

# NCN 72 South: Drigg to Millom & Duddon Bridge

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## Feasibility Study Volume 1: Report



**November 2016**

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# 1. Introduction

- 1.1. Sustrans was commissioned by Copeland Borough Council to make recommendations regarding the development of a long distance cycle route linking the start point of Hadrian's Cycleway at Drigg and Ravenglass down to the town of Millom, with a further extension to Duddon Bridge. This route would link together the communities along the Cumbrian coastline and be an access point into the Western Lake District for cycle touring.
- 1.2. This route is referred to in this report as the 'NCN 72 South' route.

## 2. Opportunities and challenges

- 2.1. This section describes the opportunities that creation of the proposed NCN 72 South route will present to the local area together with some of the challenges that will need to be overcome.
- 2.2. The aim of this study is to provide sufficient evidence to these partners and other funders that such a route is capable of being provided and that it will significantly impact on the appreciation of the South Copeland Coastline and its economic prosperity.

### Opportunities

- 2.3. Creation of the route is a key element of South Copeland Coast Economic Plan through connecting the coastal communities along the route and growing cycle tourism, helping to build on current demand from visitors both out of and within the North West region for cycle tourism.
- 2.4. The route will establish and draw attention to ways for cyclists of varying abilities to enjoy exploring the unique coastline and fascinating heritage of South Copeland and provide a spinal route connecting Drigg and Duddon

Bridge and Millom, from which both the coast and Western Lake District can be accessed.

- 2.5. This is a great opportunity to create and communicate an exciting vision that will engage a range of regional and local partners along the Cumbrian coastline and deliver a continuously memorable Cumbrian coastal cycling experience.
- 2.6. In doing so, the route should contribute significantly to the economic wellbeing of a range of, often local, businesses by increasing direct and indirect expenditure from cycling visitors which safeguards and creates new jobs.
- 2.7. The route will also become a local resource for people who live, work & play in South Copeland and provide opportunities for health and wellbeing through cycling, avoiding the A595 wherever possible.
- 2.8. There are a number of other proposals in the local area which may complement the proposals for the NCN 72 South route, including the Natural England Coastal Path, discussed in the next section and Lake District National Park initiatives for improving access to the fells.

### Challenges

- 2.9. There are a number of significant engineering challenges identified when looking at the feasibility of this route. In particular these include the crossings of the Irt and the Esk estuaries. Existing crossing points for vehicles and pedestrians involve significant detours inland. Following a route closer to the railway corridor would be far more direct but would require new or altered bridge structures. The estuaries include wide areas of low-lying coastal plain that can be flooded by storms and tidal surges.
- 2.10. The railway and main road (A595) run approximately parallel to the coast and the proposed cycle route. The railway in

particular has limited crossing points; the A595 can also be difficult to cross due to poor visibility, high volumes of vehicles and high speeds. The traffic is certainly not conducive to a leisurely and relaxing cycle route along the main road itself. The road has a poor accident record. Although few of the accidents involve cyclists this may be a reflection that the traffic environment is off-putting and relatively few cyclists venture onto the road in the first place.

- 2.11. The proposed route will pass through some very environmentally significant and sensitive areas which will need careful consideration.
- 2.12. There will also be challenges around negotiating off road sections, where there will need to be further detailed land owner negotiation in order to secure sections required to create the route.

## 3. Natural England Coastal Path

- 3.1. Natural England (NE) are creating a Coastal Path around the coast of England. Proposals for the Whitehaven to Silecroft section are well advanced and can be seen at <https://www.gov.uk/government/collections/england-coast-path-whitehaven-to-silecroft>.
- 3.2. There is potential for a high degree of synergy between the Natural England proposals and these proposals for the NCN 72 South route. The route between Drigg and Eskmeals is broadly common in both sets of proposals, particularly in the vicinity of the Rivers Irt and Esk where both proposals will require new crossings of these rivers/estuaries. Natural England has undertaken an initial feasibility of these crossings. However, the installation of these bridges is not something that the England Coast Path programme is able to fund.



A typical unsegregated walking and cycling path

- 3.3. However, there are also a number of challenges associated with seeking to align the proposals and adopt a common route:
  - A number of landowners are known to be happy to permit access across their land by walkers but would object to access by cyclists
  - A path suitable for use by cyclists will need to be wider than a footpath, have a higher quality surface and a smoother alignment. For example, south of Ravenglass the NE proposals route the footpath along the top of the beach which would be unsuitable for use by cyclists.

## 4. Route development guidelines

- 4.1. The starting point for creation of a new route is usually to look at how much of any existing National Cycleway Network route can be utilised, in this case very little as there is no north south cycle connection established between Drigg and Millom and east to Duddon Bridge. The next step is to identify any quiet highway that can be used on the new route and how much dedicated off-road cycle track will need to be established in order to achieve the overall aim.
- 4.2. Overall, the NCN 72 South route should be provided in accordance with the current best practice as set out in the



Handbook for Cycle Friendly Design (Sustrans, 2014), and accompanying design manual. The principles behind the creation of any new section of high quality cycling route should be coherence, directness, safety, comfort and attractiveness. NCN72 south is primarily intended as a leisure route suitable for hybrid and mountain bikes, so attractiveness and safety are particularly relevant. The parts of the route that are close to settlements and transport nodes (such as railway stations and public car parks) should be designed for a wider audience, with comfort and coherence becoming more important. Directness is relative to other modes of transport: the route is primarily a linear coastal route that links to existing and potential cycle routes, serving settlements and visitor attractions en-route.

4.3. Where routes are off-road, Sustrans' recommendation is that there should be a presumption in favour of unsegregated paths where the width is shared by all users; segregation may be appropriate in certain situations such as where there is a high level of use and adequate space can be provided for each user group.

4.4. Key reasons for recommending unsegregated paths are:

- Evidence shows that people on bikes travel faster on segregated shared use routes which can be intimidating for



Typical view of a busy path that is too narrow

walkers sharing the route (Local Transport Note (LTN) 1/12).

- Where people walk in groups (especially at weekends and school journeys) they are more likely to ignore segregation unless widths are adequate which can obstruct the route for people cycling.
- More considerate behaviour is observed on unsegregated routes
- Segregated routes can encourage territorial behaviour
- Narrow segregated routes have higher levels of non-compliance



Cycle path priority crossing of a minor side road

- Un-segregated routes may be cheaper to construct and maintain due to less complex engineering and a narrower width (up to three times less than if segregation by kerb is used) (LTN 1/12)
- Un-segregated routes require fewer signs and markings, thereby offering a less urban and intrusive solution.

4.5. Key to the success of unsegregated paths is the provision of adequate width. For a route such as NCN 72 South which sets out to cater for both leisure cyclists and other recreational uses it is recommended that a path with of 3.0 metres is necessary. It should be noted that older parts of the C2C route are only 2.0 metres wide and this is a source of tension between path users which would be significantly mitigated with a greater width.

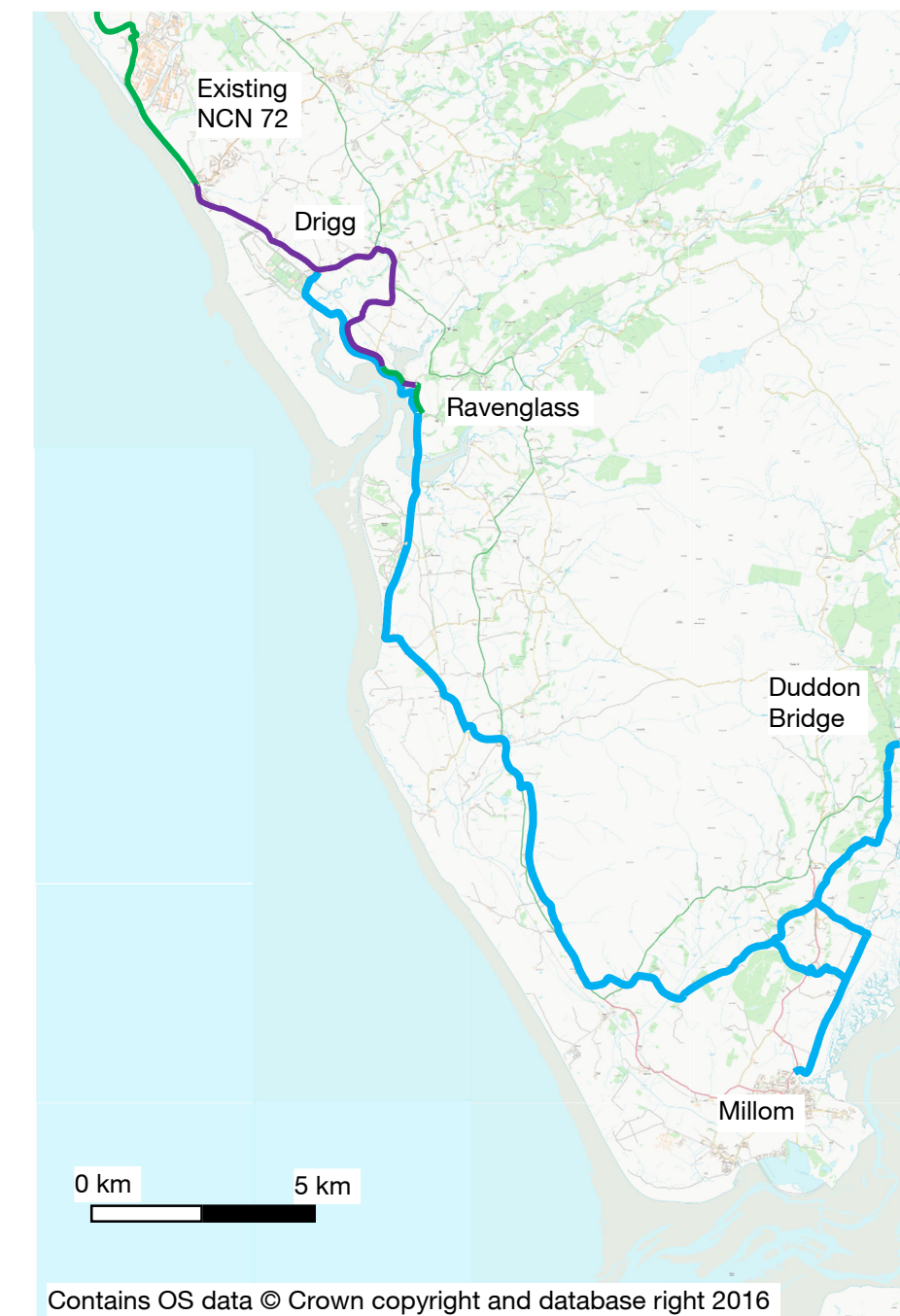
- 4.6. It is important that on-road sections reflect the importance of the route as a whole. The on-road links are often where greater challenges lie, but providing quality provision connecting to and between off-road sections is vital if a wide range of user groups are to benefit.
- 4.7. If the NCN 72 South route is to be taken seriously it is important that on-road routes are not only safe and convenient but also continuous. Priority should be assigned to walkers and people riding bikes, where it is safe to do so, particularly at junctions and road crossings.

## 5. Route overview

- 5.1. Hadrian's Cycleway NCN 72 currently ends/starts at Ravenglass Roman Bath house.
- 5.2. This route considered in this study however starts at Drigg village north of Ravenglass, to include a crossing of the Irt and avoid having to use a short section of the A595, seen as a barrier to cycling locally. There has been a long term ambition to find an alternative route for this section of the NCN.
- 5.3. The route proposed uses a mix of quieter country roads, some new infrastructure and some on-highway measures.
- 5.4. The proposed route will go from Drigg in the north, down to Bootle, Whitbeck and then will come into Millom from a back route via The Hill. The route will connect to Duddon Bridge from Millom Park via The Green.
- 5.5. Further consideration may be required in order to refine the route to ensure that it links to as many local communities and businesses

as possible in order to maximise the benefits of the route.

- 5.6. The overall route is shown as a blue line in the figure below. Existing NCN routes are shown in purple (on-road) and green (traffic free).
- 5.7. Details of the route are included in Volume 2 of this Feasibility Study, document reference T100-NW-RE-02 'NCN 72 South: Drigg to Millom & Duddon Bridge Feasibility Study Volume 2: Route Details'.



Overview of NCN 72 South route



## 6. Engineering details

- 6.1. This section discusses some of the more generic engineering details common to the whole route.

### Surfacing choice

- 6.2. A cycling and walking route such as NCN 72 South Extension should have an all-weather surface to enable use at all times of year and in all conditions.
- 6.3. Conventionally this would be provided by a tarmac surface. However, the context of large parts of the NCN 72 South route means that a tarmac surface would be inappropriate for aesthetic reasons.
- 6.4. Unsealed surfaces generally require greater levels of maintenance to prevent the formation of ruts, which not only form puddles but accelerate the deterioration of the path construction.



Typical good quality crushed stone path



Typical tarmac (sealed surface) path

- 6.5. Consideration should be given to the likely levels of utility use of particular sections. On these sections which are more likely to be used in all conditions by people commuting, travelling to school and other destinations there is a greater need for a sealed surface, such as tarmac. For example, any off-road sections of the link between Bootle village and Bootle station should have a sealed surface.

### Route on or adjacent to roads

- 6.6. Generally the on-road sections are on relatively quiet minor roads. Additional traffic-calming or speed limits would improve safety on the approach to settlements.
- 6.7. Where the route runs parallel to main roads the preferred option would be a parallel traffic-free path, either running in the verge and separated by a grass margin, or within adjacent land. However, this is subject to the physical constraints of the locations and the land ownership boundaries, and is discussed on a case-by-case basis in the detailed descriptions of the route included in Volume 2 of this report.

### Road crossings

- 6.8. In more built-up areas, it may be appropriate for signalised crossings to be provided where the route crosses a road, where usage of the route may be higher and the road be within a speed limit. This type of crossing would usually comprise a Toucan type crossing.
- 6.9. Away from settlements where the road is de-restricted signalised crossings tend not to be feasible due to high vehicle speeds. In these locations it is usually more appropriate to provide a highlighted uncontrolled crossing with rumble strips and potentially localised speed limits.
- 6.10. It can also be appropriate to provide cyclist activated signs which advise

motorists that a cyclist is crossing ahead as the cyclist approaches the crossing.



Highlighted rural uncontrolled crossing



Cycle activated warning signs on approach to a crossing point

### Control of livestock and vehicle access

- 6.11. Generally, Sustrans recommends that access controls are only installed where there is a proven need to control unauthorised vehicle access onto traffic-free routes or to prevent livestock straying, and these should be carefully specified so that they do not restrict access to legitimate path users (bearing in mind that this includes a variety of vehicles such as mobility scooters, adapted cycles and bicycles with trailers and tag-alongs, as well as vehicles for path maintenance). The details should be discussed with landowners during consultation and design development.

- 6.12. At this stage it has been assumed that where the route runs across a field, the route will be fenced off from the field, but where it runs through open fell or permanent pasture no new fencing will be provided. The details should be discussed with landowners during consultation and design development.
- 6.13. The preferred means of providing a barrier to prevent vehicle access is to use a staggered bollard arrangement which allows the passage of cycles.



Staggered bollard arrangement

- 6.14. Where it is necessary to provide vehicle access and livestock control, it is possible to locate a narrow cattle grid next to a vehicular gate.

### Equestrian use

- 6.15. At this stage it is assumed that no additional facilities are required for equestrian use. This would need to be confirmed during the consultation and design development stage, as it may affect details such as surfacing, path width and height of parapets for bridges.

## 7. Ecology considerations

- 7.1. As part of this feasibility study a desk-based study has been carried out to assess the likely ecological impact of the proposed route on nature conservation sites, habitats and protected or notable fauna. This report is included as Volume 3 of this Feasibility Study, document



reference T100-NW-RE-03 ‘NCN 72 South: Drigg to Millom & Duddon Bridge Feasibility Study Volume 3: Ecological Desk Study’. This section presents a summary of the study.

- 7.2. No site visit has been undertaken and so conclusions in this report are provisional and will need to be verified by a site visit prior to a detailed proposal being developed.
- 7.3. This route passes through a landscape with internationally and nationally important habitats and fauna. Of particular note are the coastal and estuarine habitats around the Drigg Coast and Duddon Estuary and populations of natterjack toads, great crested newts, overwintering and breeding birds and notable invertebrates.
- 7.4. The most challenging aspects of the route are the crossings over the Rivers Irt and Esk. New bridges in these locations will span the Drigg Coast Special Area for Conservation (SAC) and Site of Specific Scientific Interest (SSSI) and will result in the loss of priority habitat. Consultation with Natural England at the earliest opportunity is crucial for work around the SAC and SSSI. Bridge design should minimise in-channel impacts and habitat loss for the footings and the bridge location must be selected to minimise the loss of and temporary disturbance to important habitats and to avoid long-term impacts on dynamic habitats such as sand dunes.
- 7.5. A section of the proposed route north of the River Esk has also been identified as a potential constraint of the route development due to its proximity to the Drigg Coast SAC/SSSI and the potential presence of priority habitats. A site visit will determine whether this is a notable consideration of the proposal. Alternate routes are proposed in this location to mitigate impacts.

- 7.6. Construction will be undertaken through an ancient woodland with protection through the planning process through its designation as a County Wildlife Site. Impacts cannot be determined without a site visit to assess the habitats affected by proposed construction. It is anticipated that there may not be scope to wind the path through the woodland to avoid important features due to the steep gradient. If impacts are considered significant, an alternative route along the A595 is proposed.
- 7.7. Important and sensitive habitats could be present elsewhere along the route. The locations and importance of these will need to be identified by a site survey. The exact route alignment should be kept somewhat flexible until this survey has been conducted to enable important habitats to be protected.
- 7.8. Natterjack toad populations which are extremely important nationally are present along the route. Whilst habitats on which they rely will not be directly affected by the proposal, further assessment is required to determine whether route development could result in an increased risk of mortality during migration from path users. It is anticipated that this would not form a barrier to route construction as mitigation can be undertaken to reduce this risk.
- 7.9. Further assessment will be required to assess the potential of future disturbance to birds using Millom Marsh from path users. This will involve a site visit to assess the extent of screening vegetation. Further surveys, consultation and mitigation may be required in relation to this impact.
- 7.10. Various other notable and protected species are likely to be present along the route. Whilst none of these are likely to form a barrier to construction, the additional surveys and mitigation measures required could add to the

overall cost of the project and may influence the detailed design.

- 7.11. Current planning policy demands that construction projects not only minimise their ecological impact, but provide enhancements wherever possible. Ecological enhancement measures proportional to the scale of the proposal should be built into the detailed design of the scheme.

## 8. Land ownership

- 8.1. As part of this feasibility study discussions have been had with land owners along much of the route to ascertain the feasibility of creating the route as proposed.
- 8.2. Whilst some landowners are generally supportive of the creation of the proposed NCN 72 South route, others are not. The route proposals have been developed on the basis of these initial discussions.
- 8.3. The Lake District National Park is a significant stakeholder and is generally supportive of the proposals especially where they can be aligned with its priorities.
- 8.4. It has not been possible to engage with landowners for the extension of the route to Duddon Bridge and these proposals have been developed on the basis of a desk study.
- 8.5. Further conversations need to take place with landowners as the proposals are developed further.

## 9. Maintenance, monitoring & management

- 9.1. Any cycle route and especially long distance ones require a level of maintenance, monitoring and research, and management. By the time the signs

go up and the route is launched, roles and responsibilities amongst the partner organisations need to have been clarified. Resources for overall route coordination and support should rest with one appropriate body.

- 9.2. Whilst some counters exist further up the coast on the Hadrian's Cycleway, more counters are likely to be needed, together with some face to face intercept surveys to gather both quantitative and qualitative data about user types, behaviour, spending and experience so that usage and impact can be properly understood and robustly reported. This will really help to develop a robust argument based on demand for further infrastructure improvements and links and spurs off the route.
- 9.3. Experience from other new routes suggest that existing and new Sustrans Volunteer Rangers can help to maintain the route and promote it in their local areas, working closely with highway authorities and landowners.

## 10. Route name & branding

- 10.1. The NCN 72 South route will be a long distance coastal cycle route, suitable for mountain bikes/ hybrid touring bikes and wherever possible suitable for entry-level with an emphasis on leisurely rides, spectacular views and linking local communities. Therefore the creation of a route name and branding is likely to be a key part of the success of the route.
- 10.2. A visual identity that would work effectively on both the blue route markers and on printed/online material would also need to be considered and could be included in the wider South Copeland Coastal Partnership. Costs for the development of a visual identity/branding are estimated at £2,500 (based on Morecambe Bay Cycleway 2013, Cactus Creative).



10.3. Examples of the type of branding that might be suitable include the Hadrian's Cycleway roman helmet and the Bay Cycleway circle and waves logo, as pictured below.



Examples of route branding

## 11. Signing & information

11.1. Consistent and coherent signing will be key to creating a route that is easy to follow and therefore successful. Given the numerous sections of the National Cycle Network that are likely to make up the route (each with their own number), together with sections of the Hadrian's Cycleway. NCN 72 South route signing should display its own distinct and easily recognisable symbol derived from the branding development referred to above.



Typical multi-destination direction sign

11.2. Whilst signing on and off-road is very often the responsibility of the highway / PROW authority, Sustrans can call upon its Volunteer Rangers to undertake temporary signing and importantly help maintain signs once they have been erected.

11.3. Consideration should also be given to including the distance to the next destination in addition the direction of travel arrow on signs.

11.4. Regular way finding type signage is helpful to reassure path users that they are on the correct route. This can be low key and comprise a route number or logo mounted on a timber post.



Way finding route confirmation sign on timber post

11.5. Estimates for signage costs at this stage are around £20,000.

## 12. Cycle parking

12.1. If the purpose of the NCN 72 South route is to get more people cycling to more places, then more cycle parking will be needed to allow the secure and convenient (both for users and property / land owners) parking of multiple bicycles. The ubiquitous two Sheffield stands insufficiently spaced and poorly sited will increasingly prove inadequate and unpopular.

12.2. There are increasingly creative ways of providing attractive, convenient and secure parking which needs to be considered as the proposals are further developed.



Examples of creative cycle parking facilities

12.3. Destinations on the route such as the National Park, Whitbeck Church, Millom town Centre and Beach areas where the route users will have to continue on foot will require secure parking of some kind.

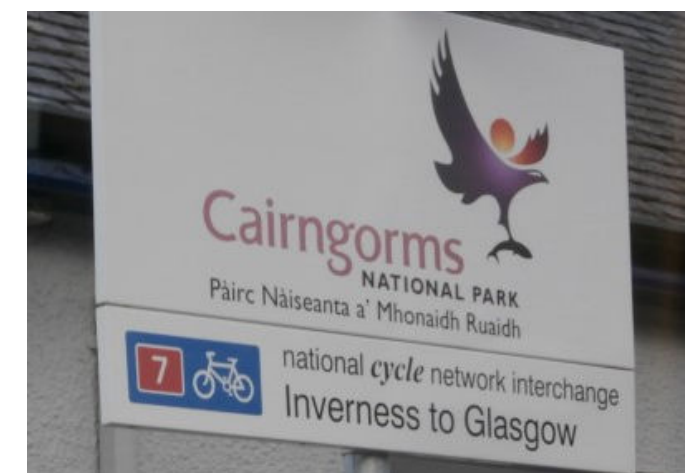
## 13. Railway station links

13.1. Northern, the train operator for the Cumbrian Coast Line is one of the country's most cyclist-friendly train operators. Bicycles are carried free of charge and no reservations are needed. Clearly marked spaces are allocated on a first come, first served basis (excluding tandems, tricycles, power assisted cycles and trailers). Conductors frequently demonstrate discretion with the 'maximum of two bikes per train' policy. Cycle parking facilities are available at an increasing number of stations.

13.2. All the following stations could potentially be used by cyclists to access the route:

- Drigg
- Ravenglass
- Bootle
- Millom
- Green Road

13.3. Through working in partnership with Northern, signing could be provided at railway stations highlighting the linkages with the NCN 72 South Extension route, for example as have been provided by ScotRail at a number of stations.



Railway station sign highlighting link to NCN (and national park), Dalwhinnie

## 14. Cycle hire, repairs & support

- 14.1. Repairs often need to be made whilst out cycling and spares and additional items purchased. There may also be potential for a mobile bike repair service.
- 14.2. Visitors may wish to hire a bike whilst on holiday and cycle hire is available but there is much potential to develop a much more local offer.
- 14.3. An electric bicycle hire network is developing in and around the Lake District. There may well be potential to expand it in to the Coastal area or revive current schemes in the area to bring the pleasure of cycling into everyone's reach.



- 14.4. There may be a demand for support in terms of luggage transfer, delivery / collection of bikes, accommodation booking and guiding services.

## 15. Public art

- 15.1. Significant off-road sections of walking and cycling route can develop as linear parks, with the potential for information / interpretive features and artwork.
- 15.2. Sustrans works with artists, crafts people, designers and architects to create landmark artworks, special seats, bridges and viewing platforms, gateways and way markers along sections of the National Cycle Network. This helps to create a strong sense of location, creating special places that you can visit again and again by foot and bike.
- 15.3. Opportunities for and ways of developing exciting and engaging public art should be considered, especially given the focus of the beach café at Silecroft.



Art installation providing interest to route users

## 16. Cyclist-friendly businesses

- 16.1. As well as creating a well-chosen and well signed route with good up-to-date information and mapping, having cyclist-friendly service provider businesses on and close to the route is an equally important part of NCN 72 South.
- 16.2. Good cycle parking as has been mentioned above (and overnight storage at accommodation) is a key issue, together with others relating to facilities and services, food arrangements and information provision.
- 16.3. A series of workshops run in conjunction with local partners for local businesses and community interests as route development progresses would be beneficial. There is a Cyclist Welcome toolkit available from Nurture Lakeland which covers most aspects of this.
- 16.4. Well promoted cycling projects have often been extremely effective in bringing in trade from further afield than could otherwise be expected. Silverdale Cycle Hire reporting that they have this year seen a number of occurrences of large parties of cycle tourists from overseas



Cyclists welcome here

coming specifically to do the Walney to Wear cycle route is just one such instance.

## 17. Relevance, evidence and outcomes

- 17.1. Sustrans has recently recorded the biggest ever increase in the number of people cycling on the National Cycle Network, with 40 million more cycling trips made during 2011 than in the year before – an 18% increase.
- 17.2. The Economic Impact of Cycle Tourism in North East England published by Sustrans in 2007 gives the following figures for the usage and impact of several established long distance routes, of which the latter two have substantial sections in Cumbria.
- 17.3. User surveys carried out on the Way of the Roses Cycle Route earlier this year indicate the number of end-to-end users to be in the region of 10,000 for 2012. Opened in September 2010, this route has its western end in Morecambe.
- 17.4. The Economic Impact of Cycling and Walking the Taff & Celtic Trails March 2008 looked at the development of two new branded routes in Wales, the Taff Trail (154 miles) and the Celtic Trail (143 miles) and their contribution to the local economy.
- 17.5. The routes consisted of mixed traffic free sections and on highway sections. About a quarter of both routes were traffic free and these sections were shown to be especially popular and generated more trips per year than the shared highway sections.
- 17.6. The development of “branded” longer distance routes is showing to have been a key factor in growing the market for sustainable tourism. In particular it has been found to encourage more day cycle trips by holiday cyclists and cycle tourers as a displacement of trips by car.
- 17.7. These trails have also been found to encourage “closer to home” tourism breaks as energy prices related to travel and carbon emission rise.
- 17.8. Longer established routes such as the C2C have shown a 5% increase in users within 2 years (cycle counter data Sustrans) and the popularity of the new Way of the Roses route echo this trend upwards in sustainable tourism.
- 17.9. The income generated by cyclists using long distance routes can contribute to the creation or safeguarding of jobs. Evidence from the C2C route from 2006 suggests that 173 jobs were supported as a result of cycle tourism along the route.
- 17.10. In March 2011 the Finding New Solutions: Monitoring and Evaluation Interim Report by Sustrans & Cycling England looked at results from the Peak District Route User Intercept Surveys. The Manifold Track – a 9 mile traffic free path along old railway line was used to illustrate the impact of such routes on the local economy. This and other research indicates that on average home-based leisure cyclists each spend £9.20 per day and overnight tourists spend significantly more at £22.90 per day. The total annual spend based around this short 9 mile Manifold Track is estimated to be just over £1 million to date.
- 17.11. Findings from the C2C route show that the 240,000 users of the route per annum (of which 14,000 users complete the route end-to-end) stimulated a spend of £10.7 million in the route corridor.
- 17.12. In September 2011 Sustrans in Scotland produced a walking and cycling outcomes assessment against key indicators which looked at how walking and cycling especially around the National Cycle Network had increased tourism revenue to the area and local



communities. Tourism revenue at a specific site, based on survey responses and manual cycle counts at that site, can be estimated using the Cycle Route Economic Impact Model

17.13. An indicative estimate of the value of the NCN to the Scottish economy in terms of spend by recreational and touring cyclists is almost £100 million per annum; two case studies show marked uplift in the spend associated with particular routes, and a number of other cases estimate the value of economic activity but without a second time point to generate a change value. For example, annual spending by recreational cyclists and cycle tourists using the National Cycle Network at the route user intercept survey site at Ballachulish increased from £85,053 in 2008 to £110,899 in 2011.

17.14. Findings like these and from other studies help to illustrate the extent to which leisure cycling can play a part in regeneration through attracting out-of-region tourism, stimulating tourism business development, and improving the quality of life for local residents. There are strong indications that market growth is readily achievable so not surprisingly tourism strategies continue to highlight cycling as an appropriate tourism offering to develop.

17.15. Intra-regional visitation is also an important part of product-function. In conventional terms this is currently not considered important, but in terms of reduction of leakages in the regional economy (rather akin to the import-export balance), carbon foot printing and quality of life, cycle tourism has considerable benefits. The further benefits to local users, such as health enhancing physical activity, social inclusion and accessibility benefits also have to be acknowledged.

## 18. Outline cost estimate

18.1. A very preliminary outline cost estimate has been prepared for the proposed NCN 72 South route as summarised in the following table.

18.2. The crossings of the Irt and Esk estuaries will be engineering structures and will have a significant cost. The cost of these two single elements of the route are likely to dwarf the costs of the remainder of the scheme. Given the complexity of these elements, at this stage of the scheme development it is not possible to derive more than an 'order of magnitude' cost within the scope of this feasibility study.

18.3. Outline costs for the other elements of the scheme have been estimated on the basis of unit rates for lengths of route. By definition this means that these estimates do not consider particular variations along a length of route.

18.4. Cost estimates for the following scheme development and management costs have been included as a proportion of the cost estimate:

- Design and preparation (15%)
- Construction management, including preliminaries (17.5%)

18.5. The inclusion of a contingency (or risk allowance) is essential at this stage of a project. HM Treasury guidance, in the 'Green Book' refers to the application of adjustments to address this tendency for project costs to be overly-optimistic, referred to as 'optimism bias'. For a project of this nature at this stage as suitable optimism bias adjustment would be an addition of 40% to the scheme costs.

18.6. The outline cost estimate is included in Appendix A at the end of this report.

## 19. Conclusion and recommendations

19.1. This feasibility study has concluded that it will be possible to create an extension to NCN 72 southwards from Drigg to Millom and Duddon Bridge.

19.2. There are some significant challenges to be overcome, including ecological, engineering and land ownership, however it is considered that these can be overcome to create a high quality, highly beneficial route.

19.3. The crossings of the Irt and Esk estuaries are key to the successful creation of the proposed NCN 72 South route. As these will be significant structures further development work should be undertaken to confirm the feasibility of the structures. This will include carrying out ground investigation and preparation of outline structural proposals. Additionally, in the case of the Esk crossing firm proposals should be discussed with Network Rail to ascertain the feasibility of cantilevering a structure off the railway viaduct. The two crossings are also located in very ecologically sensitive environments and therefore early discussion with Natural England to develop the proposals will be crucial.

19.4. Further engagement should be undertaken with the key project stakeholders, including the parish councils and the Lake District National Park to build support and momentum for this project.

19.5. Further discussion should be had with Natural England to further explore the synergies between the Coastal Path project and these proposals for the NCN 72 South route.

19.6. Further discussions should be had with the affected landowners to secure their support for the route.

19.7. Consideration should be given to how the proposals for the NCN 72 South route might fit with other development in the area to maximise the benefits that might be realised from the creation of this route.

19.8. Consideration should be given to ways in which the route could be extended beyond Duddon Bridge, over the River Duddon and on towards Barrow-in-Furness. This could include a link to the Bay Cycleway, NCN 700.



## Appendix A – Outline cost estimate

Item  (for units and rates see table below right)	Section 1 Drigg to Ravenglass		Section 2 Ravenglass to Eskmeals		Section 3 Eskmeals to Bootle		Section 4 Bootle to Whicham		Section 5 Whicham to Millom Park		Section 6 Millom Park (Sandholes Wood) to Duddon Bridge		Section 7 The Green to Underhill Cottages via Green Road Station		Section 8 Millom Park to Millom via The Hill	
	Point 1 to 7 Nos on maps		Point 7 to 16 Nos on maps		Point 16 to 19 Nos on maps		Point 19 to 26 Nos on maps		Point 26 to 28 Nos on maps		Point 28 to 34 Nos on maps		Point 30 to A3 Nos on maps		Point 30 to A3 Nos on maps	
	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost			Qty	Cost
Tidying of existing path	735	£3,675	50	£250	0	£0	0	£0	0	£0	0	£0	0	£0	0	£0
Rehabilitate/Upgrade existing track	1140	£91,200	302	£24,160	0	£0	565	£45,200	0	£0	0	£0	1175	£94,000	2600	£208,000
New path	0	£0	709	£106,350	0	£0	3730	£559,500	0	£0	900	£135,000	0	£0	0	£0
New path in verge	0	£0	0	£0	0	£0	2280	£364,800	275	£44,000	125	£20,000	0	£0	0	£0
On-road provision	2030	£20,300	1079	£10,790	4905	£49,050	1120	£11,200	4100	£41,000	5610	£56,100	1300	£13,000	2425	£24,250
Toucan crossing	0	£0	0	£0	1	£60,000	0	£0	0	£0	0	£0	0	£0	0	£0
Uncontrolled crossing	0	£0	0	£0	0	£0	0	£0	1	£15,000	2	£30,000	0	£0	0	£0
New path on widened coastal embankment	0	£0	310	£1,302,000	0	£0	0	£0	0	£0	0	£0	0	£0	0	£0
New bridge	180	£1,530,000	300	£2,550,000	0	£0	0	£0	0	£0	0	£0	0	£0	0	£0
Sub-total (A)	£1,645,175		£3,993,550		£109,050		£980,700		£100,000		£241,100		£107,000		£232,250	
Miscellaneous (fencing, signing, drainage, minor bridges, etc) (B) = 10% of (A)	£164,518		£399,355		£10,905		£98,070		£10,000		£24,110		£10,700		£23,225	
Works total (C) = (A) + (B)	£1,809,693		£4,392,905		£119,955		£1,078,770		£110,000		£265,210		£117,700		£255,475	
Design & Preparation (D) = 15% of (C)	£271,454		£658,936		£17,993		£161,816		£16,500		£39,782		£17,655		£38,321	
Contractor Preliminaries (E) = 17.5% of (C)	£316,696		£768,758		£20,992		£188,785		£19,250		£46,412		£20,598		£44,708	
Sub-total (F) = (C) + (D) + (E)	£2,397,843		£5,820,599		£158,940		£1,429,370		£145,750		£351,403		£155,953		£338,504	
Optimism bias adjustment (G) = 40% of (F)	£959,137.03		£2,328,239.65		£63,576.15		£571,748.10		£58,300.00		£140,561.30		£62,381.00		£135,401.75	
Section Totals (F) + (G)	£3,356,980		£8,148,839		£222,517		£2,001,118		£204,050		£491,965		£218,334		£473,906	
Overall total outline cost	£15,100,000															
Total length (metres)	4.085		2.750		4.905		7.695		4.375		6.635		2.475		5.025	

### Notes:

- 1) Tidying of existing path: Includes cutting back vegetation and minor patching works
- 2) Rehabilitate existing path: Includes widening existing path and overlaying/surfacing with bituminous material
- 3) New path: Includes construction of new path where currently no path with bituminous surface
- 4) New path in verge: Includes creation of new/widened shared use footway/cycleway in verge adjacent to carriageway with kerb
- 5) On-road provision: Includes provision of signing and markings and rehabilitation of existing bituminous surfaced roads/tracks
- 6) Bridge for pedestrians & cyclists (cost for bridges quite variable - more detailed study required)

### Exclusions:

- 1) Land acquisition costs
- 2) Utility diversion costs
- 3) Ground investigation costs
- 4) Ecological survey costs
- 5) Topographical survey costs

### Rates:

Item	Unit	Rate	Note
Tidying of existing path	metre	£5	1
Rehabilitate/Upgrade existing track	metre	£80	2
New path	metre	£150	3
New path in verge	metre	£160	4
On-road provision	metre	£10	5
Toucan crossing	item	£60,000	
Uncontrolled crossing	item	£15,000	
New path on widened coastal embankment	metre	£4,200	
New bridge	metre	£8,500	6