against the nine principles established in Stage 1, however provided the level of detailed that Stage 2b reaches, there is an opportunity to deepen further on what makes each development locally distinctive; how St Cuthbert's Garden Village will integrate innovative employment opportunities and finally how the masterplan will be exemplary delivered.

As part of our plan to make St Cuthbert's Garden Village more sustainable, this Sustainability Strategy focuses on five key themes that have emerged from the development of this masterplan:

1. **Energy and low carbon**
2. **Sustainable and active travel**
3. **Health and wellbeing**
4. **Drainage**
5. **Local community and economy**

| 1. Start with the Park | 2. Locally distinctive | 3. Quality homes, lifetime neighbourhoods |
|---|---|---|
| • Landscape elements and corridors weaving in between distinct built clusters bringing the experience of the landscape setting right into the community.<br>• A comprehensive blue and green infrastructure strategy with an integrated SuDs network that attenuates and filters water.<br>• Preserving and enhancing existing landscape areas and qualities such as the river corridors and surrounding farmland. | • Preserving long views to Lake District and the Pennines.<br>• Sensitive integration between existing and new areas with green buffers providing space and definition.<br>• Working with topography, land form and hydrological flows to preserve the character of the area. | • A masterplan framework that allows a mix of densities and a variety of residential typologies delivering housing options for different demographic groups.<br>• Compact, walkable, diverse, mixed use places to support the principle of lifetime neighbourhoods |

| 4. Community focus | 5. Innovative employment opportunities | 6. Healthy environments |
|---|---|---|
| • Distribution of facilities and amenities that are accessible to all, ensuring access through sustainable transport modes<br>• Active neighbourhoods with more safe space for play, more social interaction, and opportunities to enhance a sense of place<br>• Food production to play a central role in the landscape strategy, enabling residents to take ownership of growing areas and allotments. | • Mixed use local centres integrating employment opportunities<br>• Variety of working spaces (including shared and co-working space) and digital infrastructure to foster innovation, entrepreneurship and work-from-home options<br>• Sustainable travel links to Carlisle and surrounding employment areas. | • Generous provision for a wide variety of sports, leisure and recreation, catering to all ages and abilities.<br>• More walking and cycling, less air pollution, more play, and more social interaction leading to better physical and mental health<br>• A landscape framework to maximise gathering points and places for social interaction |

| 7. Smart sustainable living | 8. Integrated sustainable transport | 9. Exemplary delivery and stewardship |
|---|---|---|
| • Enabling more active travel such as walking, cycling, and public transport, leading to lower carbon emissions and greater sustainability<br>• Human scaled streets that are comfortable to walk along, away from air pollution and traffic noise with a focus on routes to schools and community facilities.<br>• Location of mobility hubs to enable easy interchanges between modes and excellent connectivity into Carlisle. | • A mobility approach which limits unconstrained access for private vehicles and increases the opportunity to integrate a variety of active and sustainable modes effectively.<br>• Clear definition of walking and cycling corridors through and across the site in shared or dedicated routes.<br>• Compact layouts to support the mobility strategy. | • A robust delivery strategy is needed if any option is to be successful in realising the vision. |

# 7.5.1 / Energy and Low Carbon

Energy production and consumption is the main driver of greenhouse gas emissions and global warming. An objective for St Cuthbert's will be to promote sustainable energy use and the development of renewable energy resources, where feasible. It will also set out to promote energy efficient buildings whilst maintaining thermal comfort levels.

Appendix 4 of the Baseline Energy Review Report for the site (previously issued) provided an analysis of the policy context for the site ranging to national to local level. This report assumes that underpinning policy drivers are still relevant for the site.

Appendix 4 also included a review of the Energy masterplanning and heat network feasibility study conducted by AECOM under commission from Homes England. As the preferred option shown in Figure 2 follows a similar distribution of buildings and utilisation of space to that assumed in the AECOM report, the critique is assumed to remain broadly relevant however, it is recommended that the study is updated to reflect changes to outline site plans and to reflect Arup comment on underpinning assumptions.

The energy hierarchy gives a representation of the relative impact of various energy supply and reduction options. The hierarchy should be applied to the design of the buildings across the development. It shows that measures which reduce energy consumption will have lower associated costs and lower associated carbon compared to options further down the hierarchy. This section of the report uses the long list of energy and waste supply options presented in the baseline report and provides a high-level narrative regarding the suitability of the proposed site for each of these options. The report categorises measures according to the energy hierarchy and also provides a high-level review of waste disposal and recycling measures for the site.

### 7.5.1.1 Use less energy

**Energy efficiency**

Energy efficient buildings will minimise electricity or heating fuel within the building and therefore cost less to run and will have lower associated carbon emissions. Passivhaus (described earlier) is a voluntary standard for energy efficiency and some of the key principles are dependent on-site layout including:

- Optimised building orientation to maximise penetration of sun during winter,
- High levels of thermal mass,
- Integrated shading to minimise heat gains in summer, and
- Optimised day light penetration.

BREEAM also encourages passive design approaches.

Ability to improve energy efficiency is only partially influenced by site layout however and the energy efficiency of the proposed site can be improved through the following measures:

**Reducing demand measures:**

- Passive design optimisation by selecting fabric elements with high thermal insulation properties, low emissivity (low e) glazing, solar shading and low infiltration rates to minimise heating and electrical loads.
- Enhanced U values, air tightness, minimisation of thermal bridging and exposed thermal mass.
- Optimised orientation and building layout (such as having sleeping areas towards the north side of the buildings).

**Maximise efficiency:**

- Optimised natural ventilation openings and controls,
- Optimised lighting luminaire power density levels,
- Adoption of automatic daylight control in order to reduce operational consumption and co-incident peak demand across a building,
- Adoption of occupancy control sensors for lighting and mechanical ventilation,
- Improved boiler, chiller and heat pump efficiencies,
- Adoption of ventilation heat recovery systems,
- Adoption of variable speed control specifications for fans and pumps,
- Optimised zone control to enable zoned operation,
- Incorporation of best practice energy sub-metering within the mechanical and electrical system design,
- Implementation of best practice building user guides to ensure building occupants understand how to efficiently operate and maximise the potential of installed systems.

These measures should all be considered in the design of the homes and buildings within the development.

### 7.5.1.2 Supply energy efficiently

**Heat network viability**

Due to the higher densities proposed at Durdar it maybe viable to be connect to a district heat network rather than more dispersed options however the distances between clusters is also a key factor in this. It is recommended that the Energy masterplanning and heat network feasibility study (produced by AECOM in October 2018) is revised to reflect current site plans. This report investigated several heat supply options, such as heat take-off from a nearby Pirelli plant, for which further investigation and engagement are recommended. However, this previous study failed to consider key supply options for a heat network including air source heat pumps (ASHPs), water source heat pumps (WSHPs) and on-site anaerobic digestion which could help to create an integrated, site-wide approach to energy and waste management.

The proposed design has both rivers and railway tracks running through it which is likely to make the infrastructure required for a site-wide heat network more expensive to install. Due to these physical barriers, it may be more appropriate for the site to have three distinct networks or to have one central network with building-by-building heat provision for Carleton and Cummersdale.

**Smart local energy system**

The installation of a new development provides an opportunity for an integrated approach to electricity provision. A site-wide electricity micro-grid would allow real-time electricity pricing to promote use of electricity when generation is high. This would work well if renewable energy generation technologies are included throughout the site. An electricity micro-grid could compliment high levels of energy efficiency across the site and an electrical provision of heat as well use of electric vehicles if included in the transport strategy.

The Borderlands Inclusive Growth Deal provides an opportunity for digital innovation funding across the area and could finance an electrical micro-grid for the site. This could either be a physical micro grid through a community agreement or a virtual micro grid. The on site river and railway line would likely limit the viability of a physical micro grid. There is an opportunity for batteries to be incorporated into the energy system to smooth peaks and troughs in supply and demand.

### 7.5.1.3 Use renewable energy

**Renewable heat supply**

As outlined in Appendix 4 of the baseline report, renewable and low carbon heat supplies for the site include:

- Solar thermal,
- Air source heat pumps,
- Water source heat pumps,
- Ground source heat pumps,
- Energy from sewers,
- Deep geothermal,
- Energy from waste, and
- Industrial waste heat.

The space available within the site design does not appear to prohibit any of these options for low carbon heat supply however, a full resource assessment is required to fully understand which technologies should be selected to supply the site. The technologies selected depend partially on the distribution method selected for site-wide heating.

Combined heat and power (CHP) may be a low-capital option for the site and could be fed from gas, biomass or hydrogen fuel-cells. Gas CHP is likely to be a low capital cost option for the site however, will not compare well with other heat supply options in terms of carbon emissions and is unlikely to be in-keeping with the smart and sustainable living aspiration for St. Cuthbert's. Using biomass to heat the site may provide an opportunity to use waste produce from nearby farmland however, this option is also likely to have high carbon emissions and a full assessment should be carried out to compare various distribution and supply options for the site.

The use of hydrogen, either in a hydrogen fuel cell or injected into the gas network, is dependent on the wider ambition for use of hydrogen in the area.

**Renewable electricity supply**

The space surrounding the site provides space for renewable electricity to be generated. This could include:

- Solar photovoltaics,
- Wind generation, and
- Hydropower.

These options could directly supply electricity to EV charging points, to meet domestic electricity demand, to feed into heat pumps or could be exported to the grid.

There is also an opportunity for a Power Purchasing Agreement (PPA) to be established with a local wind or solar farm as a good alternative to on site generation. The site also provides some opportunity for micro-renewable generation which could include:

- Roof-top solar photovoltaics,
- Car-park canopy solar photovoltaics,
- Solar roof tiles, and
- Micro-wind.

A feasibility study is recommended to develop a detailed energy strategy for the development.

#### 7.5.1.4 Waste disposal and recycling measures

The site provides opportunities for either on site or offsite processing for use as a heat source. The waste from the site could also be used for composting to support on-site food production or could be used to create biofuel for vehicles.

#### 7.5.1.5 Further comments on the energy strategy and next steps

The brief strategy above provides a high-level review of the energy and waste options available for proposed design for St. Cuthbert's Garden Village.

A detailed appraisal of the various options outlined is required and the following next steps recommended:

- Success criteria for site energy supply options should be established though discussion with St Cuthbert's Garden Village Strategic Board and prioritised.

- The longlist of energy supply options should be critiqued against success criteria to create an integrated risk matrix for energy supply options.

- A review of heat and electricity demands from around the site should be conducted.

- A review of predicted waste from the site should be conducted and analysis performed to determine the financial viability of on-site energy of waste and to identify potential uses for this heat source such as food production or heat networks.

- A second heat network analysis should be conducted following discussion with Pirelli and building on recommendations made against assumptions as presented in Appendix 4 of the baseline report. This analysis should include exploration of energy from sewers, heat take-off from the near-by trainline or from High Speed 2 (HS2) in the future and further analysis of WSHPs, GSHPs and AD.

- Scenarios for an integrated energy and waste solution should be created from the shortlist and relative strengths and weaknesses explored through a techno-economic and carbon analysis.

# 7.5.2 / Sustainable and Active Travel

Walkability and human-centred design should be used as a catalyst for developing sustainable, healthy, prosperous and attractive places.

The health benefits of walking are well-known—an active lifestyle dramatically reduces the likelihood of chronic disease. But there is so much more to be gained from encouraging walking. A walkable area improves mental health, reduces visible signs of inequality, attracts inward investment, improves air quality and urban micro-climates, and reduces noise.

Sustainable travel is at the heart of St Cuthbert's, making it a place in which walking, cycling, and public transport are the most convenient ways of getting around. This will be key in creating a sustainable and healthy environment. The vision will be achieved through the development of transport corridors that enable sustainable travel between the Garden Village and the centre of Carlisle, the integration of mobility hubs, and active neighbourhood design. This section summarises the benefits of the main proposals which are developed in more detail in chapter 6 of this document, Movement Framework and Access Strategy.

### Sustainable Transport Corridor

Existing and proposed north-south transport corridors will utilise a combination of on-street cycle segregation, modal filters and reduced levels of private vehicle traffic along direct routes between the City Centre and the Garden Village. Reliable and more frequent public transport connections and safer, more inviting routes for cycling will enable sustainable movements to and from the Garden Village.

### Mobility Hubs

Mobility hubs will create a convenient and effective interchange space for different transport modes by bringing together features such as cycle parking, electric vehicle charging points, and bus stops. This will not only give an opportunity to prioritise sustainable transport but will also provide a chance to foster community connections through integrating pocket parks, places to sit, and small-scale commercial units. They will be most effectively located at local centres which generate the greatest demand for trips.

### Active Neighbourhoods

St Cuthbert's will include active neighbourhoods. An active neighbourhood is a group of streets bordered by major vehicle routes in which through access for motor vehicles has been designed out. This makes it more convenient to walk and cycle for short journeys. The low levels of traffic also create a more inviting space for social interaction.

Applying this approach across adjacent neighbourhoods and linking them together using safe crossings over busier main roads, creates a network which enables walking and cycling for a greater number of journeys over a wider area.

The network of active neighbourhoods within St Cuthbert's will limit primary vehicular movement to key routes between the CSLR and Carlisle centre. This will be achieved with strategically located modal filters which allow cycle and walking movement but block through access for motor vehicles.

The neighbourhoods will be linked with high quality crossings over major roads and will connect into a key east-west cycling and walking route between Cummersdale and Carleton.

# 7.5.3 / Health and Wellbeing

Health and wellbeing is a key driver. The design and quality of the buildings and the surroundings they are in can directly contribute to the health and wellbeing of the residents and users of the spaces. Designing buildings, developments and spaces, which have comfortable internal environments that maximise good day lighting, with local facilities and open space, helps to enhance the health and wellbeing of the building's occupants and visitors.
A number of key health and well-being themes have been identified for the project:

1. Healthy indoor spaces
2. Healthy outdoor spaces
3. Accessibility, inclusivity and safe environments

Each one is described in more detail below.

### 7.5.2.1 Designing healthy indoor spaces

The homes and other buildings should look to apply the principles below within their design.

#### Visual Comfort

Visual comfort is a significant contributor to overall health and wellbeing. For each building within in the development, a number of factors should be considered to improve the overall visual comfort, including:

- Controlling the glare of sunlight, which can be discomforting and distracting to building users.
- Maximising the daylight factor and provide views out. This increases occupants' exposure to natural light and provides external views, enhancing their connection to nature, thereby improving mental wellbeing through improved moods, reduced symptoms of depression and support of circadian rhythms.
- Internal and external lighting zoning and control, enabling building users to have control of their indoor environment has been shown to improve user satisfaction and mental wellbeing.

#### Indoor Air Quality

Poor standards of indoor air quality can have a negative effect on occupant health, these effects can be immediate such as throat, nose and eye irritation, headaches and fatigue, or be longer lasting and more serious. Long term health issues arising from poor indoor air quality include asthma, heart disease and cancer. Ensuring that homes are well-ventilated and reducing air pollutants will enhance indoor air quality.

#### Thermal Comfort

Extreme indoor temperatures are linked to an increased risk of illness and have a direct effect on health and wellbeing. Measures will be taken to reduce extreme winter and summer temperatures: dynamic thermal analysis should be completed for the buildings ensuring comfortable indoor temperatures across the year. Future weather scenarios will also be considered, improving the climate resilience of the development.

Passive measures such as a reduction in façade glazed area and incorporating internal / external shading to limit solar gains can help lower indoor temperatures

#### Acoustic performance

Noise within homes can come from various sources, including building systems, occupants, equipment, from neighbours and other sources outside the home. Excessive noise can have a range of adverse effects on occupants including inconvenience and annoyance, loss of concentration, reduced productivity and disturbed sleep

It is important to manage noise within a home to increase occupants' comfort, reduce negative impacts of noise on the occupants' ability to carry out various tasks (for example, when working from home) and

to provide privacy. As a result, sound insulation and layout is an important consideration when designing, using and building homes. Good home acoustics should allow rooms to be used as intended, without affecting other areas or activities.

Designing the homes at St Cuthbert's to meet specific acoustic performance standards for sound insulation and noise levels (both inside and outside) will support comfort for occupants.

#### 7.5.2.2 Designing healthy outdoor spaces

Building on Carlisle's designation by the Health Organisation as a World Healthy City, the preferred option masterplan for St Cuthbert's Garden Village proposes a place that promotes healthy and active lifestyles by encouraging sustainable transport like cycling and walking; close contact with nature; mix of uses fostering local economy; food production and a variety of open spaces and recreation.

A landscape-led approach ensures that the environment created by green and blue infrastructure within and surrounding the Garden Village maximises the health and wellbeing of its residents and visitors.

The preferred option masterplan for St Cuthbert's Garden Village creates a series of clusters in close relation to the unique landscape of the context working with the views to Lake District National Park and the Pennines.

The different clusters are connected through a sustainable transport network that promotes and facilitates the use of cycling and public transport and ensures well connectivity to Carlisle and the surrounding countryside.

Each cluster will be located no more than a 5-10-minute walk to an active and mixed use-centre, with both local facilities and employment opportunities.

#### 7.5.2.3 Creating accessible, inclusive and safe environments

Safety and security play an important role in the overall wellbeing of the building users. Passive surveillance measures should be considered as part of the design of site, such as maximising the visibility of people and through the location of building entrances.

The development should be designed to be inclusive to all ages and levels of mobility, ensuring the widest mix of users and uses are considered inclusive. Where feasible, measures to consider include:

- Level thresholds incorporated throughout
- Ramps and lifts will enable full access to all
- A provision should be made to provide accessible toilets on all floor levels, where possible.

# 7.5.4 / Drainage

A number of measures are being taken to increase the resistance and resilience of the development to flooding. The masterplan has been developed in line with the EA flood mapping. The site is primarily within Flood Zone 1 and at low risk of flooding. Development within Flood Zones 2 and 3 has been avoided.

The primary philosophy for the surface water drainage strategy (refer to Drainage Strategy report) is to replicate the existing site catchments, preventing any increase in discharge to downstream receptors whilst minimising on-site flooding using at-source SuDS.

The design of the drainage must comply with local and national guidelines and regulations. However, St Cuthbert's Garden Village will be phased over several decades, during which regulations, guidance and the philosophies of statutory undertakers may change. The detailed drainage design for each phase will need to evolve in line with changes to regulations and best practices.

Localised constraints may be encountered, such as ground conditions, possibility of contamination, high urban density in some locations, all of which are likely to limit the use of infiltration solutions. Therefore, the suitability of each SuDS solution should be reviewed for appropriateness albeit without undermining the proposed hierarchy of preference.

The Developer of each phase/plot will be required to assess the suitability of SuDS types on a site by site basis, following the hierarchy below.

1. Water Re-use
2. Soft landscaping features – Where possible using infiltration.
3. Hard landscape features
4. Below-ground features

Source control measures to reduce the volume and rate of run-off are to be incorporated during the design of the development of the plots. Consideration should be given towards SuDS such as Green/Blue roofs, permeable paving, rain gardens and infiltration trenches. Finally, opportunities for water reuse should be reviewed on a plot by plot basis.

Where larger areas of soft landscaping are introduced and appropriately located, rain gardens, ponds, wetlands, and areas for bioretention should be considered as part of the downstream landscaping strategy.

A holistic approach to the planning, design and implementation of the drainage is a fundamental requirement. Early, and ongoing, engagement by all parties, (including Stakeholders, Developers, and all designers) is key to defining solutions which meet the project objectives and are acceptable to the end users.

The drainage systems haven't simply just been considered as a means to convey and dispose of water. The SuDS system has been considered in terms of recreational features and environmental net gain. Considerations have included:

- Reduction of flows entering existing systems, thereby potentially reducing upgrade requirements and limiting disruption
- Opportunities to create amenity spaces which can promote recreation and improve health and wellbeing,
- Potential reuse of water in order to reduce overall water consumption
- Enhancement of biodiversity and improvement to water quality of existing water courses
- Increase in green spaces which can improve both air quality and area desirability, with potential to increase property value.

# 7.5.5 / Local Community and Economy

The design of the development can influence the way the community functions and engages with one another. Providing spaces and facilities within the development can help to create an integrated community.
The construction of the development will play a significant role in the creation of new jobs and generate employment opportunities. The effects would not just be limited to those employed by the client and contractor but could also benefit other businesses within the supply chain and the local businesses near the development.

### Job creation

The preferred option includes a total of 46,000 sqm of working spaces. Durdar has the largest concentration of this use with a smaller amount in Cummersdale and Carleton. These spaces will improve the attractiveness to business, providing additional permanent jobs to people in the local area.
During the construction phase, a number of jobs will be created for local businesses and contractors that are likely to have a high level of local employees. The proposed develop will also create a number of jobs within the schools created.

### Supporting local businesses

The proposed development and the communities created is likely to bring further footfall through Carlisle, which in turn will support local businesses and economy.

### Apprenticeships and work placement opportunities

The proposed development presents an opportunity to partner with local colleges and suppliers. Specific objectives and targets would need to be developed in agreement with the client within the early stages of the project, but it recommended that this includes the creation of apprenticeship opportunities.
As part of the construction process, a significant number of apprenticeships could also be created. Efforts should be made to encourage applicants from a wide variety of backgrounds to continue the construction industry's work towards a diverse workforce. Arup recommends that Carlisle City Council work with their construction contractor partners to ensure the maximum benefit to the local area.

### Fair payment

It is recommended that clauses are included within the contract to ensure there are conditions of employment (and sub-contracting) to ensure fair dealings and living wages and the safety of those constructing and maintaining designs

### Local labour

The project will use local labour and SMEs to support the local economy. This will help to upskill the local communities and enhance future job opportunities.

# 7.6 / Recommended Environmental Quality Standards

There are a number of standards that could be considered on the project to act as a framework to help deliver more sustainable outcomes. These are described in this section of the report.

### 7.6.1 Passivhaus Standard

Passivhaus is an international energy performance standard with buildings constructed to the Passivhaus standard. The core focus of Passivhaus is to dramatically reduce the requirement for space heating and cooling, whilst also creating excellent indoor comfort levels. This is primarily achieved by adopting a fabric first approach to the design by specifying high levels of insulation to the thermal envelope with exceptional levels of airtightness and the use of whole house mechanical ventilation.

To achieve the Passivhaus Standard in the UK typically involves:

- accurate design modelling using the Passive House Planning Package (PHPP)
- very high levels of insulation
- extremely high-performance windows with insulated frames
- airtight building fabric
- 'thermal bridge free' construction
- a mechanical ventilation system with highly efficient heat recovery

| | Passivhaus performance target |
|---|---|
| Primary energy demand | < 120 kWh/m2.yr |
| Space heating demand: | < 15 kWh/m2.yr |
| Space cooling demand: | < 15 kWh/m2.yr |
| Specific cooling load: | < 10 kWh/m2.yr |
| Airtightness: | < 0.6 air changes/hr @ n50 |

An aspiration for the St Cuthbert's could be to apply the Passivhaus Standard principles and/or go for full certification, where feasible. Embedding this into the design and construction will help deliver low energy and low carbon buildings.

### 7.6.2 BREEAM

BREEAM (Building Research Establishment's Environmental Assessment Method) is the world's leading and most widely used environmental assessment method for buildings. It sets the standard for best practice in sustainable design and has become the de facto measure used to describe a building's environmental performance.
There are different BREEAM Standards that can be applied depending on the type, stage and scope of the project.

- Communities (Masterplanning)
- Infrastructure (Civil Engineering and Public Realm)
- New Construction (Homes and Commercial Buildings)
- In-Use (Commercial Buildings)
- Refurbishment and Fit-Out (Homes and Commercial Buildings)

BREEAM Communities is a way to improve, measure and certify the social, environmental and economic sustainability of the plans for large-scale developments by integrating sustainable design into the master planning process.

The New Construction standards can be used to assess the design, construction, intended use and future-proofing of new building developments, including the local, natural or manmade environment surrounding the building. The standards can be used to assess most types of new buildings, including new homes and new-build extensions to existing buildings. Each uses a common framework that is adaptable, depending upon the building's type and location.

BREEAM embraces a wide range of topics which cover the whole construction process, from site selection through to handover and post-occupancy evaluation.


Each category is sub-divided into a range of assessment issues, each with its own aim, target and benchmarks. When a target or benchmark is reached, as determined by the BREEAM assessor, the development or asset score points, called credits.

The category score is then calculated according to the number of credits achieved and its category weighting. Once the development has been fully assessed, the final performance rating is determined by the sum of the weighted category scores

A single overall score on a scale of Pass, Good, Very Good, Excellent and Outstanding.


An aspiration for the St Cuthbert's could be to apply the BREEAM principles and/ go for full certification. Applying the BREEAM standard would deliver a more sustainable buildings with lower environmental impacts and would enhance the health and wellbeing of the building users.

### 7.6.3 Home Quality Mark

The Home Quality Mark (HQM) is an independently assessed certification scheme for new homes. It awards certificates with a simple star rating for the standard of a home's design, construction and sustainability.

The assessments are focused on the needs and expectations of people living in the home. Every home with an HQM certificate meets standards that are significantly higher than minimum standards such as Building Regulations.

HQM certification aims to demonstrate that a home:

- has a reduced effect on the environment
- benefits health and wellbeing
- costs less to run, and
- meets a level of quality that can be trusted.

An aspiration for the St Cuthbert's could be to apply the HQM principles and/or go for full certification.

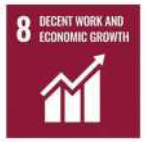
# 7.7 / How St Cuthbert's Impacts on the SDGs

The table below describes the actions and impacts that can be taken at St Cuthbert's to contribute towards delivering sustainable outcomes and having a positive impact on the global SDGs.

| *Goal* | *Overview of the goal* | *Impact by St Cuthbert's Garden Village* |
|---|---|---|
|   | ***End poverty in all its forms everywhere***<br><br>Giving people in every part of the world the support they need to lift themselves out of poverty in all its manifestations is the very essence of sustainable development. Goal 1 focuses on ending poverty through interrelated strategies, including the promotion of social protection systems, decent employment and building the resilience of the poor. | A positive impact within this goal can be achieved by reducing poverty through providing job new opportunities during the construction phase and by also creating permanent jobs in the local area. The preferred option includes a total of 46,000 sqm of working spaces. Durdar has the largest concentration of this use with a smaller amount in Cummersdale and Carleton.<br><br>A mix of densities and a variety of residential typologies delivering housing options for different demographic groups will be provided at St Cuthbert's. By providing affordable housing, St Cuthbert's will also have a positive impact on this goal. |
|   | ***End hunger, achieve food security and improved nutrition and promote sustainable agriculture***<br><br>Goal 2 addresses a fundamental human need—access to nutritious, healthy food, and the means by which it can be sustainably secured for everyone. Tackling hunger cannot be addressed by increasing food production alone. Well-functioning markets, increased incomes for smallholder farmers, equal access to technology and land, and additional investments all play a role in creating a vibrant and productive agricultural sector that builds food security. | The underlying causes of obesity can include advertising of unhealthy food and drink and difficulty in accessing affordable, healthy food. Food production plays a central role in the landscape strategy, enabling residents to take ownership of growing areas and allotments.<br><br>It is recommended that other facilities to support healthy eating are explored in the project. |

| Goal | Overview of the goal | Impact by St Cuthbert's Garden Village |
|---|---|---|
|   | ***Ensure healthy lives and promote well-being for all at all ages***<br><br>Goal 3 addresses all major health priorities and calls for improving reproductive, maternal and child health; ending communicable diseases; reducing non-communicable diseases and other health hazards; and ensuring universal access to safe, effective, quality and affordable medicines and vaccines as well as health coverage. | The proposed masterplan for St Cuthbert's Garden Village creates a series of clusters in close relation to the unique landscape of the context working with the views to Lake District National Park and the Pennines. Access to these areas will help enhance health and wellbeing.<br>Sustainable and active transport is at the heart of St Cuthbert's:<br>• The east/west green corridor will be a high-quality walking and cycling route.<br>• Car movement east/west across the masterplan site is restricted therefore encouraging more walking, cycling, and public transport use.<br>• A 'sustainable transport corridor' on a direct route between the centre at Durdar and Carlisle town centre. This will be achieved by through access only for buses, cycling, and walking. If addopted, cars will still be able to access points along the road, but bus gates will make going between Carlisle and Durdar centres via this route impossible.<br>• The active/low traffic neighbourhoods will have no through access for vehicles. This cuts out rat running, slows vehicle speeds and so creates a safer and more comfortable environment for walking, cycling, and spending time on outside.<br><br>People spend around 90% of their time indoors and so buildings have a significant role to play in providing a healthy environment that encourages physical activity and mental health. For example, optimising exposure to daylight can have a positive impact on mood, circadian heath and productivity. Glazed areas also provide building occupants with a connection to outdoor spaces. It is recommended that the homes are designed to ensure there is good levels of ventilation, daylighting, acoustics and thermal comfort. |
|   | ***Ensure inclusive and quality education for all and promote lifelong learning***<br><br>Goal 4 aims to ensure that all people have access to quality education and the opportunity for lifelong learning. The Goal goes beyond school enrolment and looks at proficiency levels, the availability of trained teachers and adequate school facilities, and disparities in education outcomes. | St Cuthbert's Garden Village will provide five new primary schools and one new secondary school across the three areas of Durdar,Carleton and Cummersdale, providing education needs to the local community.<br><br>There could be a requirement to have a minimum number of apprenticeships and work placement opportunities during the construction phase. |

| Goal | Overview of the goal | Impact by St Cuthbert's Garden Village |
|---|---|---|
|   | ***Achieve gender equality and empower all women and girls***<br><br>Gender inequality persists worldwide, depriving women and girls of their basic rights and opportunities. Achieving gender equality and the empowerment of women and girls will require more vigorous efforts, including legal frameworks, to counter deeply rooted gender-based discrimination often resulting from patriarchal attitudes and related social norms. | These proposed clusters in the different villages include a local centre with facilities and some office provision that will bring employment opportunities for all residents. The development will also provide new schools for learning to support the education and development of young people from all backgrounds and gender identities.<br><br>Having a diverse project team can help to support the opportunities provided to women within the construction industry. St Cuthbert's development could encourage and support women within the design team, for example encouraging them to attend external project team meetings.<br><br>The commercial developments could include gender neutral WCs and also private rooms within the buildings that could be used for new mothers to continue breast feeding or pumping after returning to work. |
|   | ***Ensure access to water and sanitation for all***<br><br>Goal 6 aims to tackle challenges related to drinking water, sanitation and hygiene for populations, as well as to water-related ecosystems. Without quality, sustainable water resources and sanitation, progress in many other areas across the SDGs, including health, education and poverty reduction, will also be held back. | Buildings are significant consumers of potable water. By reducing this consumption there is less strain on an overstretched system likely to come under increasing pressure in the future, thereby reducing the likelihood of shortages.<br><br>Water consumption at St Cuthbert's can be reduced through the installation of low flush volume toilets and low flow rate tap and showers.<br><br>Water reclamation systems could be used to off-set non-potable water demand from systems that would otherwise use potable water. The project could investigate the feasibility of incorporating rainwater harvesting technology or grey water to reduce the demand on mains water. |

| Goal | Overview of the goal | Impact by St Cuthbert's Garden Village |
|---|---|---|
|   | ***Ensure access to affordable, reliable, sustainable and modern energy for all***<br><br>Universal access to affordable, reliable and sustainable energy services requires expanding access to electricity and clean cooking fuels and technologies, as well as improving energy efficiency and increasing the use of renewable energy. To achieve this Goal, bolder financing and policies will be needed, along with the willingness of countries to embrace new technologies on a much more ambitious scale. | Energy production and consumption is the main driver of greenhouse gas emissions and global warming. A building's envelope has a substantial impact on energy consumption and should be an important consideration in minimising the demand for energy. Energy consumption can be further reduced through installing energy efficient building services with appropriate controls.<br><br>An aspiration is for the homes to apply the Passivhaus principles as part of the strategy to deliver more sustainable homes.<br><br>A low and zero carbon feasibility study is recommended to review what technologies could be installed and how much carbon they could help to save. |
|   | ***Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.***<br><br>Economic growth is a principal driver of sustainable development. When this growth is sustained and inclusive, more people can escape poverty as opportunities for full and productive employment expand. To allow future generations to benefit from today's economic growth, such growth should be environmentally sound and not the result of unsustainable exploitation of resources. | The construction of the development will play a significant role in the creation of new jobs and generate employment opportunities. The effects would not just be limited to those employed by the client and contractor but could also benefit other businesses within the supply chain and the local businesses near the development.<br><br>The proposed development clusters in the different villages include a local centre with facilities, schools and some office provision that will bring employment opportunities for residents.<br><br>There is also a need to consider the conditions of employment (and sub-contracting) to ensure fair dealings and living wages and the safety of those constructing and maintaining designs<br><br>A minimum requirement for proportion of local labour and supply chains during the construction could be specified, including fair payment terms to all sub-contractors |

| Goal | Overview of the goal | Impact by St Cuthbert's Garden Village |
|---|---|---|
|   | ***Build resilient infrastructure, promote sustainable industrialization and foster innovation***<br><br>Infrastructure, industrialization and innovation are three drivers of economic growth. When inclusivity, resilience and sustainability are factored into the implementation of these driving forces, economic growth can support sustainable development. | The preferred option masterplan for St Cuthbert's Garden Village promotes a variety of residential typologies that are inclusive and lifelong. This development will be built over at least 30 years and it should be resilient to changes and able to accommodate emerging technologies around transport, built form, energy, sustainable drainage and various aspects of city operations and governance. |
|   | ***Reduce inequality within and among countries***<br><br>Goal 10 calls for reducing inequality within and among countries, ensuring safe, orderly and regular migration, and strengthening the voices of developing countries in international economic and financial decision-making. | The project will create employment opportunities and new schools for learning to support the education and development of young people.<br><br>The development presents opportunities to support the local communities through the procurement of local supplies. |
|   | ***Promote inclusive and sustainable economic growth, employment and decent work for all***<br><br>The pace of urban growth has been unprecedented. More than half the world's population, or nearly 4 billion people, lived in cities in 2015. However, while cities are incubators of innovation and help foster increased employment and economic growth, rapid urbanization has brought with it enormous challenges, including inadequate housing, increased air pollution, and lack of access to basic services and infrastructure. | The Garden Village has a community focus. The distribution of facilities and amenities means that they are accessible to all, ensuring access through sustainable transport modes<br>It will also deliver active neighbourhoods with more safe space for play, more social interaction, and opportunities to enhance a sense of place.<br><br>The Garden Village aspires to develop high quality and inclusive environments that support people in making healthy choices, and that make these choices easier by encouraging development proposals to maximise the opportunity for walking and cycling, social interaction, sport and physical activity. |

| Goal | Overview of the goal | Impact by St Cuthbert's Garden Village |
|---|---|---|
|  | ***Ensure sustainable consumption and production patterns***<br><br>The construction industry is one of the greatest consumers of materials. The old model of 'take-make-discard' is no longer viable. Materials need to be considered in a 'cradle-to-cradle' way and the recovery of materials in a way that retains their value should be prioritised.<br><br>Re-using construction materials from demolition works on the new buildings on site could be limited due to the phasing (and need for business continuity throughout the works), however there may be opportunities on other projects. | The hierarchy for responsible sourcing and material consumption priorities should be applied at St Cuthbert's: the reduction of material consumption, followed by the procurement from renewable sources and then aiming to source materials locally.<br><br>St Cuthbert's could consider the following to ensure materials are used in a more sustainable way:<br><br>• Apply 'Design for Deconstruction' principles.<br>• Source materials locally.<br>• Set targets to minimise the amount of waste generated during the demolition and construction works, and to improve the proportion of waste diverted from landfill.<br>• Require dedicated spaces for the segregation and storage of operational recyclable waste generated.<br>• Set requirements to develop a sustainable procurement plans to promote sustainable construction practices and the responsible sourcing of materials.<br>• Set requirements to carry out a life cycle assessment to help to optimise the material use and encourage the use of materials with a low environmental impact over the life cycle of the building. |
|  | ***Take urgent action to combat climate change and its impacts***<br><br>Planetary warming continued in 2016, setting a record of about 1.1 degrees Celsius above the pre-industrial period. The extent of global sea ice fell to 4.14 million square kilometres in 2016, the second lowest on record. Mitigating climate change and its impacts will require building on the momentum achieved by the Paris Agreement on Climate Change. Stronger efforts are also needed to build resilience and limit climate-related hazards and natural disasters. | Buildings need to be designed to adapt to future climates as weather conditions are projected to change significantly within the lifespan of buildings currently being designed. As part of the future proofing and resilience strategy, a project requirement could be to ensure overheating assessments using projected future weather files are carried out to ensure that the homes and other buildings are designed to be thermal comfortable and be easily adapted to meet future climate conditions.<br><br>The masterplan has been developed to enable more active travel such as walking, cycling, and public transport, leading to lower carbon emissions and greater sustainability. Specifically, car movement east/west across the masterplan site is restricted.<br><br>The drainage strategy fundamentally focuses on the incorporation of at-source Sustainable Drainage Systems (SuDS) and takes account of predicted future weather and flood risk assessment. |

| Goal | Overview of the goal | Impact by St Cuthbert's Garden Village |
|---|---|---|
|   | ***Conserve and sustainably use the oceans, seas and marine resources***<br><br>Oceans cover almost three quarters of the planet, comprising the largest ecosystem on Earth. The increasingly adverse impacts of climate change (including ocean acidification), overfishing and marine pollution are jeopardizing recent gains in protecting portions of the world's oceans. | Delivering a reduction in the amount of plastic that ends up in seas and oceans would be a positive impact that the project could make. St Cuthbert's Garden Village could look at opportunities to reduce plastic use on the project and at the development becomes operational |
|   | ***Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss***<br><br>Protected and restored ecosystems and the biodiversity they support can help mitigate climate change and provide increased resilience in the face of mounting human pressures and natural disasters. Healthy ecosystems also produce multiple benefits for communities that rely on them. Goal 15 focuses on preserving and sustainably using the Earth's terrestrial species and ecosystems. | The development will incorporate SuDS. In addition to flood management and increased resilience SuDS provide an opportunity to deliver multiple sustainable benefits, related to broader quality of life indicators. The additional benefits include bio-diversity enhancement, improvements in air quality, reduction in potable water usage and reduction in energy consumption. The development is aiming to achieve a biodiversity net gain, therefore enhancing the biodiversity compared to pre-development conditions. It is recommended that the project considers installing, where feasible; green roofs, brown roofs, green walls, bat boxes, bird boxes, insect hotels, beehives, wild meadow areas etc. |
|   | ***Promote just, peaceful and inclusive societies***<br><br>Peace, justice and effective, accountable and inclusive institutions are at the core of sustainable development. Progress in promoting peaceful and inclusive societies remains uneven across and within countries. Violent conflicts have increased in recent years, and a number of high-intensity armed conflicts are causing large numbers of civilian casualties and driving millions of people from their homes. | Engaging with the community and getting stakeholders involved in the decision-making process can help create a sense of identity and ownership for the project. As part of this project the client could explore the benefits of identifying opportunities to team up with schools, colleges and universities to create strong institutions in the local area and beyond.<br>The active/low traffic neighbourhoods will have no through access for vehicles. This cuts out rat running, slows vehicle speeds and so creates a safer and more comfortable environment for walking, cycling, and spending time on outside with families and friends. |
|   | ***Revitalize the global partnership for sustainable development***<br><br>A stronger commitment to partnership and cooperation is needed to achieve the SDGs. Attaining the Goals will require coherent policies, an enabling environment for sustainable development at all levels and by all actors, and a reinvigorated Global Partnership for Sustainable Development. Meeting the means of implementation targets is key to realizing the 2030 Agenda, as is the full implementation of the Addis Ababa Action Agenda. Incremental progress has been made in these areas, but more is needed. | Building partnership between the designers, contractors and supply chain can help to provide more innovative and efficient sustainable solutions.<br><br>The settlements and community created as part of the Garden Village development will help build partnerships.<br>The development aims to value the heritage and cultural identity of the local area. A distinctive village-like character within the built areas and in the design of the main village green and surrounding open spaces. |

# 7.8 / Conclusions

This Sustainability Strategy has summarised the ways in which the St Cuthbert's Green Village masterplan has been developed in a sustainable way to ensure it delivers environmental, social and economic benefits to the local area.

Key aspects of the strategy include:

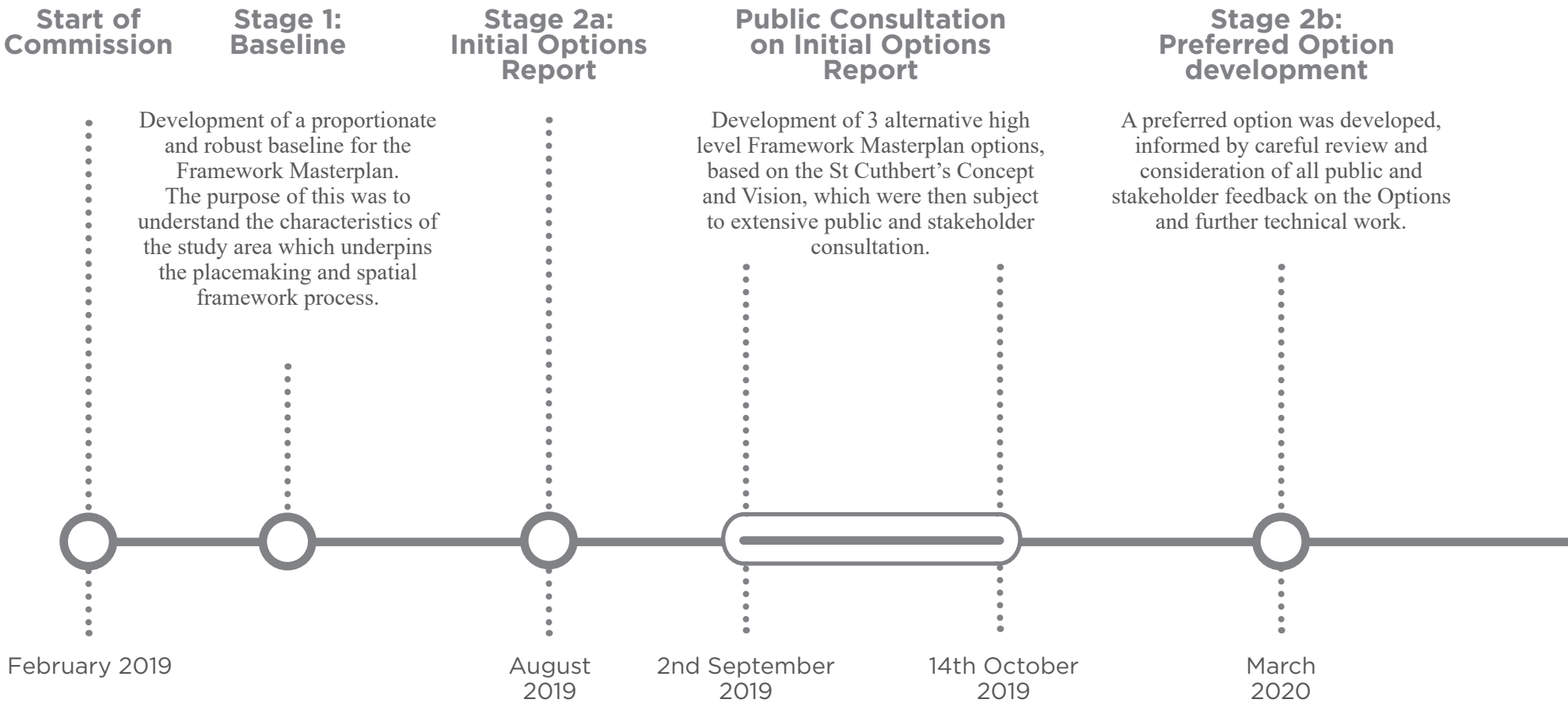
1. Energy and low carbon
2. Sustainable and active travel
3. Health and wellbeing
4. Drainage
5. Local community and economy

The current strategy demonstrates that the development will address the issues of sustainability and impact of the United Nation's global SDGs. Specific targets have not been developed at this stage. Success criteria and specific objectives should be established through discussion with the relevant stakeholders.

# 8 /

# Next Steps

This Report represents the completion of Stage 4 of the preparation of the Framework Masterplan. The steps in developing the Framework Masterplan are summarised below:



### Stage 3: Draft Masterplan Framework

The Preferred Option has now been developed into the Draft Framework Masterplan. This document will now be subject to stakeholder consultation.

June 2020

### Technical Stakeholder Consultation on Draft Masterplan Framework

### Stage 4: Final Masterplan Framework

Following technical stakeholder consultation, the Masterplan Framework has been finalised.

September 2020

We are here

## Phasing

The following plan outlines the indicative phasing schedule for St Cuthbert's Garden Village. This phasing plan is based on the findings of technical studies and consultations undertaken throughout the development of the Masterplan Framework with infrastructure providers. It is also based on information gained through engagement with landowners, with the early phases identified in the Masterplan.

The phasing strategy for the Garden Village is an iterative process and it is likely that it will change over time, as considerations such as viability and a delivery model are factored in. The Infrastructure Delivery Plan that will be prepared for the St Cuthbert's Local Plan will take all this into consideration and will assist in the refining of the phasing strategy, ,which should be based on the following principles:

- A focus on expanding current settlements in the first instance to assist with integration and build momentum on delivery
- Utilising existing infrastructure capacity in the early phase, whilst ensuring any new development contributes to strategic wide infrastructure
- Raising the quality in the first phase, to set the standard for St Cuthbert's as a whole.


INDICATIVE PHASING
Upperby
Park
Cummersdale
River Petteril
Carleton
River Caldew
Durdar
CSRL
Phase 1
Phase 2
Phase 3
Phase 4
Phase 5

## Planning Policy

Carlisle City Council are committed to preparing the St Cuthbert's Local Plan which will formalise the policy framework for the Garden Village. This is under preparation and it is currently anticipated that it will be adopted in early July 2022.

The Council are aware however of increasing development pressure emerging for land to the south of Carlisle. In response, the Council is producing a a Strategic Design Supplementary Planning Document (SPD) prior to adoption of the St Cuthbert's Local Plan, to assist in the determination of any potential planning applications in this intervening period. The SPD will look to further define local distinctiveness and expectations around high quality, sustainable development in keeping with the vision, concept and masterplan.

In addition, the Council is appointing specialist legal advice with regard to the approach to be taken to applications submitted in advance of the Local Plan being adopted, particularly with regard to securing strategic infrastructure.

### *St Cuthbert's Local Plan*

The St Cuthbert's Local Plan will be a statutory planning policy document that will direct development at St Cuthbert's Garden Village and be the policy basis for determining planning applications. The Masterplan Framework provides the basis for the St Cuthbert's Local Plan. As with all statutory planning policy documents, it will need to be tested at an Independent Examination.

A workshop was held in March 2020 with Carlisle City Council to scope the policy area for inclusion in the St Cuthbert's Local Plan. These policy areas will be accompanied by site allocations, informed by the Masterplan Framework. Set out below is the early thinking around policy scope. It is noted that the scope of the policies has evolved since this workshop.

| *Strategic policies* | *Comments* |
|---|---|
| Key Principles and Drivers | To relate to the St Cuthbert's Garden Village Principles and Key Drivers |
| Strategic Delivery Framework | To include:<br>• Implementation<br>• Phasing<br>• Stewardship<br>• Planning Obligations |
| Strategic Infrastructure | To include simplified version of Masterplan with key infrastructure requirements. |
| Interface with Existing Communities | To include neighbouring communities and relationship with wider Carlisle. |
| Durdar Framework Policy | Recognising the development in this area and the potential requirements for policy hooks for related SPDs |
| 3 area-based policies | Carleton, Cummersdale and Southern fringe (or southern fringe could be included in Durdar policy above)<br>To include, employment, community and local centre facilities<br>Requirement for a detailed masterplan for area prior to any development |
| Strategic Design | Including cultural identity, and policy hooks for Strategic Design Guidance SPD |
| Strategic Infrastructure | Key infrastructure elements, where necessary to complement the infrastructure thematic policies, e.g. Greenway, movement principles |

| *Thematic policies* | |
|---|---|
| 1. Infrastructure, including:<br>• Education<br>• Renewable Energy<br>• Drainage/Water Environment<br>• Digital | 7. Housing, including:<br>• Affordable Housing<br>• Gypsy & Travelling Show people<br>• Self & Custom Build<br>• Standards<br>• Typology<br>• Density<br>• Specialist (which include older people's housing as well as other specialist needs)<br>• Windfall? |
| 2. Greenspace, including:<br>• Environmental Net Gain<br>• Strategic Greenspace<br>• Structural Greenspace<br>• Open Countryside<br>• Local Greenspace<br>• Protecting strategic views | |
| 3. Health, including:<br>• Healthy food<br>• Recreation<br>• Formal greenspace and allotments etc. | 8. Waste, including:<br>• Recycling<br>• Compositing |
| 4. Low Carbon, including:<br>• Targets<br>• Monitoring<br>• Resilience | 9. Monitoring |
| 5. Transport and Movement, including:<br>• Active travel<br>• Sustainable transport route<br>• Network hierarchy<br>• Hubs<br>• Mobility<br>• Electric Vehicles/Charging Points<br>• Greenway<br>• Public Transport | |
| 6. Employment, including:<br>• Location<br>• Links<br>• Evidence<br>• Work based units | |

### *Allocations*

Alongside the policies, the St Cuthbert's Local Plan will include allocations identifying where development will be promoted. It is not necessary to identify sites for all the proposed developments given the long timescales for overall delivery. The first phase will be particularly important. This would be until the end of the current adopted Local Plan i.e. to 2030, which requires the delivery of 1633 homes. and require the allocation of development sites and land for accompanying infrastructure requirements to be brought forward within this time period. Longer term development can be identified through broad location policies, although it is recommended that where known locations can be identified, particularly strategically important locations, these should be allocated. This will ensure they are protected for the allocated uses as well as providing further evidence of the deliverability of the Plan.

The St Cuthbert's Local Plan will need to be updated regularly, around every five years. This will allow more details and allocations for the subsequent phases of delivery to be included in a timely way.

### *Local Plan Evidence Base*

Evidence documents will need to be provided to demonstrate at the Examination that the St Cuthbert's Local Plan meets the statutory tests. It is noted that these statutory tests are proposed to change, as set out in the Government's document 'White Paper: Planning for the Future'. It will be necessary to review the evidence requirements in light of changing Government policy. However, it is likely that these will need to include some form of the following, as well as other specific documents:

- Sustainability Assessment and Habitats Regulations Assessment
- Infrastructure Delivery Plan (physical, green and social infrastructure)
- Viability and delivery assessment
- Environmental assessment
- Transport and movement assessment
- Design and landscape impact
- Assessment of employment land requirements and supply
- Assessment of retail and leisure requirements and supply

The Masterplan Framework and baseline assessments will provide information that will contribute to a number of these evidence base documents, particularly infrastructure, environment and transport and movement. It is noted that these documents were prepared for the purpose of preparing the masterplan and not as Local Plan evidence base documents. Nonetheless, they will provide a significant contribution to developing the Local Plan evidence base documents. The following are of particular note in taking forward the evidence prepared for the Masterplan Framework into the evidence base requirements for the Local Plan.

The Infrastructure Schedule provides the infrastructure requirements for delivering the Masterplan. It also provides information on the first phase infrastructure requirements. This has been prepared in collaboration with the key physical and social infrastructure providers. This provides a strong basis for developing the Infrastructure Delivery Plan. The Infrastructure Delivery Plan will build on the Infrastructure Schedule by identifying what infrastructure is needed and how it will be delivered to support the developments proposed in line with the identified trigger points and phasing strategy.

It is also noted that sustainability appraisals and a Habitats Regulations Assessment have been undertaken on the emerging drafts of the Masterplan Framework. These will provide part of the Sustainability Appraisal that will accompany the St Cuthbert's Local Plan. The Sustainability Appraisal will need to include the appraisal of all drafts of the St Cuthbert's Local Plan. The Sustainability Appraisal of the Regulation 19 St Cuthbert's Local Plan, that will be submitted to the Planning Inspectorate, would be expected to summarise the sustainability appraisals undertaken during the preparation of the masterplan and the draft Local Plan. This should include reference to changes made to address or mitigate the recommendations made in the previous stages of the sustainability assessment.

## Viability and Deliverability

There have been two parallel workstreams progressed alongside the development of the Masterplan Framework, that will inform the viability and deliverability of the early stages of SCGV. Aspinall Verdi was appointed in early 2019 to assess the viability of the emerging masterplan options and provide guidance on which characteristics enhanced or impeded the viability of the proposals. This guidance has been taken on board through the evolution of the Masterplan Framework. Commencing in Autumn 2020, Aspinall Verdi will appraise the viability of the final Masterplan Framework. Due to the iterative nature of infrastructure requirements, the report will be based on the information that has been obtained to date, but further work will need to be undertaken as proposals move towards specific schemes. The Infrastructure Schedule which accompanies this document provides further information on phasing and anticipated infrastructure requirements. Delivery of the essential infrastructure will affect the viability and deliverability of future development. The outcome of the viability appraisal will inform both the potential level of developer contributions and assist in the negotiations with land owners.

The second workstream developed in parallel to the masterplan has been that of Stakeholder Engagement. This has particularly focussed on landowners and, where a legal interest in a site can be evidenced, housebuilders. The purpose of this commission, led by Hive Land & Planning, has been to keep the landowners updated on progress, deliver and discuss key messages about how the City Council would like to see the sites come forward and to facilitate collaboration between landowners themselves and between the landowners and the City Council. This process has incorporated Garden Village wide events, settlement specific group meetings and one-to-one meetings with landowners and their representatives.

This work has enabled the identification of potential early phases of development at the Garden Village and has informed the development of the phasing plan. This process has seen the emergence of various landowners who are progressing proposals capable of meeting the Garden Village requirements of comprehensive development and early signs of landowner groupings who are willing to collaborate and collectively have land interests which could create a meaningful phase of development land.

## First Phase of development

Developing the details for the first five years is a key next step in taking the Masterplan Framework forward into the St Cuthbert's Local Plan. It is important the first phase delivers the Garden Village principles. It must also be the first phase in a cohesive vision and avoid piecemeal delivery.

As noted above, the Local Plan will provide policies as well as the first phase allocations in order to achieve these requirements. To allow the Local Plan to do this, further work will be required to develop the detailed delivery programme for the first phase.

The Framework Masterplan suggests that the first phase would be focused around Carleton, Cummersdale and the edge of Carlisle. Given the Greenway is a fundamental principle and should be considered as part of the 'infrastructure' of St Cuthbert's Garden Village, it is recommended that funding opportunities should be sought to bring forward as much as possible, with the sections linked to the allocated sites being a requirement of delivery in the first phase in those locations.

A first phase design and delivery plan is recommended to take forward the Masterplan Framework, Infrastructure Schedule and Design Guidance plus the work It is suggested that the first phase design and delivery plan considers the following and that the scope is developed through an integrated masterplanning and delivery team:

- **Land parcels proposals** – Once the masterplan has been finalised the City Council and its team will then be in a position to work on identifying potential groupings of landowners, whose
- land ownership lends itself to a development parcel, capable of delivering and contributing to the comprehensive development envisaged within the masterplan. These land parcels will,
- ideally be capable of being serviced and drained independently of 3rd party land ownership and will need to ensure they are contributing towards the overall vision for comprehensive development incorporating relevant strategic infrastructure, public open space, community facilities and other none-residential, uses required to deliver a new neighbourhood/community. The identification of these parcels, with positive engagement with the landowners concerned, will enable a more detailed assessment of the potential yield of the parcels,
- an assessment of the parcels' likely infrastructure requirements, its contribution to strategic site-wide infrastructure and an appraisal of the site's viability.

- **Local Centres** – develop phased delivery programme linked to phased infrastructure needs and viability assessments.

- **Infrastructure delivery programme** - strategic and site-specific requirements, as described in relation to planning policy evidence base above.

- **Developer contributions –** explore the approach needed, mindful of emerging Government approach in 'White Paper: Planning for the Future'

- **Transport –** more detailed proposals including highway and junction design, sustainable movement infrastructure, including responses to phases highway capacity.

- **Design –** an iterative review of design should be included as part of the first phase development, including where more detailed block structure is required. It includes neighbourhood creation and ensuring the key principles are delivered. This should then also be taken forward in the Design SPD.

- **Delivery models** – A variety of delivery models are likely to be required to deliver the vision for St Cuthbert's Garden Village over its lifetime. In limited circumstances, single landowners with a sufficiently large landholding may be able to demonstrate the ability to deliver comprehensive development on their own land incorporating the full mix of uses envisaged. Their sites would be planned in such a way to facilitate the development of the neighbouring sites and ensuring that they contribute to the overall delivery of the Vision and Masterplan.

The majority of the development parcels released at St Cuthbert's Garden Village will require various land interests to be combined to create a market-facing development opportunity that is deliverable, achieves a reasonable scale of development and can contribute to the comprehensive delivery of St Cuthbert's. Ideally the unification of land interests into a single proposition would be done by the private landowners without the need for public

sector market intervention. The Council should continue to support landowners to achieve this aim, through providing advice, guidance and facilitating collaboration.

The City Council fully recognises that delivering a new community at the scale of St Cuthbert's, in line with 'Garden Settlement' principles, provides a unique challenge for Carlisle, Cumbria and the region. This challenge is made more complex given the multiplicity of land ownership; the scale and complexity of infrastructure delivery; and importantly, the fact that there are currently no master developers associated with St Cuthbert's Garden Village. It is therefore appreciated that an entirely private sector led approach to delivery, may not be realistically achievable and public sector intervention and leadership will be required over the long term. To date, the City and County Council have demonstrated their willingness to take a strong lead on the project, through funding the Concept and Masterplanning work and securing Housing Investment Funding for the Carlisle Southern Relief Road (in excess of £130m of infrastructure investment that the County will be responsible for implementing).

Work has also focussed on encouraging initial collaboration between landowners and progressing relevant Memorandums of Understanding to create a very positive foundation for delivery. The completion of a strong planning framework is also important and work on this will continue through the production of the St Cuthbert's Local Plan and Strategic Design SPD The Design SPD is being prepared in advance of the St Cuthbert's Local Plan, to potentially allow early phases of development to come forward as the

St Cuthbert's Local Plan is finalised and a flexible, long term delivery mechanism is evolved and implemented. As part of the Design SPD and St Cuthbert's Local Plan, the City Council will continue to work with landowners and developers to secure appropriate contributions to strategic infrastructure and comprehensive place making.

Given the long timeframe for delivery and the specific challenges faced in bringing forward St Cuthbert's, the City Council and their partners (via the St Cuthbert's Strategic Board) are actively considering and investigating several different types of interventions or delivery models that may be required. Discussions are ongoing with the Government on the potential to create a bespoke delivery vehicle for St Cuthbert's, based on strong partnership working, to deliver a high quality, sustainable place in line with the Vision and Principles. Any model for delivery would be based on local objectives and driven by a clear evidence base of what is needed. It is perfectly likely (and expected) that some elements of the new community can be delivered with very little if any public sector intervention, other than appropriate planning and design controls. Other areas of St Cuthbert's Garden Village however, will be harder to bring forward without public sector intervention, due to factors such as landownership; need for strategic infrastructure; physical constraints etc.

It will therefore be critical to ensure a clear delivery strategy is developed alongside the St Cuthbert's Local Plan, to allow legal provision and public sector intervention to be proportionate and not hindering the requirement for early delivery, whilst also securing quality and long-term sustainability. The City Council will continue to work closely with its delivery partners and the private sector, to lever in further investment and consider use of appropriate powers such as compulsory purchase, where appropriate. Ultimately, flexibility will be required in any delivery mechanism/s, to allow evolution over time to meet the needs of St Cuthbert's as it grows and to adapt to any changes in National in the planning system that will come about as a result of the current Planning for the Future White Paper 2020.

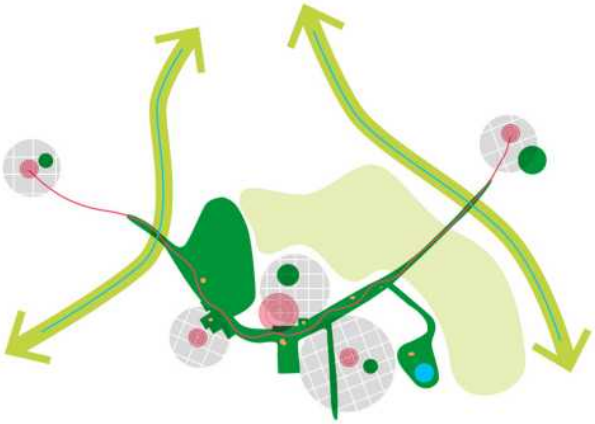
# 9 /

# Appendices

# Appendix 1 / Assessment of Initial Options

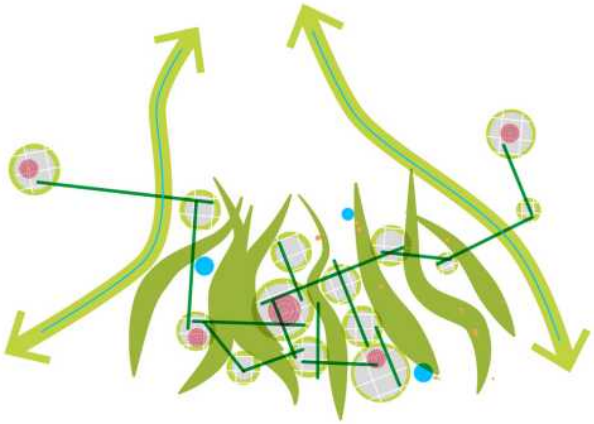
This section tests how the three options will perform against the nine principles outlined in the Stage 1 Report. The descriptive assessment is summarised towards the end in the form of a Red-Amber-Green (RAG) performance rating of the three options against each principle.

## Option 1:



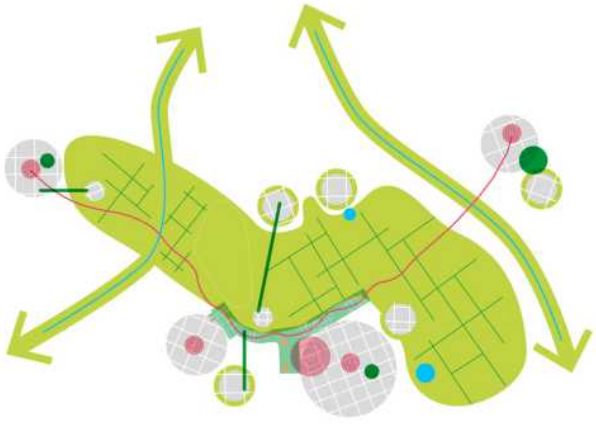
## Compact Communities

## Option 2:



## Connected Communities

## Option 3:



## Edge Communities

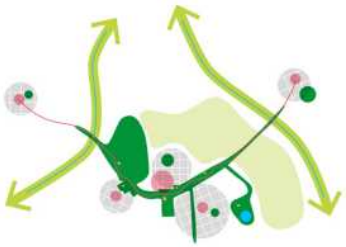
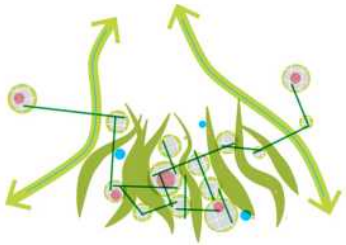
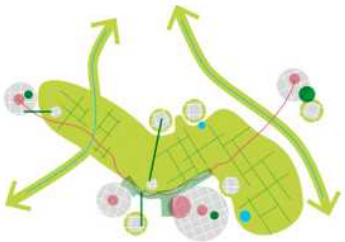
| Option 1: Compact Communities | Option 2: Connected Communities | Option 3: Edge Communities |
|---|---|---|
| ***1. Start with the Park*** | | |
| Option 1 approaches this principle by minimal land take (compact layout) and maximum retention of open space and farmland with the Carlisle urban fringe free of new development. All options include a strong emphasis on the Greenway as an important central amenity connecting the three sub villages. | Option 2 weaves the unique Lowland landscape of the site into the development through its integration with a series of distinctive north south green valleys. This allows a robust distribution of green infrastructure throughout the site. | Option 3 is anchored by farming and food growing, a concept well aligned with the vision noted in the Cumbria Landscape Character Guidance (2011) of 'conserving and enhancing the working landscape' of the area as well as in the LUC Landscape and Townscape Appraisal (2017). |
| ***2. Locally distinctive*** | | |
| Option 1 and its compact land take has the greatest ability to preserve distinctive long views such as from Durdar Road looking south to the site. While all options have the potential to accommodate and respect local history and built form Option 1 will face some challenge in sensitive integration between old and new particularly within the higher density setting at Durdar. | Option 2 and its relationship to the undulating land form and hydrological flows of the site makes it a community with an identifiable local character. Each village cluster also can develop a cohesive identity of its own. | Option 3 brings a distinctive character to the new Garden Village by being rooted in the agricultural heritage, field patterns and landscape qualities of the Cumbrian Lowland area. |

| Option 1: Compact Communities | Option 2: Connected Communities | Option 3: Edge Communities |
|---|---|---|
| ***3. Quality homes, lifetime neighbourhoods*** | | |
| Option 1 provides a frame within which a range of high-quality homes for a variety of age groups can be delivered. The compact layout allows mixed-use walkable places to develop – a key ingredient of lifetime neighbourhoods. A variety of housing types will be delivered to accommodate a wide demographic spectrum from young families to the elderly. All options also have the opportunity to explore and deliver high quality new homes built to the highest sustainability standards including modern methods of construction (e.g modular). | Option 2 offers a series of village clusters within which design quality can be delivered. However, a more robust delivery strategy will be needed to ensure that smaller clusters contain day-to-day amenities and a mix of housing types. Special care will also need to be taken to ensure that smaller developments do not end up as mediocre quality single use developments. | Option 3 is also consistent with the aspiration for high-quality neighbourhoods and homes. As in Option 1 and 2, it will require a focused investment in the public realm and in providing varied housing types. The proposed infill development areas along the Carlisle edge offer the potential to build shared amenities for the benefit of both old and new neighbourhoods. |
| ***4. Community focused*** | | |
| A community focused neighbourhood is one where investment in facilities, spaces and programmes for residents are prioritised. Option 1 can achieve this goal with a distribution of community amenities combined with a more concentrated provision that is highly accessible within the district centre. | Option 2 will require a more fragmented provision of amenities to ensure that the smaller village communities have access to them. The amenities would also need to be integrated with the movement network to ensure easy access through sustainable and active modes. | Option 3 has the added potential of providing selected community amenities in conjunction with the infill parcels in a location accessible to existing communities in Carlisle. |

| Option 1: Compact Communities | Option 2: Connected Communities | Option 3: Edge Communities |
|---|---|---|
| ***5. Innovative employment opportunities*** | | |
| Excellent digital infrastructure, mixed-use working places, and quality of life for a young workforce are key ingredients for innovative employment to thrive. Option 1 with its higher density town character is most conducive (among the three options) to integrating employment opportunities within its mixed-use centre. In addition, all options have the opportunity to benefit from the employment areas south of the CSLR as noted in Stage 1. | Option 2 with its 'living in the landscape' quality has the ability to attract and retain working age looking to combine innovation, entrepreneurship and quality of life. It can do so with the appropriate investment in digital infrastructure and provision of affordable co-working space. (e.g Ludgate Hub in rural Skibereen, Ireland) | Option 3, like Option 2 has the ability to provide the infrastructure for innovative employment in combination with living, working, and leisure spaces that attract and retain a young working population. |
| ***6. Healthy environments*** | | |
| Option 1 combines an urban (town) setting with rural hinterlands to bring the best of both to the Garden Village. Combined with a sustainable transport strategy and active outdoor amenities, this option has the potential to promote a healthy lifestyle. All options also have the ability to deliver health outcomes through a focus on issues such as air quality, building user comfort, materials selection, green/blue infrastructure, and multi-age facilities. Option 1 offers the additional potential For accommodating regional health facilities at Durdar. | Option 2 with its village clusters set in the landscape has the potential to achieve a living environment that is truly integrated with the natural capital that surrounds it. See Option 1 for note on ability to deliver health outcomes. | Option 3 can help promote the health and wellbeing agenda through its focus on farming, food growing, and in its promotion of sustainable land management practices. See Option 1 for note on ability to deliver health outcomes. |

| Option 1: Compact Communities | Option 2: Connected Communities | Option 3: Edge Communities |
|---|---|---|
| ***7. Smart and sustainable living*** | | |
| Excellent digital infrastructure and a strategy to transition into efficient, low carbon resource consumption is essential for all options. Developing a digital strategy should be undertaken as a next step. Clear and ambitious sustainability targets should also be agreed and adopted. District heating may prove to be viable in Option 1 due to the density and critical mass at Durdar although the carbon reduction benefits of the strategy needs to be evaluated in the context of the growing decarbonisation of the UK grid. | See Option 1 re: opportunities and benefits of digital connectivity.<br><br>The benefits and viability of district heating are not readily apparent for Options 2 and 3 due to the more dispersed nature of the development. | See Option 2. |
| ***8. Integrated sustainable transport*** | | |
| Option 1 is most conducive to a sustainable and active transport strategy. It has the density and concentration to support public transport and a cycling and walking culture. | Option 2 and its dispersed village cluster layout may work against the provision of viable public transport. However, it can still promote sustainable travel but will need to invest in a high-quality network of walking and cycle routes, and initiatives such as mobility-on-demand. | The north-south separation of neighbourhoods is a challenge as it may be difficult to ensure safe connections through the farmland. The dispersed nature of development works against providing viable public transport. |
| ***9. Exemplary delivery and stewardship*** | | |
| A robust delivery strategy is needed if any option is to be successful in realising the vision. The form of Option 1 lends itself to a planned development approach with stated outcomes that can be promoted and monitored by a designated authority over time. Under such a scenario, there is a good opportunity to develop and implement long term management and stewardship arrangements. | Option 2, with its more fragmented 'development parcels' has the potential to be taken forward in the near-term by separate landowners but may pose a challenge on how the separate parcels would contribute to long-term Garden Village stewardship strategy. | Option 3, with its identity tied to more sustainable ways of farming, soil, and land management will need a strong management regime that covers all aspects of the Garden Village – built and open. |

**Red-Amber-Green (RAG) rating of the three options with respect to the 9 principles**

| | Option 1: Compact Communities | Option 2: Connected Communities | Option 3: Edge Communities |
|---|---|---|---|
| |  |  |  |
| *Start with the Park* | Amber | Green | Green |
| *Locally distinctive* | Amber | Green | Amber |
| *Quality homes, lifetime neighbourhoods* | Green | Amber | Amber |
| *Community focused* | Green | Green | Green |
| *Innovative employment opportunities* | Green | Amber | Amber |
| *Healthy environments* | Green | Green | Green |
| *Smart and sustainable living* | Green | Green | Green |
| *Integrated sustainable transport* | Green | Amber | Amber |
| *Exemplary delivery and stewardship* | Green | Amber | Amber |

# Appendix 2 / Assessment of Masterplan Framework Option

**1. Vision**

The preferred option masterplan for St Cuthbert's Garden Village creates a series of clusters in close relation to the unique landscape of the context working with the views to Lake District National Park and the Pennines.

The different clusters are connected through a sustainable transport network that promotes and facilitates the use of cycling and public transport and ensures well connectivity as well to Carlisle. Each cluster will be located no more than a 5-10 minute walk to an active and mixed use centre, with both local facilities and employment opportunities.

**2. Key drivers**

*1. The creation of a healthy environment*

Building on Carlisle's designation by the World Health Organisation as a World Health City, the preferred option masterplan for St Cuthbert's Garden Village proposes a place that promotes healthy and active lifestyles by encouraging sustainable transport like cycling and walking; close contact with nature; mix of uses fostering local economy; food production and a variety of open spaces and recreation. A landscape-led approach ensures that the environment created by green and blue infrastructure within and surrounding the Garden Village maximises the health and wellbeing of its residents and visitors.

*2. A community that makes full use of fantastic landscape quality*

St Cuthbert's Garden Village preferred option masterplan design is driven by the unique landscape character of the context. The design proposes a series of clusters that are connected by the landscape around them.

*3. A community that has a range of employment opportunities*

The proposed development clusters in the different towns include a local centre with facilities and some office provision that will bring employment opportunities for residents.

*4. A place that is well connected*

St Cuthbert's Garden Village is located in a strategic location, in great proximity to Carlisle. The mobility strategy explores the possibility of including a route that will prioritised public transport and cycling over vehicles, promoting a sustainable mode of transport to connect with Carlisle city centre and train station. Also, in the east-west axis, the greenway will include a cycling route that facilitates the mobility from Cummersdale to Carleton and connects to the National Cycling network.

*5. A place that is future proofed*

The preferred option masterplan for St Cuthbert's Garden Village promotes a variety of residential typologies that are inclusive and lifelong. This development will be built over a number of years and it should be resilient to changes and able to accommodate emerging technologies around transport, built form, energy, sustainable drainage and various aspects of city operations and governance.

**3. Key Principles**

The preferred option masterplan for St Cuthbert's Garden Village creates a series of clusters in close relation to the unique landscape of the context working with the views to Lake District National Park and the Pennines and towards the Solway Firth.

The following page provides an appraisal of the preferred option against the nine principles established in the St Cuthbert's Stage One Vision and Concept Framework. A Red-Amber-Green (RAG) rating has been used to identify areas of weakness that should be refine in more detail in following stages.

Overall, the preferred option performs well against the nine principles established in Stage 1, however provided the level of detailed that Stage 2b reaches, there is an opportunity to deepen further on what makes each development locally distinctive; how St Cuthbert's Garden Village will integrate innovative employment opportunities and finally how the masterplan will be exemplary delivered.

| 1. Start with the Park | 2. Locally distinctive | 3. Quality homes, lifetime neighbourhoods |
|---|---|---|
| • Landscape elements and corridors weaving in between distinct built clusters bringing the experience of the landscape setting right into the community.<br>• A comprehensive blue and green infrastructure strategy with an integrated SuDs network that attenuates and filters water.<br>• Preserving and enhancing existing landscape areas and qualities such as the river corridors and surrounding farmland. | • Preserving long views to Lake District and the Pennines.<br>• Sensitive integration between existing and new areas with green buffers providing space and definition.<br>• Working with topography, land form and hydrological flows to preserve the character of the area. | • A masterplan framework that allows a mix of densities and a variety of residential typologies delivering housing options for different demographic groups.<br>• Compact, walkable, diverse, mixed use places to support the principle of lifetime neighbourhoods |

| 4. Community focus | 5. Innovative employment opportunities | 6. Healthy environments |
|---|---|---|
| • Distribution of facilities and amenities that are accessible to all, ensuring access through sustainable transport modes<br>• Active neighbourhoods with more safe space for play, more social interaction, and opportunities to enhance a sense of place<br>• Food production to play a central role in the landscape strategy, enabling residents to take ownership of growing areas and allotments. | • Mixed use local centres integrating employment opportunities<br>• Variety of working spaces (including shared and co-working space) and digital infrastructure to foster innovation, entrepreneurship and work-from-home options<br>• Sustainable travel links to Carlisle and surrounding employment areas. | • Generous provision for a wide variety of sports, leisure and recreation, catering to all ages and abilities.<br>• More walking and cycling, less air pollution, more play, and more social interaction leading to better physical and mental health<br>• A landscape framework to maximise gathering points and places for social interaction |

| 7. Smart sustainable living | 8. Integrated sustainable transport | 9. Exemplary delivery and stewardship |
|---|---|---|
| • Enabling more active travel such as walking, cycling, and public transport, leading to lower carbon emissions and greater sustainability<br>• Human scaled streets that are comfortable to walk along, away from air pollution and traffic noise with a focus on routes to schools and community facilities.<br>• Location of mobility hubs to enable easy interchanges between modes and excellent connectivity into Carlisle. | • A mobility approach which limits unconstrained access for private vehicles and increases the opportunity to integrate a variety of active and sustainable modes effectively.<br>• Clear definition of walking and cycling corridors through and across the site in shared or dedicated routes.<br>• Compact layouts to support the mobility strategy. | • A robust delivery strategy is needed if any option is to be successful in realising the vision. |

# Appendix 3 / Transport Modelling Technical Note

## 1. Introduction

This note has been prepared to provide a summary of the modelling work that has been undertaken to assist Cumbria County Council (CCC) in understanding the potential traffic and highway impacts arising from the proposals for St Cuthbert's Garden Village.

CCC provided Arup with access to the SATURN model for the area which was used (by CCC) in assessing the impact of the Carlisle Southern Link Road (CSLR). The model contains two periods, a single hour AM peak period (08:00-09:00) and a single hour PM peak period (17:00-18:00).

This model has previously been used as part of the assessment of the CSLR proposals, including assumed levels of traffic generation associated with the Garden Village. These assumptions were based on an earlier version of the masterplan for the area, however, the quantum of development proposed was broadly similar.

This note sets out the details of the modelling undertaken by Arup for the preferred option for the Garden Village to allow a more detailed understanding of the potential impact on the highway network and associated mitigation strategies to be developed.

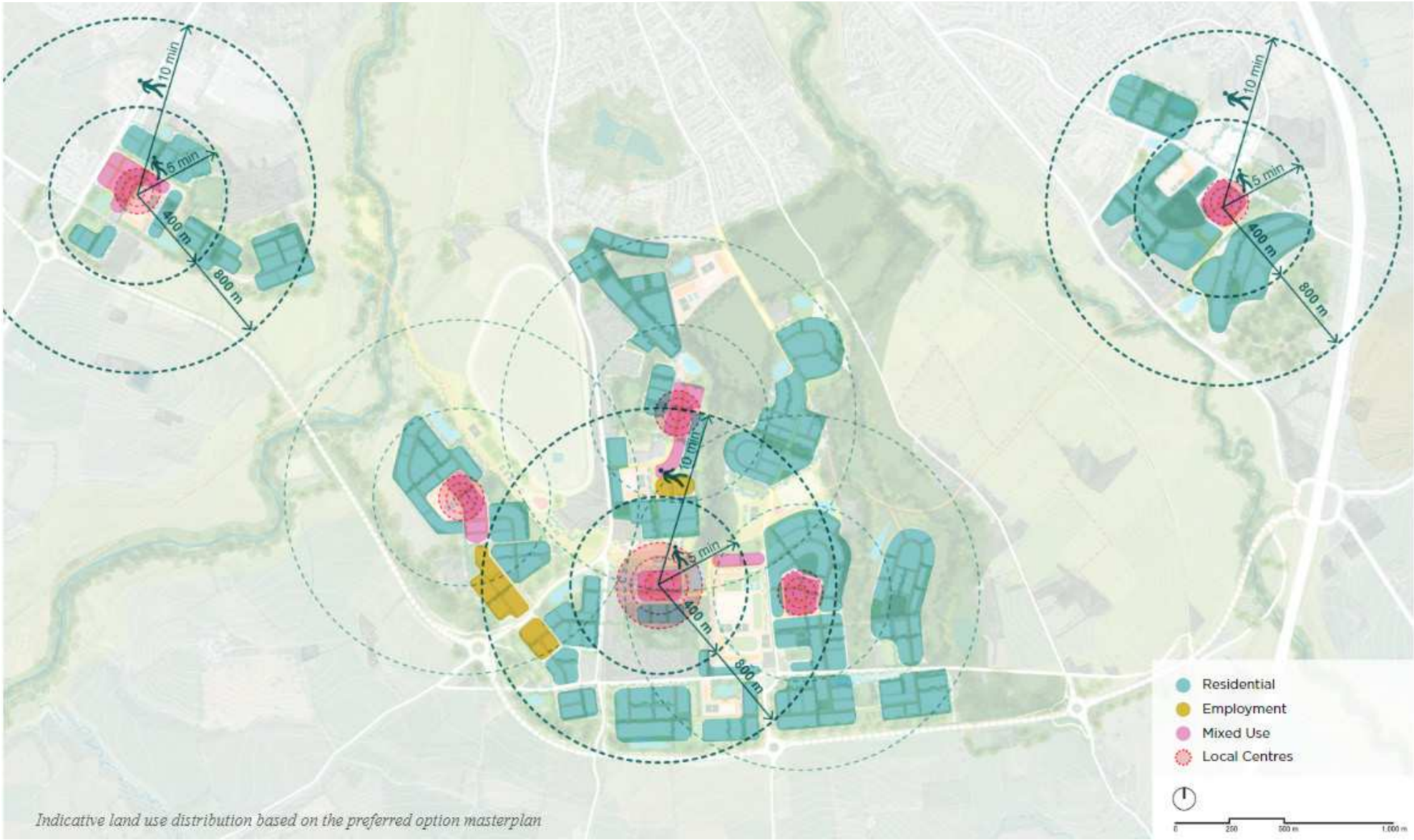
The SATURN model provided by CCC has a future assessment year of 2038. Whilst this may differ slightly from the anticipated phasing of development, it has been agreed with CCC that it provides an appropriate horizon for the purposes of assessing the Garden Village proposals. The illustrative masterplan is shown in Figure 1, as shown in the Draft Masterplan Framework[1].

[1] *Carlisle City Council, 'St Cuthbert's Garden Village - Draft Masterplan Framework' June 2020.*

Fig. 1: Illustrative Masterplan - Emerging Preferred Option

# Appendix 3 / Transport Modelling Technical Note

Fig. 2: Housing Plots



The emerging preferred option has a total of 10,325 dwellings. For the purposes of the strategic modelling, the development is assumed to be spread across the area as shown in Figure 2

The SATURN model zoning was updated to reflect this assumed distribution of development within the St Cuthbert's area accordingly.
No major through roads (for general traffic) are proposed within the Garden Village. This can be seen in Figure 3 which shows:

- A potential modal filter on Scalegate Road; and,
- Following the opening of the CSLR, Newbiggin Road becomes a Sustainable Transport Corridor, were private vehicle use is limited to access purposes only.


Fig. 3: Strategic Sustainable Transport Network

## 2. Modelling Parameters

### 2.1 Trip Generation

Person trip rates (per dwelling) have been generated for the development for the purposes of the modelling exercise. These can be used in combination with the mode splits described subsequently to estimate peak hourly vehicle flows to and from the Garden Village.

An important consideration to note is that the trips from the Garden Village have been added directly onto a pre-developed 2038 SATURN model run. Therefore, this assessment assumes that the development occurs in addition to all other development assumed by TEMPRO and that traffic growth occurs in line with the assumptions contained in the National Road Traffic Forecasts (NRTF). In effect this means that all of the trips associated with the Garden Village are completely new trips with no account taken of trips that would already be assumed to be on the network but with a different origin/destination (e.g. residents commuting to Carlisle City Centre who might move into the Garden Village from another part of the city).

The trip rates have been derived using the TRICS database to compare similar sites. The proposed trip rates are shown in Table 1.

### 2.2 Mode Split

In order to forecast the number of vehicle-based trips generated, mode splits must be applied to the trip generation described above. Three mode splits have been developed for the development, based upon end-destinations, which are in turn linked to the distributions described below.

#### 2.2.1 Trips within the Garden Village

Based on the design principles for the Garden Village to promote walking and cycling as the primary modes of travel, it is anticipated that car use for trips internal to the Garden Village would be very low. In the absence of any specific data, existing mode splits for the area for journeys within Carlisle have been reviewed based upon Census data. These are presented in Table 2.

This represents a ‘worst case’ as it simply replicates the status quo of existing developments within the City, rather than the ‘best practice’ which the Garden Villages aspires to achieve. As, such the number of vehicle-based trips are likely to be over-represented in the modelling. Any such car trips would, however, be confined to the internal network and to the local network adjacent to the village. Any overestimation of these short trips should not therefore impact upon the assessment of the wider off-site network discussed below.

#### 2.2.2 Trips within Carlisle

Through the measures set out in the Movement Framework and Accessibility Strategy, the Garden Village will be designed around principles to encourage the use of alternative modes to car-use for trips outside of the area, and in particular to the City Centre and surrounding areas. 74% of trips from the area within the district of Carlisle are currently made by car. It is proposed to replicate this existing mode split for car journeys to/from the Garden Village within Carlisle. Again, this is anticipated to result in an over-representation of vehicle-based trips but provides a robust methodology for the assessment.

#### 2.2.3 Trips beyond Carlisle

Considering trips beyond Carlisle, it is likely that trips would be more predominantly car-based. Census data for trips outside of Carlisle demonstrates the following mode split in Table 3.

82% of trips from the area to locations outside the district of Carlisle are currently made by car. For the purposes of the modelling exercise, to ensure robustness, it is proposed to replicate this existing mode split for car journeys outside of Carlisle.

| Time Range | Trip Rate per dwelling | | |
|---|---|---|---|
| | Arrivals | Departures | Total |
| 08:00-09:00 | 0.209 | 0.799 | 1.008 |
| 17:00-18:00 | 0.622 | 0.302 | 0.924 |
| Daily Trip Rates: | 5.188 | 4.874 | 10.062 |

Table 1: Proposed Person Trip Rates

| Mode | % of Trips |
|---|---|
| Train | 0% |
| Bus, minibus or coach | 7% |
| Taxi | 0% |
| Motorcycle, scooter or moped | 0% |
| Driving a car or van | 74% |
| Passenger in a car or van | 7% |
| Bicycle | 3% |
| On foot | 8% |
| Other method of travel to work | 0% |

Table 2: Trips within Carlisle - Mode Split

| Mode | % of Trips |
|---|---|
| Train | 1% |
| Bus, minibus or coach | 5% |
| Taxi | 0% |
| Motorcycle, scooter or moped | 1% |
| Driving a car or van | 82% |
| Passenger in a car or van | 6% |
| Bicycle | 0% |
| On foot | 3% |
| Other method of travel to work | 1% |

Table 3: Trips beyond Carlisle - Mode Split

2.2.4 Trip Rate Sensitivity

This census data from 2011 does not reflect the trend towards reduced car ownership and reduced trip making that has been noticed in urban areas in recent years. Additionally, based upon the comprehensive strategy for the Garden Village to achieve a change in mode for journeys towards sustainable transport modes, then this figure should be substantially reduced. In order to reflect this aspiration, two modelling scenarios have been considered:

- Standard Trip rates: To ensure robustness, it is proposed to replicate the existing mode splits for car journeys and apply this to the standard trip rate. This provides an assessment of the potential impacts if the Garden Village were a 'typical' new development.

- Trip rates reflecting a switch to more sustainable modes. A 30% reduction has been applied to trip rates to reflect the switch to more sustainable modes that may be achieved through the provision of measures to encourage the use of public transport cycling and walking. A 30% reduction is considered to represent an ambitious yet realistic estimate of a potential mode shift that could be achieved by the Garden Village.

These forecasts were also developed before the COVID-19 pandemic and assume a 'business as usual' approach to long-term traffic forecasting. There is a growing consensus that an opportunity exists to use the recovery from COVID-19 to implement a 'green recovery' to help address the Climate Emergency that has been declared.

It is argued that within a 'green recovery' trip rates from existing land uses, not just from the Garden Village could also be reduced. However, in order to undertake a robust assessment this wider reduction has not been applied

2.3 Trip Distribution

A simple gravity model has been developed to distribute trips from the Garden Village. The gravity model considers employment populations within the North West of England, their respective size (in terms of jobs) and travel time, in order to forecast where residents of the Garden Village would typically be travelling to for work purposes. It is considered that destinations beyond the North West would not be significant in terms of distribution as traffic as flows would be small and would all assign to the motorway in any case.

Consideration has also been given to employment to be provided within the Garden Village. The number of jobs that could be created has been estimated based upon the Outline Business Case prepared as part of the Housing Infrastructure Fund for the Carlisle Southern Link Road. This estimates a potential for 3,666 gross direct jobs within the Garden Village. These are also shown in the table with an assumed short distance and travel time. Although there may be non-work related trips to the Garden Village, these would typically occur outside of the modelled peak hours and have therefore not been included in the model.

The gravity model is shown in full in Appendix A. The results are summarised in the Table 4. This broadly reflects the distribution of trips from this area observed in the 2011 census.

| District | Gravity Proportion | 2011 Census |
|---|---|---|
| Garden Village | 21% | 82% |
| Other Carlisle | 62% | |
| Other Cumbria | 9% | 12% |
| M6 North (North East England and Scotland) | 4% | 4% |
| M6 South (North West England) | 4% | 2% |
| **Sum** | **100%** | **100%** |

Table 4: Gravity Model Summary

2.4 Model Scnearios

A number of model scenarios have been developed in agreement with CCC to test the impact of Garden Village. The scenarios consider the impact of two variables:

- The potential effect that different mode splits could have on trip rates as discussed in section 3.2.4.
- The effect of closing Scalegate Road to through traffic within the Garden Village to enable the development of a sustainable transport corridor along this route. This has been modelled by means of a bus gate, but in practice could be achieved by a more comprehensive range of measures to prioritise sustainable transport modes along the length of the corridor as set out in the Movement Framework and Access Strategy.

The resultant scenarios are shown in Table 5.

There are a range of possible locations for the bus gate on Scalegate Road. For the purposes of the modelling exercise, it has been located within the Garden Village, i.e. around 1km to the south of the position shown in Figure 3. As the Movement Framework and Access Strategy for Garden Villages are taken forward to more detailed design stages, the precise location for any bus gate would need to be agreed with stakeholders, considering the access requirements for existing and proposed communities, including schools located on this corridor.

The vehicular trip rates for all 4 scenarios are shown in Table 6 and Table 7.

| | | Scalegate Road | |
|---|---|---|---|
| | | Open | Sustainable Transport Corridor (Bus only Link) |
| Trip Rates | Base Trip Rates | Scenario 1 | Scenario 3 |
| | Indicative 30% shift to sustainable modes | Scenario 2 | Scenario 4 |

Table 5: Model Scenarios

| Time Range | Trip Rate per dwelling | | |
|---|---|---|---|
| | Arrivals | Departures | Total |
| 08:00-09:00 | 0.16 | 0.60 | 0.76 |
| 17:00-18:00 | 0.47 | 0.23 | 0.70 |
| Daily Trip Rates: | 3.91 | 3.67 | 7.58 |

Table 6: Scneario 1 and 3 Trip Rates

| Time Range | Trip Rate per dwelling | | |
|---|---|---|---|
| | Arrivals | Departures | Total |
| 08:00-09:00 | 0.11 | 0.42 | 0.53 |
| 17:00-18:00 | 0.33 | 0.16 | 0.49 |
| Daily Trip Rates: | 2.74 | 2.57 | 5.31 |

Table 7: Scenario 2 and 4 Trip Rates (Indicative of a 30% shift to sustainable modes)

The total trip generation by plot is shown in Table 8 for all scenarios.

The table reflects and highlights the scale of the proposed Garden Village, with the 10,335 houses forecast to generate in excess of 8,000 vehicle trips in the morning peak in Scenarios 1 and 3, and almost 6,000 vehicle trips in Scenarios 2 and 4.

| | | Scenario 1 and 3 | | | | Scenario 2 and 4 | | | |
|---|---|---|---|---|---|---|---|---|---|
| Zone | Dwellings | AM Departures | AM Arrivals | PM Departures | PM Arrivals | AM Departures | AM Arrivals | PM Departures | PM Arrivals |
| 1 | 680 | 442 | 116 | 167 | 344 | 309 | 81 | 117 | 241 |
| 2 | 720 | 468 | 122 | 177 | 365 | 328 | 85 | 124 | 256 |
| 3 | 300 | 195 | 51 | 74 | 152 | 137 | 36 | 52 | 106 |
| 4 | 325 | 211 | 55 | 80 | 165 | 148 | 39 | 56 | 116 |
| 5 | 480 | 312 | 82 | 118 | 243 | 218 | 57 | 83 | 170 |
| 6 | 750 | 488 | 128 | 184 | 380 | 342 | 90 | 129 | 266 |
| 7 | 765 | 498 | 130 | 188 | 387 | 349 | 91 | 132 | 271 |
| 8 | 700 | 455 | 119 | 172 | 354 | 319 | 83 | 120 | 248 |
| 9 | 720 | 468 | 122 | 177 | 365 | 328 | 85 | 124 | 256 |
| 10 | 580 | 377 | 99 | 143 | 294 | 264 | 69 | 100 | 206 |
| 11 | 200 | 130 | 34 | 49 | 101 | 91 | 24 | 34 | 71 |
| 12 | 1,080 | 702 | 184 | 265 | 547 | 491 | 129 | 186 | 383 |
| 13 | 400 | 260 | 68 | 98 | 203 | 182 | 48 | 69 | 142 |
| 14 | 1,400 | 911 | 238 | 344 | 709 | 638 | 167 | 241 | 496 |
| 15 | 1,235 | 803 | 210 | 304 | 625 | 562 | 147 | 213 | 438 |
| | **10,335** | **6,722** | **1,758** | **2,541** | **5,233** | **4,704** | **1,231** | **1,778** | **3,664** |

Table 8: Total Trip Generation

## 3. Model Results

The total modelled trips from the site in all scenarios is summarised in Table 9, having discounted those vehicles whose journeys remain wholly within the Garden Village.

The impact of the vehicle trips generated within the AM and PM peak modelled hours is shown graphically in Appendix B. The primary impacts are shown below, both in terms of increases in flows on links, and the impact on volume capacity ratios at key junctions. It is noted that the volume capacity ratio stated refers to that of the most congested approach at each junction rather than an overall average for the junction as a whole.

### 3.1 Scenario 1: Standard Trip Rate - No Bus Gate

Scenario 1 considers standard trip rates together with no bus gate on Scalegate Road. The link impacts are shown in Table 10.

In the AM peak Dalston Road, Durdar Road and Scalegate Road, all have forecast one-way flow increases in excess of 600 pcus to the north of the Garden Village, associated with vehicles travelling towards Carlisle City Centre. There is also a forecast increase of 800 pcus on the CSLR on the approach to the M6 Junction 42, though it should be recognised that enabling the development of the Garden Village is one of the key objectives of delivering the CSLR.

There is no forecast change on the A6 London Road within the model, however this is due to traffic

being unable to get to the A6 London Road due to congestion within the model at the M6 Junction 42. There is also a significant forecast increase in traffic on St Ninians Road which is a local pinch point given the limited opportunities to cross the West Coast Mainline and the single lane narrowing of the existing alignment.

A similar pattern emerges within the PM peak albeit in the reverse direction as journeys are predominantly made back towards the Garden Village from the City Centre. The absolute increases on links are generally around 200-300 pcus lower than the AM peak period due to the lower trip rate within this period with trips typically spread over a longer period of time. It should be noted however that the PM peak period is less concentrated than the AM peak, and generally starts at school finishing time and lasts until the end of the commuting peak hour.

Junctions at which the demand is forecast to exceed capacity on at least one arm, and the period in which this occurs are as follows:

- M6 Junction 42 – both AM and PM
- Blackwell Road - Currock Road both AM and PM
- Blackwell Road - Boundary Road both AM and PM
- A6 London Road – St Nicholas Bridge AM
- A6 London Road – Cumwhinton Road PM
- Currock Road – Crown St both AM and PM
- CSLR – Durdar Road PM
- CSLR – Dalston Road AM

It should be noted that no adjustments have been made to any of the existing junction layouts within the model.

| | Morning Peak Hour | | | Evening Peak Hour | | |
|---|---|---|---|---|---|---|
| | Departures | Arrivals | Total | Departures | Arrivals | Total |
| People | 8,258 | 2,160 | 10,418 | 3,121 | 6,428 | 9,550 |
| Vehicles Scenario 1 and 3 | 4,947 | 1,294 | 6,241 | 1,870 | 3,851 | 5,721 |
| Vehicles Scenario 2 and 4 | 3,463 | 906 | 4,369 | 1,309 | 2,696 | 4,005 |

Table 9: Modelled Trip Totals

| / | AM Peak | PM Peak |
|---|---|---|
| Dalston Road | +600 N/Bd | +600 S/Bd |
| Durdar Road | +1,300 N/Bd | +800 S/Bd |
| Scalegate Road | +1,000 N/Bd | +700 S/Bd |
| Brisco Road | +400 N/Bd | +100 S/Bd |
| CSLR | +800 E/Bd | +900 W/Bd |
| A6 London Road | No Change N/Bd | +400 S/Bd |
| St Ninians Road | +600 E/bd | +300 E/bd |

Table 10: Scenario 1 – Link Flow Increases in the Peak Direction (passenger car unit – pcu)

3.2 Scenario 2: Reduced Trip Rate - No Bus Gate

Scenario 2 considers the impact of reduced trip rates to achieve a 30% reduction in trips through increased used of sustainable transport modes. The link impacts are shown in Table 11. In the AM peak the increases on Dalston Road, Durdar Road, Scalegate Road, and Brisco Road reduce by between 200 to 300 pcus compared to scenario 1. The increase on St Ninians Road is largely unchanged compared to scenario 1 which suggests there is a significant degree of latent demand on this link when the traffic from the Garden Village is added in scenario 1, i.e. not all traffic that would like to use this route is able to do so within this scenario due to the capacity constraint at this pinchpoint.

The list of junctions at which the forecast demand exceeds capacity on at least one arm in Scenario 1 is repeated below. The periods during which junctions are no longer forecast to operate above their operational capacity within Scenario 2 have been struck through to show the reduced impact on the road network of the reduced trip rates:

- M6 Junction 42 – both AM and PM
- Blackwell Road - Currock Road both AM and PM
- Blackwell Road - Boundary Road both AM and PM
- A6 London Road – St Nicholas Bridge AM
- A6 London Road – Cumwhinton Road PM
- Currock Road – Crown St PM
- CSLR – Durdar Road PM
- CSLR – Dalston Road AM

The effect of reduced trip rates is to reduce the impact of the development at the junctions affected by the development. Two of the eight junctions that were previously forecast to operate over capacity would be brought back within their operational capacity in at least one time-period. Other junctions would also be forecast to observe a noticeable improvement in operational capacity due to reduced traffic flows from the development. Whilst a number of junctions would still be forecast to experience capacity issues, the scale of mitigation works required to resolve these issues is likely to be reduced.

| | AM Peak | PM Peak |
|---|---|---|
| Dalston Road | +500 N/Bd | +500 S/Bd |
| Durdar Road | +1,000 N/Bd | +700 S/Bd |
| Scalegate Road | +800 N/Bd | +500 S/Bd |
| Brisco Road | +200 N/Bd | +100 S/Bd |
| CSLR | +600 E/Bd | +900 W/Bd |
| A6 London Road | +100 N/Bd | +300 S/Bd |
| St Ninians Road | +500 E/bd | +200 E/bd |

Table 11: Scenario 2 – Link Flow Increases in the Peak Direction (pcu)

3.3 Scenario 3: Standard Trip Rate - Bus Gate on Scalegate Road

Scenario 3 considers the impact of closing Scalegate road to through traffic through the installation of a bus gate within the Garden Village site. The link impacts are shown in Table 12.

Compared to Scenario 1 there are no significant changes forecast to the overall distribution of traffic, other than traffic rerouting locally on network around Durdar Road, the CSLR, Upperby Park, and Brisco Road to avoid the closure. This is shown as a Saturn Model output in Figure 4. The forecast impacts on junction performance, compared to Scenario 1 are also therefore limited.

| | AM Peak | PM Peak |
|---|---|---|
| Dalston Road | +600 N/Bd | +700 S/bd |
| Durdar Road | +1200 N/Bd | +800 S/Bd |
| Scalegate Road | +900 N/Bd | +700 S/Bd |
| Brisco Road | +700 N/Bd | +300 S/Bd |
| CSLR | +800 E/Bd | +900 W/Bd |
| A6 London Road | No Change N/Bd | +400 S/Bd |
| St Ninians Road | +500 E/bd | +300 E/bd |

Table 12: Scenario 3 – Link Flow Increases in the Peak Direction (pcu)

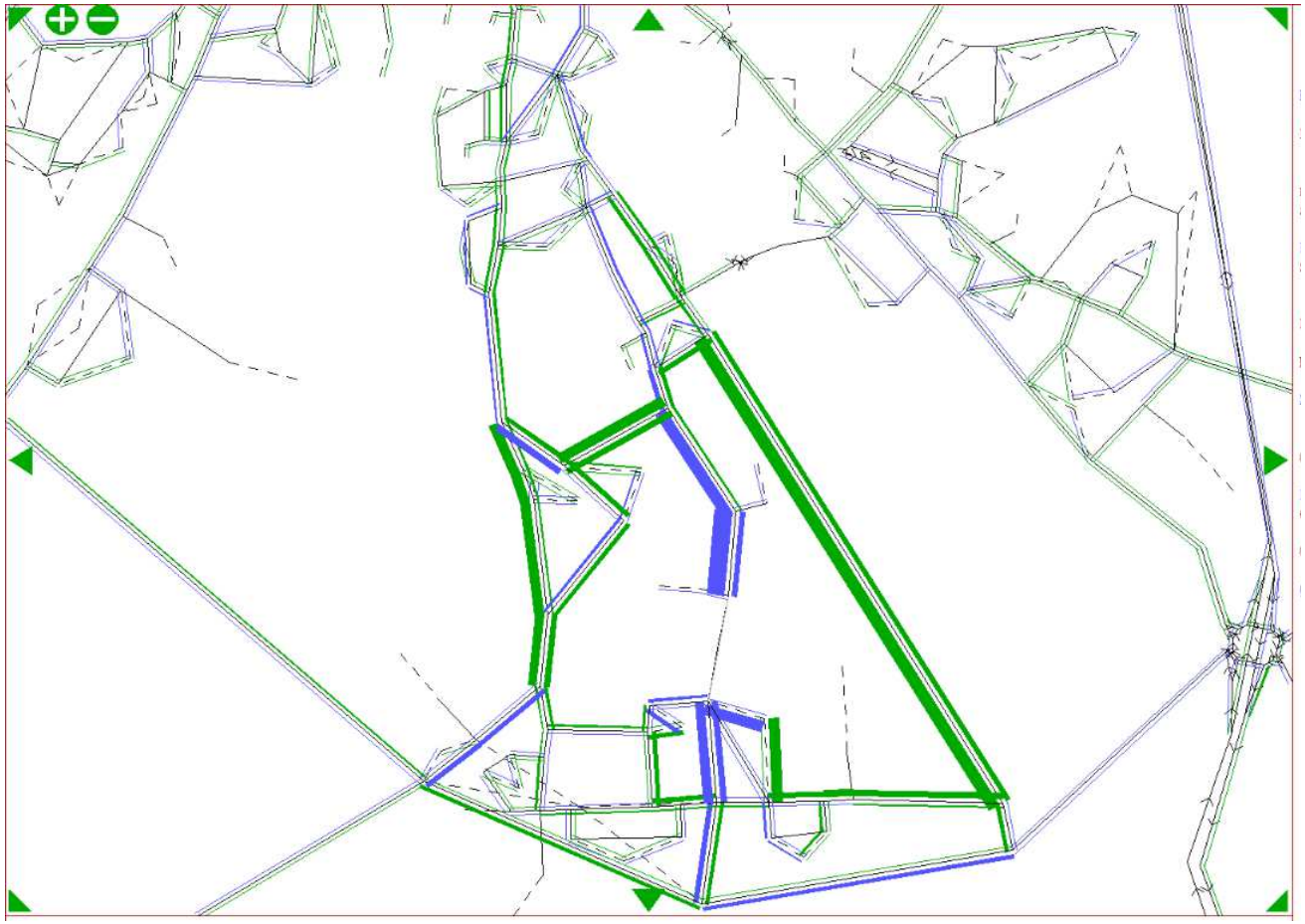


Figure 4: Scenario 3 vs Scenario 1 Difference Plot (Green Bandwith = increase in Scenario 3, Blue Bandwidth shows decrease in Scenario 3)

### 3.4 Scenario 4: Reduced Trip Rate - Bus Gate on Scalegate Road

Scenario 4 considers the impact of both the reduced trip rates and closing Scalegate Road to through traffic through the installation of a bus gate within the Garden Village site. The link impacts are shown in Table 13.

The volumetric impacts are similar to Scenario 2, while the distribution of traffic to avoid the Scalegate Road closure is similar to that in Scenario 3.

| | AM Peak | PM Peak |
|---|---|---|
| Dalston Road | +500 N/Bd | +500 S/Bd |
| Durdar Road | +1,100 N/Bd | +700 S/Bd |
| Scalegate Road | +600 N/Bd | +400 S/Bd |
| Brisco Road | +400 N/Bd | +200 S/Bd |
| CSLR | +600 E/Bd | +900 W/Bd |
| A6 London Road | +100 N/Bd | +300 N/Bd |
| St Ninians Road | +500 E/bd | +200 E/bd |

Table 13: Scenario 4 – Link Flow Increases in the Peak Direction (pcu)

## 4. Mitigation

The modelling results presented show significant forecast traffic increases on the routes between the Garden Village and Central Carlisle, i.e. Dalston Road, Durdar Road Scalegate Road and Brisco Road, together with significant increases on the CSLR. This is to be expected given the significant scale of the development of over 10,000 dwellings.

In most cases it is considered that the forecast traffic increases on links would represent more noticeable change from existing conditions compared to capacity issues at junctions. Links such as Durdar Road, Scalegate Road and Brisco Road are not designed as major traffic routes and are generally rural in nature, characterised by frontage activity, frequent side road junctions together with a significant number of parked cars. It is not considered appropriate to seek to accommodate the traffic volumes shown in Modelling Scenarios 1 and 3 (i.e. with the full car trip rates) along these corridors through increased link and junction capacity. Such an approach would be contrary to the guiding principles for the Garden Village and also unlikely to be achievable given constraints to road widening along these corridors.

One of the key principles of the Garden Village is that it should be encouraging and enabling of a significant shift to travel by sustainable traffic modes. The modelling has shown that this is particularly important for journeys between the Garden Village and central Carlisle. Measures to prioritise public and sustainable transport along these key routes, together with increased public transport provision should be considered, alongside improved cycle and pedestrian routes.

Together with these progressive improvements, measures to constrain car usage from the development (and through traffic on these radial corridors) should be considered. An example of this is the proposed bus gate on Scalegate Road, though this is representative of a wider range of measures to enable sustainable travel as set out in the Movement Framework and Accessibility Strategy. The analysis in modelling Scenarios 3 and 4 has shown that there are limited negative impacts caused by the bus gate on Scalegate Road. The analysis shows that it could be in beneficial to reposition the bus gate from that assumed within the modelling to the actual position shown in Figure 3. This would further discourage traffic from using Scalegate Road. Taken together with the prioritisation of bus traffic along this and other routes it would help achieve, or better, the trip rate reductions modelled in Scenarios 2 and 4.

When considering the modelling results above and the off-site highway mitigation required the following caveats should be recognised:

- Scenarios 1 and 3 standard highway trip generation rates have been used. These trip rates take no account of the aspiration for the Garden Village to be an exemplar development whereby there is a change in mode for journeys towards sustainable transport modes. Nor do they take into consideration the trend towards reduced car ownership and reduced trip making that has been noticed in urban areas in recent years.
- The model assumes a 2038 base year. This assumes that the development occurs in addition to all other development and background trips assumed by TEMPRO and that traffic growth occurs in line with the assumptions contained in the national road traffic forecasts NRTF.
- These forecasts were also developed before the COVID-19 pandemic and assume a business as usual approach to long-term traffic forecasting. There is a growing consensus that an opportunity exists to use the recovery from COVID-19 to implement a ‘green recovery’ to help address the Climate Emergency that has been declared. While Scenarios 2 and 4 have been developed assuming a 30% reduction in standard rates for trips from the Garden Village, it could be argued that within a ‘green recovery’ trip rates from existing land uses should also be reduced.

The modelling has shown that if trip rates can be reduced by 30% through the development of a sustainable transport strategy then the impact of development generated traffic on junctions within the existing network could be significantly reduced.

At this masterplan stage and given the uncertainties noted above, it is not considered appropriate to be using these modelling results to prescribe detailed junction improvements at specific locations. The modelling outputs have, however, informed locations where junction improvements are anticipated to be required either to provide additional capacity or to prioritise public and sustainable transport modes.

These are set out in the Movement Framework and Accessibility Strategy and will be developed further as the Garden Village communities are taken forward and designed in more detail.

# Appendix 3 / Transport Modelling Technical Note

## Appendix A: Gravity Model

| District | Ward | Workplace population | Distance (miles) | Travel Time (t, min) | t^2 | P/t^2 | Share |
|---|---|---|---|---|---|---|---|
| Garden Village | | 3666 | 2 | 5 | 56 | 66 | 21% |
| Carlisle | Currock | 3324 | 2 | 5 | 56 | 59 | 19% |
| | Castle | 16019 | 3.2 | 11 | 401 | 40 | 13% |
| | Denton Holme | 3622 | 2.8 | 8 | 181 | 20 | 6% |
| | Dalston | 3384 | 4.5 | 9 | 243 | 14 | 4% |
| | Upperby | 945 | 1.6 | 5 | 56 | 17 | 5% |
| | Harraby | 3168 | 3 | 10 | 316 | 10 | 3% |
| | St Aidans | 1952 | 2.5 | 9 | 243 | 8 | 3% |
| | Botcherby | 2935 | 3.6 | 12 | 499 | 6 | 2% |
| | Belah | 4100 | 5.5 | 17 | 1192 | 3 | 1% |
| | Stanwix Rural | 4142 | 13.8 | 19 | 1574 | 3 | 1% |
| | Wetheral | 1129 | 5.7 | 10 | 316 | 4 | 1% |
| | Belle Vue | 1656 | 4 | 13 | 609 | 3 | 1% |
| | Stanwix Urban | 1527 | 4.5 | 15 | 871 | 2 | 1% |
| | Morton | 631 | 3.5 | 11 | 401 | 2 | 1% |
| | Longtown & Rockcliffe | 1996 | 15.3 | 20 | 1789 | 1 | 0% |
| | Brampton | 1863 | 13.1 | 20 | 1789 | 1 | 0% |
| | Yewdale | 679 | 4.7 | 15 | 871 | 1 | 0% |
| | Burgh | 448 | 6.9 | 17 | 1192 | 0 | 0% |
| | Great Corby and Geltsdale | 661 | 12.4 | 21 | 2021 | 0 | 0% |
| | Hayton | 424 | 10.9 | 17 | 1192 | 0 | 0% |
| | Irthing | 1311 | 16.9 | 30 | 4930 | 0 | 0% |
| | Lyne | 736 | 24.6 | 38 | 8901 | 0 | 0% |
| Lancashire | - | 524225 | 86.5 | 88 | 72645 | 7 | 2% |
| Eden | - | 28783 | 19.2 | 20 | 1789 | 16 | 5% |
| Allerdale | - | 40513 | 23.4 | 28 | 4149 | 10 | 3% |
| County Durham | - | 196872 | 67.1 | 88 | 72645 | 3 | 1% |
| Newcastle upon Tyne | - | 169652 | 61.9 | 82 | 60888 | 3 | 1% |
| Manchester | - | 319745 | 117 | 123 | 167789 | 0 | 0% |
| South Lakeland | - | 52022 | 45 | 51 | 18575 | 3 | 1% |
| Northumberland | - | 123686 | 59.8 | 87 | 70599 | 2 | 1% |
| Halton | - | 57420 | 65.2 | 63 | 31503 | 2 | 1% |
| Gateshead | - | 91882 | 64.5 | 82 | 60888 | 2 | 0% |
| Liverpool | - | 235801 | 123 | 135 | 211755 | 0 | 0% |
| Sunderland | - | 126089 | 75.4 | 100 | 100000 | 1 | 0% |

| District | Ward | Workplace population | Distance (miles) | Travel Time (t, min) | t^2 | P/t^2 | Share |
|---|---|---|---|---|---|---|---|
| North Tyneside | - | 84221 | 67.8 | 89 | 74727 | 1 | 0% |
| Bolton | - | 114946 | 108 | 111 | 129810 | 0 | 0% |
| Trafford | - | 129951 | 119 | 119 | 154478 | 0 | 0% |
| Wigan | - | 117725 | 107 | 114 | 138759 | 0 | 0% |
| Salford | - | 113752 | 115 | 113 | 135736 | 0 | 0% |
| Cheshire East | - | 182026 | 143 | 148 | 266474 | 0 | 0% |
| Stockton-on-Tees | - | 86322 | 88.7 | 102 | 105075 | 1 | 0% |
| Stockport | - | 125903 | 126 | 127 | 181765 | 0 | 0% |
| Cheshire West and Chester | - | 158249 | 136 | 144 | 248832 | 0 | 0% |
| Warrington | - | 114983 | 117 | 123 | 167789 | 0 | 0% |
| Darlington | - | 52096 | 76.9 | 86 | 68588 | 1 | 0% |
| Sefton | - | 102777 | 120 | 121 | 161051 | 0 | 0% |
| Blackburn with Darwen | - | 64522 | 98.6 | 97 | 92668 | 1 | 0% |
| Blackpool | - | 63189 | 98.3 | 99 | 97519 | 1 | 0% |
| Oldham | - | 89047 | 123 | 125 | 174693 | 0 | 0% |
| Middlesbrough | - | 62839 | 92.9 | 106 | 115682 | 1 | 0% |
| South Tyneside | - | 50317 | 74.2 | 95 | 87965 | 1 | 0% |
| Rochdale | - | 79184 | 124 | 123 | 167789 | 0 | 0% |
| Tameside | - | 79528 | 125 | 125 | 174693 | 0 | 0% |
| Wirral | - | 112249 | 131 | 149 | 270998 | 0 | 0% |
| Bury | - | 73437 | 119 | 121 | 161051 | 0 | 0% |
| Copeland | - | 34640 | 51.7 | 85 | 66611 | 1 | 0% |
| St. Helens | - | 64928 | 114 | 118 | 151253 | 0 | 0% |
| Knowsley | - | 57202 | 118 | 114 | 138759 | 0 | 0% |
| Redcar and Cleveland | - | 45844 | 101 | 117 | 148069 | 0 | 0% |
| Barrow-in-Furness | - | 31302 | 85.2 | 99 | 97519 | 0 | 0% |
| Hartlepool | - | 34197 | 93.4 | 115 | 141822 | 0 | 0% |

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Appendix 2

# St Cuthbert's Garden Village

## Masterplan Framework

### Final Infrastructure Schedule

October 2020

Carlisle City Council

CARLISLE CITY COUNCIL www.carlisle.gov.uk

St Cuthbert's Garden Village Carlisle

HIVE LAND & PLANNING

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1 / Introduction
2 / Phasing Schedule
3 / Transport Infrastructure
4 / Education and Community Facilities
5 / Drainage and Utilities
6 / Landscape and Open Space
7 / Infrastructure Delivery: Next Steps
8 / Appendix

SCGV-ARP-XX-XX-AX-RP-00006 rev02
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# 1 /

# Introduction

# 1.1 / Introduction

### Infrastructure Schedule

This Infrastructure Schedule provides a summary of the strategic infrastructure required for the delivery of the St Cuthbert's Framework Masterplan. It provides an overall phasing schedule, as well as providing more detailed strategic infrastructure requirements to deliver the first phase of the Garden Village. Phase 1 will include development in Carleton, Cummersdale and Carlisle Edge (north of Durdar).

The schedule collates infrastructure requirements that have been gathered throughout the Stage 2 Masterplan Framework process, as well as information provided by Carlisle City Council and key stakeholders. This infrastructure schedule is based on the best available information at the time of writing, including thorough engagement with infrastructure providers. The level of detail has been continually reviewed and agreed with Carlisle City Council. Where information has not been obtained, next steps have been recommended in order to attain this information. During the consultation period in June 2020, conversations with utility and drainage providers have progressed. The result of these conversations has been reflected in this infrastructure schedule.

Infrastructure requirements may change in the future as detailed plans progress. Infrastructure costs are given where these have been received, either through correspondence with infrastructure providers, Carlisle City Council or Cumbria County Council. Landscape costs have been calculated using Fields in Trust Guidance. Arup is working collaboratively with cost consultants Turner and Townsend, as well as viability consultants Aspinall Verdi, who are providing a separate output to provide costs for the delivery of the masterplan. Where a cost is marked "TBC" it is assumed that additional costs will be provided as a result of this output. Trigger points, risks to delivery and next steps are included where known to inform ongoing discussions with key stakeholders and to further establish requirements for the St Cuthbert's DPD. There is a requirement for 20% affordable housing across the Garden Village. The exact location and typology of these is yet to be determined and must be informed by the existing and future updates to both the Housing Market Needs Assessment and the Strategic Housing Market Assessment and ongoing viability assessment work

Appendix A included at the end of this infrastructure schedule outlines all known infrastructure requirements for the Garden Village in tabular format.

The draft infrastructure schedule considers the following:

### Phasing

- Assumptions
- Housing delivery

### Community Infrastructure

- Primary and Secondary Education
- Health & Community Facilities

### Transport Infrastructure

- Off-site highways requirements beyond the defined extent of St Cuthbert's
- On-site highway requirements
- Public Transport Provision within the Garden Village and to the City Centre
- Footways, cycleways and bridleways
- Landscape Infrastructure
- Public open space, allotments and play provision
- Outdoor sports provision
- Structural planting / landscape mitigation
- Ecological mitigation
- Noise mitigation

### Drainage Infrastructure

- Flood risk mitigation, drainage and SUDs infrastructure

### Utilities

- Upgrades, reinforcements

### Appendix A

- A comprehensive list of all infrastructure required to deliver the Garden Village (split by total requirements, phase 1 and subsequent phases)


ILLUSTRATIVE MASTERPLAN
Carlisle
Upperby
Park
Cummersdale
River Petteril
Carleton
River Caldew
Durdar
CSLR
LEGEND
EXISTING DEVELOPMENT
PROPOSED NEW RESIDENTIAL
LOCAL CENTRES
EXISTING SCHOOL LOCATION
PROPOSED SCHOOL LOCATION
PUBLIC RIGHT OF WAY
CARLISLE SOUTHERN LINK ROAD PEDESTRIAN AND CYCLE ROUTE
PROPOSED PEDESTRIAN AND CYCLING CONNECTIONS
PROPOSED PUBLIC OPEN SPACE
PROPOSED ATTENUATION PONDS
EXISTING RIVERS
SMALL WATER COURSES
EMPLOYMENT AREA JUNCTION A42
CONSERVATION AREA
MAIN ACTIVE STREETS
GREENWAY
POTENTIAL FOR ACTIVE FRONTAGES
STEAD MCALPIN PRINTWORKS
1:10,000
0
250
500 m
1,000 m

# 2 /

# Phasing Schedule

The following pages outline an indicative spatial phasing plan for St Cuthbert's Garden Village. Each plan shows an indication of the area of development and highlights the location of local centres, primary and secondary schools This phasing plan is based on the findings of technical studies and consultations undertaken throughout the development of the Masterplan Framework. It is also based on information gained through engagement with landowners, with the early phases including sites already earmarked for development.

The phasing strategy for the Garden Village is an iterative process and it is likely that it will change over time, as considerations such as viability and a delivery model are factored in.

The main assumptions considered based on the previous stages of the Masterplan are:

- Total number of units: 10,325
- Approx. new residents: 23,000
- Average people per household: 2.22
- Housing completion assumption has been aligned to the continuous housing phase from viability consultants Aspinall Verdi, which assumes "peak sales rate of 45 per annum (market houses only) across 11 outlets which equates to circa 500 per year".
- Development approximately between 2022-2049
- 5 phases of approximately 6 years
- Approximately 2,065 units/phase


INDICATIVE PHASING
Upperby
Park
Cummersdale
River Petteril
Carleton
River Caldew
Durdar
CSLR
Phase 1
Phase 2
Phase 3
Phase 4
Phase 5

# 2.1 / Phase 1

Development is focussed in Carleton and Cummersdale, with additional development along Carlisle Edge. Discussions with landowners and Cumbria County Council have indicated that there is some existing strategic infrastructure in place to account for the additional homes in this area, and this infrastructure schedule discusses further infrastructure that is required to deliver this phase of the Garden Village.

The key characteristics of Phase 1 include:

- Delivery of the following dwellings:
  - 1,000 in Carleton
  - 500 in Cummersdale
  - 500 in Carlisle Edge
- Delivery of new local centres in Carleton and Cummersdale
- Delivery of new primary schools in Cummersdale and Carleton
- Delivery of the proposed greenway through Carleton and Cummersdale to existing PRoWs and roads, for access into Carlisle and onto the CSLR walking and cycling route
- Recommendations for improvements to walking and cycling network into Carlisle City Centre
- Delivery of strategic SUDs in Carleton, Cummersdale and Carleton


Local Centre
Primary school
Secondary school
Greenway

The table below lists the requirements to deliver Phase 1 of the Garden Village. Further details and assumptions can be found in the main body of the text and accompanying spreadsheet.

| Infrastructure | Phase 1<br>*it is assumed that all strategic infrastructure in Carleton,Cummersdale and Carlisle Edge should be delivered within phase one (to deliver subsequent phases) | |
|---|---|---|
| | Requirement | Cost |
| **Education - Primary Schools** | | |
| Durdar | N/A | N/A |
| Cummersdale | 1 x 1FE | £5,400,000 |
| Carleton | 1 x 1FE | £5,400,000 |
| **Education - Secondary Schools** | | |
| Durdar | | |
| **Community Facilities** | | |
| Health - General Practitioners | 2 x GP Practices | TBC |
| Emergency services | 2 x community hubs | TBC |
| Community facilities | N/A | N/A |
| Cemetery | N/A | N/A |
| **Housing** | | |
| Durdar | N/A | N/A |
| Carlisle Edge | 500 units | TBC |
| Cummersdale | 500 units | TBC |
| Carleton | 1000 units | TBC |
| **Employment** | | |
| Durdar | N/A | N/A |
| Carlisle Edge | N/A | N/A |
| Cummersdale | 1000 sqm | TBC |
| Carleton | 1000 sqm | TBC |

| Infrastructure | Phase 1<br>*it is assumed that all strategic infrastructure in Carleton,Cummersdale and Carlisle Edge should be delivered within phase one (to deliver subsequent phases) | |
|---|---|---|
| | Requirement | Cost |
| **Transport - off-site highways** | | |
| Off-site junction capacity/priorirty works | •A6/St Nicholas Bridge (including corridor wide enhancement of on street cycling infrastructure)<br>•London Rd / Eastern Way (including corridor wide enhancement of on street cycling infrastructure)<br>•London Rd /Cumwhinton Road (including corridor wide enhancement of on street cycling infrastructure)<br>•Currock Street / Rome Street/Water Street (including corridor wide enhancement of on street cycling infrastructure)<br>•Shaddongate/Junction Street (including corridor wide enhancement of on street cycling infrastructure)<br>•Charlotte Street / Denton Street (including corridor wide enhancement of on street cycling infrastructure) | TBC |
| Bus gate | N/A | N/A |
| Roadspace reallocation to prioritise sustainable transport | N/A | N/A |
| **Transport - on-site highways** | | |
| Strategic Roads | N/A | N/A |
| Main Roads (Primary Roads) | N/A | N/A |
| Secondary Roads | 3km | |
| Residential Roads / Quiet Streets (Tertiary Roa | 9km | |
| **Public transport provisior** | | |
| Low Traffic corridor with bus priority measures a | N/A | N/A |
| Mobility hub/primary public transport interchang | N/A | N/A |
| Smaller mobility hubs | 3 | TBC |
| Bus stops | 6 | TBC |
| **Footways, cycleways and bridleways** | | |
| Greenway | 2.4km | TBC |
| Improved rail crosings | N/A | N/A |
| Improved river crossings | N/A | N/A |
| Formal pedestrian crossings | 2 units | TBC |
| Upgrade of NCR7 | 1 unit | TBC |
| On-street footways/cycleways | N/A | N/A |

| Infrastructure | Phase 1<br>*it is assumed that all strategic infrastructure in Carleton,Cummersdale and Carlisle Edge should be delivered within phase one (to deliver subsequent phases) | |
|---|---|---|
| | Requirement | Cost |
| **Drainage** | | |
| Storm - SuDS Linear Feature | 10300m | TBC |
| Storm - Gravity Pipework | 3800m | TBC |
| Storm - Land Drainage | 770m | TBC |
| Storm - Attenuation | 35600m3 | TBC |
| Foul - Gravity Pipework | 10700m | TBC |
| Foul - Pumping Stations | 4no. | TBC |
| **Utilities - Electriciy (ENW)** | | |
| Cummersdale- Supply | 1.5km cable and 2 circuit breakers to supply from Morton Park Sub | £1,000,000 |
| Cummersdale- Diversion | Diversion of 33kv o/hcable required at ofset of Phase 1 | £1,300,000 |
| Durdar - Supply | | |
| Durdar - Diversion | | |
| Carleton - Supply | 1.8km cable and 2 circuit breakers to supply from Petteril Bank Substation | £1,300,000 |
| Carleton - Diversion | Diversion of 11kv o/h cable required at offset of Phase 1 | £380,000 |
| **Utilities - Gas (NGN)** | | |
| Supply | N/A | N/A |
| Diversions | N/A | N/A |
| **Utilities - Water (UU)** | | |
| Supply | N/A | N/A |
| Diversions | N/A | N/A |

| Infrastructure | Phase 1<br>*it is assumed that all strategic infrastructure in Carleton,Cummersdale and Carlisle Edge should be delivered within phase one (to deliver subsequent phases) | |
|---|---|---|
| | Requirement | Cost |
| **Landscape - Playing pitches (Football, Rugby, Hockey, Lacrosse, Cricket)** | | |
| Durdar | N/A | N/A |
| Cummersdale | 2.62 ha | £442,947 |
| Carleton | 4.97 ha | £840,246 |
| **Landscape - Outdoor sports (Athletics, Tennis, Bowling Greens** | | |
| Durdar | N/A | N/A |
| Carlisle Edge | 0.44 ha | £366,626 |
| Cummersdale | 0.87 ha | £724,920 |
| Carleton | 1.66 ha | £1,383,180 |
| **Landscape - Designated play areas (LAP, LEAP and NEAPs)** | | |
| Durdar | | |
| Carlisle Edge | 0.27 ha | £93,420 |
| Cummersdale | 1.04 ha | £359,840 |
| Carleton | 1.04 ha | £359,840 |
| **Landscape - Other outdoor provision (MUGAs and skateboard parks** | | |
| Durdar | N/A | N/A |
| Carlisle Edge | 0.33 ha | £451,909 |
| Cummersdale | 1.04 ha | £903,819 |
| Carleton | 1.24 ha | £1,698,085 |
| **Landscape - Parks and Gardens (Formal green spaces including urban parks, country parks, forest parks, and formal gardens)** | | |
| Durdar | | |
| Carlisle Edge | 0.88 ha | £1,760,000 |
| Cummersdale | 1.75 ha | £3,500,000 |
| Carleton | 3.31 ha | £6,620,000 |
| **Landscape - Amenity Green Space (Informal recreation spaces, communal green spaces in and around housing, and village greens)** | | |
| Durdar | N/A | N/A |
| Carlisle Edge | 0.66 ha | £451,909 |
| Cummersdale | 1.31 ha | £131,000 |
| Carleton | 2.49 ha | £249,000 |
| **Landscape - Natural and Semi-Natural (Woodland, scrub, grassland, wetlands, open and running water, and open access land)** | | |
| Durdar | N/A | N/A |
| Carlisle Edge | 9.71 ha | £424,812 |
| Cummersdale | 12 ha | £525,000 |
| Carleton | 19.5 ha | £853,125 |
| | **Known Total** | **£36,919,678** |

# 2.2 / Phase 2

Phase Two will see the completion of development in both Cummersdale and Carleton, and the beginning of development in Durdar from the local centre located on the spur road from the CSLR, as well as the local centre directly east of the racecourse. This phase will also encompass a primary school in Durdar. This phase is key in early delivery of the greenway as the two sites in Durdar sit either side of this.

Cumbria County Council is currently exploring options for school delivery across the Garden Village, which may mean that the 2FE primary school in Durdar is delivered within Phase 1.

Currently a small amount of capacity exists in existing secondary schools to deal with the additional pupil yield projected from Phase 1. However, consideration is required to ensure the timely development of the Secondary School when the anticipated need arises during Phase 2.


Local Centre
Primary school
Secondary school
Greenway

# 2.3 / Phase 3

Phase three includes further development in Durdar, including the following features:

- Two primary schools
- Significant development of the greenway


Local Centre

Primary school

Secondary school

Greenway

# 2.4 / Phase 4

Phase four focuses development east of the secondary school and includes a new local centre, including further delivery of the greenway towards Carleton.


Local Centre

Primary school

Secondary school

Greenway

# 2.5 / Phase 5

This final phase is structured around the low traffic corridor on Scalegate Road.


Local Centre

Primary school

Secondary school

Greenway

# 3 /

# Transport Infrastructure

# 3.1 / Off Site Highways Requirements

### 3.1.1 Total Requirements

- CSLR is the primary off-site highway infrastructure to enable development
- Cycle improvements are to be made on Upperby Road, Dalston Road, Durdar Road and London Road, as well as National Cycle Route 7, to allow for safe and sustainable travel from the Garden Village to the City Centre.
- Additional highway capacity and reprioritisation towards sustainable modes is required between St Cuthbert's and the city centre, potentially including the following junctions:
- Blackwell Road/Boundary Road/ Beaconsfield Street/Salisbury Road
    - Blackwell Road/Currock Road
    - Currock Road/Crown Street
    - Upperby Road/Scalegate Road
    - Scalegate Road/Ridley Road
    - Scalegate Road/Mount Pleasant Road/ Kirklands Road
    - Scalegate Road/Embleton Road/Buchanan Road
    - Brisco Road/St Ninians Road
    - A6/St Nicholas Bridge (including corridor wide enhancement of on street cycling infrastructure)
    - London Rd / Eastern Way (including corridor wide enhancement of on street cycling infrastructure)


- Junctions
- Modal filter / Bus gate
- Corridor-wide enhancement of on-street cycling infrastructure

- London Rd /Cumwhinton Road (including corridor wide enhancement of on street cycling infrastructure)
- Currock Street / Rome Street/Water Street (including corridor wide enhancement of on street cycling infrastructure)
- Shaddongate/Junction Street (including corridor wide enhancement of on street cycling infrastructure)
- Charlotte Street / Denton Street (including corridor wide enhancement of on street cycling infrastructure)
- Modal filter/bus gates on Scalegate Road and Brisco road

- Roadspace reallocation to prioritise sustainable transport modes on St Nicholas Bridge and approaches

### 3.1.2 Phase 1 Requirements

As development is delivered in both Carleton and Cummersdale, it is imperative that improvements to existing routes into the city centre are made to enable continuous and safe cycling routes for residents of the Garden Village. It is anticipated that improvements are made on the following routes:

- Additional highway capacity and reprioritisation towards sustainable modes is required between St Cuthbert's and the city centre, potentially including the following junctions(including corridor wide enhancement of on street cycling infrastructure):

    - A6/St Nicholas Bridge
    - London Rd / Eastern Way
    - London Rd /Cumwhinton Road
    - Currock Street / Rome Street/Water Street
    - Shaddongate/Junction Street
    - Charlotte Street / Denton Street

- National Cycle Route 7:

    - Widen route and resurface around Stead McAlpin site
    - Cycle route improvements into the city centre

### 3.1.3 Further Phasing

From phase two onwards, development will be focussed around Durdar. As a result of this, there is a requirement to:

- Undertake junction improvements at the intersections outlined above
- Modal filter/bus gate on Scalegate Road
- Roadspace reallocation to prioritise sustainable transport modes on St Nicholas Bridge and approaches
- Further modelling is required to understand full infrastructure requirements
- Walking and cycling improvements not delivered in Phase 1 include:

    - Protected cycle lanes on Boundary Road and Blackwell Road north of junction with Beaconsfield St will be required to complete the sustainable transport corridor into the City Centre

# 3.2 / On Site Highways Requirements

### 3.2.1 Total Requirements

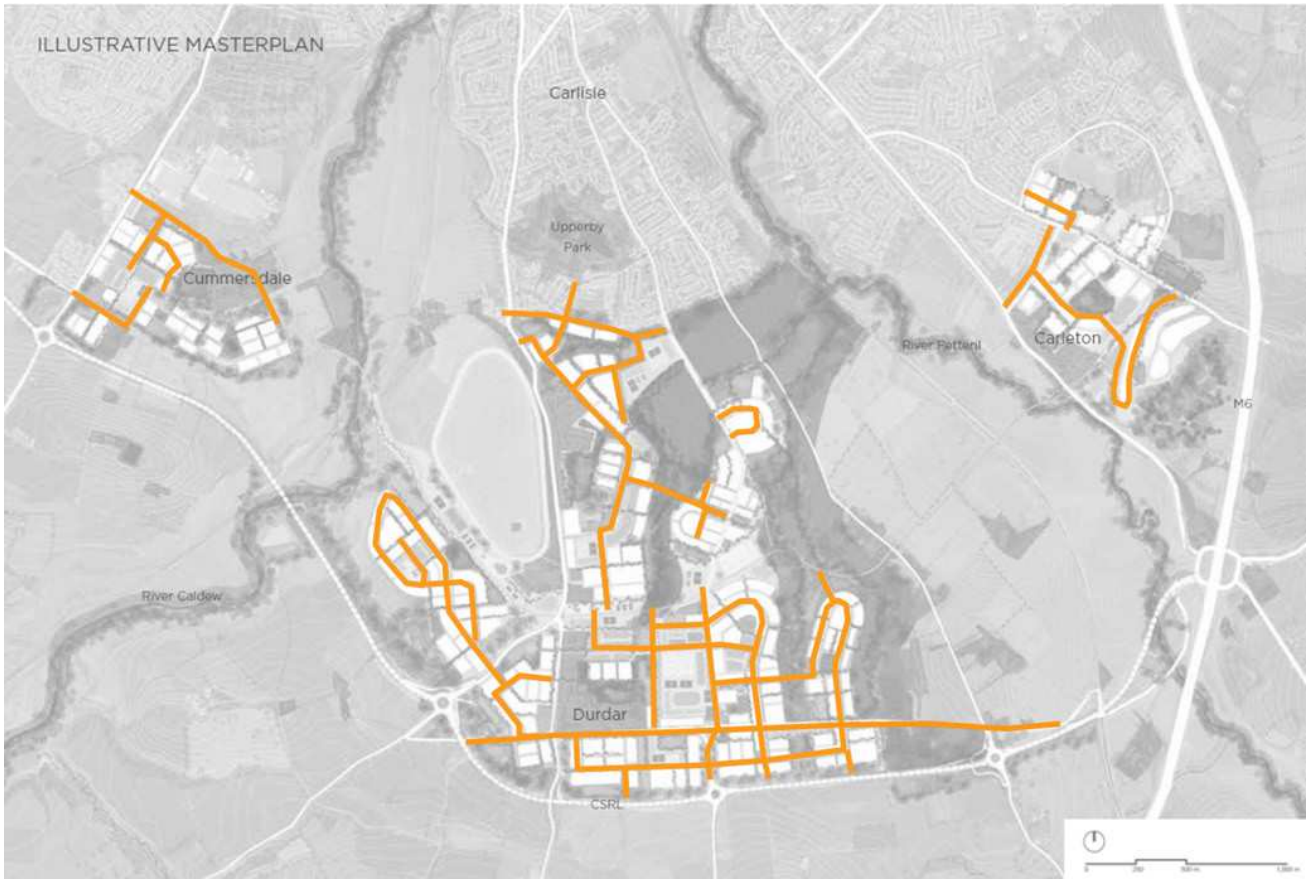
- No additional main roads (primary roads) are proposed, however improvements to existing primary roads are outlined above
- 18km of secondary road - 6.4m carriageway with min 2m footways either side. Where space allows, wider footways (3m), 2 x 2m cycle lanes and additional green infrastructure, parking, seating areas to be provided along length (total width range from 10.4-21.6m)
- 38km of residential road - 6m carriageway with min 2m footways either side. Additional green infrastructure, parking, seating areas to be provided along length (additional 5m provision - 15m total width) – not shown on plan given level of detail

### 3.2.2 Phase 1 Requirements

- It is anticipated that 3km of secondary road and 9km of residential road are to be delivered as part of Phase 1.

### 3.2.3 Further Phasing

- The remaining 15km of secondary and 29km of residential road are to be delivered in the subsequent phases of the Garden Village.



# 3.3 / Public Transport Provision

### 3.3.1 Total Requirements

- 5km sustainable transport corridor with bus priority measures
- Major mobility hub/interchange
- 6x secondary mobility hubs
- 24x bus stops

### 3.3.2 Phase 1 Requirements

Phase 1 will deliver three mobility hubs, including one in Cummersdale and two in Carleton. 3 bus stops will also be delivered, located in in Carleton, Cummersdale and Carlisle Edge.

- 3x secondary mobility hubs (1 in Cummersdale, 2 in Carleton)
- 6x bus stops (Carleton, Cummersdale, Carlisle Edge)

### 3.3.3 Further Phasing

- 5km sustainable transport corridor with bus priority measures
- Major mobility hub/interchange
- 3x secondary mobility hubs
- 18x bus stops


Major mobility hub
Mobility hubs

# 3.4 / Footways, Cycleways and Bridleways (and crossings)

### 3.4.1 Total Requirements

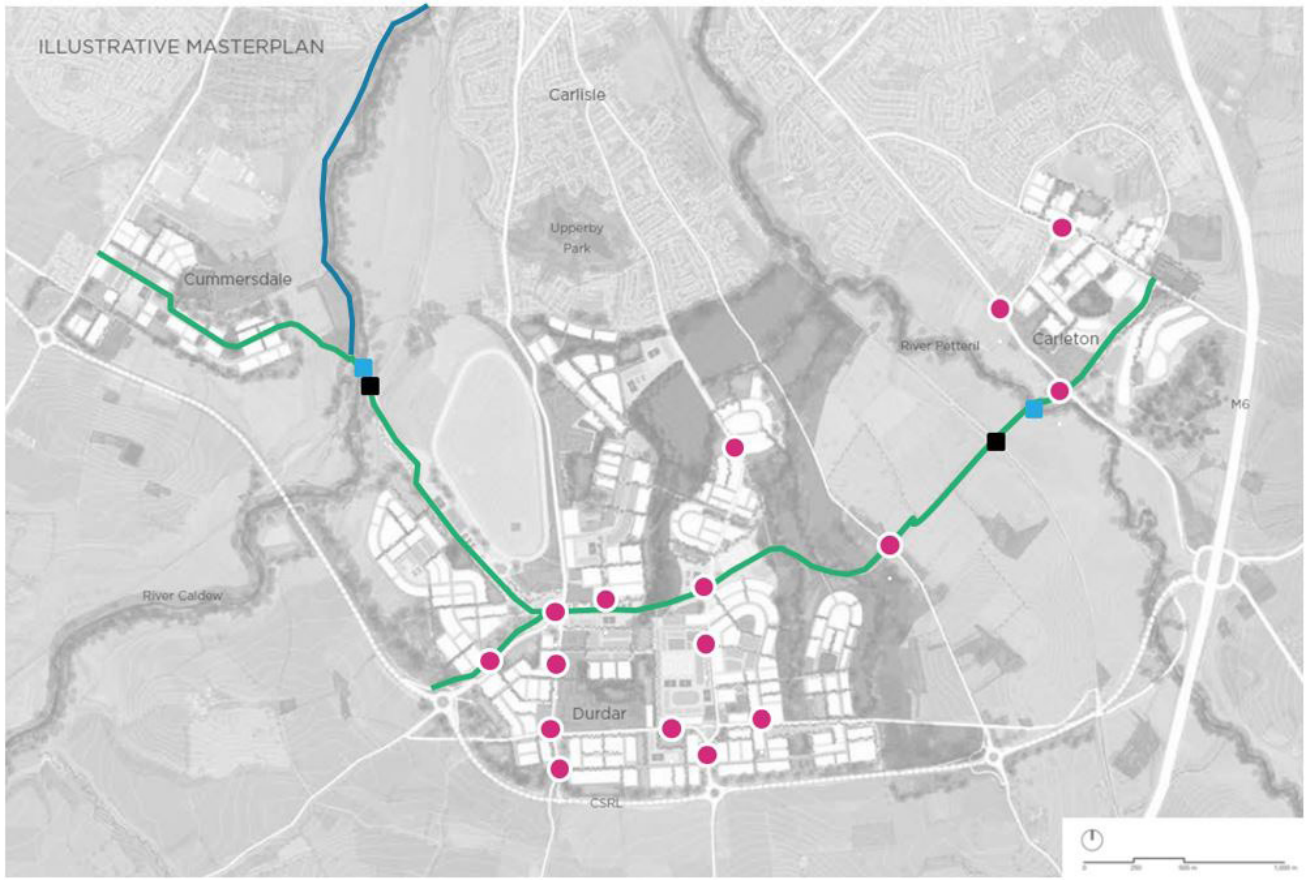
- The Greenway will be a 4m wide shared use path between Carleton and Cummersdale, plus connection from Durdar to CSLR
- Upgraded crossings of River Petteril and Caldew
- Upgraded crossings of West Coast Main Line and Cumbrian Coastal Railway
- 15 x formal pedestrian crossings
- Upgrade of National Cycle Route 7 from greenway (including enhancements at Stead McAlpin site) to city centre

### 3.4.2 Phase 1 Requirements

- Delivery of the Greenway in the following locations (with connections to the CSLR to ensure east-west connectivity in early phases):
- Carleton: from local centre to the A6 Carleton / London Rd – approximately 700m
- Cummersdale: from local centre to PRoW leading into Carlisle (national cycle route 7) – approximately 1.4km including route upgrade past Stead McAlpin site
- Delivery of 2 pedestrian crossings in Carleton (London Road and Cumwhinton Road)
- Upgrade of National Cycle Route 7 from greenway (including enhancements at Stead McAlpin site) to city centre.

### 3.4.3 Further Phasing

- Remainder of Greenway (approx. 5.6km)
- Upgraded crossings of Rivers Petteril and Caldew
- Upgraded crossings of West Coast Mainline and Cumbrian Coastal Railway
- 13x formal pedestrian crossings




- Upgraded crossings of West Coast Main Line and Cumbrian Coastal Railway
- Upgraded crossings of River Petteril and Caldew
- 15 x Formal pedestrian crossing
- 4m wide shared use path between Carleton and Cummersdale, plus connection from Durdar to CSLR
- Upgrade to National Cycle Route to ensure suitability of use for all conditions

# 3.5 / Transport Infrastructure Next Steps

Following discussions with Cumbria County Council, following the completion of the stage 2 masterplan framework, further, more detailed modelling is required to ensure that transport infrastructure provided is sufficient to achieve the aspirational modal shift of 30% from vehicles to walking and cycling.

Building on the desired north-south connections into the city centre and south of the Garden Village, Carlisle City Council will lead a more detailed design-led piece of work on the design of the greenway.

Cumbria County Council are currently undertaking a Local Walking and Cycling Plan (LCWIP). The LCWIP will provide a better understanding of what can be achieved in relation to cycling and walking. This understanding is required so that the assumptions in relation to model shift are robust and can then be used to model what junction improvements may be required.

The highway and transport scope of work will need to include:

- Internal road layout for primary network, cycle network and costings
- Modelling of SCGV traffic flows and impacts for identification of where mitigation is required off-site
- Design and costing of off-site mitigation and infrastructure improvements to support SCGV
- Further modelling to confirm proposed infrastructure will work
- Costed phasing plan for internal road network delivery and off-site mitigation for the IDP

### 3.5.1 Risks to delivery

There is a risk that other modes of transport (such as car usage) will be used as an alternative and not support the aspirational modal shift outlined in the transport and movement strategy if key infrastructure improvements are made to the nominated routes in Phase 1, not only to ensure safe and sustainable access to the city centre, but also to the CSLR.

# 4 /

# Education and Community Facilities

# 4.1 / Education

### 4.1.1 Total requirements

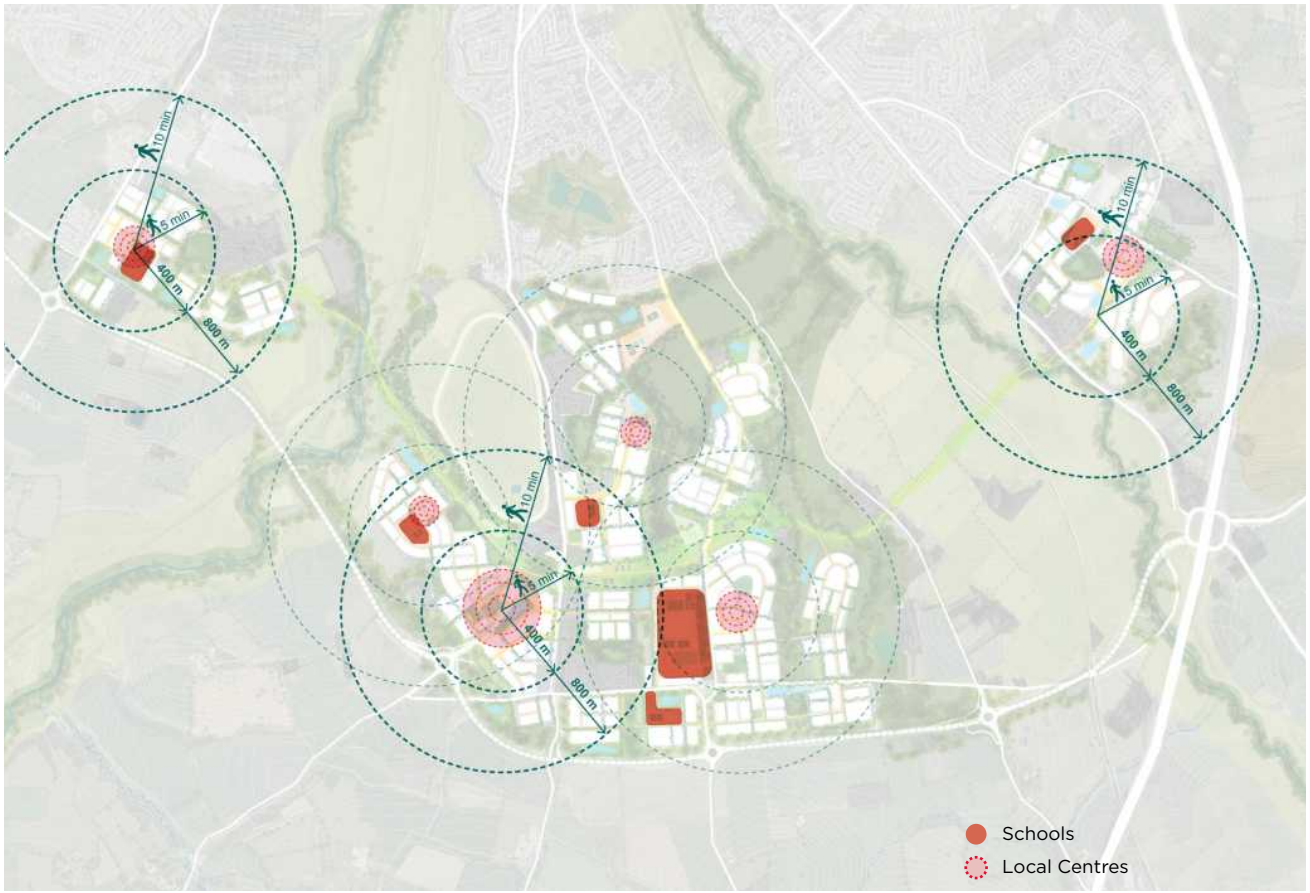
Based on the projected population of the Garden Village, the following schools will be required to ensure education provision for the settlements:

**Secondary School:**

- 1 x 10FE school will be located in Durdar (to be operational during phase 3)
- Assumption: Currently a small amount of capacity exists in surrounding secondary schools to serve the first phase of the GV, though this is in contrary to GV principles in relation to sustainable travel. Based on the assumptions in this Infrastructure Schedule it is estimated that by the end of Phase 2, the Garden Village will be producing between 70 and 100 children for each of the 5 secondary national curriculum year groups (7 to 11)

**Primary Schools:**

- 3x2FE in Durdar 1x1FE Cummersdale 1x1FE Carleton
- Assumption: Alongside Carlisle City Council, Cumbria County Council are currently undertaking an options appraisal regarding the phasing of education facilities across the Garden Village.



### 4.1.2 Phase 1 Requirements

**Primary Schools:**
Carlisle City Council are working with Cumbria County Council as Education Authority to undertake an options appraisal to consider the phasing of education facilities across the Garden Village; based on the population projections and additional pupil yield through development, Phase 1 will likely require:

- delivery of a 2FE Primary School in Durdar in relation to Carlisle edge;
- delivery of a 2FE School in Cummersale;
- additional capacity to serve Carleton.

There will be a full consultation with those affected in relation to any relocation of existing schools that may result from this options appraisal.

**Secondary Schools:**
Currently a small amount of capacity exists in existing secondary schools to deal with the additional pupil yield projected from Phase 1. However, consideration is required to ensure the timely development of the Secondary School when the anticipated need arises during Phase 2.

### 4.1.3 Further Phasing

**Primary Schools:**
The need for further primary school capacity will be considered by working with Cumbria County Council to develop a full options appraisal.

It should be noted in relation to pupil projections in the primary sector can only project 4 years ahead as beyond that children haven't yet been born, so we have no firm basis to form accurate forecasts. The Garden Village is a long-term development, and it is possible that population trends will change, affecting the availability of places and/or the need for them in the future. A flexible approach will need to be undertaken with subsequent reviews to allow for decisions to be made accordingly on what provision is required, and where. This approach is in line with the emerging updated guidance from DfE on delivering school provision within Garden Communities.

**Secondary School**:
It is predicted that pupil yield for the secondary school will arise during Phase 2.

Consideration will need to be given as to how the secondary school is developed, for example it could open only for Year 7 pupils initially, with further cohorts added for each of the following 4 years (6 including sixth form). Or it could be fully available to all secondary-age student from the start of the first phase. The first option would allow building costs to be spread over a greater time period, but opening in stages over several years may mean the school requires additional revenue support to ensure it can be staffed appropriately. It should be noted that, however the school is developed, it will need to be fully available before the occupation of 4,000 houses.

# 4.2 / Community Facilities

### 4.2.1 Total Requirements

General Practitioners, Emergency Services, Community Facilities and a cemetery have been included in this infrastructure schedule. Based on assumptions and research, it is recommended that the total requirements for community facilities in the Garden Village are:

- 3 General Practices
- A community hub at each local centre for emergency services provision
- A community centre in Durdar local centre
- One new cemetery

### 4.2.2 Phase 1 Requirements

It is anticipated that 2 General Practitioners and 2 Community Hubs (emergency services) are required to deliver Phase 1 in both Cummersdale and Carleton. The following assumptions have been made to calculate the number of general practitioners:

- The average number of patients per GP practice in North Cumbria is 8,3641. The population projection within the Garden Village is 23,000. Taking the existing ratio as a benchmark, here is therefore a need for approximately 3GP practices within the Garden Village. There is no standard ratio of GPs to patient numbers across NHS England, therefore the number of new GPs required is difficult to ascertain.

- Arup is aware of ongoing discussions with the Kings Fund and Public Health England to maximise the health benefits of the proposed green and blue infrastructure and built environment within the Garden Village as preventative healthcare. Further engagement with NHS England and Cumbria County Council's Public Health department to further solidify these figures

### 4.2.3 Further Phasing

The two GPs delivered during Phase 1 will provide services for new residents during stage subsequent stages, until the trigger point for a further GP surgery.

- The community centre, final emergency services hub and cemetery will be delivered from Phase 2 onwards.

# 4.3 / Education and Community Facilities Next Steps

### 4.3.1 Next steps

Discussions with Cumbria County Council are required to cover:

- Phasing of the primary schools in Carleton and consideration of pupil yield from development at Carlisle Edge
- Options for phased development of the secondary school in Durdar

### 4.3.2 Risks to delivery

It is recommended that conversations regarding schools phasing are held early in order to ensure that families living in the Garden Village have easy, local access to a primary and secondary school, and that a sense of community can be built around this.

# 5 /

# Drainage and Utilities

# 5.1 /Flood Risk Mitigation, Drainage and SUDs infrastructure

### 5.1.1 Total Requirements

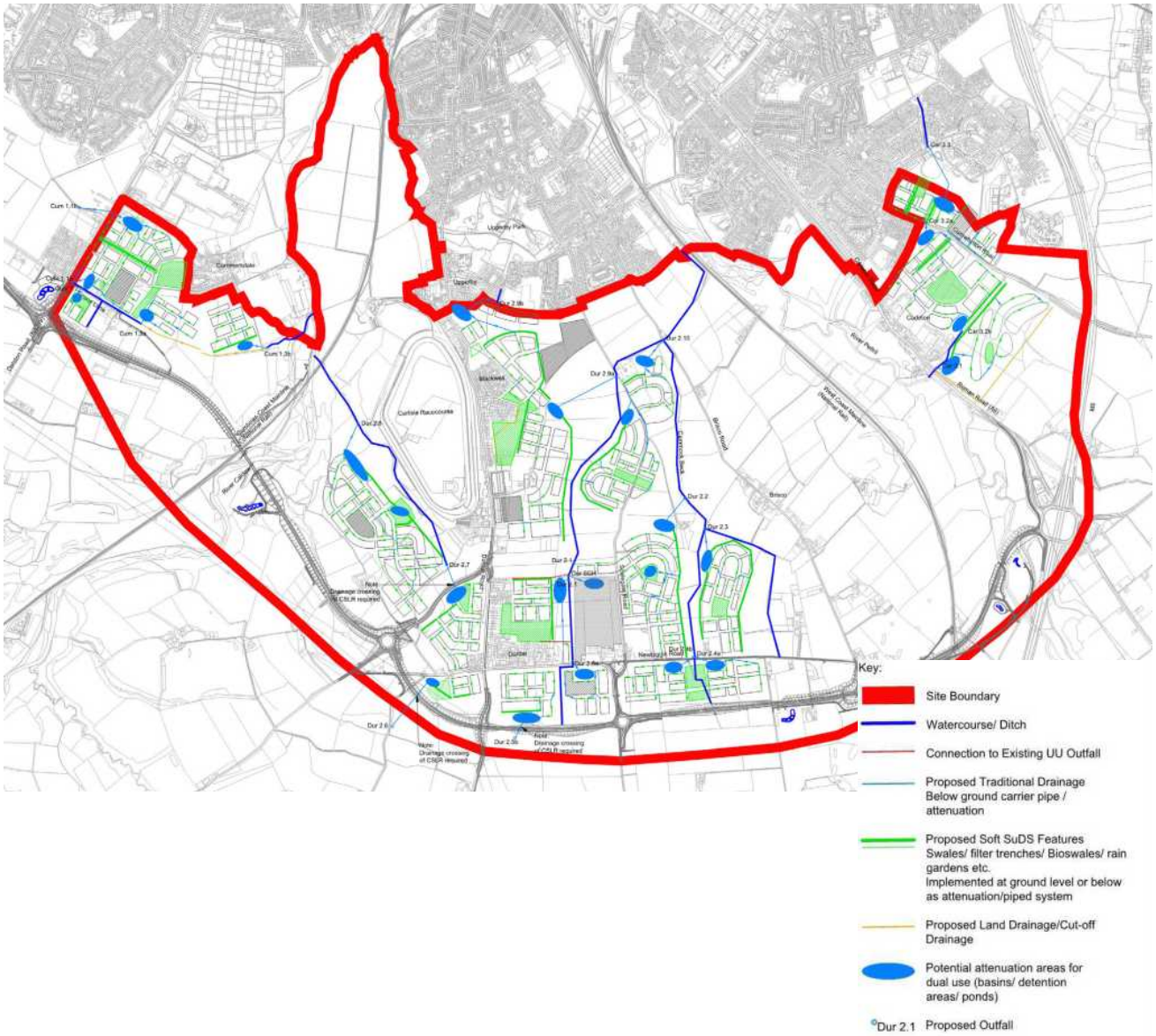
A major influence in the design and layout of the Masterplan Framework has been understanding flood risk and embracing the existing water resources and blue corridors within the site. Our approach throughout has been to replicate the existing site catchments, preventing any increases in flooding downstream and making use of Sustainable Urban Drainage Systems (SuDS). Please see section 4.3.1 of the Masterplan Framework for further information on the objectives and principles recommended for drainage on site. This infrastructure schedule provides details of known drainage infrastructure including:

1. Stormwater:

- SuDS Linear Features
- Gravity Pipework
- Land Drainage
- Attenuation

2. Foul:

- Gravity Pipework
- Pumping Stations



### 5.1.2 Stakeholder Engagement

United Utilities (UU) has been consulted on both the foul drainage and potable water diversions and supplies required to facilitate the St Cuthbert's Garden Village development.

United Utilities has identified that the site is within the upper extremities of their network and will require extensive reinforcements. UU is currently undertaking an optioneering assessment in line with the current housing trajectory to review where would be best to supply the site from whether that be the connection to the Carlisle or Dalston WWT facility or provide new facilities within the site. UU have indicated that this may take up to 12 months to complete, to ascertain where and when investment will be required in both water and wastewater infrastructure to support development aspirations. Wastewater engineering investigations are formally starting in September 2020 with the ambition to complete investigations in December 2020 or early January 2021, in order to advise the business and the external St Cuthbert's Strategic Board on the investment and infrastructure required.

### 5.1.3 Phase 1 Requirements

Based on discussions to date, it is anticipated that there will be a need for the following:

Assumption: the exact requirements and trigger points for drainage infrastructure are currently unknown and dependent on three things: the results of the capacity modelling by UU, the deliverability strategy and engagement with developers. Until these are known, Phase 1 figures are given as an estimate and will need to be updated following completion of modelling. The proposed measurements are based on the assumption that the drainage solution for the site follows the drainage hierarchy outlined in the drainage strategy. Please see the next steps section for further information and recommendations.

| | | |
|---|---|---|
| Storm - SuDS Linear Feature | 10300m | Delivery of all SuDS in Carleton and Cummersdale |
| Storm - Gravity Pipework | 3800m | Delivery of infrastructure in Carleton, Cummersdale and Durdar Edge |
| Storm - Land Drainage | 770m | Delivery of infrastructure in Carleton, Cummersdale and Durdar Edge |
| Storm - Attenuation | 35600m3 | Delivery of infrastructure in Carleton, Cummersdale and Durdar Edge |
| Foul - Gravity Pipework | 10700m | Delivery of infrastructure in Carleton, Cummersdale and Durdar Edge |
| Foul - Pumping Stations | 4 no. | Delivery of infrastructure in Carleton, Cummersdale and Durdar Edge |

# 5.2 / Utilities

### 5.2.1 Total Requirements

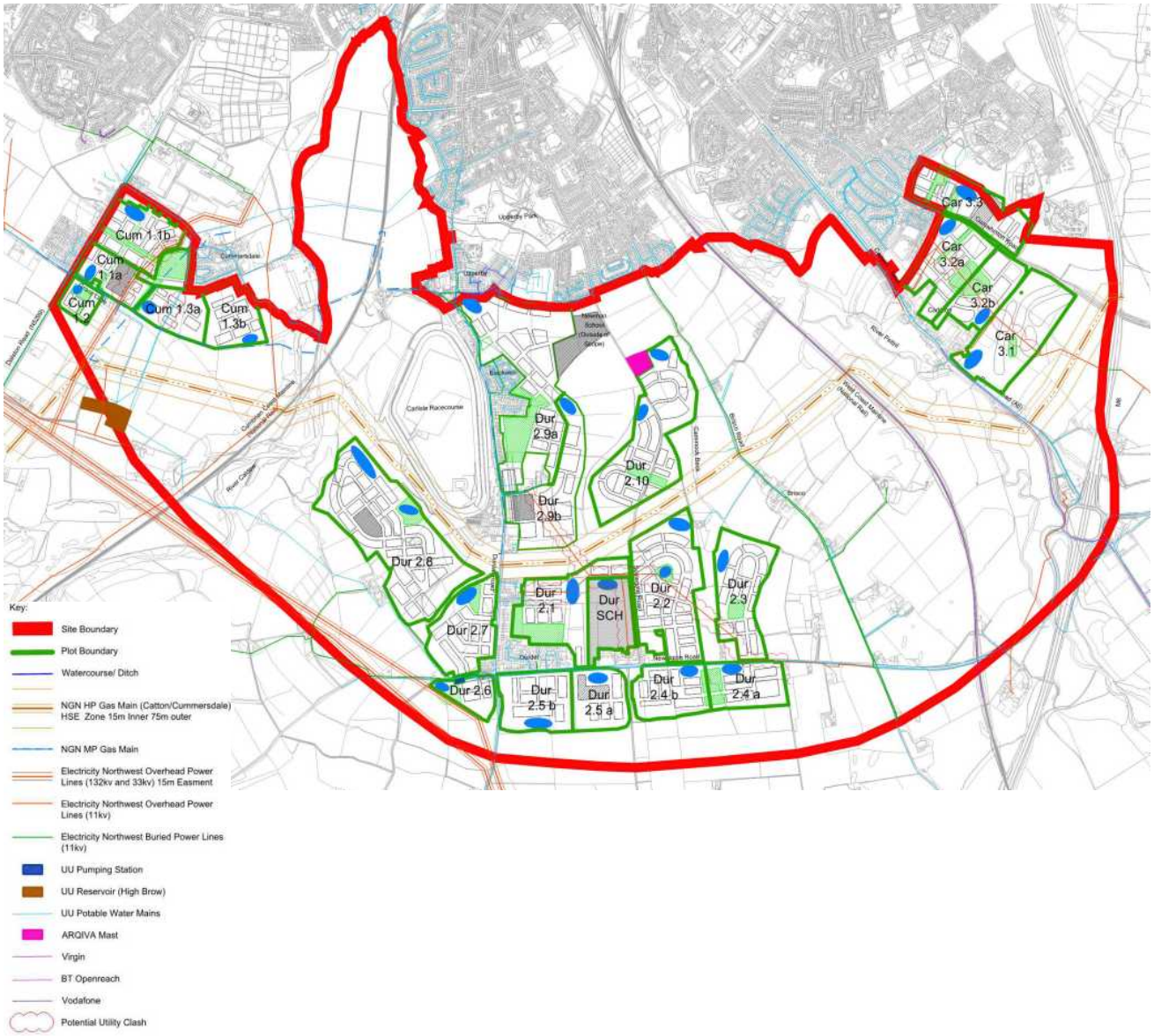
This infrastructure schedule considers the provision of electricity, gas and broadband to the St Cuthbert's Garden Village site. It does not cover the internal provision for utilities as these are dependent on housing design, typologies and delivery mechanisms. The identified requirements for utilities are listed below:

**Broadband**

- Arup has held discussions with BT Openreach regarding broadband provision at the site. The outcome of this discussion was that there are no constraints or barriers to delivery of broadband infrastructure. Once a delivery body for the Garden Village has been established, they will need to decide and engage with the desired broadband infrastructure provider.

**Electricity**

- Cummersdale: 1.5km cable and 3 circuit breakers to supply from Morton Park Substation, diversion of 33kv overhead cable
- Durdar; supply yet to be determined due to legal requirements of WCML crossing and cost of primary substation, diversion of 11kv overhead cable
- Carleton: 1.8km cable and two circuit breakers to supply from Petteril Bank substation, diversion of 11kv overhead cable



**Gas**

- It is assumed that there is sufficient supply within local network and there are no diversions identified at this stage.

### 5.2.2 Stakeholder Engagement

**Energy** (Electricity Northwest)

- Electricity Northwest (ENW) has been consulted on both the electrical diversions and supplies required to facilitate the St Cuthbert's Garden Village development and providing high-level estimates for the works. These have been broken down into villages.
- The capacity required for the site will be dependent on building standards and energy sources. Due to the variable energy demand on each substation over time, capacity can only be secured on application. It is advised for budget estimates to be requested early in each development.
- ENW is keen for a holistic approach to be taken to the diversion requirements across the villages to prevent future barriers and provide a sustainable design. Each quotation has been provided based on the diversions taking place in one go. This would require either a master developer to take on the site or developer cooperation to be set up. This will be considered at the next design stage.

**Gas**

- Northern Gas Network (NGN) has been consulted on both the gas diversions and supplies required to facilitate the St Cuthbert's Garden Village development.
- NGN completed a high-level capacity analysis of the assets in the vicinity of the site in May 2020. This took into account providing 70kwh of gas from either NGN's high pressure or medium pressure mains. The analysis concluded that the network has sufficient capacity to supply the site from either network without the need for reinforcements. Full detailed analysis, via a connection's application, must be undertaken to confirm the above as the developments are brought forward. Gas governors will be required within the site. The number and size of the gas governors will be dependent on how they are procured as the development is brought forward.
- NGN has also reviewed the proposed masterplan against their existing assets and has not identified a need for any diversions at this point. As most of the existing assets are located within the existing roads and footpaths site investigation will be required as part of any highway improvements which may identify areas where gas mains may need to be diverted, lowered or protected dependant on in-situ and proposed levels.

### 5.2.3 Phase 1 Requirements

**Electricity**

1. Cummersdale

- Coordination to date with ENW suggests there is the potential to supply the first phase of the Cummersdale development from the Morton Park Substation. The current available capacity at the sub is 6.4MVA which compares to an estimated total load demand of 2.35MVA. Works required to provide this supply is anticipated to comprise; 2 new circuit breakers and 1.5km of cable which ENW estimates at approximately £1m.

- The existing Cummersdale village currently has a 33KV overhead cable running through from south to north. The cable is currently pole-mounted which will present a hazard to construction, and will need to carefully considered for access routes of heavy construction machinery and construction methodology.. It is suggested there is benefit in commissioning and completing the diversion works in advance of the commencement of Phase 1. ENW estimate this would cost approximately £1.3m to divert the cable into new ductwork on Dalston Road and circa 18months should be allowed in order to provide advanced notification to affected residents, complete legal orders and lead in times for procuring equipment.

2. Carleton

It is understood Carleton is likely to be served from the Petteril Bank substation. The current available capacity at the sub is 5MVA which compares to an estimated total load demand of 4MVA. Works required to provide this supply is anticipated to comprise; 2 new circuit breakers and 1.8km of cable which ENW estimates at approximately £1.3m.

The existing village of Carleton currently has an 11kV OH cable running through the development. The cable is also currently pole-mounted which will present the same issues as the cable in Cummersdale. ENW estimate this would cost approximately £380k to divert the cable into new ducts on Cumwhinton Road. Due to the lower voltage of this cable, the lead-in period would be approximately 6 months.

# 5.2 / Utilities

3. Carlisle Edge

- Coordination to date with ENW suggests there is the potential to supply some of the first phase at Carlisle Edge from the Petteril Bank substation. However, as stated above it is also proposed that the Petteril Bank substation supplies the Carleton development. Supplying the first 500 homes in Carlisle Edge would increase the total load demand by approximately 1.1 MVA. This would result in a total load demand (to Petteril Bank substation) of 5.1MVA which slightly exceeds available capacity. However, given the early stage of this study it would be prudent to proceed on the basis of only a proportion of Carlisle Edge Phase 1 being supplied. The capacity required for the site will be dependent on building standards and energy sources. Due to the variable energy demand on each substation over time, capacity can only be secured on application. It is advised that each Developer submits budget estimate requests early in each development programme. Alternative supply solutions to Carlisle Edge may be provided under the following scenarios:

    - Scenario 1 – Reinforcement works to the Petteril Bank substation and a new cable be installed requiring a new crossing of the West Coast Main Line. Early discussions between ENW and Network Rail indicate this will require unlimited liability being placed on ENW. This will require consideration by the delivery partners as costs are likely to be high and it will require time to resolve necessary legal agreements.

    - Scenario 2 – Avoiding the WCML crossing and replacing with a much longer using the Carlisle Sothern Link Road. This option would however significantly increase the length of cable required and would require spatial allowance within the CSLR bridge structures.

    - Scenario 3 – Advancing the new Primary substation which will ultimately be required to supply the later phases of Durdar. A longer-term solution would be to install this within Phase 1. The new substation requires a 33kv cable supply from the Carlisle BSP, which is remote from the site. The installation of a primary substation would again require early decisions and procurement to allow for the long lead in times.

- There are no HV cable diversions required to facilitate the first phase of development within Carlisle Edge.

All the above is predicated by no other development, ie not associated with SCGV, coming forward and taking capacity from the networks.

# 5.3 / Drainage and Utilities Further Phasing and Next Steps

**Drainage:**

- Consider the result of the ongoing optioneering assessment being undertaken by United Utilities
- The detailed design of the drainage within each plot will be determined by the developers. A clear phasing plan, infrastructure delivery schedule and developer packs should be produced to both highlight to each landowner and developer their responsibility to facilitate later phases and to embed the requirement of SuDS within their designs.
- United Utilities have recommended that landowners are approached to determine whether they have a right to discharge to watercourse, and whether discharge to watercourse is physically possible. It is critical for us to understand which land parcels do not have a right to discharge watercourse and/or there are obstacles that may prevent discharge via this means. There are a number of existing landowners whose land is remote from the proposed downstream surface water outfalls or foul connection points. Figure (SCGV-ARP-SW-DR-CD-0010) provided in Appendix H of the drainage strategy highlights the landownership throughout the site. Surrounding landowners will be required to facilitate these developments. This will require the production of a coordinated design and delivery schedule.
- A a clear responsibility schedule for the construction and maintenance of assets through the site need to be determined as there will be a number of shared assets including pumping stations and storm water basins.
- Supplementary Planning Documents (SPDs) will be required to set out the required design standards for the Garden Village in order to adhere to the key principles and values of the site. It is therefore recommended that the SUDs matrix and drainage hierarchy included within the draft masterplan framework, which guide the developer in the production of an at-source led approach, be included as a planning requirement
- As suggested by the Environment Agency (EA), organise a discussion between EA, UU and Carlisle City Council to discuss the results of the modelling undertaken by UU to understand the infrastructure improvement and investment required, and how it relates to the habitats assessment.

**Utilities**

- Further work is required to understand the on-site provision for utilities, once more detailed housing designs have been developed.
- Further discussions with ENW are required to determine the options to deliver Phase 1 of the Garden Village at Carlisle Edge
- A new primary substation will ultimately be required to supply the capacity to the wider Durdar village. The trigger point for this, however, will be dependent on the capacity within the local network. Early and ongoing discussions are required between the delivery partner agreement and ENW to make early, strategic decisions regarding this risk to delivery. If a new crossing cannot be achieved and much of the first phase cannot be fed from the local network this would trigger the immediate need for the primary sub and potently require reconsideration of the phasing strategy by the delivery partners.
- Should it be required, a new primary substation would require a new 33kv cable being laid from the Carlisle bulk supply point which is located on the River Eden near the Carlisle Wastewater Treatment. The cost to install this is yet to be determined.
- Durdar currently has an 11kv OH cable diagonally running through the development between Durdar and Newbiggin Road. In order to develop the Phase 3 area of Durdar, these cables will need to be moved. Due to the cable supplying several premises along the existing route new supply points will need to be provided from the diverted line. ENW estimate this would cost approximately £1.2m to divert the cable into new ducts on Durdar and Newbiggin Road

### 5.3.1 Risks to delivery

There is a risk that key infrastructure is not delivered in time to serve Phase 1. In order to achieve the works required to deliver Phase 1, it is imperative that a delivery partner arrangement is in place to ensure timely discussions and to make strategic decisions that will inform delivery of infrastructure on site.

Utility capacities for each development can only be secured on application to each of the utility statutory undertakers. It is advised that budget estimates be requested early in each development to understand current status of available capacity and commitments are secured through necessary agreements to secure available capacity/supply. The same applies to procurement, and legal processes, for diversion works.

# 6 /

# Landscape and Open Space

# 6.1 / Public Open Space, Allotments and Play Provision

### 6.1.1 Total Requirements

Access to a network of high-quality open spaces and opportunities for sport and physical activity is important for the health and well-being of communities, and the successful delivery of the intent of the NPPF.

Guided by the principles of Fields in Trust (FIT), the open space typologies for St Cuthbert's ensure that everyone will have ease of access to high quality spaces for sport and recreation.

**Assumptions:**

- Arup recommends the principle to allow community access to sports provision on education sites outside of education hours, where feasible. It is recognised that there may be site-specific issues, therefore this will be reaffirmed through discussions with Cumbria County Council throughout the stakeholder engagement phase
- Costs provided for sporting facilities are based on Sport England Facilities Costs (June 2019)
- Further conversations regarding phasing are required with the delivery partners (once established) to understand appetite for delivery of all green infrastructure in Cummersdale and Carleton during Phase 1.

### 6.1.2 Phase 1 Requirements

**Playing Pitches** (football, rugby, hockey, lacrosse, cricket)
- 2.62ha to be delivered in Cummersdale at a projected cost of £442,947
- 4.97ha to be delivered in Carleton at a projected cost of £840,246

**Other Outdoor Sports** (Athletics, Tennis, Bowling Greens)
- 0.87ha to be delivered in Cummersdale at a projected cost of £724,920
- 1.66ha to be delivered in Carleton at a projected cost of £1,383,180
- 0.44ha to be delivered in Carlisle Edge at a projected cost of £366,626

**Other Outdoor Provision** (MUGA and skateboard parks)
- 0.66ha to be delivered in Cummersdale at a projected cost of £903,819
- 1.24ha to be delivered in Carleton at a projected cost of £1,698,085
- 0.33ha to be delivered in Carlisle Edge at a projected cost of £451,909

**Designated Play Areas** (LAP, LEAP and NEAPs)
- 0.55ha to be delivered in Cummersdale at a projected cost of £190,300
- 1.04ha to be delivered in Carleton at a projected cost of £359,840
- 0.27ha to be delivered in Carlisle Edge at a projected cost of £451,909

**Parks and Gardens** (Formal green spaces including urban parks, country parks, forest parks, and formal gardens)
- 1.75ha to be delivered in Cummersdale at a projected cost of £3.5m
- 3.31ha to be delivered in Carleton at a projected cost of £6.620m
- 0.88ha to be delivered in Carlisle Edge at a projected cost of £1,760,000

**Amenity Green Space** (Informal recreation spaces, communal green spaces in and around housing, and village greens)
- 1.31ha to be delivered in Cummersdale at a projected cost of £131,00
- 2.49ha to be delivered in Carleton at a projected cost of £249,000
- 0.66ha to be delivered in Carlisle Edge at a projected cost of £66,000

**Landscape - Natural and Semi-Natural** (Woodland, scrub, grassland, wetlands, open and running water, and open access land)
- 12ha to be delivered in Cummersdale at a projected cost of £525,000
- 19.5ha to be delivered in Carleton at a projected cost of £853,125
- 9.71ha to be delivered in Carlisle Edge at a projected cost of £424,812

### 6.1.3 Further Phasing

**Playing Pitches** (football, rugby, hockey, lacrosse, cricket)
- 20.16ha to be delivered in Durdar at a projected cost of £3,408,323

**Other Outdoor Sports** (Athletics, Tennis, Bowling Greens)

- 6.28ha to be delivered in Durdar at a projected cost of £5,232,754

**Other Outdoor Provision** (MUGA and skateboard parks)

- 4.71ha to be delivered in Durdar at a projected cost of £6,449,983

**Designated Play Areas** (LAP, LEAP and NEAPs)

- 3.93ha to be delivered in Durdar at a projected cost of £1,359,780

**Parks and Gardens** (Formal green spaces including urban parks, country parks, forest parks, and formal gardens)

- 12.56ha to be delivered in Durdar at a projected cost of £25,120,000

**Amenity Green Space** (Informal recreation spaces, communal green spaces in and around housing, and village greens)

- 9.42ha to be delivered in Durdar at a projected cost of £6,072,062

**Landscape - Natural and Semi-Natural** (Woodland, scrub, grassland, wetlands, open and running water, and open access land)

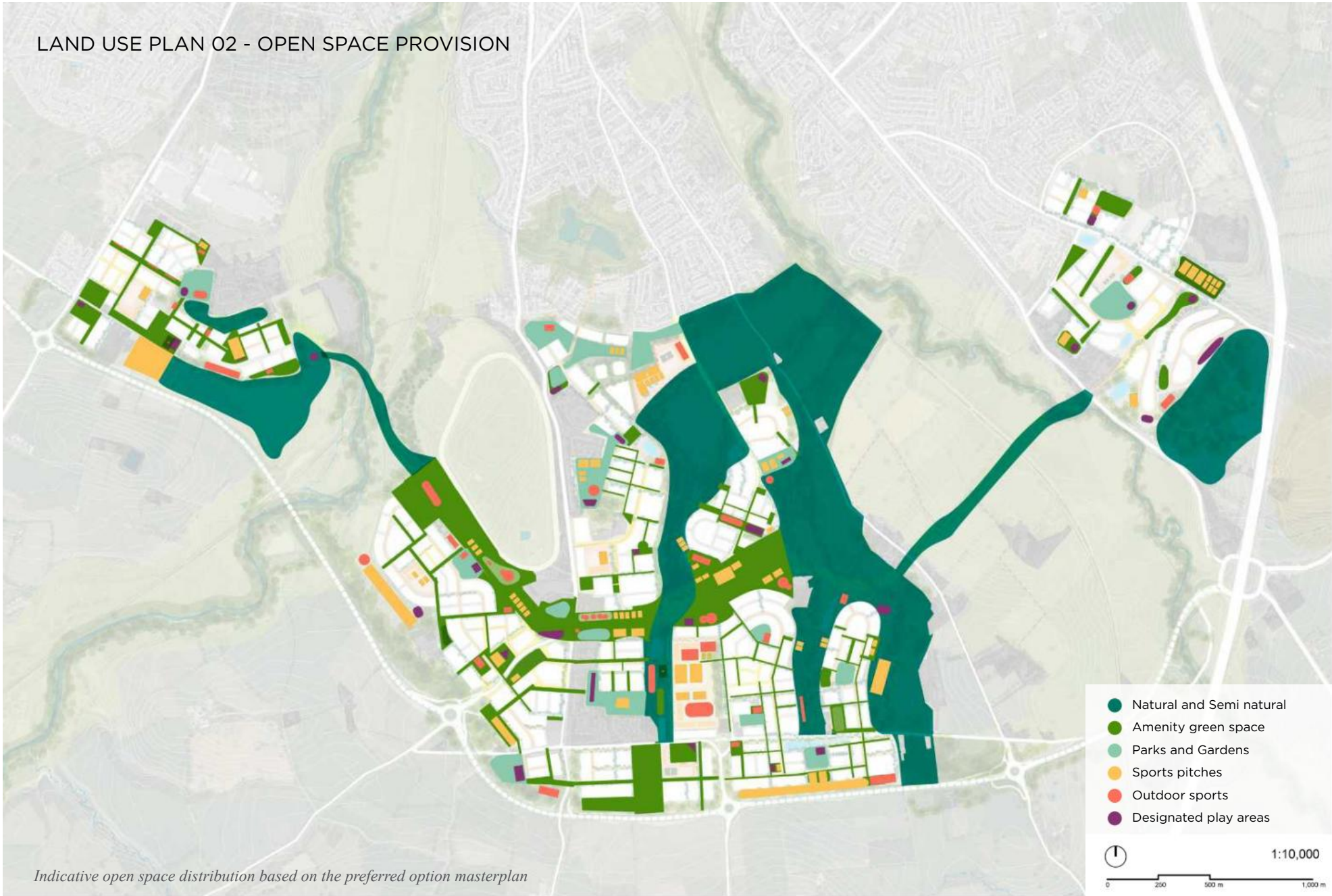
- 128.79ha to be delivered in Durdar at a projected cost of £6,496,875

### 6.1.4 Risks to delivery

'Start with the Park', 'Sustainable Living' and 'Integrated Sustainable Transport' are all fundamental principles and key delivery themes of the Garden Village. There is a risk that if green infrastructure is not delivered early to set a clear precedent, then those living in the Garden Village will not have the opportunity or the means to adopt a lifestyle centred around these means, relying on car usage as a means of travel.

The role of the delivery partner agreement needs to be considered to understand the appetite from stakeholders and landowners to adopt the land required to deliver the landscape infrastructure to achieve the guiding principles (such as start with the park) of St Cuthbert's Garden Village.

# LAND USE PLAN 02 - OPEN SPACE PROVISION



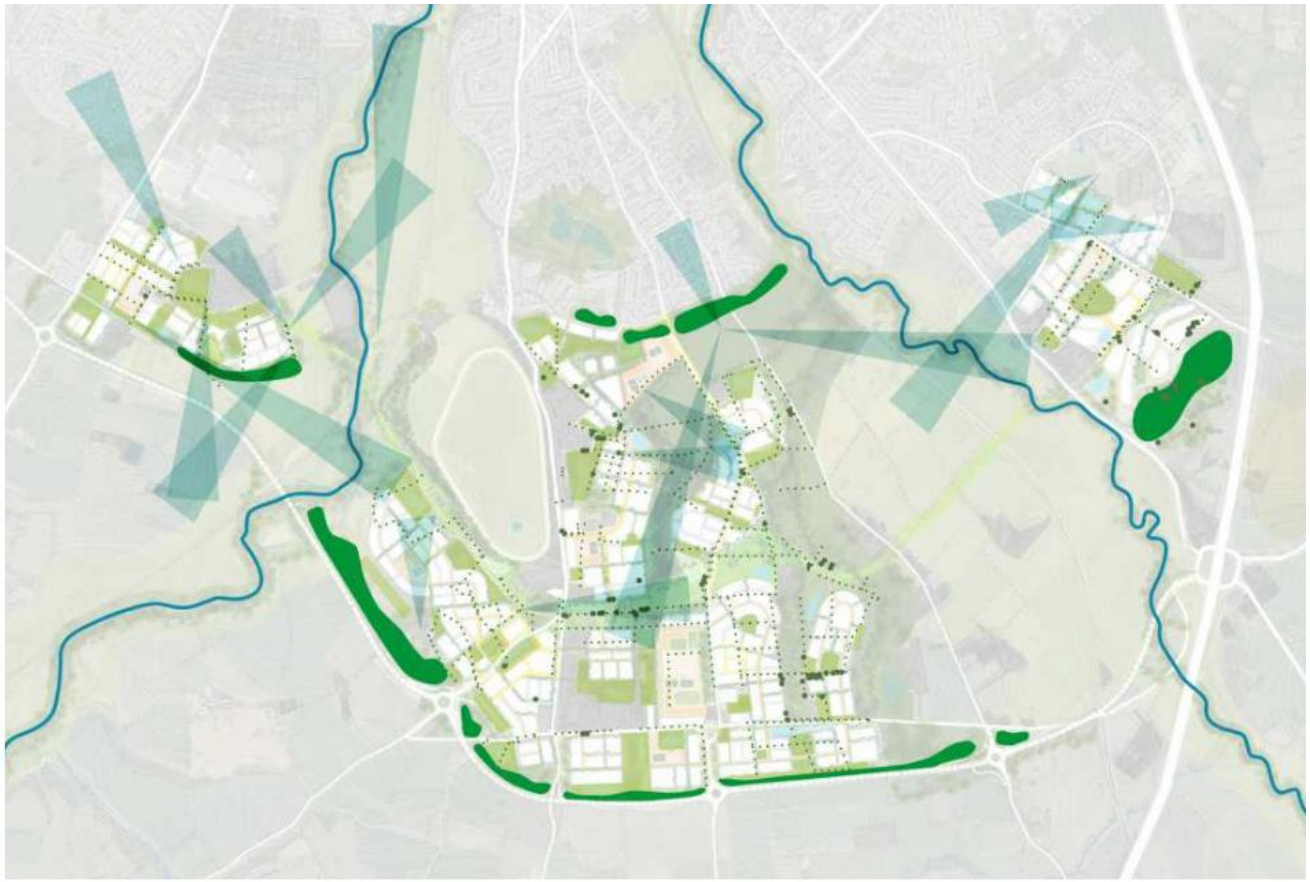

*Indicative open space distribution based on the preferred option masterplan*

# 6.2 / Further Landscape considerations

**Strategic planting:**

Planting will be used for various functions and will underpin complementary areas of focus for the green infrastructure strategy. These functions provide a sense of identity, mitigate noise and address the visual impact of development, and enforce or create new views.

*Higher land can provide opportunities to maintain views whilst enhancing access and biodiversity*



Ecology habitats - hedges
Structural planting
Structural open space
Key views

## Ecological mitigation:

- To increase the overall population, variety and variability of native species, and to increase the quality and range of wildlife habitats and ecosystems, through maximising biodiversity, habitat niche creation and ecological functionality within the landscape.

- The primacy of the proposals will be to retain as much existing on-site habitat as possible and seek to extend and integrate the current network with the masterplan proposals.

- This approach will be intrinsically linked to the green infrastructure strategy and the landscape masterplan framework.

## Noise mitigation:

The masterplan framework and proposals have sought to offset development from major infrastructure, where intrusive noise will or is currently generated. Strategic planting is located adjacent identified infrastructure, to address visual and acoustic impact.

- No acoustic barriers are proposed.
- Masterplan allows for more than 20m between CSLR

Semi natural Woodland
Woodland Plantation
Structural planting
Strategic open space
Structural open space

# 6.3 / The Greenway First Phase

The Greenway first phase will be delivered in Carleton and Cummersdale. The local centre will be linked with the A6 in Carleton, and National Cycling Route 7 in Cummersdale. The CSLR will provide an early, functional east west connection, and improvements to the A6 and NCR7 will provide safe and sustainable routes into the city centre.


Local Centre

Primary school

Secondary school

Greenway

# 6.4 / Landscape and Open Space Next Steps

Further work is required to design the Greenway in more detail, which could be in the form of a design competition, as a key placemaking feature for the whole of the Garden Village and fundamental to the 'start with the park' principle. This design competition could be used to further explore the opportunity for a country park as part of, or linking to, the Greenway. There are also opportunities to improve linkages to Upperby Park as part of the first phase to serve as additional open space for initial development in Carlisle Edge.

# 7 /

# Infrastructure Delivery: Next Steps

The next steps for each infrastructure area have been included in this infrastructure schedule. These include:

- Discussions with Cumbria County Council to establish clear phasing for primary schools and the secondary school
- Establishment of a delivery partner agreement (which could include a development co-operation) to ensure early strategic decisions are made on transport, drainage and utilities infrastructure
- Engagement with landowners is required to discuss next steps for drainage and utilities infrastructure

**Preparing the IDP:**

The Infrastructure Schedule provides the infrastructure requirements for delivering the Masterplan. It also provides information on the first phase infrastructure requirements. This has been prepared in collaboration with the key physical and social infrastructure providers. This provides a strong basis for developing the Infrastructure Delivery Plan.

The Infrastructure Delivery Plan will build on the Infrastructure Schedule by identifying what infrastructure is needed and how it will be delivered to support the developments proposed in line with the identified trigger points and phasing strategy.

It is also noted that sustainability appraisals and a Habitats Regulations Assessment have been undertaken on the emerging drafts of the Masterplan Framework. These will provide part of the Sustainability Appraisal that will accompany the St Cuthbert's Local Plan. The Sustainability Appraisal will need to include the appraisal of all drafts of the St Cuthbert's Local Plan. The Sustainability Appraisal of the Regulation 19 St Cuthbert's Local Plan, that will be submitted to the Planning Inspectorate, would be expected to summarise the sustainability appraisals undertaken during the preparation of the masterplan and the draft Local Plan. This should include reference to changes made to address or mitigate the recommendations made in the previous stages of the sustainability assessment.

**Other Evidence Required:**

Evidence documents will need to be provided to demonstrate at the Examination that the St Cuthbert's Local Plan meets the statutory tests. It is noted that these statutory tests are proposed to change, as set out in the Government's document 'White Paper: Planning for the Future'. It will be necessary to review the evidence requirements in light of changing Government policy. However, it is likely that these will need to include some form of the following, as well as other specific documents, to be agreed with Planning Inspectorate:

- Sustainability assessment and Habitats Regulations Assessment
- Infrastructure delivery plan (physical, green and social infrastructure)
- Viability and delivery assessment
- Environmental assessment
- Transport and movement assessment
- Design and landscape impact
- Assessment of housing numbers and land supply
- Assessment of employment land requirements and supply

The Masterplan Framework and baseline assessments will provide information that will contribute to a number of these evidence base documents, particularly infrastructure, environment and transport and movement. It is noted that these documents were prepared for the purpose of preparing the masterplan and not as Local Plan evidence base documents. Nonetheless, they will provide a significant contribution to developing the Local Plan evidence base documents.

# 8 /

# Appendix

# 8.1 / Appendix A: Total Requirements

| Infrastructure | Total Demand arising from development | Unit of demand | Comments / Assumptions | Total Cost | Phase 1<br>*It is assumed that all strategic infrastructure in Carleton,Cummersdale and Carlisle Edge should be delivered within phase one (to deliver subsequent phases)* | | Phases 2-5 | | Assumptions |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Requirement | Cost | Requirement | Cost | |
| **Education - Primary Schools** | | | | | | | | | |
| Durdar | 3 x 2FE | units | Source: Cumbria County Council | £24,000,000 | N/A | N/A | 3x 2FE | £24,000,000 | *Assumption: further discussion is required regarding the phasing of primary schools. Approximately 10 additional forms of entry will be required to accommodate the full pupil yield for the Garden Village, 2 of which will come from Pennine Way / Inglewood, 1.5 of which will be provided at the relocated Cummersdale School, 1.5 or 2.5 will be provided at a relocated Stoneraise School, 1.5 or 2.5 will be provided at the relocated Wreay School, with 2 or 3 at a potential 'New Free School' in the Durdar development. It is considered that flexibility will be required to mix and match solutions as demand dictates. It is only possible to predict to pupil projection in the primary sector four years ahead, as there is no firm basis to form accurate forecasts on numbers of children that have not yet been born. Due to this, further discussions are required regarding the phasing of the remaining primary schools and secondary school in Durdar to further understand trigger points for the new schools.* |
| Cummersdale | 1 x 1FE | units | | £5,400,000 | 1 x 1FE | £5,400,000 | N/A | N/A | |
| Carleton | 1 x 1FE | units | | £5,400,000 | 1 x 1FE | £5,400,000 | N/A | N/A | |
| **Education - Secondary Schools** | | | | | | | | | |
| Durdar | 1 x 10FE | units | Source: Cumbria County Council | £22,000,000 | | | 1x10FE | £22,000,000 | *Assumption: Currently a small amount of capacity exists in surrounding secondary schools to serve the first phase of the GV, though this is in contrary to GV principles in relation to sustainable travel. Based on the assumptions in this Infrastructure Schedule it is estimated that by the end of Phase 2, the Garden Village will be producing between 70 and 100 children for each of the 5 secondary national curriculum year groups (7 to 11)* |
| **Community Facilities** | | | | | | | | | |
| Health - General Practitioners | 3 | units | Arup Local Facilities Reqt Statement (Baseline Report) | TBC | 2 x GP Practices | TBC | 1 x GP Practice | TBC | *ers are required to deliver Phase 1 in both Cummersdale and Carleton. The remaining co* |
| Emergency services | Community hub at local centres | 3 | | TBC | 2 x community hubs | TBC | 1 x community hub | TBC | |
| Community facilities | 1no. Community centre / hub | 1 | Arup recommendation | TBC | N/A | N/A | 1x community centre | TBC | |
| Cemetery | 1no. | | CCC | **£3,000,000** | N/A | N/A | 1 x cemetary | £3,000,000 | |
| **Housing** | | | | | | | | | |
| Durdar | 7150 | n of units | | | N/A | N/A | 7150 units | TBC | *es done by existing viability work, it is assumed that the scheme is viable with a level of af* |
| Carlisle Edge | 500 | n of units | | | 500 units | TBC | | | |
| Cummersdale | 975 | n of units | | | 500 units | TBC | 475 units | TBC | |
| Carleton | 1700 | n of units | | | 1000 units | TBC | 700 units | TBC | |
| **Employment** | | | | | | | | | |
| Durdar | 44000 | sqm | CCC | | N/A | N/A | 4400 sqm | TBC | *Assumption: Employment land within the Garden Village is an estimate based on conversations between Arup and Carlisle City Council. An employment strategy for the Garden Village is yet to be published, however these estimates are based on an increased desire for flexible working close to or within the home.* |
| Carlisle Edge | 0 | sqm | | | N/A | N/A | 0 sqm | TBC | |
| Cummersdale | 1000 | sqm | CCC | | 1000 sqm | TBC | | | |
| Carleton | 1000 | sqm | CCC | | 1000 sqm | TBC | | | |
| **Transport - off-site highways** | | | | | | | | | |
| Off-site junction capacity/priorirty works | 14 | units | Jun•Additional highway capacity and reprioritisation towards sustainable modes is required between St Cuthbert's and the city centre, potentially including the following junctions:<br>•Blackwell Road/Boundary Road/ Beaconsfield Street/Salisbury Road<br>•Blackwell Road/Currock Road<br>•Currock Road/Crown Street<br>•Upperby Road/Scalegate Road<br>•Scalegate Road/Ridley Road<br>•Scalegate Road/Mount Pleasant Road/ Kirklands Road<br>•Scalegate Road/Embleton Road/Buchanan Road<br>•Brisco Road/St Ninians Road<br>•A6/St Nicholas Bridge (including corridor wide enhancement of on street cycling infrastructure)<br>•London Rd / Eastern Way (including corridor wide enhancement of on street cycling infrastructure)<br>•London Rd /Cumwhinton Road (including corridor wide enhancement of on street cycling infrastructure)<br>•Currock Street / Rome Street/Water Street (including corridor wide enhancement of on street cycling infrastructure)<br>•Shaddongate/Junction Street (including corridor wide enhancement of on street cycling infrastructure)<br>•Charlotte Street / Denton Street (including corridor wide enhancement of on street cycling infrastructure) | | •A6/St Nicholas Bridge (including corridor wide enhancement of on street cycling infrastructure)<br>•London Rd / Eastern Way (including corridor wide enhancement of on street cycling infrastructure)<br>•London Rd /Cumwhinton Road (including corridor wide enhancement of on street cycling infrastructure)<br>•Currock Street / Rome Street/Water Street (including corridor wide enhancement of on street cycling infrastructure)<br>•Shaddongate/Junction Street (including corridor wide enhancement of on street cycling infrastructure)<br>•Charlotte Street / Denton Street (including corridor wide enhancement of on street cycling infrastructure) | TBC | •Blackwell Road/Boundary Road/ Beaconsfield Street/Salisbury Road<br>•Blackwell Road/Currock Road<br>•Currock Road/Crown Street<br>•Upperby Road/Scalegate Road<br>•Scalegate Road/Ridley Road<br>•Scalegate Road/Mount Pleasant Road/ Kirklands Road<br>•Scalegate Road/Embleton Road/Buchanan Road<br>•Brisco Road/St Ninians Road | TBC | *Assumption: it is assumed that the immediate infrastructure requirement is the betterment of cycle infrastructure routes into the city centre from Carleton, Cummersdale and Carlisle Edge. It is not anticipated that junction improvements will be required until later stages in the programme* |
| Bus gate | 1 | units | Scalegate Road modal filter | | N/A | N/A | | TBC | |
| Roadspace reallocation to prioritise sustainable transport | 0.4 | km | St Nicholas Bridge and approaches | | N/A | N/A | | TBC | |

| Infrastructure | Total Demand arising from development | Unit of demand | Comments / Assumptions | Total Cost | Phase 1 *it is assumed that all strategic infrastructure in Carleton,Cummersdale and Carlisle Edge should be delivered within phase one (to deliver subsequent phases)* | | Phases 2-5 | | Assumptions |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Requirement | Cost | Requirement | Cost | |
| **Transport - on-site highways** | | | | | | | | | |
| Strategic Roads | | | CSLR subject to separate delivery programme | | N/A | N/A | N/A | N/A | |
| Main Roads (Primary Roads) | | | No new primary roads proposed, see other section for proposed upgrades | | N/A | N/A | N/A | N/A | |
| Secondary Roads | 18 | km | 6.4m carriageway with min 2m footways either side. Where space allows, wider footways (3m), 2 x 2m cycle lanes and additional green infrastructure, parking, seating areas to be provided along length (total width range from 10.4-21.6m) | | 3km | | 15km | | |
| Residential Roads / Quiet Streets (Tertiary Ro | 38 | km | 6m carriageway with min 2m footways either side. Additional green infrastructure, parking, seating areas to be provided along length (additional 5m provision - 15m total width) | | 9km | | 29km | | |
| **Public transport provision** | | | | | | | | | |
| Low Traffic corridor with bus priority measures | 5 | km | | | N/A | N/A | 5km | TBC | |
| Mobility hub/primary public transport interchar | 1 | units | Primary hub will effectively be small transport interchange | | N/A | N/A | 1 | TBC | |
| Smaller mobility hubs | 6 | units | Smaller hubs to include community shared mobility facilities (EV charging, bike hire, public realm etc) - may only be small in scale | | 3 | TBC | 3 | TBC | *Assumption: the low traffic corridor will be delivered from phase 2 onwards* |
| Bus stops | 24 | units | 2 stops (i.e. one in each direction) for every 400m of secondary road | | 6 | TBC | 18 | TBC | |
| **Footways, cycleways and bridleways** | | | | | | | | | |
| Greenway | 8 | km | 4m wide shared use path between Carleton and Cummersdale, plus connection from Durdar to CSLR | | 2.4km | TBC | 5.6km | TBC | |
| Improved rail crosings | 2 | units | Access for all/Equality Act compliant route | | N/A | N/A | 2 units | TBC | *Assumption: It is assumed that there will be a requirement for 2 pedestrian crossings in Carleton, and the first stages of the greenway in both Carleton and Cummersdale (measured from the local centre to the A6 in Carleton, and to NCR7 in Cummersdale). The remainder of the greenway (including river and rail crossings) is assumed to be delivered as part of ongoing phases* |
| Improved river crossings | 2 | units | Access for all/Equality Act compliant route | | N/A | N/A | 2 units | TBC | |
| Formal pedestrian crossings | 15 | units | Assume formal signal controlled provision | | 2 units | TBC | 13 units | TBC | |
| Upgrade of NCR7 | 1 | units | From greenway (including enhancements at Stead McAlpin site) to city centre | | 1 unit | TBC | | | |
| On-street footways/cycleways | N/A | N/A | Included within on/off site highway infrastructure | | N/A | N/A | N/A | N/A | |
| **Drainage** | | | | | | | | | |
| Storm - SuDS Linear Feature | 36000 | m | These figures are for on-site requirements and based on the Drainage Strategy drawings SCGV-ARP-CD-DR-GX-0008 and 0009. These drawings show high level principles only. The drainage design will be completed by the developer based on the delivery strategy and the outcome of the UU connections review. | | 10300m | TBC | 25700m | TBC | *Assumption: the exact requirements and trigger points for drainage infrastructure are currently unknown and dependent on three things: the results of the capacity modelling by UU, the deliverability strategy and engagement with developers. Until these are known, Phase 1 figures are given as an estimate and will need to be updated following completion of modelling. The proposed measurements are based on the assumption that the drainage solution for the site follows the drainage hierarchy outlined in the drainage strategy. Please see the next steps section for further information and recommendations.* |
| Storm - Gravity Pipework | 10500 | m | | | 3800m | TBC | 6700m | TBC | |
| Storm - Land Drainage | 2200 | m | | | 770m | TBC | 1430m | TBC | |
| Storm - Attenuation | 147000 | m3 | | | 35600m3 | TBC | 111400m3 | TBC | |
| Foul - Gravity Pipework | 33500 | m | | | 10700m | TBC | 22800m | TBC | |
| Foul - Pumping Stations | 10 | no. | | | 4no. | TBC | 6 no. | TBC | |
| **Utilities - Electricity (ENW)** | | | | | | | | | |
| Cummersdale- Supply | 1.5km cable and 2 circuit breakers to supply from Morton Park Sub | | | £1,000,000 | 1.5km cable and 2 circuit breakers to supply from Morton Park Sub | £1,000,000 | N/A | N/A | *Assumption: Through discussion with ENW it is recommended that a holistic approach to be taken to the diversion requirements across the villages to prevent future barriers and provide a sustainable design. Each quotation has been provided based on the diversions taking place in one go. This would require either a master developer to take on the site or developer cooperation to be set up. This will be considered at the next design stage.* |
| Cummersdale- Diversion | Diversion of 33kv o/hcable required at ofset of Phase 1 | | | £1,300,000 | Diversion of 33kv o/hcable required at ofset of Phase 1 | £1,300,000 | N/A | N/A | |
| Durdar - Supply | Yet to be determined due to leagal requirments of WCML crossing and cost of primary sub. | | | TBC | | | Yet to be determined due to leagal requirments of WCML crossing and cost of primary sub. | TBC | |
| Durdar - Diversion | Diversion of 11kv o/h cable required Phase 3 | | | £1,200,000 | | | Diversion of 11kv o/h cable required Phase 3 | £1,200,000 | |
| Carleton - Supply | 1.8km cable and 2 circuit breakers to supply from Morton Park Sub | | | £1,300,000 | 1.8km cable and 2 circuit breakers to supply from Petteril Bank Substation | £1,300,000 | N/A | N/A | |
| Carleton - Diversion | Diversion of 11kv o/h cable required at ofset of Phase 1 | | | £380,000 | Diversion of 11kv o/h cable required at offset of Phase 1 | £380,000 | N/A | N/A | |
| **Utilities - Gas (NGN)** | | | | | | | | | |
| Supply | | | Sufficient supply currently within local network | £0 | N/A | N/A | N/A | N/A | |
| Diversions | | | No diversions identified at this stage. To be considered in line with highway improvement's and in-situ gas levels | £0 | N/A | N/A | N/A | N/A | |
| **Utilities - Water (UU)** | | | | | | | | | |
| Supply | | | United Utilities are carrying out optioneering to identify where best to suply the site from, to review the impact on their networks and identify the reinforcement requirements. This may take until summer 2021 to complete. | TBC | N/A | N/A | | TBC | |
| Diversions | | | | TBC | N/A | N/A | | TBC | |

| Infrastructure | Total Demand arising from development | Unit of demand | Comments / Assumptions | Total Cost | Phase 1 *It is assumed that all strategic infrastructure in Carleton,Cummersdale and Carlisle Edge should be delivered within phase one (to deliver subsequent phases)* | | Phases 2-5 | | Assumptions |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Requirement | Cost | Requirement | Cost | |
| **Landscape - Playing pitches (Football, Rugby, Hockey, Lacrosse, Cricket)*** | | | | | | | | | |
| Durdar | 20.16 | ha | Fields in Trust guidance | £3,408,323 | N/A | N/A | 20.16 ha | £3,408,323 | |
| Cummersdale | 2.62 | ha | Fields in Trust guidance | £442,947 | 2.62 ha | £442,947 | N/A | N/A | *Source: Sport England Facilities Costs (June 2019)* |
| Carleton | 4.97 | ha | Fields in Trust guidance | £840,246 | 4.97 ha | £840,246 | N/A | N/A | |
| **Landscape - Outdoor sports (Athletics, Tennis, Bowling Greens)** | | | | | | | | | |
| Durdar | 6.28 | ha | Fields in Trust guidance | £5,232,754 | N/A | N/A | 6.28 ha | £5,232,754 | |
| Carlisle Edge | 0.44 | ha | Fields in Trust guidance | £366,626 | 0.44 ha | £366,626 | N/A | N/A | *Source: Sport England Facilities Costs (June 2019)* |
| Cummersdale | 0.87 | ha | Fields in Trust guidance | £724,920 | 0.87 ha | £724,920 | N/A | N/A | |
| Carleton | 1.66 | ha | Fields in Trust guidance | £1,383,180 | 1.66 ha | £1,383,180 | N/A | N/A | |
| **Landscape - Designated play areas (LAP, LEAP and NEAPs)** | | | | | | | | | |
| Durdar | 3.93 | ha | Fields in Trust guidance | £1,359,780 | | | 3.93 ha | £1,359,780 | |
| Carlisle Edge | 0.27 | ha | Fields in Trust guidance | £93,420 | 0.27 ha | £93,420 | N/A | N/A | |
| Cummersdale | 0.55 | ha | Fields in Trust guidance | £190,300 | 1.04 ha | £359,840 | N/A | N/A | |
| Carleton | 1.04 | ha | Fields in Trust guidance | £359,840 | 1.04 ha | £359,840 | N/A | N/A | |
| **Landscape - Other outdoor provision (MUGAs and skateboard parks)** | | | | | | | | | |
| Durdar | 4.71 | ha | Fields in Trust guidance | £6,449,983 | N/A | N/A | 4.71 ha | £6,449,983 | |
| Carlisle Edge | 0.33 | ha | Fields in Trust guidance | £451,909 | 0.33 ha | £451,909 | N/A | N/A | *Source: Sport England Facilities Costs (June 2019)* |
| Cummersdale | 0.66 | ha | Fields in Trust guidance | £903,819 | 1.04 ha | £903,819 | N/A | N/A | |
| Carleton | 1.24 | ha | Fields in Trust guidance | £1,698,085 | 1.24 ha | £1,698,085 | N/A | N/A | |
| **Landscape - Parks and Gardens (Formal green spaces including urban parks,country parks, forest parks, and formal gardens)** | | | | | | | | | |
| Durdar | 12.56 | ha | Fields in Trust guidance | £25,120,000 | | | 12.56 ha | £25,120,000 | |
| Carlisle Edge | 0.88 | ha | Fields in Trust guidance | £1,760,000 | 0.88 ha | £1,760,000 | N/A | N/A | |
| Cummersdale | 1.75 | ha | Fields in Trust guidance | £3,500,000 | 1.75 ha | £3,500,000 | N/A | N/A | |
| Carleton | 3.31 | ha | Fields in Trust guidance | £6,620,000 | 3.31 ha | £6,620,000 | N/A | N/A | |
| **Landscape - Amenity Green Space (Informal recreation spaces, communalgreen spaces in and around housing, and village greens)** | | | | | | | | | |
| Durdar | 9.42 | ha | Fields in Trust guidance | £6,072,062 | N/A | N/A | 9.42 ha | £6,072,062 | |
| Carlisle Edge | 0.66 | ha | Fields in Trust guidance | £66,000 | 0.66 ha | £451,909 | N/A | N/A | |
| Cummersdale | 1.31 | ha | Fields in Trust guidance | £131,000 | 1.31 ha | £131,000 | N/A | N/A | |
| Carleton | 2.49 | ha | Fields in Trust guidance | £249,000 | 2.49 ha | £249,000 | N/A | N/A | |
| **Landscape - Natural and Semi-Natural (Woodland, scrub, grassland, wetlands, openand running water, and open access land)** | | | | | | | | | |
| Durdar | 138.79 | ha | Fields in Trust guidance | £6,496,875 | N/A | N/A | 138.79 ha | £6,496,875 | |
| Carlisle Edge | 9.71 | ha | Fields in Trust guidance | £424,812 | 9.71 ha | £424,812 | N/A | N/A | Assumption: based on Fields in Trust Guidance |
| Cummersdale | 12 | ha | Fields in Trust guidance | £525,000 | 12 ha | £525,000 | N/A | N/A | |
| Carleton | 19.5 | ha | Fields in Trust guidance | £853,125 | 19.5 ha | £853,125 | N/A | N/A | |
| | | | | | **Known Total** | **£36,919,678** | **Known Total** | **£104,339,777** | |

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Appendix 3

# St Cuthbert's Garden Village

## Masterplan Framework

### Final Design Guidance

September 2020

Carlisle City Council

CARLISLE CITY COUNCIL www.carlisle.gov.uk

St Cuthbert's Garden Village Carlisle

HIVE LAND & PLANNING

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# Contents

1 / Masterplan Objectives and Design Considerations

2 / Character Areas

3 / Landscape, Public Realm and Open Space Principles

SCGV-ARP-XX-XX-AX-RP-00005 rev01
Issued: September - 2020

This report provides overarching design considerations for specific elements of St Cuthbert's Garden Village Masterplan. This guidance should be read along the Final Masterplan Framework.

# 1 /

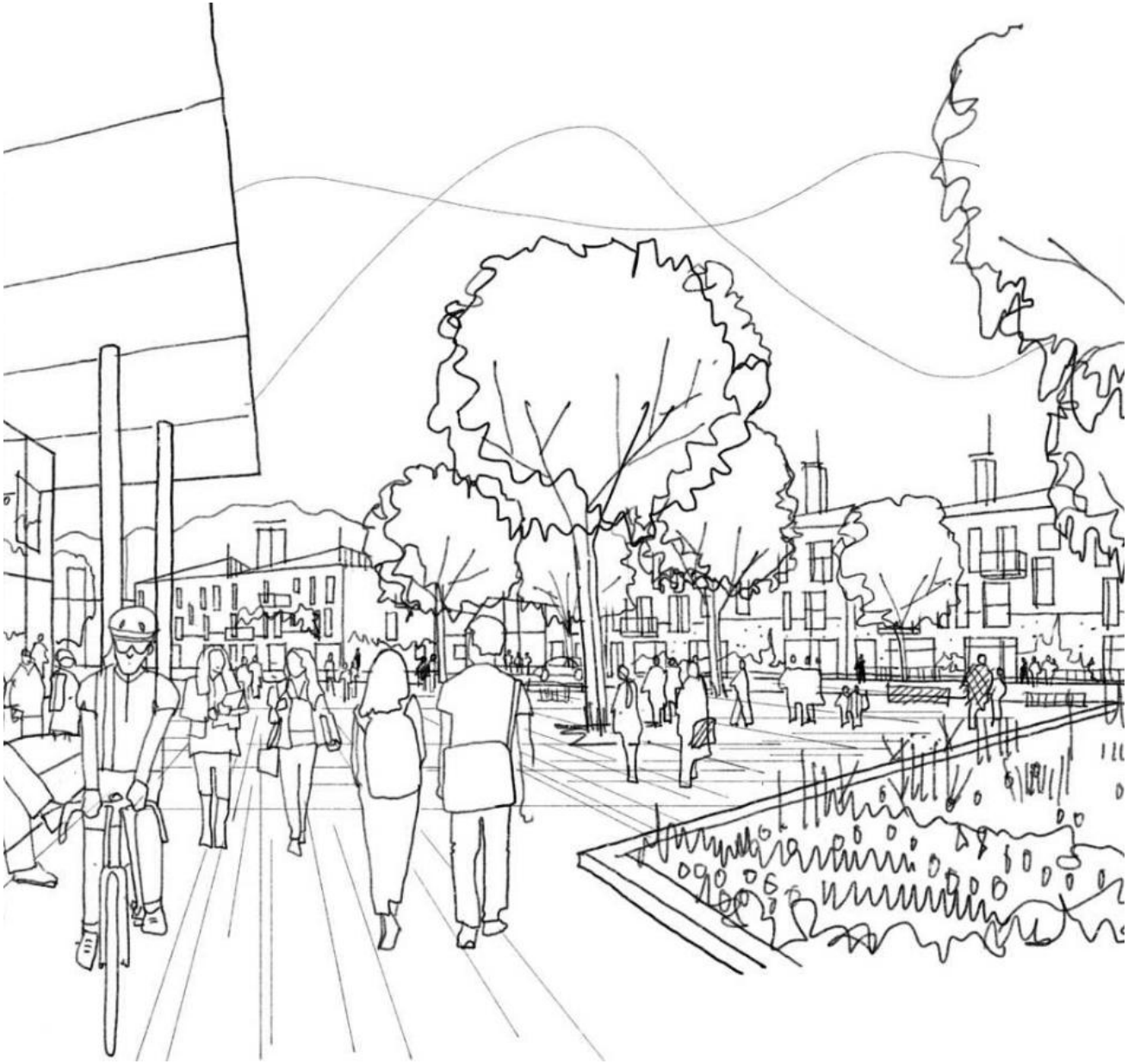
# Masterplan Objectives and Design Considerations

# 1.1 / General Guidelines

The design of St Cuthbert's Garden Village should build upon the nine St Cuthbert's Garden Village principles with a focus on landscape and sustainable mobility and finding every opportunity to enhance health and wellbeing.

The placemaking drivers set out within the masterplan framework should inform the design:

- A landscape approach that highlights a series of **north-south green fingers** that follow the natural valleys, surface water flows, and low-lying topographies of the site.
- **A distinctive village-like character** within the built areas and in the design of the main village green and surrounding open spaces.
- **A variety of residential densities** that will bring distinct character to the different areas
- **A variety of usable open spaces as well as green infrastructure features** (swales, ponds, meadows, wetlands) weaving through built settlements
- **A sustainable mobility** approach with a focus in promoting walking and cycling.



# ILLUSTRATIVE MASTERPLAN

# 1.2 / Key Design Moves

The development of St Cuthbert's Garden Village Masterplan Framework is underpinned by five key design moves.

These key design moves summarise the main qualities of this unique context. They are driven by the physical context and should be considered in conjunction with the Stage 1 Vision Guiding Principles and Key Drivers.

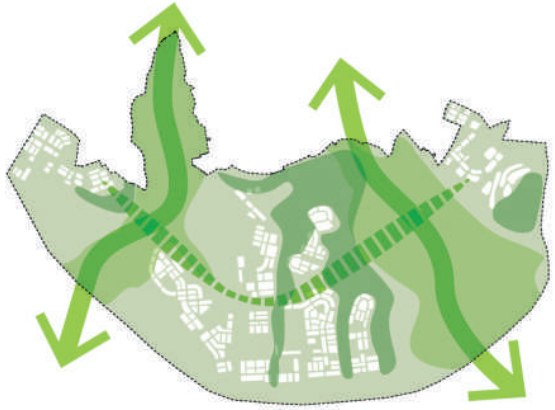
## 1.

### RETAIN KEY ASSETS OF THE SITE

The design of the Garden Village should draw on the area's industrial heritage, the identity of local places like Brisco, and the uniqueness of destinations like the Carlisle racecourse. Equally, the expansive views towards the Lake District National Park and the North Pennines AOB should be preserved and enhanced as part of the character of St Cuthbert's Garden Village..

## 2.

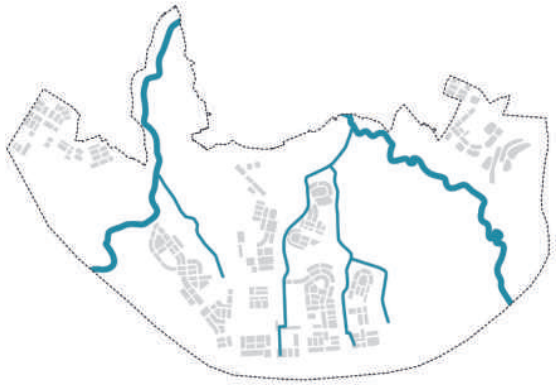
### PRESERVE AND ENHANCE DISTINCTIVE LANDSCAPE QUALITIES



The Garden Village sits within a distinctive landscape in the adjacencies of two rivers, the Caldew and the Petteril. Alongside the ecologically rich riverine landscape and vegetation, the site has an agricultural character with a patchwork of fields covering a majority of the land. These qualities should be key drivers of the Masterplan design.

## 3.

### INTEGRATE WATER COURSES



Integrating existing water courses into the design is key to ensuring a future proofed development that is resilient to the impacts of climate change. The Masterplan should be guided by the requirements of existing catchment areas and prevent any increase in discharge to downstream receptors.

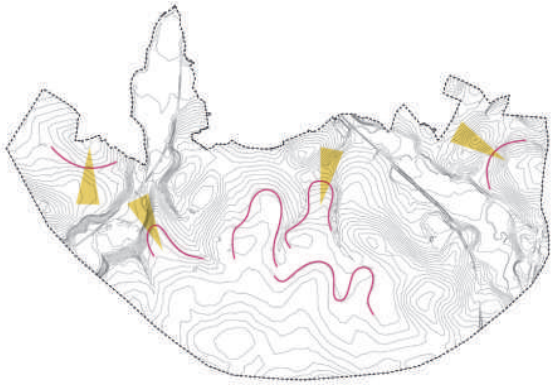
## 4.

### PROMOTE SUSTAINABLE AND ACTIVE MOBILITY

Designing accessible and walkable communities should be at the core of the design in order to achieve a sustainable development. The design should promote walking and cycling, with a network of connected clusters and local centres accessible by walking and cycling routes with the Greenway at its core.

## 5.

### WORK WITH TOPOGRAPHY



Working with the undulating topography of the area will ensure that the masterplan is respectful of the landscape, works well with drainage flows and water catchments, and able to integrate key views into the new development.

# 2 /

# Character Areas

# 2.1 / Character Areas

The Illustrative masterplan for St Cuthbert's demonstrates an indicative design layout for the Garden Village. It takes into account a range of site constraints and considerations and is aligned with the Vision and Principles developed during Stage 1.

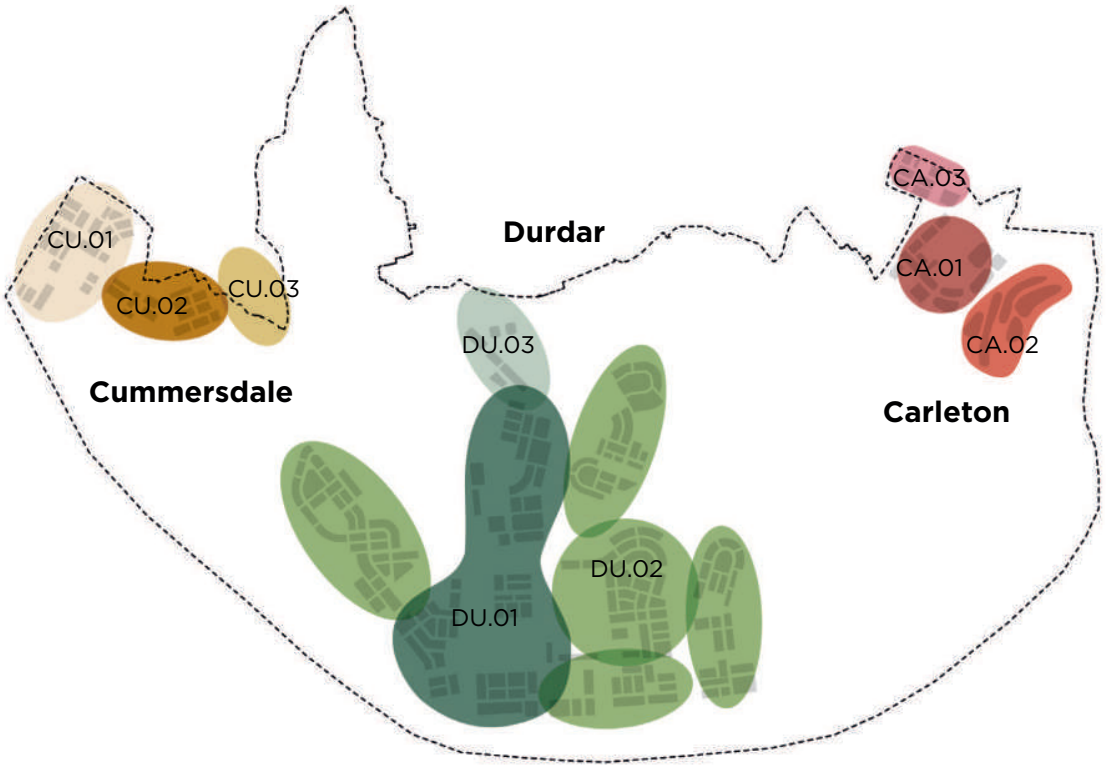
The Garden Village accommodates specific character areas - defined zones that have a recognisable and coherent identity and share a set of design elements and qualitative characteristics.

The definition of character areas or zones in St Cuthbert's Garden Village has been guided by the following considerations:

1. Reference to the LUC (2017) Landscape and Townscape Appraisal, St Cuthbert's Garden Village to ensure that the qualities of the existing landscape defined in that document are acknowledged, preserved, and enhanced where possible.

2. The nature and quality of places illustrated in the preferred option masterplan concept, and the identities that are informed by the location, mix of uses, densities and typologies proposed.

In the following pages we provide a brief narrative description of each character area along with the key values and primary elements to be considered. This is accompanied by a compilation of precedent images which contain elements that can serve as inspiration for developing more detailed guidance or designs within the relevant character area.



# 2.1.1 / Cummersdale

### Cummersdale Village Design Guidance

The historic village of Cummersdale provides the setting for this part of the Garden Village. The existing settlement has developed over centuries, overlooking the River Caldew and driven by its mills, innovation and textiles heritage.

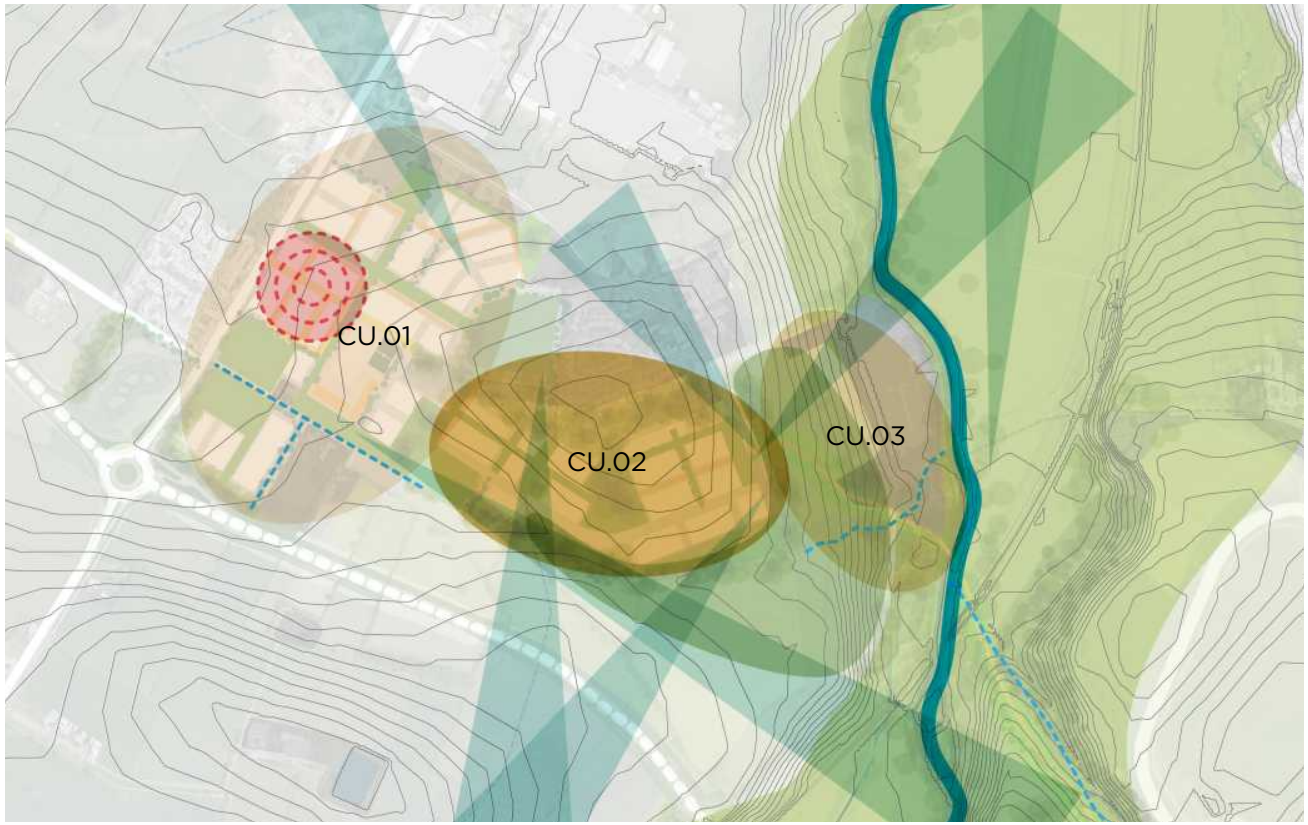
The Garden Village at Cummersdale respects this proud history, retaining the historic core's distinct identity and complementing this with sensitive development. The development takes on a rural character and the careful integration of green fingers and corridors preserve the views to the Lake District and enhance the rural identity. When compared to other locations within the Garden Village, the densities of development are lower.

This is in direct response to concerns from existing local residents as well as to preserve views to the Lake District and ensure strong integration with the landscape. As development approaches the river valley, densities lower further, responding to the local topography and views.

A green buffer lies between the southern edge of the existing village and the new development which will preserve views of the chimney to the east. Open space on the western edge of the existing Cummersdale village builds upon the 'Start with the Park' principle and creates a gathering space for both new and existing residents. New shared facilities , including a primary school, local shops and amenities also provide an additional focal point for the communities.

A green network of open spaces connects Cummersdale with the River Caldew, further north into Carlisle or east along St Cuthbert's Greenway to Durdar.

Densities are on average lower than elsewhere in the Garden Village. This directly responds to a number of factors including the character of the historic settlement of Cummersdale, and the importance of protecting views to the Lake District and ensuring strong integration with the local landscape.



## CUM.01 - Local Centre

- Active heart of the neighbourhood located within a 5-10 minute walk for most residents.
- Accommodates local amenities, local services, convenience retail, and employment space such as co-working or managed office space.
- Permeable ground floors, an active street frontage, and a scale that evokes a village square character.
- Public realm design elements such as wider pavements, lighting, and outdoor seating.

## CUM.02 - Cummersdale Hill

- Forming a new green edge to Cummersdale, located on a gentle slope and overlooking the characteristic agricultural landscape of the area, and the Lake District beyond.
- Height and massing to work with the topography, retaining key views and vistas towards the south
- Incoporation of green fingers or corridors through the area to reinforce a landscape setting.
- Distinct from the existing village through use of a green buffer as an interface.

## CUM.03 - Caldew Valley

- A place to access the river and experience the landscape qualities of the Caldew River Valley.
- An area with an industrial heritage that should be celebrated through appropriate adaptive reuse of the site and buildings.
- An important node on the movement network where the Greenway crosses the National Cycling Route and Caldew River; highlighted through integrated design of walking and cycling routes.

*Fig. 01*

*Fig. 02*

*Fig. 03*

*Fig. 04*

*Fig. 05*

*Fig. 06*

*Fig. 07*

*Fig. 08*

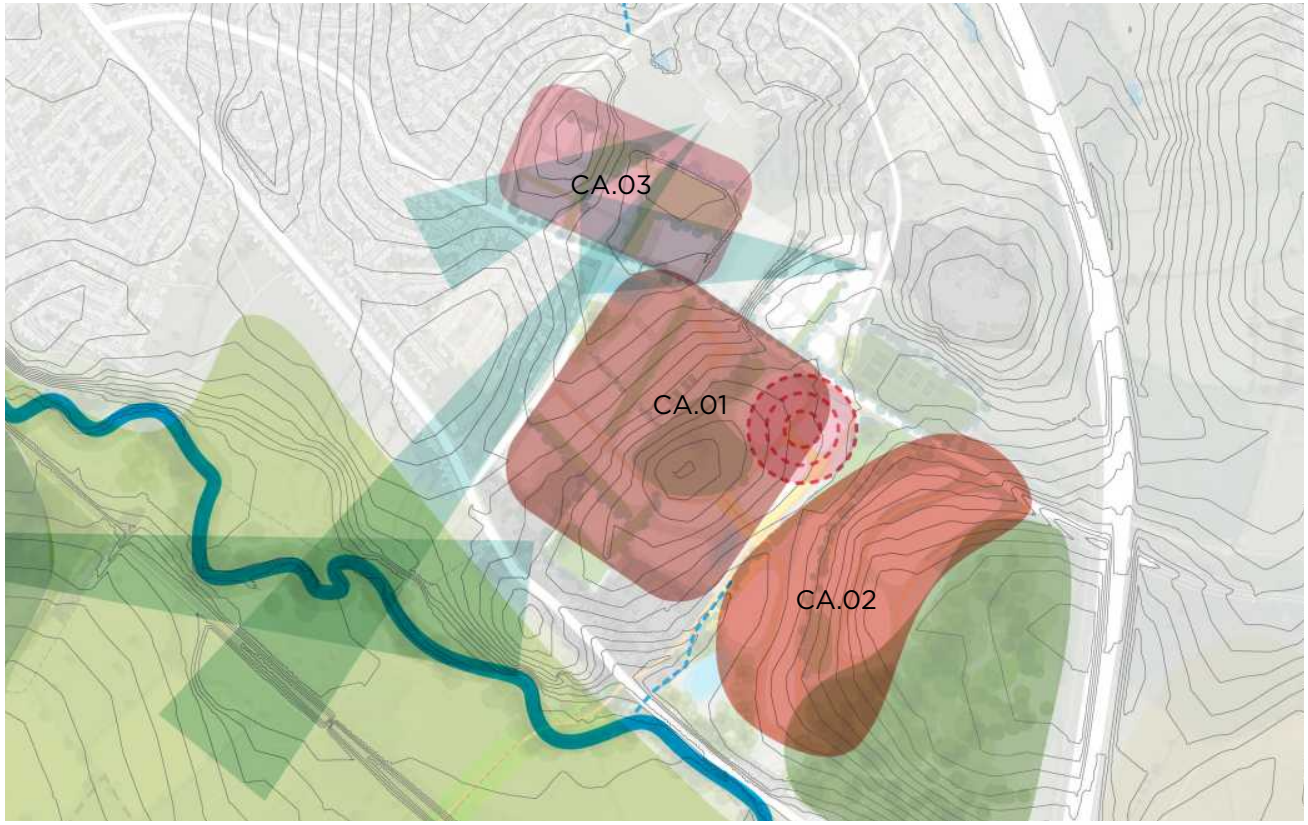
# 2.1.2 / Carleton

### Carleton Village Design Guidance

Carleton is already an established popular and growing neighbourhood accessed from the A6, welcoming you to Carlisle from the south and the M6. This area of the Garden Village provides the opportunity to further integrate with existing neighbourhoods and create a new, shared local centre with a primary school, local shops and community facilities. The local centre will have a large open greenspace at its core, accessible to everyone and visible from multiple viewpoints due to its location on a hill. As development approached the M6, it will respond to the steep topography providing the opportunity for distinctive architectural typologies. Whilst the location of the primary school as shown is indicative, it is important that it is fully integrated within the local centre.

The new development will be of mixed character, being more urban to the centre and more rural as it connects the surrounding landscape. The development includes green corridors to preserve distant views and will incorporate high quality planting. A network of greenspaces connects to development to the River Petteril and the Greenway.

The proposed densities in Carleton respond directly to the existing built form and landscape, with higher densities and more urban character within and surrounding the local centre, become lower density as it moves outwards and connects with the wider rural context.



## CAR.01 - Local Centre

- Active heart of the Carleton cluster located within a 5-10 minute walk for most residents.
- Accommodates a range of amenities, services, retail, and employment space such as co-working or managed office space.
- A community park located at the centre of the area providing the opportunity to highlight the site's topography and open up distant views by virtue of its location at the highest part of the site.

## CAR.02 - Carleton Hill

- A distinctive area on the hillside overlooking the local centre and city of Carlisle beyond. The slope and green buffer separating the area from the M6 gives it a protected and quiet feel.
- The character of this area should take advantage of and highlight its hillside setting which gives it a unique character within the Garden Village.

## CAR.03 - Carleton Green

- The key differentiator of this area is its role as a transition area from existing to new. As such, it is a gateway into Carleton and the Garden Village.
- Its location next to a major existing residential area suggests that it should fit in with the scale and quality of its setting but must foster permeability between old and new allowing Carlisle residents to access the local centre.
- The area includes interesting views that should be preserved and integrated into the design.

*Fig. 09*

*Fig. 10*

*Fig. 11*

*Fig. 12*

*Fig. 13*

*Fig. 14*

*Fig. 15*

*Fig. 16*

# 2.1.3 / Durdar

### Durdar Village Design Guidance

Durdar will be the larger of three settlements and will act as a 'district centre' and a hub for local communities, including the adjacent neighbourhoods of south Carlisle. It forms the heart of the Garden Village – a place to come together. Facilities are clustered around a neighbourhood square and the Greenway – a secondary and primary school, shops and health facilities. The centre provides a location for local employment and start-up businesses.

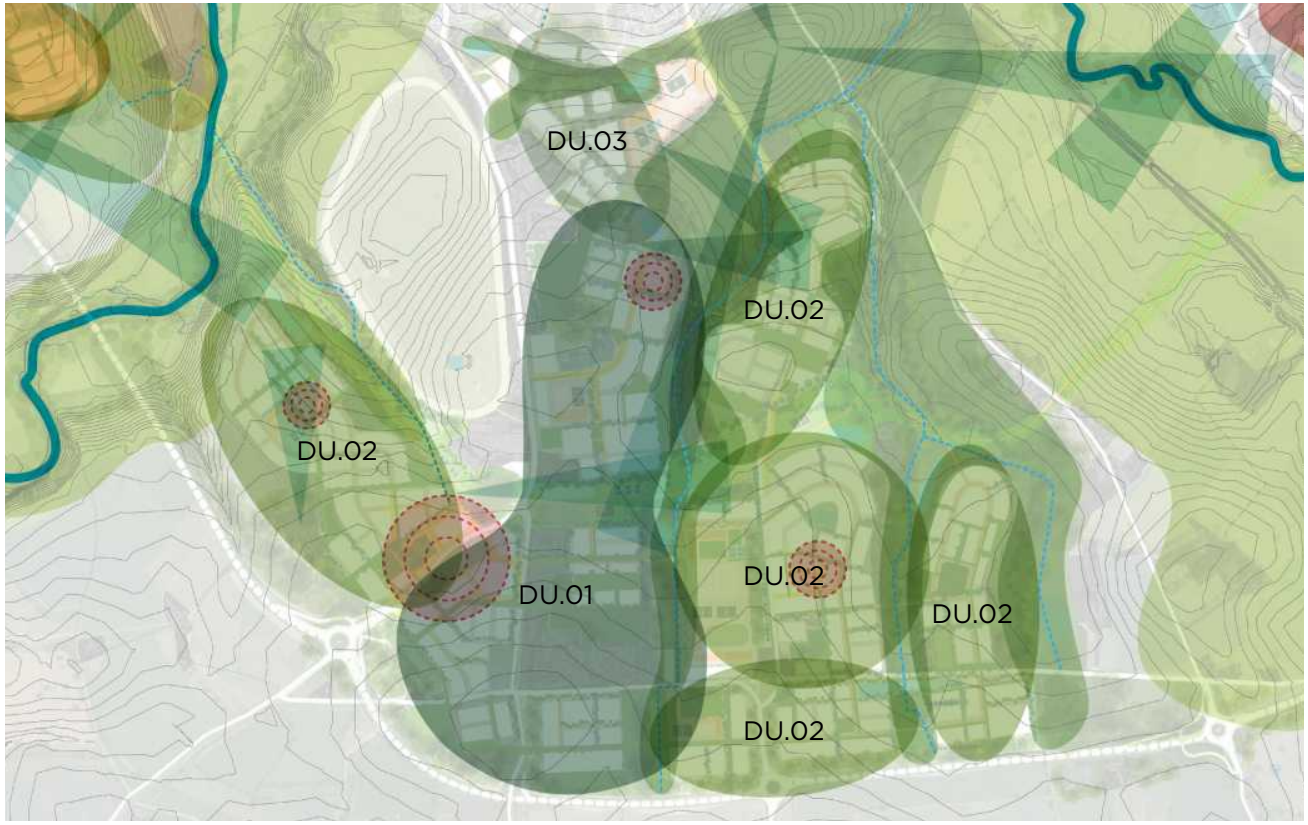
Durdar will be a new gateway and a tree-lined approach to both St Cuthbert's and Carlisle, accessed from the new southern link road. Sustainable transport will take priority supporting a pedestrian friendly environment.

Distinctive neighbourhoods within Durdar provide a full range of homes – apartments around the district centre, family housing, affordable homes and larger detached houses forming a new sensitive countryside edge, allowing Carlisle to nestle into the landscape. The neighbourhoods are connected through green corridors that respond directly to the topography, landscape and watercourses of the area.

The Greenway is especially relevant in Durdar as it acts as the link between the north and south areas of development. It will have a key role as a placemaking element in the initial phases of development, serving not only new Durdar community, but also to the adjacent neighbourhoods in Carleton and Cummersdale.

In Durdar, higher density development is focused in and around the local and neighbourhood centres to create a more urban character. As shown, there will be the greatest variety in densities across Durdar as the different neighbourhoods and development parcels respond directly to the green and blue corridors which run through the site, which in turn are dictated by the existing local landscape and topography.

Careful consideration will need to be given to where Durdar meets the existing urban edge of Carlisle. New development to the south of Ascot Way will frame an area of green open space at the core of this neighbourhood, connecting to Newman School in the east and creating a view corridor towards Cammock Hill and forming a key green gateway into the Garden Village.



## DUR.01 - Local Centre

- The setting for a local centre accessible to existing residents in Durdar and Carlisle as well as to new residents of the Garden Village
- Street frontages that emphasise the sense of arrival from the Garden Village to Carlisle and vice versa.
- Opportunity to frame views of the landscape between buildings, from selected viewpoints as one enters the Garden Village

## DUR.02 - Durdar Gateway

- Accommodating the primary gateway into the Garden Village from the CSLR / south of the site, offering an opportunity to convey a sense of energy and vibrancy as one enters the Village.
- The buildings at the gateway roundabout and along Durdar Road should have a confident presence and can accomodate greater height than in other locations.
- Visually permeable ground floors and planted setbacks at the point of entrance to the site should give way to active frontages along Durdar Road

## DUR.03 - Durdar Clusters

- The smaller neighbourhood clusters in Durdar are of varying sizes with a compact layout, walkable streets, and a hierachy of open spaces within.
- Each cluster should be distinct from the other through the use of green fingers and corridors giving a sense of the landscape filtering through the neighbourhood.

*Fig. 17*

*Fig. 18*

*Fig. 19*

*Fig. 20*

*Fig. 21*

*Fig. 22*

*Fig. 23*

*Fig. 24*

# 3 /

# Landscape, Public Realm and Open Space Principles

# 3.1 / Green & Blue Infrastructure

A combination of scales of green infrastructure elements shall be used including rain gardens, tree planting, green and brown roofs, green walls, swales and bio-retention basins.

The following green infrastructure principles shall be incorporated into the development plots:

- Tree, hedge and green wall planting.
- Amenity and Green/Brown roofs (incorporating water storage capacity).
- Roof level storage tanks.
- Communal gardens
- Permeable paving to Secondary roads and Quiet/ Residential Streets.
- Rainwater gardens.
- Rainwater harvesting and reuse for landscape irrigation.

## Water and Drainage

Water is a key element in designing an ecologically functioning landscape. The quality and quantity of water on and discharging out of the site shall be considered throughout the design process from an integrated perspective of resource management, climate change mitigation, ecology and habitat creation.

The Blue and Green Infrastructure strategy detailed in the Draft Masterplan Framework, establishes a site-wide water strategy based on water conservation and sustainable drainage principles, integrated into an ecologically functioning landscape.

Water management systems shall be integrated with both plot and site wide water infiltration systems, tanked attenuation and flow restrictions so as to mitigate peak rainwater runoff.

## SuDS:

The principles of Sustainable Urban Drainage Systems (SUDs) shall be applied across the site, with the intention to manage runoff at the source, and attenuate and infiltrate run off wherever possible.

SuDS shall be included within all streets in the Garden Village.

Large areas of hard landscaping shall be avoided, permeable paving should be used for hard paving areas such as parking areas or hardstanding areas should be drained towards suds features.

Soft landscape areas shall contribute positively to the suds strategy.

Hard solutions for below ground attenuation shall be avoided, instead soft landscape solutions shall be used such as swales and bio-retention basins.

*Fig. 25*

*Fig. 26*

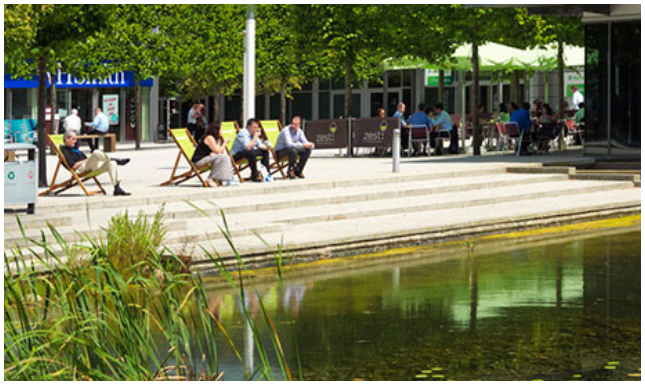


*Fig. 27*

# 3.2 / Soft Landscape

The following principles shall inform the soft landscape proposals:

- The creation of a tree  framework, using a hierarchy of forms, sizes and species, to establish a strong sense identity and legibility.
- Tree species used are native, or of known value to UK wildlife, and of local provenance.
- Trees shall contribute to the establishment of a green network and support the wider existing green infrastructure network.
- Trees shall contribute towards urban food production, through the establishment of community orchards and edible street planting.
- Existing trees retention where feasible, or to inform the proposed species selection (from historic or current databases).
- Trees and other planting shall actively address flooding mitigation and soil erosion
- Species shall be chosen that are suitable for the conditions and resilient to climate change

**Existing trees:**

Existing trees and hedgerows shall be retained wherever possible. An arboricultural survey will be required to identify the condition of existing trees in support of the design approach and these soft landscape principles.

High quality existing trees (Category A and B) shall be retained and in accordance with BS 5837:2012. Design proposals (and building footprints) shall work within these standards to ensure the long-term prosperity of retained trees.

An arboricultural method statement and tree protection plan will be required to ensure that locations of protective measures are sufficient to avoid disturbance or damage to the tree and root protection zones during construction.

**Proposed trees:**

Trees shall be coordinated with existing and proposed utility corridors to optimise soil volumes for successful root establishment. Adequate space for all underground elements shall be considered (for instance designated services corridors) so any future expansion or additional service corridors does not compromise tree rooting spaces.

Trees shall be planted within soft landscape areas to maximise root growth, where this is not possible, tree pits must have an appropriate soil volume established (e.g. the projected canopy area of the mature tree, multiplied by a depth of 0.6).Trees shall be chosen that relate to the local context and character areas to reinforce local identity.

**Proposed Planting:**

Species shall be selected that maximise the benefit to biodiversity, such as the use of native species and a mixture of different planting varieties. Trees and planting shall adhere to Secure by Design guidance, promoting natural surveillance. maintain

*Fig. 28*

# 3.3 / Public Realm

St Cuthbert's Garden Village shall provide generous open spaces for gathering that are accessible and of high quality.

The quantum of open space provision shall be in accordance with the masterplan framework open space area provisions.

Phasing of the development shall ensure an appropriate provision of open space is provided relative to the quantum of development to enable each phase to be self-sufficient, in terms of open space.

Sustainable materials with low embodied carbon shall be specified where possible and principles of a circular economy utilised to inform their selection.

**Accessible for all:**

The design of the public realm shall ensure that streets, neighbourhoods, parks and open spaces are designed to meet the needs of all, in all stages of their lives, but especially those with pushchairs, people with disabilities and the elderly.

**Safe and Secure:**

The public realm shall be a safe place with a focus quality of life or community cohesion, nor discourage walking either during the day or at night.

**Lighting:**

Lighting will play a key role to enable a healthy, inclusive and sustainable community. A lighting strategy shall be developed to establish site wide lighting design principles for the public realm to ensure safe, connected and active environments.

The strategy shall set out lighting standards, regulations and recommend lighting design principles. The interface of proposed lighting and how this will be integrated with or enhance the existing lighting within the setting shall be set out.

Detailed development proposals being brought forward be required to develop and implement the site wide principles in design and detail.

The lighting proposals shall be designed to serve three main functions:

- Safety - especially around connectivity with a focus in pedestrians and cyclist but also including the aim to increase safety and reduce fear of crime.
- Wayfinding.
- Support biodiversity

*Fig. 29*

*Fig. 30*

*Fig. 31*

*Fig. 32*

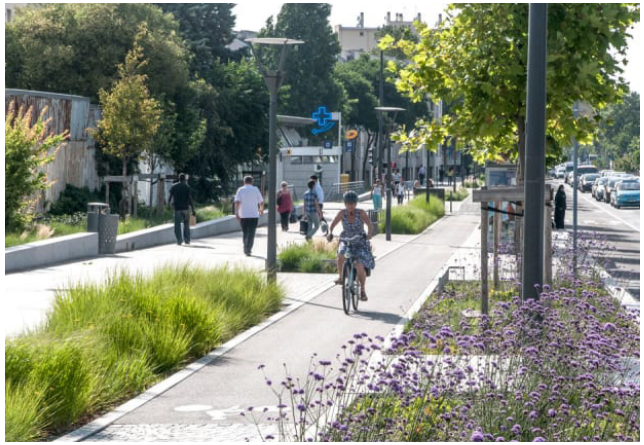


*Fig. 33*

*Fig. 34*

**Microclimate:**

The design of the public realm shall create a comfortable micro-climate taking account of the need for access to natural light, summer shading, winter and evening sun, breeze corridors and avoiding down draughts, gusting and lateral winds.

The public realm design shall also seek to aid passive solar design of adjoining buildings. The orientation, scale, height and massing of the design should consider orientation in relation to prevailing wind directions to ensure microclimate comfort. Wind movement is important to allow natural ventilation, contribute to heat loss and is also an important factor for air quality.

Seasonal adaptation shall be as well considered as the requirements of a space can be very different over the year. This could be achieved in coordination with specific planting and landscape design for example

# 3.5 / Streetscape

Streets provide several key functions within the public realm of the Garden Village:

- Access to buildings, and the provision of light and ventilation for buildings.
- Settings for buildings either residential, business or community.
- Circulation, for vehicles and pedestrians.
- Climate mitigation through planting and SuDS.
- A route for utilities.
- Storage space, especially for vehicles.

**Street Hierarchy:**

The nature of the various streets shall adhere to the masterplan street hierarchy as set out in the masterplan framework.

**Quality:**

Streetscapes shall be of high quality and the adhere to the following principles:

- Visually simple, and free of clutter.
- Be multifunctional, offering mixed uses and activity to create spaces for social interaction.
- Ordered provision for access, deliveries and storage of vehicles shall be incorporated.
- Accessible, safe and legible for all.
- Street identity and character clearly articulated and reinforced in both design and detail, respond to a sympathetic to its use, activity and context.
- Landmarks provided along streets to assist with wayfinding

**Character:**

The design of streets shall provide safe, uncluttered and inclusive layouts with distinctive character to assist with orientation and a sense of place.

The identity and language of the character areas shall be clearly articulated and reinforced in the design detail of its streets.

Streets shall provide public space for social interactions whilst also enhancing ecological value.

**Trees:**

Streets shall incorporate trees to establish rhythm and structure whilst providing ecological benefits.

**Lighting:**

Street lighting shall be used to reinforce character, street rhythm, activity level and provide lighting to the carriageway and pedestrian pavement.

**Activation and Legibility:**

Building entrances shall be clearly identifiable, contribute to the ease of wayfinding and be articulated to establish a language and rhythm to the street.

Making building frontages ‘active’ adds interest, life and vitality to the public realm. This may include:

- Frequent doors and windows.
- Articulation of façades, with projections such as bays, porches, canopies.
- Narrow frontages to business and community buildings giving vertical rhythm to the street.
- Lively internal uses visible from the outside, or spilling onto the street.

**Access:**
Streets shall be designed to prioritise pedestrians and cyclists and create safe and attractive conditions for these users.

Vehicle access, servicing and utilities to buildings shall not interfere with the public realm or impede movement and circulation.

Street crossing points shall be frequent, direct and uncomplicated.

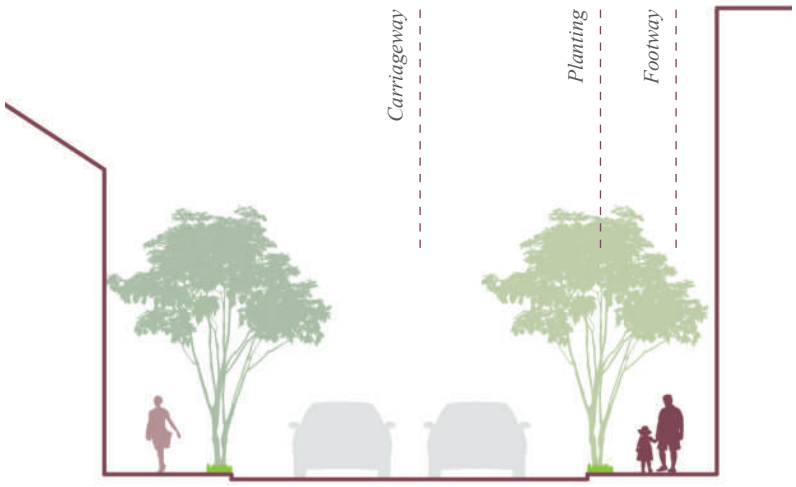
## Main Roads

- Due to the spatial configuration of the proposed development, the greatest anticipated increases in traffic flow would be on Durdar Road, with no development proposed to be accessed directly from Brisco Road.

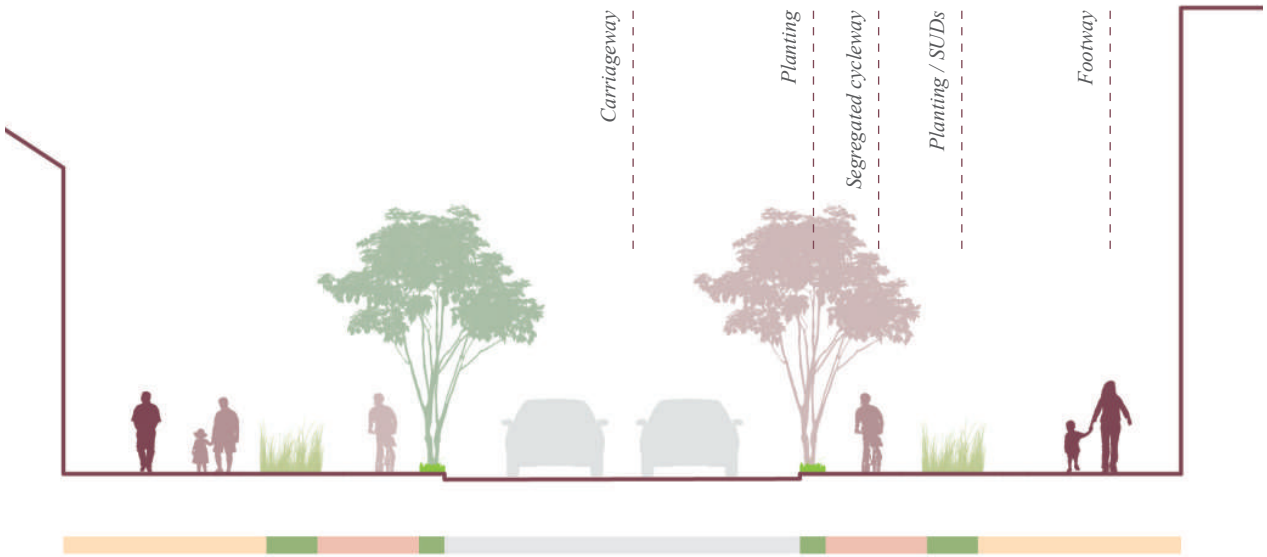
- The main roads would be intended to function with vehicle speeds of 20mph or above. Footways should be provided on both sides of the carriageway to encourage and protect walking movements, with a width of at least 2m. By providing a limited carriageway width of 3.2m, where no segregated cycle facilities are provided, this will encourage drivers to observe to the speed limit and be more cautious when overtaking cyclists.

- To enable active travel movements, continuous footways could be considered at junctions with minor/residential streets. Buffers between the footway and carriageway could be provided where space allows, potentially supporting the provision of green infrastructure such as street trees and verges.

- There is unlikely to be sufficient space to accommodate cycle lanes along either Durdar Road or Brisco Road and so a 'minimum' street section approach could be required. To the east and west, the A6 London Road and Dalston Road are wider and may have space for cycle lanes. These roads could be designed closer to the 'preferred' street section.




*Minimum street section*



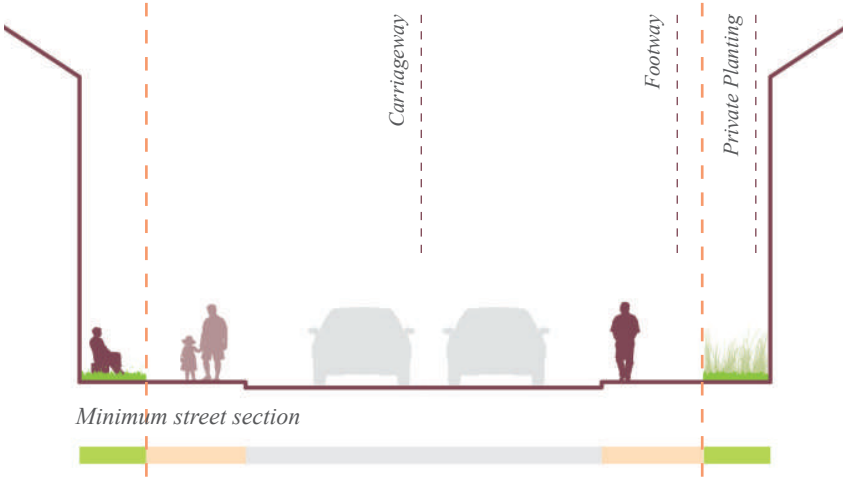
# 3.5.1 / Street Profiles

## Secondary Roads

- Internal to the Garden Village, there would be a network of secondary roads linking the active neighbourhoods to the main roads and key destinations. These roads would be designed with a 20mph maximum speed limit. By providing a limited carriageway width of 3.2m, where no segregated cycle facilities are provided, this will encourage drivers to observe to the speed limit and be more cautious when overtaking cyclists.

- Where space permits, segregated cycling infrastructure would be provided with continuous footways at junctions between Secondary Roads and quiet/residential streets.

- Buffer strips between the carriageway and footways/ cycleways could be created using on-street car parking bays, lighting, or green infrastructure. These roads would primarily be fronted by residential or commercial uses.




*Minimum street section*


*Preferred street section*

## Residential Streets

- Quiet/residential streets could be designed for 10mph maximum speeds and to encourage minimal vehicle usage. Modal filters in the form of bollards, pocket parks, or street trees could be used to restrict vehicle movement to access only.

- The design of these streets should indicate that walking, cycling, and socialising/playing are the dominant uses. This could be achieved through traffic calming such as raised tables, build-outs, modal filtering, and minimum possible carriageway widths. Places to sit and green infrastructure such as trees and rain gardens could also contribute to the design of these spaces.

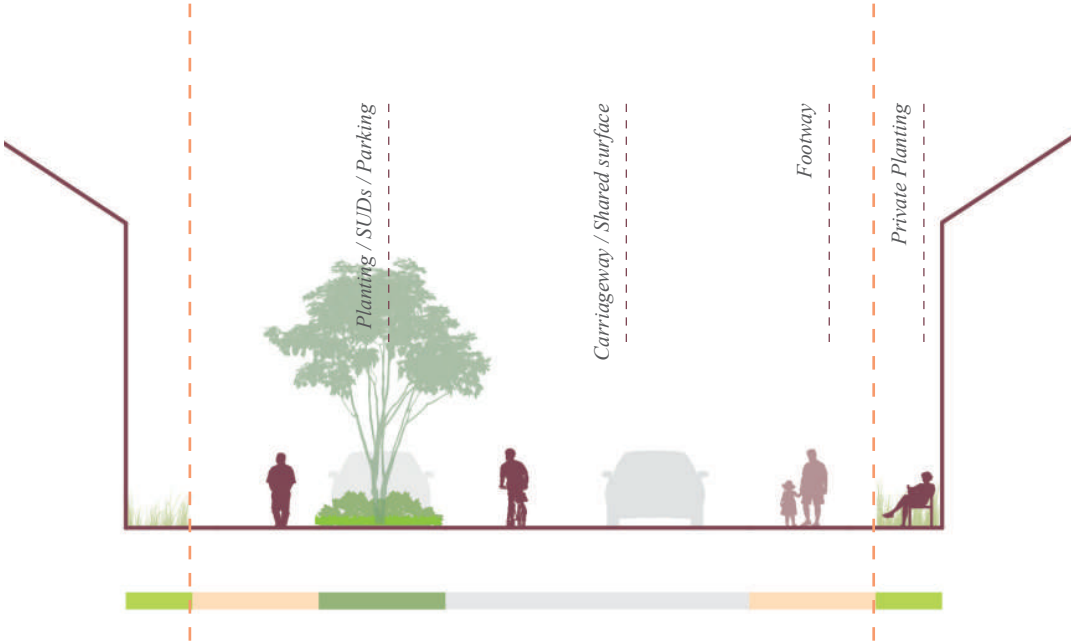




*Fig. 35*


*Fig. 36*


*Fig. 37*

# 3.5.1 / Street Profiles

## Greenway

- This planted, car free space will traverse across water, through woodland and past fields. It will incorporate sports pitches, play areas, resting points and event spaces, becoming more programmed as it reaches the centre, then more natural and loose as it reaches the outer edges.
- Being accessible from all neighbourhoods, it will act as a car free, green community spine along which to commute, promenade, meet or play.
- An ecologically rich space, planted with native trees, swathes of wildflowers and integrated swales, it will perform as an east to west green corridor linking habitats for birds, bats and pollinators across the valleys.



*Fig. 38*


*Fig. 39*


*Fig. 40*


*Fig. 41*

# 3.4 / Courtyard Gardens

Residential courtyards offer a fantastic space to enhance social interaction.

They shall be spaces that promote and enhance sustainable and healthy communities with a focus in food growing and social cohesion.

*Fig. 42*

*Fig. 43*

*Fig. 44*

*Fig. 45*

All areas of open space within the Garden Village shall allow for opportunities for children to play. Emphasis shall be on the provision of stimulating play environments that are integrated with their surroundings. Natural play shall form the focus for most play spaces, but these can be supported with the provision of some equipment led playgrounds.

Playable features used in combination with landscape areas, planting and topography shall allow incidental play to be incorporated into all types of open spaces, including streets.

The following criteria shall be considered as a minimum in the design of play spaces

- Space - it shall be ensured there is sufficient space to accommodate a range of activities for different age groups.
- Location and accessibility - play spaces shall be suitably located and accessible within an acceptable walking distance of the home.
- Quality and design - play spaces shall be integrated into their surroundings, be well designed, attractive and safe with a range of activities and facilities for different age groups.
- Management and maintenance - future maintenance shall be considered as part of the design to ensure that spaces are safe and can be retained in future.

**Quantum:**

The quantum of designated play space should be in accordance to the masterplan framework open space provision and aligned to the Fields in Trust - Guidance for Outdoor Sport and Play: Beyond the Six Acre Standard.

The amount of play space provision shall, follow the quantum as established in the masterplan proposals. This quantum should be reviewed against a calculation of the expected child yield numbers (population) generated by development proposals.

In addition to designated play spaces, “Playable” spaces shall be provided within open space to offer a range of leisure and recreation opportunities for people of all ages and enable the development of social networks and a sense of community belonging.

**Distribution:**

The distribution of play spaces throughout the development shall align to the masterplan framework. Phasing of the development shall ensure that an appropriate amount of play space is provided relative to the quantum of development to enable each phase to be self-sufficient in terms of play space.

Play areas allocated for younger age groups shall include seating for supervising carers and be positioned across the site in communal areas with consideration given to boundaries to provide secure environments for young children to explore and learn.

*Fig. 46*

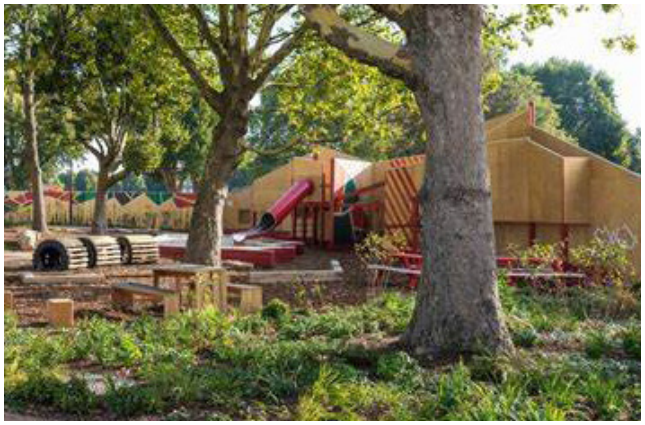


*Fig. 47*

*Fig. 48*

# 3.5 / Ecology

A core principle running through all strands of the development will be the creation of a sustainable neighbourhood which seamlessly embraces all facets (environmental, economic, biodiversity and community) of sustainability.

**Guiding Principles:**

- To increase the overall population, variety and diversity of native species, and to increase the quality and range of wildlife habitats and ecosystems, through maximising biodiversity, habitat niche creation and ecological functionality within the landscape.
- To provide green corridors (or wildlife corridors) making strong functional connections to new and existing landscape beyond the site boundary, increasing connectivity between habitats.
- To create habitats which are, or would have been characteristic to the local area and which contribute towards Local Biodiversity Action Plan targets, in relation to the Habitat Action Plans and Species Action Plans.
- To establish and maintain the landscape utilising sustainable and best method practices.
- To protect and enhance existing ecological habitats of value on the site where practicable, or mitigate their loss where not.

*Fig. 49*

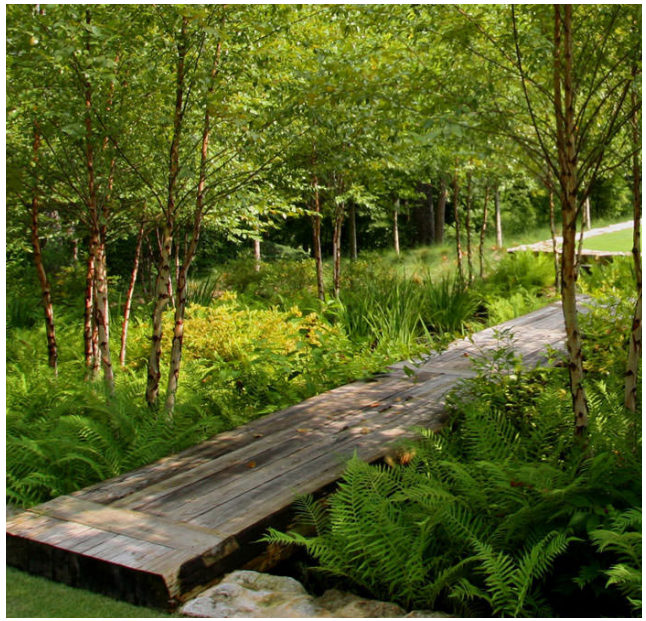


*Fig. 50*

*Fig. 51*

# 3.6 / Food

Saint Cuthbert's Garden Village shall be a beacon for sustainable local food, delivering a thriving food culture through an integrated system of education, production, processing, consumption and disposal. A range of formal and informal spaces for food production, processing and trade shall be provided within the following:

**Greenway:**

Provides the opportunity for a range of different food growing spaces running along the length of the greenway including:

- An orchard.
- Community plots growing vegetables for community use.
- Trees and hedgerows bearing edible fruits or nuts.

**Allotments and Community Growing Spaces:**

Distributed together or in small clusters in squares, pocket parks, community growing spaces shall be provided within the Garden Village,allowing residents to grow their own fruit and vegetables.

**Edible Streets:**

Opportunities for fruit and nut trees and hedgerows shall be explored where possible within streets, green spaces and gardens throughout the development. A range of scales shall be considered from orchards within larger open spaces to individual trees in streets and private gardens. Native plants and those suitable for city conditions shall be prioritised.

*Fig. 52*

*Fig. 53*

*Fig. 54*

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