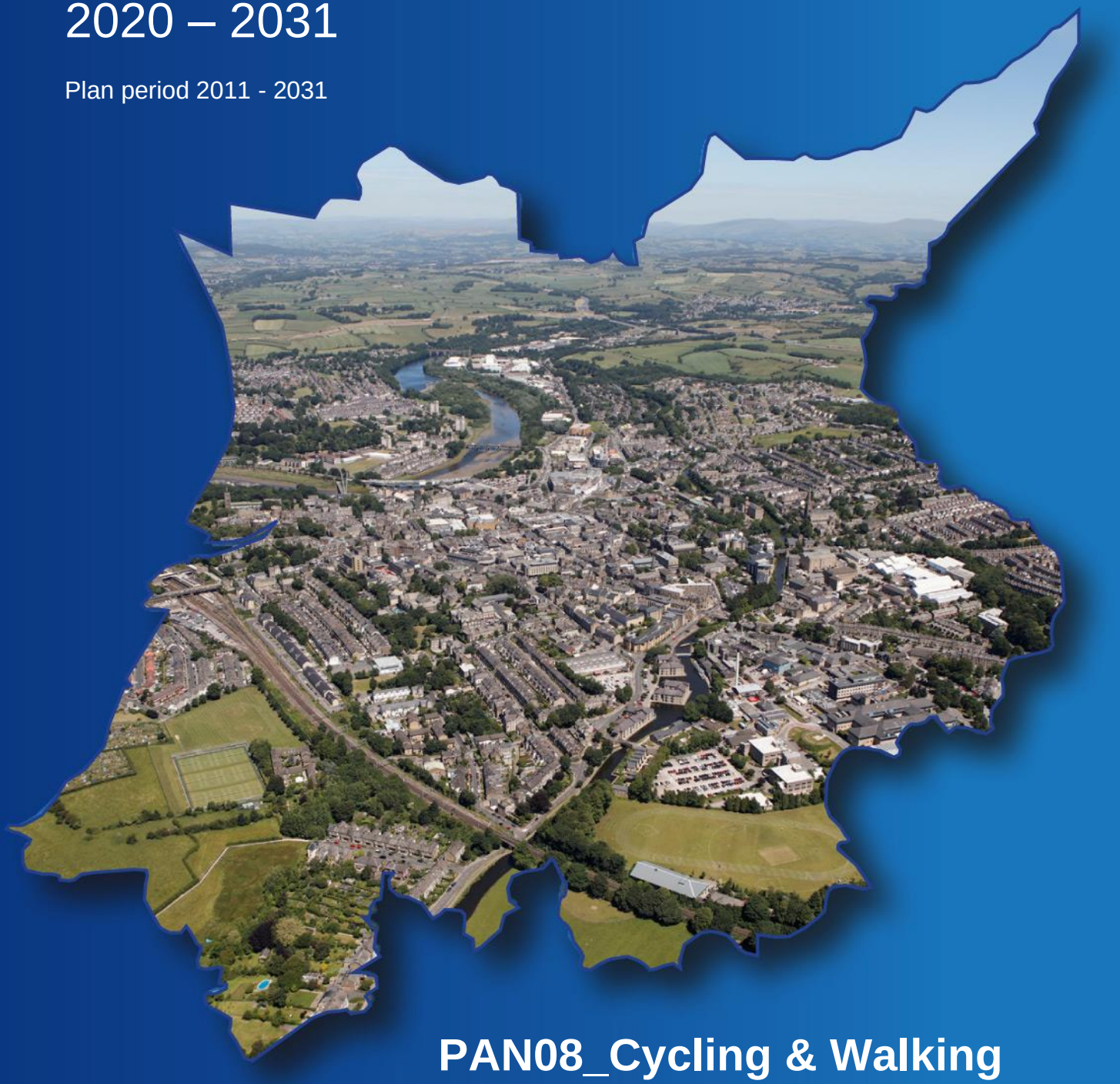
PAN_08

A Local Plan for

Lancaster District

2020 – 2031

Plan period 2011 - 2031



PAN08_Cycling & Walking Planning Advisory Note (update)

[May 2021]

Shaping
a better future

LANCASTER CITY COUNCIL
Promoting City, Coast & Countryside

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1.0 INTR0DUCTION

1.1 Lancaster City Council have recently adopted a new Local Plan for the District which comprises a Strategic Policies & Land Allocations DPD and a reviewed Development Management DPD. The Strategic Policies & Land Allocations DPD contains a number of strategic sites located in and around Lancaster and Carnforth with the potential to develop in the region of 6,000 new homes

1.2 It has been recognised within the Local Plan and Lancashire County Council's Local Transport Plan that there is need to significantly improve sustainable modes of travel in order to reduce impacts on traffic and the related Air Quality Management Areas located in Lancaster and Carnforth. 'Modal shift' is also able to meet broader objectives to reduce impacts on climate change.

1.3 In response to the Council declaring a Climate Emergency in 2019 the Local Plan is currently undergoing a partial review. This is considering how policies can be amended to take more account of the climate emergency. Of most relevance to this PAN is Policy T2 of the Strategic Polices and Land Allocations DPD and Policy DM61 of the Development Management DPD.

1.4 Improvements to public transport will be important in encouraging 'modal shift' but as important will be the provision of attractive and useable walking and cycling infrastructure.

1.5 National Planning Policy Framework paragraph 104 (d) states that planning policies should provide for high quality walking and cycling networks and facilities and paragraphs 108 to 110 emphasise the need to incorporate cycling and walking movements within schemes and the wider network.

1.6 Policy T2 of the Strategic Policies and Land Allocations DPD sets out the overall approach to the provision of cycling and walking infrastructure, and identifies the existing network and aspirational routes that should be enhanced as part of developments coming forward. Figure 24.1 of the DPD sets out the strategic approach in Lancaster itself where there is significant growth proposed and where there other important links outside the urban areas Policies 60 and 61 of the Development Management DPD states that proposals should maximise opportunities for cycling and walking and provide linkages into the existing network.

1.7 This paper supports the Local Plan and focuses on the strategic sites identified in the Local Plan and Lancaster city centre however this does not reduce the need to ensure cycling and walking infrastructure associated with other sites and developments. There is also a focus on utility routes rather than leisure routes as the overall aim is to encourage modal shift. Provision elsewhere should be in accordance with relevant plan policies and support the aim of developing the existing network.

1.8 This paper aims to identify the types and location of proposed routes, making the most of existing infrastructure, and will complement the emerging Local Plan and help inform the associated Infrastructure Delivery Plan, Masterplans and SPDs being developed for the strategic sites. It will provide the basis for the delivery of routes and network improvements by ensuring good connectivity within new development proposals and, where necessary, by securing improvements 'off site', through the use of Section 278 highways works and developer contributions.

1.9 The most significant area of growth is to the south of Lancaster. The Bailrigg Garden Village Area Action Plan is considering the infrastructure needs of development in this area. This includes a proposed Cycle Superhighway between the city centre and Bailrigg. The identification of a proposed

route for the Cycle Superhighway is currently being taken forward by the County Council as part of the wider Housing Infrastructure Fund (HIF) bid. This is looking to secure funding for a range of transport infrastructure associated with the garden village.

1.10 The focus of this paper is on the strategic sites identified in the emerging Local Plan and Lancaster city centre. The inclusion of the city centre reflects its significance as the principle trip attractor and the significant proposals being brought forward in the City Centre Movement Strategy.

- North Lancaster
- East Lancaster
- South Lancaster
- Lundsfield Quarry, South Carnforth
- Lancaster City Centre

1.11 It should be noted that following the Hearing sessions relating to the Examination in Public of the Local Plan, the Government appointed Inspector conducting advised that part of the South Carnforth site be removed from the plan. The northern part of the site (Lundsfield Quarry) still remains.

Local Cycling and Walking Infrastructure Plan

1.12 The County Council are taking the lead on the development of a Lancaster Local Cycling and Walking Infrastructure Plan (LCWIP). The purpose of an LCWIP is to set out a strategic approach to identifying cycling and walking improvements across the district as a whole. This PAN therefore forms an important part of the LCWIP along with other elements being taken forward by the County Council, most notably the provision of a Cycle Superhighway between Lancaster City Centre and the major development of Bailrigg Garden Village.

1.13 In terms of identifying routes within this advisory note, the Local Cycling and Walking Infrastructure Plan (LCWIP) methodology advocated by the NPPF, will be followed as closely as possible. In general, routes will look to link areas of growth to trip attractors (town centre, employment areas, schools etc). These routes will utilise the existing network but also require new or upgraded infrastructure. The approach adopted has been informed by WSP.

Stakeholder engagement

1.14 In developing this guidance there has been member level engagement within Lancaster City Council through the Planning Policy Cabinet Liaison Group. There has also been close cooperation with the Highways Authority (Lancashire County Council) and liaison with local user groups. Stakeholders include:-

- Lancaster City Council – Development Management, Regeneration, Environmental Health, Public Realm;
- Lancashire County Council – Highways Development Management, Transport Policy, Road Safety and Cycling;
- Developers;
- Canal and River Trust;
- Lancaster University; and
- User groups – CyclingUK, Dynamo, Sustrans, Ramblers Association, Inland Waterways Association.

2.0 STRATEGIC SITES

North Lancaster Strategic Site (Policy SG9)

2.1 The site is located between the northern extent of the Lancaster urban area and the M6-Heysham link road 'Bay Gateway'. There are two main parcels of land, one either side of the A6, currently made up of undulating countryside. The site in total is expected to accommodate 700 dwellings and community facilities including a primary school.

East Lancaster Strategic Site (Policy SG7)

2.2 This site is located between the north eastern edge of Lancaster and the M6 motorway. The primary access in to the site will be from Caton Road, which will allow easy access to J34 of the M6. This is an undulating site and includes a golf course which will be retained and relocated within the site. The site will accommodate up to 930 dwellings, a country park and community facilities including a primary school.

Lundsfield Quarry, South Carnforth (Policy SG11)

2.3 This site is located on the southern edge of Carnforth in a former quarry. The primary access to the site will be off Kellet Lane which provides access into Carnforth Town Centre and Junction 35 of the M6. Whilst the site is located within the urban fringes of Carnforth, Lancaster Canal, which is directly adjacent to the site, acts as a physical barrier for cycling and walking between Lundsfield Quarry and the Town Centre. The site will accommodate up to 250 dwellings.

Lancaster City Centre (Policies SG4 & SG5)

2.4 The strategic sites in and around Lancaster will be dependent on the necessary cycling and walking infrastructure being able to accommodate higher levels of cycling and walking in order to bring about modal shift. The city centre is also the location for significant development within the Canal Quarter. This is a brownfield site that provides significant opportunities for new cycling and walking infrastructure as part of any redevelopment. It is proposed to be a mixed use site able to accommodate significant levels of residential development and itself will generate significant levels of trip generation.

2.5 Lancaster South Broad Location for Growth (Policy SG1)

An area to the south of Lancaster is identified as a broad location for growth able to accommodate significant levels of economic and residential development. This includes land for the Bailrigg Garden Village, which is able to accommodate up to 3500 dwellings, and the University's Health Innovation Campus. Under Policy SG1 the Council is preparing a South Lancaster Area Action Plan which will identify specific land allocations and take into account transport related issues including the need for good pedestrian and cycle connectivity, particularly between the University and the city centre. The Area Action Plan is at an early stage and as the intention is to apply the same approach as set out in this PAN and include the findings in the AAP itself.

3.0 EXISTING INFRASTRUCTURE

3.1 The district benefits from a network of disused railway lines and canals which have been developed over the years into a high-quality off-road network of shared cycle and walking routes. The network links the main urban areas of Lancaster, Morecambe and Carnforth and also extends into the Lune Valley and to Glasson Dock to the south. The network has been further enhanced by the building of

the cycle/pedestrian only bridge across the River Lune linking Lancaster and Morecambe. This has created a network of routes used for both leisure and 'utility' use (utility cycling is defined as cycling carried out as a means of transport e.g. journeys to work and school).

3.2 Based on the success of this network and the higher than average levels of cycling in the district, Lancaster was chosen as a Cycling Demonstration Town (CDT) in 2008 and awarded Government grant funding over a 3 year period, to help develop the network and encourage greater use. The CDT programme helped to deliver new links into the existing network, develop routes within the city centre itself and encourage 'modal shift' (ie. Journeys to work and school by cycle rather than car).

3.3 Figure 1 identifies the network at a strategic level for the district and the location of the strategic sites. It delineates between predominantly leisure and 'utility' routes, the primary difference being the limitations of the canal network as a shared use route (narrow towpaths particularly under bridges).

North Lancaster

3.4 The site benefits from a segregated walking/cycling route associated with the Bay Gateway running along the northern boundary of the site. This potentially links the site to Morecambe and to Halton in the east. Passing through the site from the northwest and along the southern boundary is the Lancaster Canal. This has a surfaced towpath and is used primarily as a 'leisure' route. It is not promoted as a commuting/utility route as the towpath width is substandard and there are low bridges which are a significant hazard.

3.5 In the eastern part of the site, due to the lack of safe crossing points and the fact that the towpath is on the south side of the canal, the canal in effect forms a barrier between the site and the main urban area. The main cycling infrastructure lies to the east of the River Lune and to the south where routes converge on the Millennium Bridge.

East Lancaster

3.6 The site lies to the east of Lancaster between Caton Road and the M6 motorway. The topography between the site and the city centre is defined by a ridge line running north/south and there is limited existing cycling infrastructure leading directly to the site. There are, however, good existing routes serving the north west part of the site along the Lancaster Canal and Caton Road.

3.7 To the south of the site there is a segregated route on Quernmore Road but this does not form part of a continuous route. There is also a designated route to the south that links through to Grab Lane. There is an existing bridleway running along the eastern boundary of the site which provides a link to Halton via Grimshaw Lane. The track is currently unmade and primarily a leisure route.

South Carnforth

3.8 There is limited infrastructure in this location, the access road to the site from Kellet Road is restrictive to cyclists and pedestrians due to locational constraints. Lancaster Canal, which directly adjacent to the site in the west presents a physical barrier to accessing the town centre by foot or by bike. Options for crossing the canal to provide more direct and safe access between the site and the town centre could be explored.

Lancaster City Centre

3.9 The city centre is defined by the gyratory system. This takes vehicular traffic out of the central area which provides an attractive pedestrianised shopping area. There are numerous signalised crossings on the gyratory system to allow movement of pedestrians to and from the city centre.

3.10 In terms of cycling, the city centre is served by a number of on road cycle lanes on the gyratory system and other routes cross the city that share space with pedestrianised shopping areas. These provide a useful network but in both cases there are potential conflicts with other users. Given the problems of negotiating the city centre by cycle a 'City Centre Loop' has been developed to provide a designated route around the city that avoids the city centre itself. It contains significant sections of segregated routes and usefully includes a section adjacent to the railway station. There are, however, incomplete sections, most notably through the Canal Quarter site and at Aldcliffe.

4.0 CYCLING AND WALKING DISTANCES

4.1 The distances people are prepared to walk and cycle depends on a number of factors. These include age, fitness, journey purpose and the safety and attractiveness of the route. Guidelines are provided on maximum suggested distances for commuter, school and leisure trips by the Chartered Institution of Highways and Transportation. These are widely accepted and are stated as 2km for walking and 5km for cycling.

4.2 Figures 2 and 3 show the strategic sites and buffers relating to cycling and walking distances. These are taken form the boundary of the site and do not take account of topography and other physical barriers.

5.0 LOCATION OF TRIP ATTRACTORS

5.1 In terms of modal shift the focus is on changing behaviour with regards to regular journeys between trip generators (residential areas) and trip attractors. These are defined as follows:-

- employment areas
- education establishments (schools, colleges and University)
- service centres
- retail centres
- bus and train stations

5.2 Journeys to leisure destinations are less likely to be undertaken at peak periods or on a regular basis and have not featured within this analysis.

5.3 Figures 2 and 3 identify the strategic sites and the location of major trip attractors. Maximum walking and cycling distances have been overlaid and these indicate what may be possible in encouraging walking and cycling journeys as an alternative to car borne journeys.

Lancaster

5.4 In Lancaster the major employment areas are the city centre, where there are numerous shops and businesses, the White Cross employment area and most significantly the hospital (Royal Lancaster Infirmary). The combined workplace population for this area is 10,500 (2011 Census – workplace population, ward level).

5.5 Also significant is the White Lund Industrial Estate which has a workplace population of nearly 4000 (2011 Census – workplace population, workplace zones). Other significant areas of employment are Lancaster University, Heysham Port and neighbouring employment areas on Caton Road.

5.6 The Canal Quarter strategic site is potentially a significant trip attractor and is located on the eastern side of the city centre. A mixed use scheme is being proposed comprising of retail, cultural and employment uses as well as residential uses. There are also significant residential developments taking place adjacent to the River Lune (Luneside East and Luneside West), resulting in significant additional trips on the west side of the city centre.

5.7 Also located on the periphery of the city are 5 Secondary Schools with a total pupil population of over 5000. This generates significant additional trips during peak periods in and around the city centre.

5.8 The main train station and bus station serving the district are also located within the city centre.

5.9 Figure 2 illustrates that, in terms of trip generation, the most significant areas in relation to the two strategic sites are the city centre itself and the White Lund Industrial estate and to a lesser extent, due to the distances involved, Lancaster University.

Carnforth

5.10 In Carnforth the main trip attractors are the town centre which contains the train station and main retail area and also has a number of employment sites on its periphery. Kellet Road is also significant as there are two schools (Carnforth High School – 650 pupils) and an employment area.

5.11 Figure 3 illustrates that main trip attractors are well within maximum walking and cycling distances. Although outside the 5km buffer, given its significance within the district as a trip attractor, it is potentially a destination that needs to be considered in terms of cycling.

6.0 NETWORK PLANNING

6.1 The approach to enhancing the existing network has been to:-

- Identify Site Access Points that connect the site to the wider network and the main trip attractors (taking account of topography, land ownership and utilising proposed vehicular access points)
- Identify desire lines within the site that connect the Site Access Points (taking account of topography and preferably utilising the highway network for security). These routes will need to take account of trip attractors within the site ie Primary school and community facilities
- Identify 'off site' route options between the Site Access Points and the main trip attractors.
- 'off site' Route Selection Assessment. Assistance has been provided by consultants WSP (see Appendix B)

North Lancaster

6.2 Main trip attractors:- City Centre (employment and schools), White Lund Employment Area, Caton Road employment area

6.3 Figure 4 sets out proposals for the network within the site and connectivity to the wider network.

Site Access Points

6.4 The site needs to link into the Bay Gateway shared-use route on its northern boundary. To the south the site needs to provide access into the urban area and to the city centre. The Site Access Points will take advantage of proposed vehicular accesses, but there will also be pedestrian/cycle access only ie. the three on the northern boundary providing links onto the Bay Gateway and accesses on to Hammerton Hall Lane.

Site connectivity

6.5 The site can be split into two parts. In the western part there is an opportunity to utilise Hammerton Hall Lane as a segregated route as it is unlikely to provide a useful vehicular route. In the eastern part a north/south link could utilise an area of greenspace and a PROW that links Green Lane and the Bay Gateway. The existing track (Green Lane) is not considered suitable as a route as it is too steep to be attractive.

6.6 The A6 effectively splits the site in two. There is currently no crossing of the A6 to link the two sites. A signalised crossing should be provided to ensure connectivity and allow access to services, for example bus services on the A6.

Route Options

6.7 The Bay Gateway provides an excellent segregated route linking the site to the White Lund employment area and to Morecambe more generally. The main need in terms of 'off site' provision therefore is providing attractive and useable routes to the south and the city centre in particular.

6.8 Route options between the site and the town centre utilise existing cycling infrastructure at Ryelands Park and along the west side of the River Lune. In each case routes to the city centre are via the Millennium Bridge across the River Lune.

6.9 Regardless of which routes are taken forward, there is a need to provide a safe means of access for pedestrians and cyclists to the eastern part of the site ie. a safe route across the Canal. At Halton Road Bridge this could be in the form of a new crossing (subject to meeting the requirements of the Canal and River Trust) or potentially a reduced carriageway width (signalised single carriageway) and a shared pavement. Green Lane Bridge is a single carriageway humped back bridge and will also need infrastructure improvements to allow safe use by pedestrians and cycles. These bridges are listed structures and any works will need to be sensitively designed in order to avoid potential significant impacts on these heritage assets. Closer to the city centre there is a need to provide safe access to the Millenium bridge across Owen Road. There is currently a very narrow tunnel at Skerton Bridge. A surface crossing would provide a safe and attractive route.

East Lancaster

6.10 Main trip attractors:- City centre (employment and schools), Caton Road employment Area, Lancaster University

6.11 Most significantly the site needs to provide links to the city centre. Also of importance are links to the employment areas on Caton Road and a link to the south which connects the site to the eastern side of Lancaster and potentially to the Cycle Superhighway and the University.

6.12 Figure 5 sets out proposals for the network within the site and connectivity to the wider network.

Site Access Points

6.13 The main Site Access Points have been identified on the western boundary making use of the Dolphinlee Bridge canal bridge and Crag Road. There is also a potential access on to Quernmore Road although this is some distance from the main areas of proposed housing. To the south and the

north the proposed vehicular routes can be utilised for segregated routes. Grimshaw Lane to the east provides a leisure route to Halton and the Lune Valley. There may be a need for a safe crossing point at its northern end where it crosses the A683.

Site Connectivity

6.14 Topography is a particular issue. The routes avoid the steepest parts of the site and link areas of housing to the Site Access Points. A route north/south has been identified that links Caton Road to Quernmore Road and helps to provide a route running from Caton Road through east Lancaster towards the University.

Route Options

6.15 Figure 5 identifies the route options between the site and the city centre. The topography between the site and the city centre is a particular issue. Routes 2 and 3 utilise the Lancaster canal. The canal is the most obvious existing infrastructure in the area, although this is principally a leisure route. The nearest segregated route is the River Lune cycle path and is utilised by Route 1. In each case there are gradients to be considered with routes 3 and 4 being particularly steep. Regardless of whether Route 2 or 3 are taken forward there is a need to provide a crossing on Ridge Lane in order to allow safe access on to the Canal.

6.16 Appendix B provides Route Selection Assessment and commentary. This recommends taking forward Routes 1,3,4 and 5 as key routes. The analysis demonstrates the difficulties of this site, with gradient and the lack of potential safe segregated routes being available to the city centre.

Lundsfield Quarry, South Carnforth

6.17 Main trip attractors:- town centre, employment area and schools on Kellet Road.

6.18 Figure 6 sets out proposals for the network within the site and connectivity to the wider network.

Site Access Points

6.19 The access point into the Lundsfield Quarry site will be from Kellet Road, this will include a relatively lengthy 'drive' from the access point itself into the main site due to the shape of the site and its limited frontage onto Kellet Road. Consideration will have to be given over how the access arrangements onto Kellet Road can be achieved in a safe and appropriate manner for cyclists and pedestrians seeking to access Carnforth Town Centre and the schools / employment premises along Kellet Road. There is a potential access to the south of the site into the existing PROW network principally for leisure.

Site Connectivity

6.20 It will be necessary to ensure routes provide connectivity across Lancaster Canal with consideration given to the best opportunities for new crossings to be provided. This will be critical to provide connectivity from the new houses on the site and the service provision found in Carnforth Town Centre.

Route Options

6.21 A new canal bridge is proposed to link the site to the town centre. The details (location, design and height etc.) have yet to be determined but will require close working with the Canal and River Trust. Route 1 will then need to connect the bridge to the town centre and railway station, possibly via New Street. Route options 4 and 5 utilise quiet residential streets to the east in order to connect the site to Kellet Road. Route 2 is an important link to the west. Consideration will need to be given to upgrading connectivity to the canal towpath and to Crag Bank. Any improvements will need to take into account the heritage value of the Grade II listed Thwaite Lane Bridge.

6.22 Appendix B provides Route Selection Assessment and commentary. This recommends taking forward Routes 1,2,4 and 5 as key routes. The analysis indicates that this site is less complex with more obvious solutions to cycling and walking infrastructure. Connectivity to the south to Lancaster also needs to be considered given the significance of Lancaster as a trip attractor. This could be via Route 3 or an extension of Route 2.

Lancaster City Centre

6.23 As the main trip attractor for the Lancaster East, Lancaster North and Lancaster South proposals, consideration needs to be given to the infrastructure within the city and what improvements would be needed to ensure connectivity to the areas of growth and also connectivity within the Canal Quarter itself.

6.24 Figure 7 provides the broad approach to ensure that sites are connected into the city centre network and also takes account of future opportunities coming forward alongside HIF proposals. There will be the need to upgrade elements of the existing infrastructure but this PAN sets out the broad approach at a strategic level.

6.25 The approach supports the principle of the City Centre Loop as a way to circumnavigate the city centre and proposes indicative north/south and east/west routes to provide connectivity within and across the city centre.

Connectivity into the City

6.26 Lancaster North site connects to the city centre at the Millennium Bridge where there is access on to the 'City Centre Loop' and access to the city centre via Chapel Street.

6.27 The Lancaster East site is more problematic. There are potential pedestrian routes from Dolphinlee Bridge along the canal and also along Ridge Lane/Keswick Road. In terms of cycle routes there are presently no attractive routes from the northeast of the city into the town centre. There are two potential connections. The first is via Ridge Lane and the Canal towpath and the second is via Caton Road and Parliament Street.

6.28 At Ridge Lane new infrastructure would allow safe access on to the canal towpath for cyclists and walkers. Given the opportunity the redevelopment of the Canal Quarter site provides, a new pedestrian/cyclist route from the canal in to the town via the Canal Quarter would then provide an attractive and useable pedestrian and cycle route in to the city centre. Any works to improve the towpath as a shared-use path should, however, look at ways to avoid conflict between pedestrians and cyclists, for example, by restricting the speed of cyclists through appropriate design and signage.

6.29 Connectivity to the city centre via Caton Road utilises the River Lune cycle path and includes a subway which passes under the Greyhound Bridge approach Road. This does not provide a safe and attractive route and an alternative should be sought. Consideration should be given to the modification of the existing signalised junction at Parliament Street/Caton Road to allow an above ground crossing.

6.30 Connectivity to the south of the city centre would be ensured as part of the proposals being developed as part of the HIF bid. This includes new Cycle Superhighway to the south of the city and the reconfiguration of the city centre road network. This would allow a safe and attractive route into the city centre at the Penny Street Canal Bridge and a connection to the City Centre Loop.

Connectivity within the city

6.31 One of the main priorities is the upgrading and completion of the City Centre Loop. An audit of the existing loop should be undertaken to establish what measures are required to improve the existing route. Most notably the missing sections, (Aldcliffe, Station Road and Canal Quarter) should be completed.

6.32 The proposals being prepared as part of the Lancaster South Area Action Plan provide an opportunity to significantly improve the cycling and walking infrastructure within the city centre. The potential reconfiguration of the existing road system in effect frees up space for cycling and walking as well as for allowing improved public transport provision. It is an opportunity therefore to identify key desire lines through the town centre particularly in terms of cycling. Figure 7 provides two arterial routes. The north/south routes is a continuation of the Cycle Superhighway while the east/west route would ensure good connectivity to the train station and the Canal Quarter site. These two additional routes are indicative as the details of the HIF proposal are unknown at this stage. They therefore establish the principle of segregated routes through the city centre if the opportunity arose.

6.33 There may be a need for routes to share space with bus routes and pedestrians but as strategic 'utility' routes these should avoid the main highway and main pedestrianised areas.

7.0 PRIORITISING 'OFF SITE' IMPROVEMENT

7.1 The LCWIP methodology promotes the use of a Route Selection Tool in order to prioritise routes where there are options. The basis of the tool is to judge routes on five criteria:-

- Directness
- Gradient
- Safety
- Connectivity
- Comfort

North Lancaster

7.2 As part of the WSP review Routes 2, 3 and 4 were identified as the key routes to be taken forward. Route 3 is clearly the most direct route, however, this is a heavily trafficked road and there is a need for a segregated route. Routes 2 and 4 both serve the site and utilise less heavily trafficked routes. In isolation neither route would practically serve the whole site but together they provide an alternative to Route 3. On street parking is an issue on Routes 2 and 4 but to a lesser extent than on Route 3.

East Lancaster

7.3 This is the most challenging site in terms of providing attractive and useable links to the main trip attractor ie the city centre. A significant hill runs north/south between the site and the city and the site itself is also made up of a drumlin landscape.

7.4 There are two potential access points (Dolphinlee Bridge and Ridge Lane/Crag Road) and corresponding routes via Caton Road or through the Ridge Estate (see Figure 5: Routes 1,2,3). Given the scale of the site both these routes should be considered to be priorities. A route via Quernmore Road is considered to be too steep and indirect to be attractive and useable.

7.5 In order to achieve a route from Caton Road to the city centre the existing shared path along Caton Road should be extended along Kingsway and Parliament Street. A new crossing will need to be provided at the Greyhound Bridge approach road. The alternative route via the underpass on Greyhound Bridge is unattractive and has significant security and safety issues.

7.6 A route from Ridge Lane potentially connects onto the canal and into the city centre via Ridge Lane Canal Bridge. Improvements should be sought to improve accessibility for cyclists at this point. The canal provides a direct access into the city centre. This would need to be via the Canal Quarter area as connectivity between the canal towpath and the city centre at Moor Lane bridge and Nelson Street is poor.

7.7 Route 5, via Quernmore Road, does not provide a link to the city centre but does provide an important link south towards the University. This will require a crossing on Quernmore Road and will need to link into other routes and development proposals taking place in and around Grab Lane.

Lundsfield Quarry

7.8 This site is more straightforward to consider with limited options given the extent of the urban area and the proximity of the site to the main trip attractors. The WSP review recommended that Routes 1,2,4 and 5 are taken forward as priorities. Route 3 would be relatively easy to provide as it links into the existing bridleway network and would need little new infrastructure.

7.9 Routes 1,2, are critical in terms of providing links to the north and west of the site where there is currently no connectivity and separated from the town by the Canal. Each of these routes will require new infrastructure. Routes 4 and 5 utilise existing suburban streets and will be relatively straightforward to implement. Although beyond the 5km buffer connectivity to the south linking Carnforth to Lancaster should be considered. This could be either via Route 3 or Route 2.

Lancaster City Centre

7.10 There is currently a significant level of cycling and walking infrastructure within the city centre with pedestrianised streets, signalised crossings, cycle lanes, canal towpath and cycle parking. There is a need to upgrade and extend much of this infrastructure. A detailed audit should be undertaken to identify where further work is required. However, this paper is focusing on those elements most relevant to the strategic sites identified within the Local Plan. Figure 7 represents the overall approach. This focusses on completion of the City Centre Loop and the provision of through routes that could be brought about by the HIF proposal and the City Centre Movement Strategy.

8.0 IMPLEMENTATION

Delivery

8.1 Proposals set out in this paper can be considered in two parts. On site connectivity should be delivered as part of proposals coming forward on each site and will be integral to the overall layout and design. They should make provision for adequate access points on the site boundary and ensure connectivity between the main site accesses and to trip attractors within the site ie schools, shops etc.

8.2 Off site improvements will be through the use of developer contributions or Section 278 highways works.. The Council is also investigating the use of Community Infrastructure Levy (CIL). Off-site proposals such as the provision of cycling hubs and general improvements to the wider network could potentially be secured through CIL.

8.3 In the first instance each of the 3 Strategic Sites and the Canal Quarter will be taken forward through the use of Masterplans. These will be informed by this PAN and provide an overall approach to how the sites will address a variety of infrastructure requirements. They will be important in terms of influencing the development of the sites.

8.4 The PAN will also be used by developers, the Highways Authority, and local user groups to inform development proposals as they are brought forward through the planning application process.

8.5 In most instances footways and cycle paths will form part of the adopted highway and maintenance will be the responsibility of the Highways Authority. In other cases maintenance may be required through the use of Section 106 agreements.

Design Guidance

8.6 The routes identified should be, as a minimum, up to the standards required by the highways authority. As a general principle within new developments, provision should be 'off road' and segregated in accordance with LTN 1/20 . In certain cases shared ped/cycle routes will be acceptable. Ideally these would be alongside the vehicular highway for security reasons. Elsewhere routes should be lit.

8.7 The type and design of off-site routes is less prescriptive but will need to adhere to relevant standards and guidance. Routes are likely to vary in type and be a mix of on road cycle lanes, off road shared pedestrian/cycle routes where space allows, and traffic calming measures to create safer cycling and walking environments.

8.8 The design guidance below is currently used by the Highways Authority and should be referred to when designing and implementing cycling and walking infrastructure as part of development proposals.

- **Local Transport Note 1/20 – Cycle Infrastructure Design (DfT)**
  http://www.gov.uk/government/publications/cycle-infrastructure-design-ltn-120

- Transport for London Streets Toolkit - London Cycling Design Standards (2014)
  https://tfl.gov.uk/corporate/publications-and-reports/streets-toolkit#on-this-page-2

- Highways England Interim Advice Note 195/16 – Cycle Traffic and the Strategic Road Network (2016) www.standardsforhighways.co.uk/ha/standards/ians/pdfs/ian195.pdf

8.9 This may change over time for example Transport for Greater Manchester intend to publish their own guidance, which would be relevant to use in Lancaster.

8.10 Any works to improve the canal towpath as a shared-use path will need to take into account the views of the Canal and River Trust. Proposals will need to consider ways to avoid conflict between pedestrians and cyclists, for example, by restricting the speed of cyclists through appropriate design and signage.

8.11 Cycling networks offer opportunities for incorporation of sustainable drainage features. Swales and bioretention basins, for example, provide shallow linear features in the landscape that are space efficient and adaptable to location and integrate well alongside highways, cycleways or pathways. In designing appropriate sustainable drainage systems, developers should consult CIRIA C753 The SuDS Manual 2015. In all cases, consideration should be given to the impact of construction and the choice of materials for footpaths and cycleways on surface water drainage. Permeable surfaces

should be utilised wherever possible, and care should be taken to ensure that the footpaths and cycleways do not result in surface water run-off to adjacent areas.

Local Cycling and Walking Infrastructure Plan

8.12 The district wide Lancaster LCWIP is being prepared by the County Council and will encompass the proposals set out in this Planning Advisory Note. It will also incorporate proposals within the South Lancaster Area Action Plan Area (Cycle Superhighway) and the Morecambe and Heysham project area. The LCWIP will provide a district wide approach to network improvements, the delivery of which will be through a variety of sources. In terms of the proposals contained within this document, delivery is expected as part of development proposals, and through S278 highways works and S106 contributions.

Appendix A

Figures

Figure 1: Existing Strategic Cycling/Walking Network and Strategic DPD Allocations

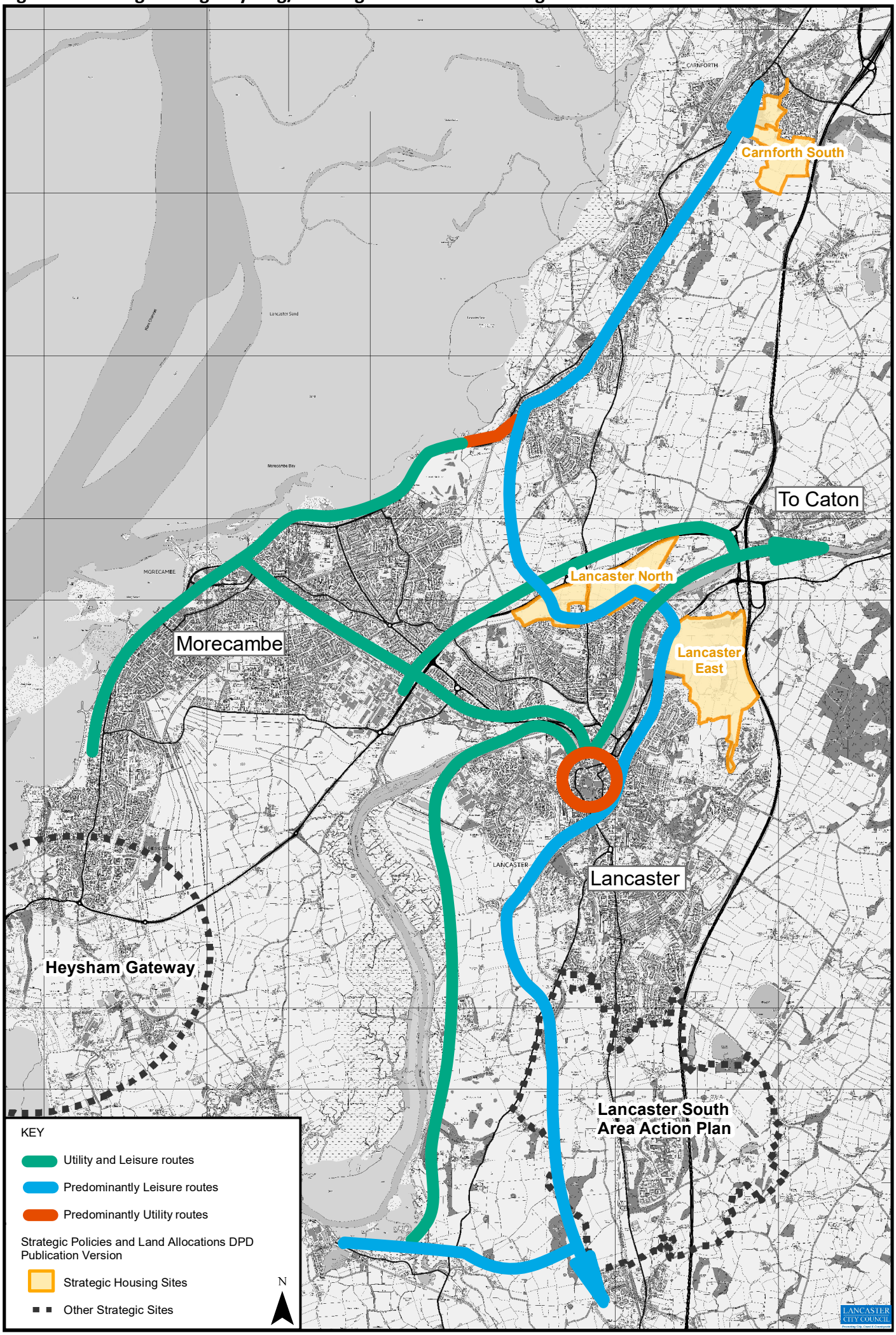


Figure 2: Lancaster trip attractors, cycling and walking distances

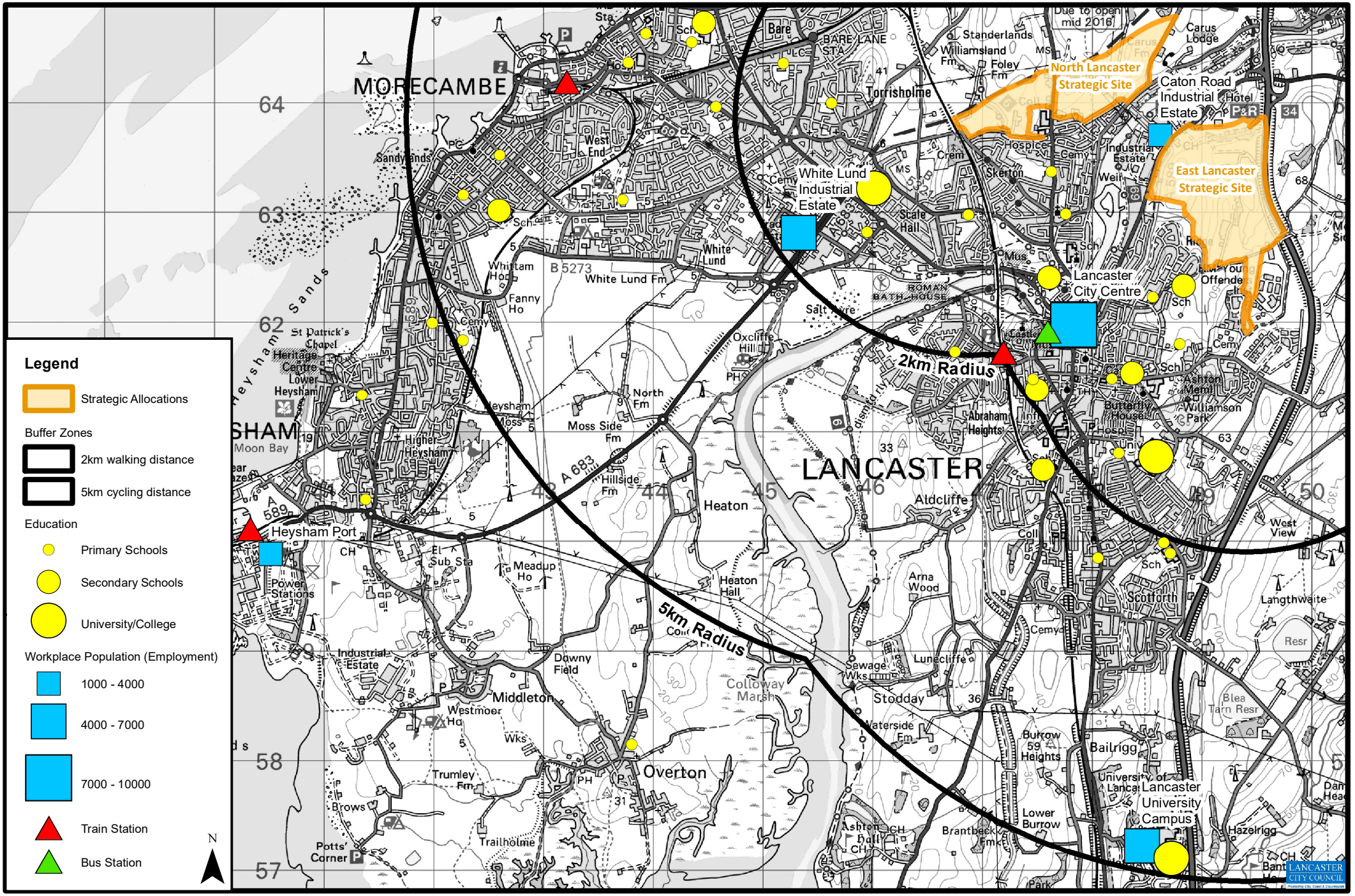


Figure 3: Carnforth trip attractors, cycling and walking distances

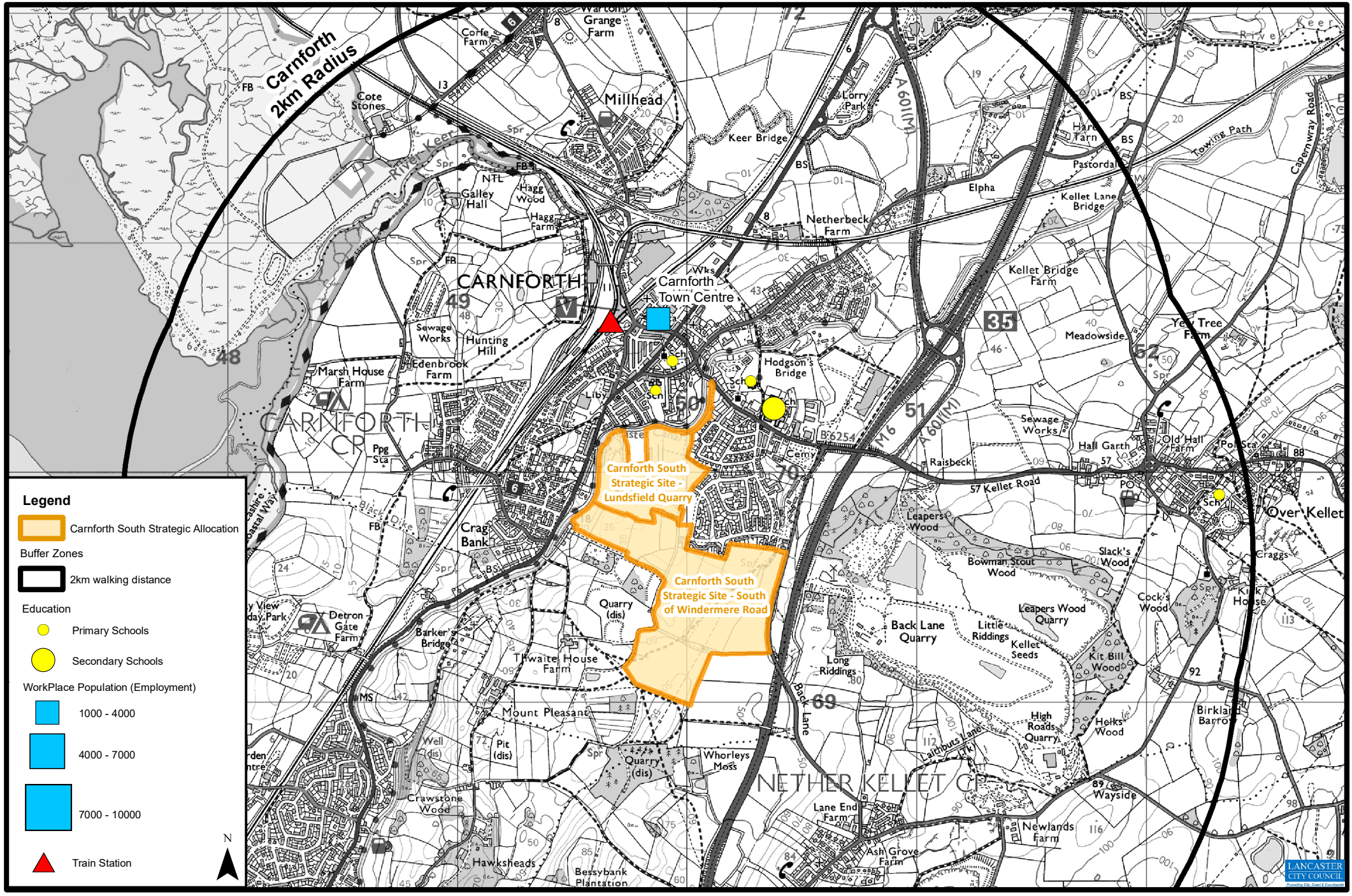


Figure 4: Lancaster North Site Connectivity

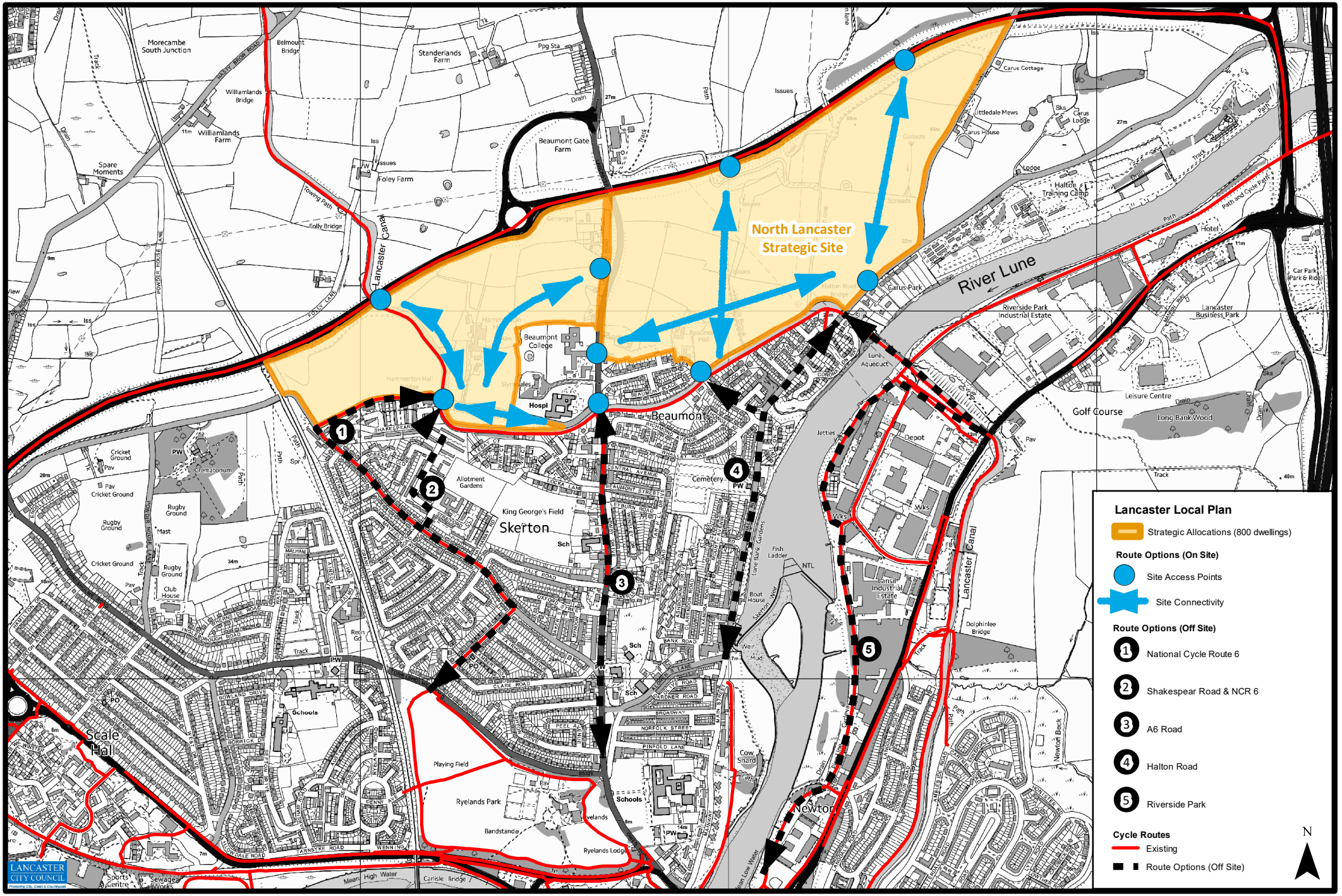


Figure 5: Lancaster East Site Connectivity

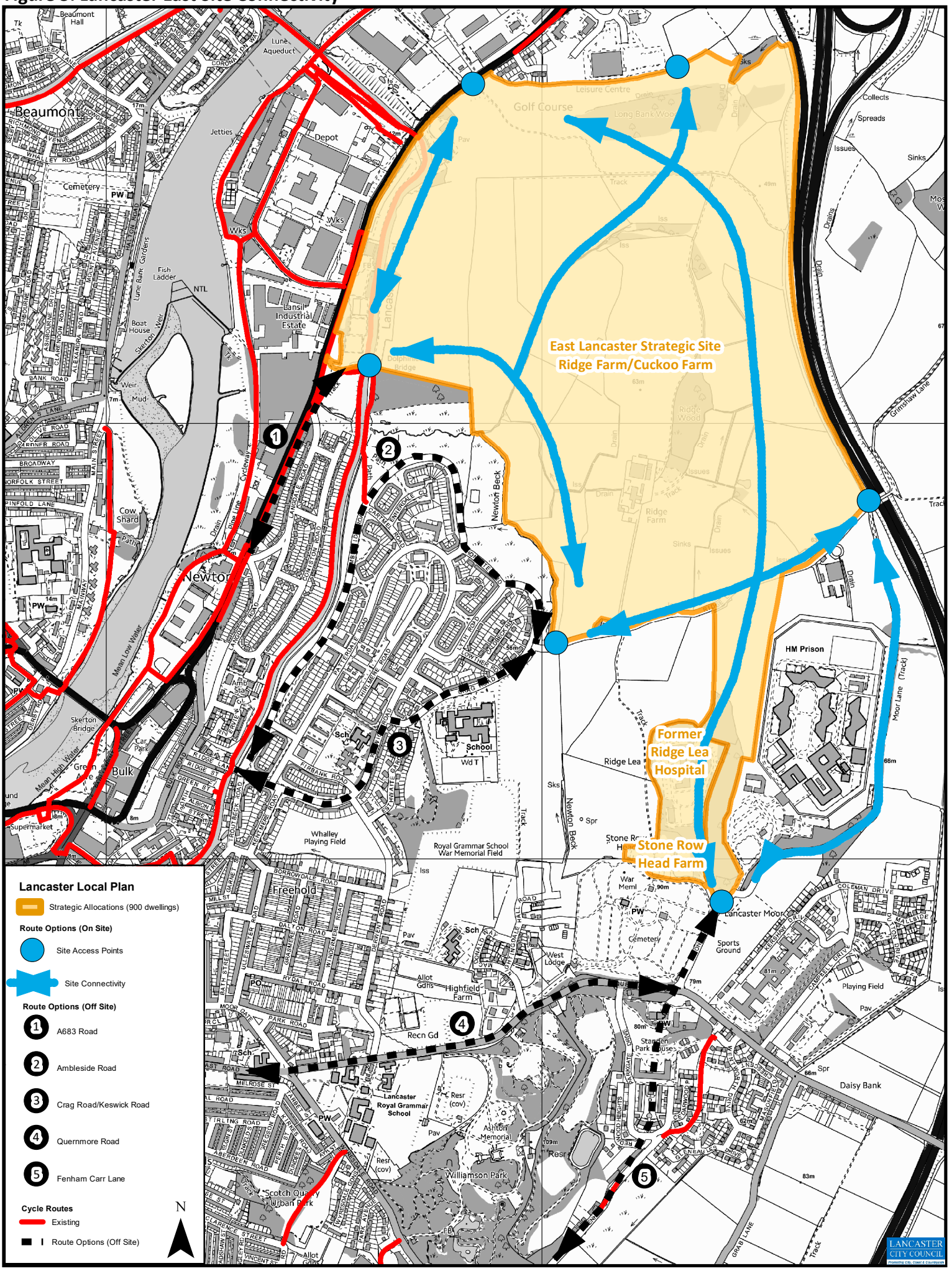


Figure 6: Carnforth South Site Connectivity

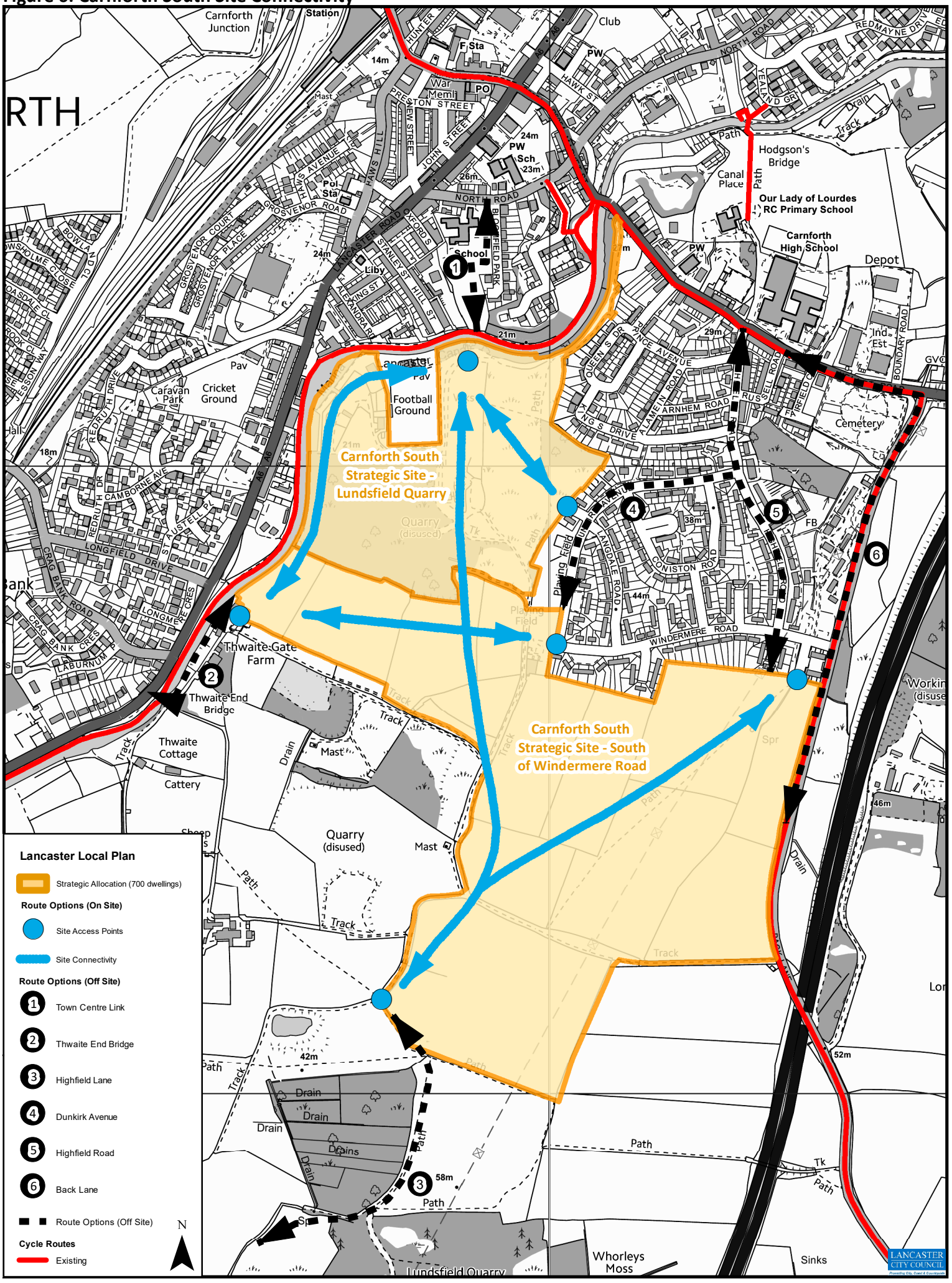
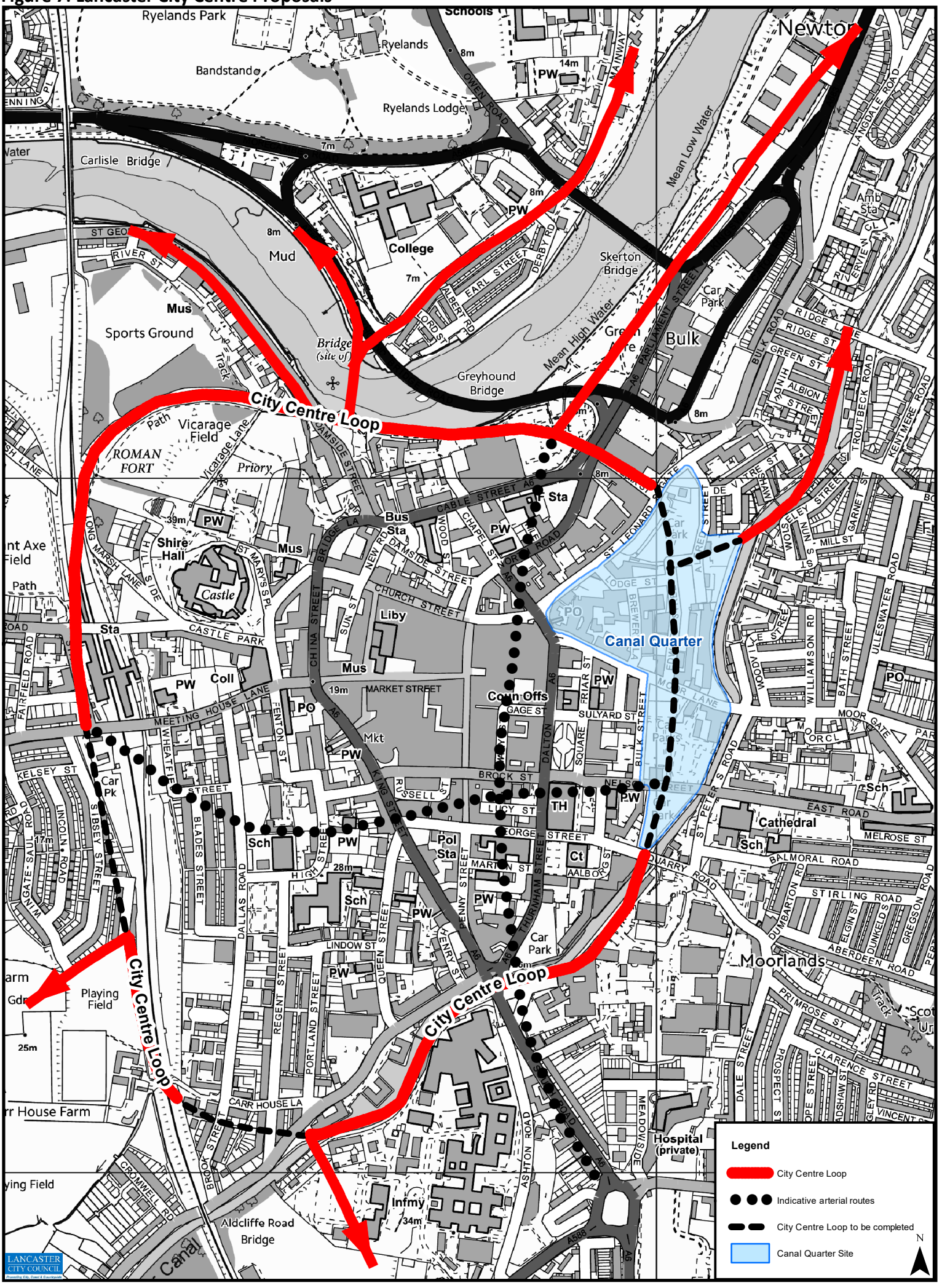


Figure 7: Lancaster City Centre Proposals



Appendix B – WSP Commentary

LANCASTER LOCAL PLAN SITES – WSP REVIEW

Introduction

Lancaster Council requested that WSP identify and validate cycle routes to 3 large residential Strategic Allocation Local Plan sites, named 'North Lancaster, 'East Lancaster' and 'Carnforth', using Local Cycling and Walking Infrastructure Plan (LCWIP) methodology. The sites have an estimated 800 dwellings, 900 dwellings and 700 dwellings allocated respectively, producing significant travel demand. This Note assesses the potential cycle routes at each of the sites in terms of cycle infrastructure potential and serving of travel demand and trip desire lines.

To consider the suitability of the routes, commentary has been provided and the Route Selection Tool (RST) has been utilised. The RST has been developed by the DfT to help identify the most suitable route where there is more than one potential route between origin and destination points. It uses a range of criteria to assess how a route meets the core design outcomes for cycling ranging from 5, being the highest, to 0 being the lowest. The criteria are as follows:

- Directness
- Gradient
- Safety
- Connectivity
- Comfort

The RST provides a spider diagram output that is shown for each route within this Note, scoring from 0 to 5 against the five criteria set out above.

The RST, although a useful tool should be used as a guidance tool rather than providing the definitive answer, as there are additional factors that will need to be considered. Also, the RST was not specifically developed to assess cycle routes in relation to specific sites, but it has been used as a guiding tool in this case to help assess the potential cycle routes.

The Propensity to Cycle (PCT) has not been used given that the sites that the cycle routes serve do not yet have associated travel patterns that were recorded in the 2011 Census, on which the PCT relies upon.

The review has been undertaken through desktop analysis only using freely available internet mapping tools. No site visits were undertaken as part of the review.

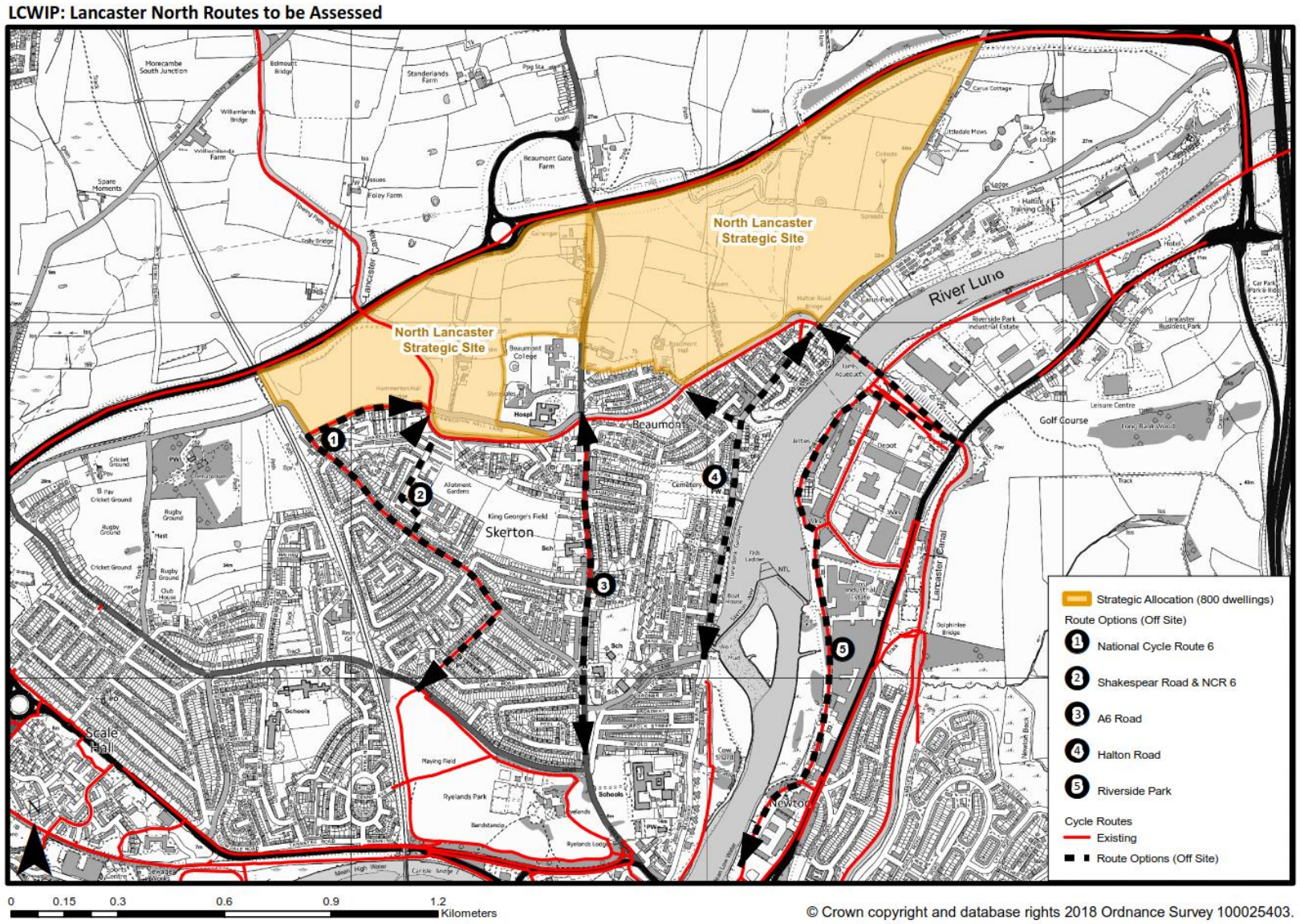
Assumptions

- High level assumptions have been made about the type of infrastructure that could be implemented on the routes. This was based on desktop analysis using freely available internet mapping tools. No detailed measurements of highway widths were undertaken.
- Where on-road segregation has been proposed, a cycle track width of 1.5m has been assumed. This caters sufficiently for flows of less than 200 cycles at the peak hour (London Cycle Design Standards).
- Individual Route assumptions are stated with each Route below.

Lancaster North

The North Lancaster Strategic Allocation site of 800 dwellings, and the associated potential cycle routes can be seen in Figure 1. Each of the proposed routes provides a link from the site towards Lancaster city centre.

Figure 1: North Lancaster Site and Potential Cycle Routes



ROUTE 1

Route 1 provides a link between the west access of the Lancaster North site and Lancaster City Centre, which includes multiple important destinations, including employment. The route follows Hammerton Hall Lane, a narrow road and Barley Cop Lane and Noel Road, which are residential streets and is currently National Cycle Route 6, which is signed. The route leads to an off-road route to the city centre via the Lune Millennium Bridge.

The RST has been applied to the section of the route that differs from Route 2, in order to provide a comparison. The RST scoring is very good, as shown in Figure 2, but loses score on comfort due to the lack of available width for the potential segregated cycle track along Barley Cop Lane, and safety due to some mixing with motor traffic.

Figure 2: Lancaster North Route 1 RST Output

- If possible Hammerton Hall Lane should be provided as a pedestrian and cycle only route, to avoid conflict with motor vehicles on this narrow road.
- Barley Cop Lane provides a direct link to Lancaster centre for many residential properties in the area and is likely to include moderate traffic levels as a result. This road may require light/hybrid segregation to achieve separation of cycles and motor vehicles.
  - This would require removal of on-street parking
- Noel Road is unlikely to require significant cycle infrastructure treatment to serve cycles due to its likely low traffic volume.

ROUTE 1 ASSUMPTIONS

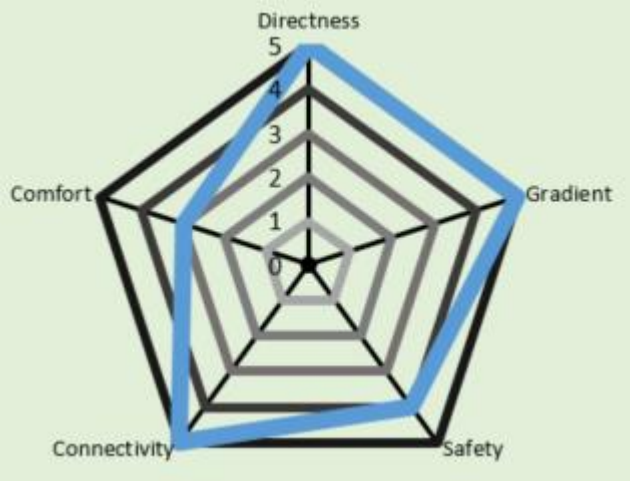
- Light/hybrid segregation would be provided on Barley Cop Lane
- The traffic volume along the route has been assumed as being less than 2,500 (Annual Average Daily Traffic).

ROUTE 2

Route 2 provides for the same desire line as Route 1 – a route between the site and the city centre. Instead of following Hammerton Hall Lane, the route follows wider existing residential streets, which would be suitable for cycling largely in their current form, due to the likely low traffic volumes.

The RST has been applied to the section of the route that differs from Route 1, in order to provide a comparison. The RST scoring is very good, as shown in Figure 3, but loses score on comfort due to the lack of available width for the potential segregated cycle track along Barley Cop Lane, and safety due to some mixing with motor traffic, as well as gradient as it includes a short higher gradient section than route 1.

Figure 3: Lancaster North Route 2 RST Output



- As Route 1 but offers a more direct route and therefore likely to be favourable
- At present there is an informal route through an open gate on the Council housing scheme, which would require formalisation.
- The route would require signage
- Barley Cop Lane provides a direct link to Lancaster centre for many residential properties in the area and is likely to include moderate traffic levels as a result. This road may require light/hybrid segregation to achieve separation of cycles and motor vehicles.
  - This would require removal of on-street parking
- Junction treatment required at Barley Cop Lane / Shakespeare Road to ensure safe turning movements to access the route on Shakespeare Road, can be made.

ROUTE 2 ASSUMPTIONS

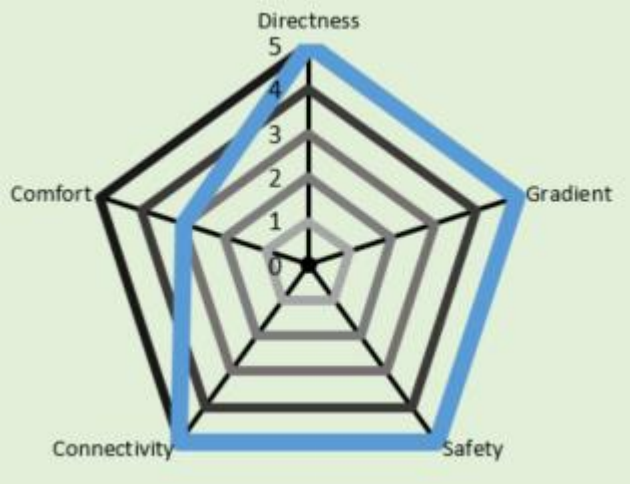
- Light/hybrid segregation would be provided on Barley Cop Lane
- The traffic volume along the route has been assumed as being less than 2,500 (Annual Average Daily Traffic)
- Requires a link between Hammerton Hall Lane and Shakespeare Road

ROUTE 3

Route 3 provides a link from the south centre of the site towards Lancaster city centre, via the A6 Slythe Road. This route currently includes some cycle lane provision, but due to the heavy traffic volumes, is unlikely to generate significant levels of cycling. The route is largely direct between the site and the city centre so the potential for cycling is high if the infrastructure was provided to a high-quality standard.

The RST scoring is very good, as shown in Figure 4, losing score only on comfort due to the lack of available width for the potential segregated cycle track along the A6 Slythe Road.

Figure 4: Lancaster North Route 3 RST Output



- For the route to be enabled for cycling, on-road segregation is required
- In order to be effective, the cycle route requires extension to the city centre, to provide a complete route, which would require an intervention across Skerton Bridge, a currently high trafficked route. A gap in cycle infrastructure will prevent cycling along the route and would be therefore undesirable to proceed with.
  - Alternatively, clear signage and junction treatment at Lune Street / Owen Road could provide an adequate route to the city centre via Millennium Bridge.

ROUTE 3 ASSUMPTIONS

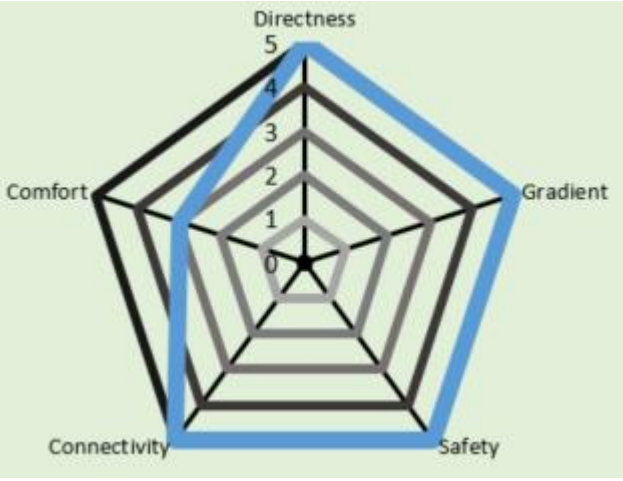
- Cycle track segregation would be provided on the A6 Slythe Road
- The traffic volume along the route is greater than 5,000 (Annual Average Daily Traffic).

ROUTE 4

Route 4 provides a link between the east access of the site towards the city centre, along Halton Road. Halton Road provides a link between the Skerton residential area and Lancaster city centre, and will therefore have moderate traffic levels. It leads to an off-road cycle track that has reasonable surveillance. Beyond this crossing of Skerton Bridge would be required, or a longer route to the city centre.

The RST scoring is very good, as shown in Figure 5, losing score on comfort due to the lack of available width for the potential segregated cycle track along Halton Lane.

Figure 5: Lancaster North Route 4 RST Output



- Light/hybrid segregation may be required on Halton Lane, to provide a safe, attractive route for cycling
- In order to be effective, the cycle route requires extension to the city centre, to provide a complete route, which would require an intervention across Skerton Bridge, a currently high trafficked route. A gap in cycle infrastructure will prevent cycling along the route and would be therefore undesirable to proceed with.
  - Alternatively, clear signage and junction treatment at Lune Street / Owen Road could provide an adequate route to the city centre via Millennium Bridge.

ROUTE 4 ASSUMPTIONS

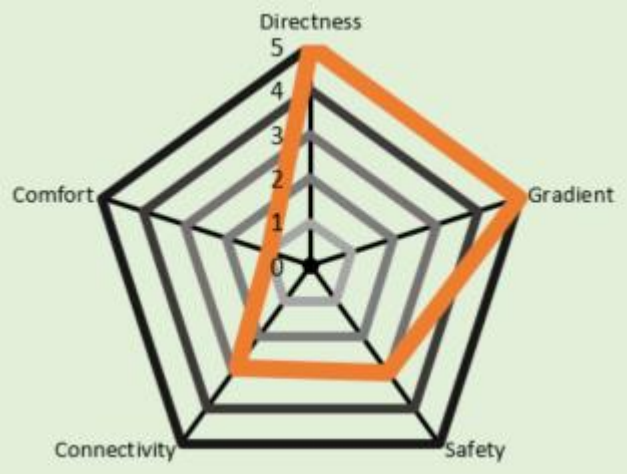
- Light/hybrid segregation would be provided on Halton Lane

ROUTE 5

Route 5 provides a link between the east access of the site towards the city centre, following an existing off-road cycle track route to the east of the River Lune, named Way of the Roses. The existing route provides good quality infrastructure for cycling, given it is an off-road route. It also includes a cycle and pedestrian only bridge across the River Lune via an aqueduct.

The RST does not provide high scoring, due to lack of width on the off-road cycle track for comfort, potential lack of lighting and natural surveillance for safety and lack of connections along the route for connectivity.

Figure 6: Lancaster North Route 5 RST Output



- Involves section whereby the route goes back on itself, adding significantly to the route length
- Route may require additional lighting and CCTV to counteract lack of natural surveillance

ROUTE 5 ASSUMPTIONS

- The cycle track is of a width between 2m and 2.5m
- The cycle track is unlit and does not benefit from passive surveillance

SUMMARY

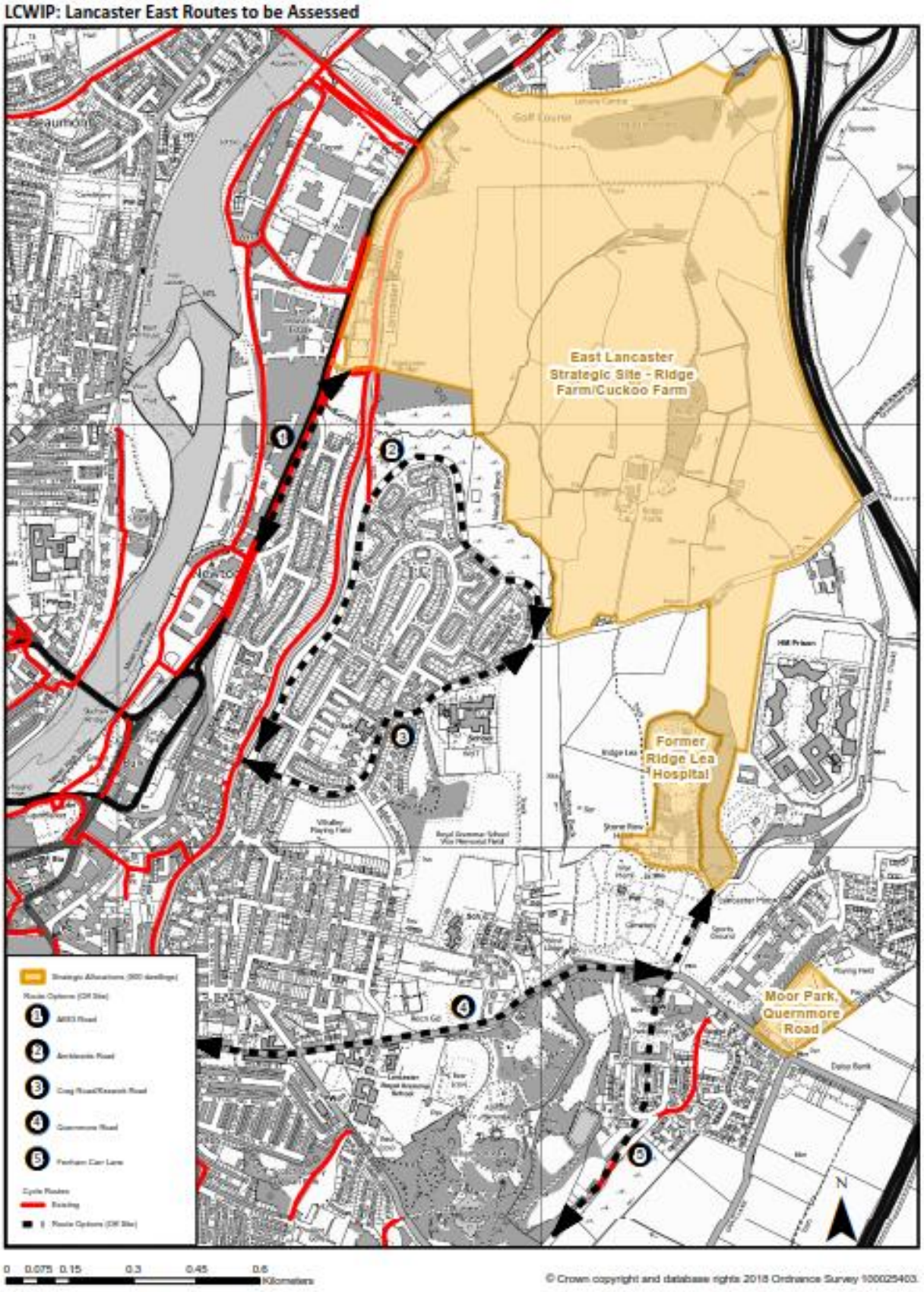
- This Note recommends that Routes 2, 3 and 4 are taken forward as key cycle routes for the North Lancaster Strategic Site.
- Route 2 is preferred to Route 1 due to its shorter length, therefore providing a more direct route.
- Route 3 is preferred to Route 4 due to its connection with Millennium Bridge that avoids the off-road route included in Route 4, as this has poor natural surveillance. Route 3, however, is likely to attract higher costs due to the length of segregation required and redesign of the junction with Morecambe Road to ensure the cycle movements can be adequately catered for.
- Route 5 scores low in the RST due to its lack of available two-way width, lighting and natural surveillance. While providing an existing route option, it is not considered that this route would provide an adequate connection to

facilitate growth in cycle trips and for all year-round usage. As such, it would provide a supporting secondary route to a primary route developed on the other alignments.

Lancaster East

The East Lancaster Strategic Allocation site of 900 dwellings, and the associated potential 5 cycle routes can be seen in Figure 7. Routes 1 to 4 provide links from the site in the direction of Lancaster city centre. Route 5 provides a link from the site to South Lancaster. The RST has been applied to Routes 2, 3 and 4 in order to compare the routes, given that they all link the southern end of the site with Lancaster city centre.

Figure 7: East Lancaster Site and Potential Cycle Routes



ROUTE 1

Route 1 provides a link between the west access of the Lancaster East site in the direction of Lancaster city centre. The route follows Caton Road, which is a key link between Lancaster city centre and the M6 to the north. Caton Road also includes industrial estates to the north of the potential cycle route. The route currently includes a shared cycle and pedestrian footway, however the narrow width and conflict with pedestrians provides a less than ideal facility. In addition, cycle-users do not have priority at side roads, presenting delay and safety concerns.

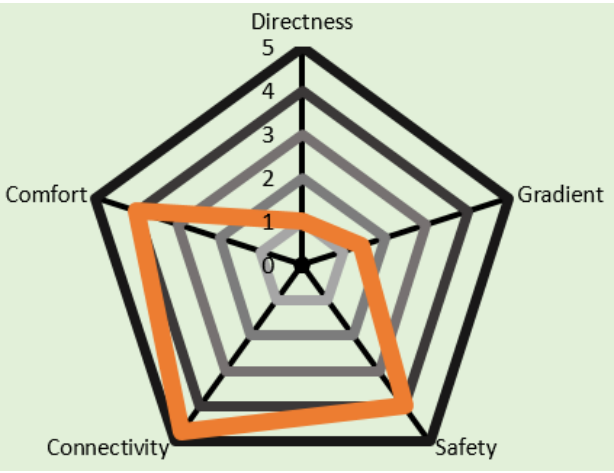
- Route 1 provides an important link from the west site access towards Lancaster city centre, and also to Scale Hall and Skerton
- Caton Road is a busy route with an Annual Average Daily Flow (AADF) in excess of 20,000 motor vehicles.
- On-road segregated cycle tracks on each side of the road would be recommended along this route, to gain priority over side roads and to provide the desired width for a cycle traffic without conflict with pedestrians
- A signalised cycle crossing would be required to enable cycle access to the site
- The cycle route should continue to Lancaster city centre to ensure a complete high-quality cycle link is provided from the site to the city centre

ROUTE 2

Route 2 provides a link between the south west access of the Lancaster East site and Lancaster city centre. The potential route follows Crag Road, Honister Road and Ambleside Road. The route is indirect, when compared to Route 3, which serves the same desire line, however Route 2 avoids steeper gradients and a school which generates a significant amount of traffic along the route, creating unsuitable cycling conditions.

The RST has been applied to this route, enabling comparison between Routes 2, 3 and 4, which cater for similar desire lines, and to which the RST has also been applied. The RST score shows some inadequacies in the core cycling design outcomes of directness and gradient. The RST output for Route 1 can be seen in Figure 8. It loses score on directness and the shortest motor vehicle route is shorter than the proposed cycle route – this is how the score is determined, and given the route is longer than the most direct that motor vehicles would take (as Route 3), the score is low. It also scores low on gradient, due to a significant slope being present on Honister Road.

Figure 8: Lancaster East Route 2 RST Output



- The route is likely to include low levels of traffic and is therefore unlikely to require significant cycle infrastructure treatment.
- The route should be modified with Cycle Streets measures, including cycle markings on the roads and other measures that provide cycle-users with an advantage on the road. If possible, a cycle track could be added along the outside of the route, which is currently open space.
- Patterdale Road and Lingmoor Road may be a more suitable route, as it is more direct.

ROUTE 2 ASSUMPTIONS

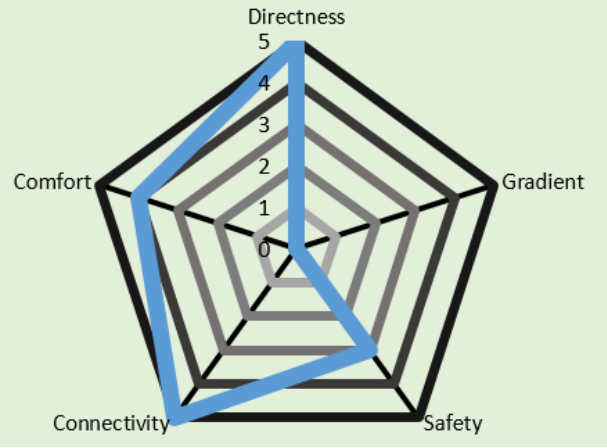
- Cycle Streets measures would be provided on Crag Road, Honister Road and Ambleside Road
- The link between Amblesdie Road and Keswick Road would be formalised for cycling and a suitable cycle crossing provided onto Keswick Road
- The traffic volume along the route has been assumed as being less than 2,500 (AADF).

ROUTE 3

Route 3 provides for the same desire line as Route 2 – a link between the site and the city centre. Route 3 is the more direct route, along Crag Road and Keswick Road, past Central Lancaster High School. As described under Route 2, this is the most direct route, however it involves a significant gradient and the school generates significant traffic levels along the route.

The RST score shows the score is reasonable or good in four out of the five core design outcomes. The gradient score is zero due to a severe gradient along Keswick Road. Safety score just 3 due to cycle users mixing with busy traffic.

Figure 9: Lancaster East Route 3 RST Output



- The route is likely to include moderate traffic levels, presenting uncomfortable cycling conditions
- There may not be the width available for a segregated cycle track. At the minimum, Cycle Streets measures should be introduced, including cycle road markings and traffic calming measures.

ROUTE 3 ASSUMPTIONS

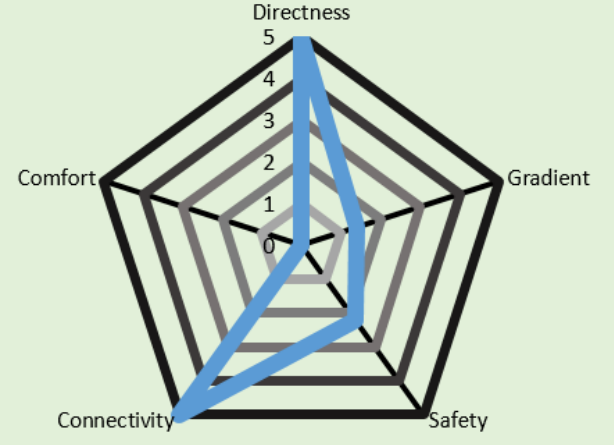
- The traffic volume along the route has been assumed as being between 2,500 and 5,000 (AADF)
- The cycle infrastructure would be Cycle Streets measures rather than a segregated cycle track

ROUTE 4

Route 4 provides for a similar desire line to Routes 2 and 3, between the site and the city centre, however Route 4 runs along an east-west route to the south of the site. This provides a direct link along Quernmore Road and East Road, so is likely to be in demand from potential cycle users. The traffic levels along Quernmore Road are likely to be reasonable, given it is one of few routes available between Lancaster city centre and the east, which includes residential area and the Lancaster East site. There is little existing cycle infrastructure serving this route, and therefore a gap in the cycle network exists here.

The RST output seen in Figure 10 shows that Route 4 scores well in two core design outcomes but poor in three. Gradient and safety score poorly, due to a moderate slope and mixing with busy traffic. Comfort also scores poorly due to mixing with busy traffic.

Figure 10: Lancaster East Route 4 RST Output



- In the absence of available width for segregation, Cycle Streets measures would be required along Quernmore Road and East Road. This could include removal of the centre line, cycle road markings, and traffic calming including junction treatments.
- The existing shared cycle and pedestrian footpath is likely to be of an insufficient width to cater satisfactorily for future cycle and pedestrian flows to and from the site.

ROUTE 4 ASSUMPTIONS

- The traffic volume along the route has been assumed as being between 2,500 and 5,000 (AADF)
- The width is insufficient for inclusion of a segregated cycle track on both sides of the road

ROUTE 5

Route 5 provides a link between the south access of the Lancaster East site and the south of Lancaster, which includes residential areas and education sites. This route would be largely quiet, passing through residential streets but would require a north-south cycle crossing on Quernmore Road, which is likely to include moderate traffic levels.

- Route 5 provides an important link to the south of Lancaster, including residential and education areas and sites
- Cycle Streets measures would be sufficient to effectively cater for cycle users along the route
- A signalised cycle crossing would be required on Quernmore Road to provide a safe crossing facility to address the severance barrier

SUMMARY

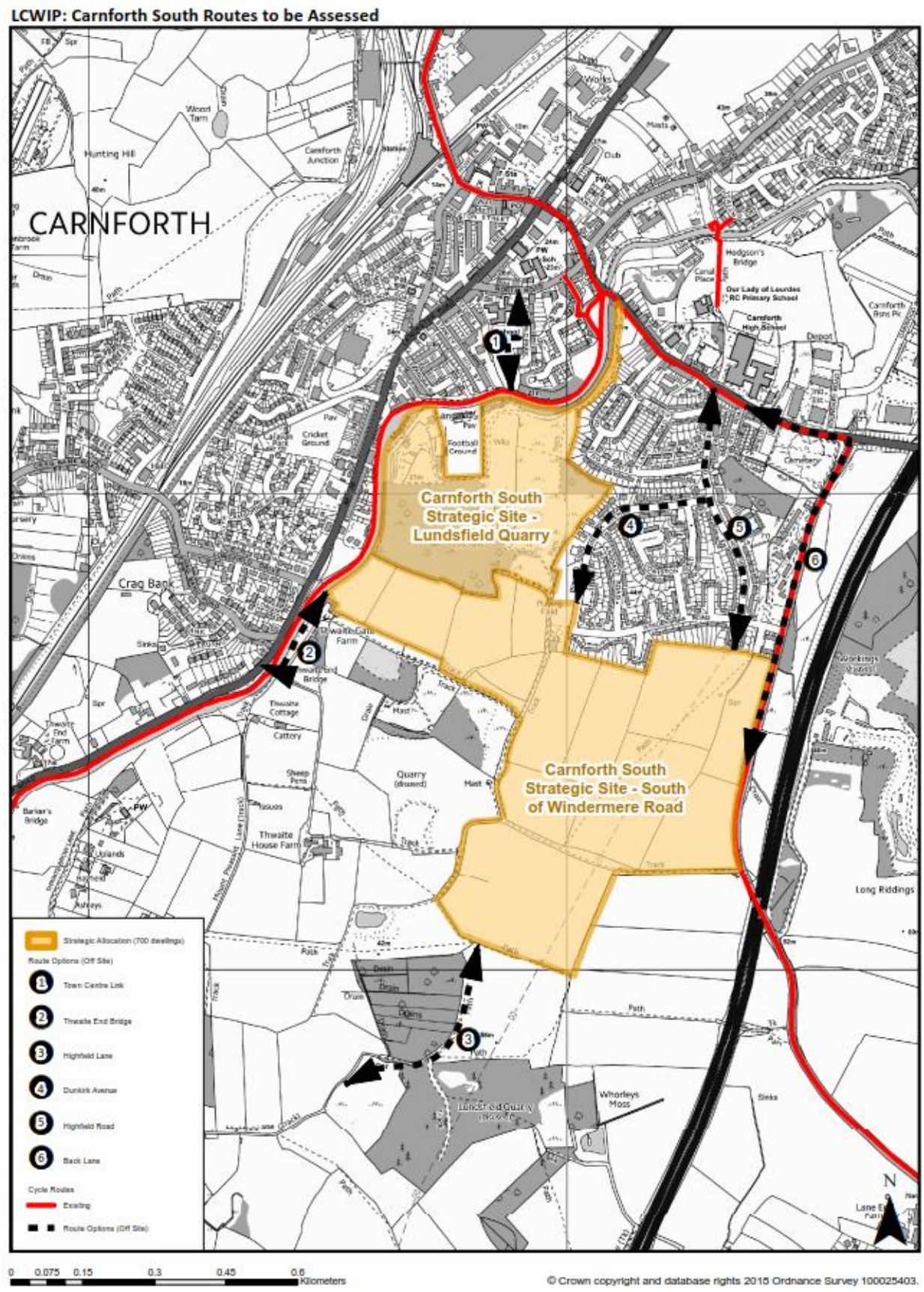
- This Note recommends that Routes 1, 3, 4 and 5 are taken forward as key cycle routes for the East Lancaster Strategic Site
- Route 2 is available as an alternative to Route 3, if the traffic levels and gradient are deemed too significant a barrier. Route 2 could instead use Patterdale Road as a shortened route.
- Route 1, 3 and 4 provide important links from the west and south site accesses towards Lancaster city centre and other significant trip destination sites
- Routes 5 provides an important link between the south site access and the south of Lancaster, which includes significant residential areas and education sites

Carnforth South

For the Carnforth South site, the Route Selection Tool was not utilised due to the short lengths of the proposed routes and the view that apart from Routes 4 and 5, each of the proposed routes serves a unique purpose. As such, a commentary is provided along with a summary of recommendations.

The Carnforth South site and potential cycle routes can be seen in Figure 11.

Figure 11: Carnforth South Site and Potential Cycle Routes



ROUTE 1

Route 1 provides a strategically important cycle link from the north side of the site to the town centre, which is situated to the north. Carnforth town centre includes a high density of key destinations and given its close proximity to the site (1.5km at its maximum) offers a journey that can be achieved by bicycle.

The route identified includes a bridge link over the Lancaster canal and runs across school grounds. This may be restrictive if the route is not available at all times. If the route is available at all times, appropriate security measures would be required due to lack of natural surveillance, including lighting and CCTV. A preferred route might be via Bloomfield Park if achievable as this provides an acceptable level of natural surveillance. The route provides an advantage over road vehicles that would be required to travel slightly further to the access to the northeast in order to reach the town centre.

ROUTE 2

Route 2 provides an important link at the west of the site, which is otherwise severed by the Lancaster Canal. An improved connection in this location would not only benefit sustainable accessibility to/from the proposed development it would also enable a more direct connection from west Carnforth to east Carnforth, which includes the High School on Kellet Road.

ROUTE 3

From a utility perspective, Route 3 would have a low priority as it would predominantly serve leisure trips. It would, however, provide an opportunity for an additional link that would be relatively unconstrained in terms of implementation.

ROUTE 4

Route 4 would provide a lightly trafficked on-highway route along Dunkirk Avenue and Highfield Road that would link the proposed site with Kellet Road and the education and employment destinations located off that link. Onward connections to the town centre would need to be considered as this route may be used instead of Route 1 for residents in the south east corner of the proposed site.

Route 4 would provide a quieter route than Route 5 due to the Dunkirk Avenue section being assumed to have less vehicle traffic than Highfield Road.

ROUTE 5

Route 5 meets a similar desire line to Route 4 in terms of connecting the proposed with the amenities on Kellet Road and onto the town centre. Route 5 is more direct than Route 4 as it travels entirely along Highfield Road, however, it is assumed that it carries more vehicle traffic than the Dunkirk Avenue section of Route 4.

Parked vehicles are present along Highfield Road which can have a positive impact in terms of reducing vehicle speeds but can also provide a hazard to cycle movements. Due to the residential nature of the area, it is assumed that this parking provision would need to be retained. This constrains opportunities for segregated provision and as such, measures to reduce vehicle speeds to below 20mph would be required to increase safety and comfort levels for cycle users. A cycle streets approach to providing provision for cycling is assumed to be an appropriate intervention, assuming that vehicle flows would not increase significantly.

ROUTE 6

Route 6 serves a similar desire line to Routes 4 and 5 but is at the eastern edge of the site so is less direct. It also provides less connectivity that Routes 4 and 5 in terms of opportunities to join or leave the route to connect with properties.

SUMMARY

- In summary, it is recommended that Routes 1, 2, 4 and 5 are taken forward as priority connections to the site.
- Routes 1 and 2 are both independently fundamental to providing cycling and walking connectivity to the site from key trip origins and destinations in the local area. They would also provide advantageous routes for walking and cycling in comparison to motor vehicle use. As such, both are recommended for inclusion in any proposals.
- Routes 4 and 5 would ideally both be implemented as combined they provide a valuable connection through the existing residential area and on to the amenities on Kellet Road.
- Route 3 does not offer high utility value as it does not connect to amenities within the town. However, it does offer a relatively straightforward option for connecting to the existing leisure network.
- Route 6 does not offer the same direct connection to Kellet Road as Routes 4/5 and lacks the same levels of connectivity.

APPENDIX C – Network Priorities and estimated off-site costs

	A Local Plan for Lancaster District - Cycling and Walking Infrastructure Estimated Costs (off site costs relating to Strategic Sites only)		
	Based on LCWIP cost estimates		
	Network priorities (off site)	**Priority**	**Cost estimate £000's**
	Lancaster North		
Route 2	NCR 6 - Upgrade preferred routes to town centre (1km), cycle lanes (non segregated), traffic calming, signage	High	60
Route 2	NCR 6 - Improve route through Ryelands Park.	Medium	155
Route 3	Slyne Road - Upgrade preferred routes to town centre (1km), cycle lanes (non segregated), traffic calming, signage	High	80
Route 4	Green Lane/Halton Road - Upgrade preferred routes to town centre (1km), cycle lanes (non segregated), traffic calming, signage, new Toucan crossing at Owen Road/Skerton Bridge	High	100
Route 4	Halton Road canal bridge - traffic controlled bridge or new ped/cycle bridge	High	250
Route 4	Green Lane canal bridge - traffic controlled bridge	Medium	40
	Other network provision		
	A6 signalised crossing (to provide link between east and west parcels of land)	High	100
	Hammerton Hall Lane alterations to cycle/ped route	Medium	50
	Improve access to canal (Hammerton Hall Lane, A6, Green Lane) signage, new steps/ramps etc	Medium	200
	City centre cycle hub contribution	Medium	30
	Sub total		**1,065**
	Lancaster East		
Route 1	Upgrade to existing Caton Road cycle lane (1.2km)	High	100
Route 1	Overground crossing of Greyhound Bridge approach road to provide safe and useable link between site and the city centre	Medium	150
Route 2	Ridge Lane ped/cycle crossing linking Ambleside Road to canal (signalised crossing, signage, towpath improvements inc. possible ramp)	High	225
Route 5	Quernmore Road (crossing and link to Wyresdale Road area to south, 1km)	High	100
	Other network provision		
	Upgrade Caton Road shared path between new access and Caton Road employment area - (0.7km)	Medium	25
	Upgrade link east along Grimshaw Lane bridleway	Medium	100
	City centre cycle hub contribution	Medium	30
	Sub total		**730**

	Carnforth		
Route 1	Provide new cycle/pedestrian bridge across the canal	High	250
Route 1	Route between proposed bridge and town centre (0.5km on road route plus A6 crossing)	High	100
Route 2	Upgrade access to canal at Thwaite End Bridge (via Thwaite Gate Farm and excludes any land costs) Upgrade towpath, provision of A6 crossing to Crag Bank, new A6 link onto towpath.	High	175
Route 3	Upgrade existing PROW network to the south (signage etc)	Medium	50
Routes 4 ,5	Provide safe routes through Highfield estate to link site to Kellet Road (schools and employment area)	High	60
	Other network provision		
	Upgrade existing towpath north from site	Medium	75
	Sub total		**710**
	Lancaster City Centre		
	Completion of City Centre Loop		
	Canal towpath improvements at Quarry Road bridge	Medium	50
	Carr House Lane traffic calming/safety improvements	Medium	75
	Traffic calming measures Station Road	Medium	50
	Provision of cycle route between Phoenix Street and Quarry Road within Canal Quarter redevelopment.	High	Delivered as part of redevelopment
	Provision of Canal towpath link within Canal Quarter redevelopment.	High	Delivered as part of redevelopment
	Provision of cycling hub within Canal Quarter	High	250
	Provision of cycling hub at Train Station	High	250
	City Centre Arterial Routes		
	North/south route (linking South Road and Parliament Street)	High	Delivered as part of proposed Movement Strategy
	East/west route (linking Canal Quarter and Train station)	High	Delivered as part of proposed Movement Strategy
	Sub total		**675**