D2N2 Local Cycling and Walking Infrastructure Plan

April 2021

A Local Cycling and Walking Infrastructure Plan for Derby, Derbyshire, Nottingham and Nottinghamshire

Derby City Council

DERBYSHIRE County Council

Nottingham City Council

Nottinghamshire County Council

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Executive Summary

A Local Cycling and Walking Infrastructure Plan (LCWIP) is a long-term approach to developing comprehensive local cycling and walking networks. It identifies potential improvements to cycling and walking infrastructure for investment in the short, medium and long term, up to 15 years. The advantage of preparing a LCWIP is that it provides an evidence base that places partners in a strong position to apply for future funding streams including levying funds from new development.

There is a clear ambition across the four partner authorities that the local cycling and walking infrastructure should be of the highest standard, and the LCWIP includes proposals for new routes to complete networks as well as for improvements to the standard of existing infrastructure. This will create cycling and walking environments (and make new routes available for equestrians in some areas) that are appealing and accessible to all.

This LCWIP builds on previous work by the four authorities and aims to:-

- Take a more strategic approach to improving conditions for cycling and walking;
- Help align local cycling and walking delivery with national priorities
- Ensure consideration is given to cycling and walking within local planning and transport policies and strategies
- Embed the requirements of cyclists and pedestrians in other transport schemes
- Help make the case for future funding for cycling and walking infrastructure
- Develop a planned cycling network linking key origins and destinations, with appropriate provision depending on speed and volume of motor traffic.
- Provide high-quality walking environments
- Address deficiencies in existing provision
- Improve knowledge sharing between local authorities and enhance cross boundary cooperation
- Strengthen working relationship between the Department for Transport (DfT) and local authorities

The D2N2 LCWIP has enabled the four local authorities to collaborate across the sub-region with a common aim to increase cycling and walking in line with the ambition of the government's Cycling and Walking Investment Strategy (CWIS) and the Gear Change policy statement.

Participation and Engagement

The LCWIP was prepared by the partners with some additional consultancy assistance from the Department for Transport panel of consultants. A steering group made up of officers from the four authorities has led the development of the LCWIP, with specialist inputs and advice from colleagues. As part of the strategic support provided by DfT, Sustrans facilitated three workshops at which stakeholders were able to review the draft findings and contribute to the LCWIP.

Method

The LCWIP follows a six-stage process as set out in DfT guidance and the recommendations for a cycling network and walking improvements are a result of:

- A review of how cycling and walking infrastructure improvements can help to deliver national, local and regional policy priorities;
- A review of current strategies and programmes for cycling and walking improvements;
- A review of demand for 'short trips' that could transfer to cycling and walking based on:
  - Analysis of census Journey to Work data as used in the Propensity to Cycle Tool
  - Plotting of new/recent significant development and assigning an associated trip rate
  - Plotting of local attractions that generate tourism/leisure based trips
  - Review of information and data about levels of use on existing routes
- Inputs from officers and other stakeholders with knowledge about gaps and deficiencies that need to be addressed, and opportunities linked to future development planning and highway improvements.

Main findings

There are several distinct 'near markets' for increased cycling and walking across the region:

- The cities of Derby and Nottingham that generate many short trips internally and also act as regional centres, where cycling and walking forms a component of a longer trip. Cycling and walking are important for their contribution towards managing congestion, air quality and access to employment and education.
- The towns in the former coalfields of north Derbyshire and Nottinghamshire, including those close to the larger cities. These are typically compact urban areas where many destinations for employment, education, retail and leisure are within walking/cycling distance of the main residential areas and nearby villages. Improvements for cycling and walking form an important element of regeneration of public areas, and links between

new housing areas and the established networks, as well as for their contribution towards managing congestion, air quality and access to jobs, training and services.

- The market towns and rural parts of Derbyshire and Nottinghamshire which are more sparsely populated. The towns have similar characteristics to the larger conurbations with walking and cycling playing the same roles within them, whilst leisure and tourism also plays an increasingly significant role in the local economies and accounts for much of the present and potential cycling and walking activity.

The LCWIP is presented as three zones that cross administrative boundaries that reflect these different socio-geographical characteristics and needs. This is to facilitate cross-boundary working (both within the LEP area and into adjacent areas) and ensure that the benefits from more people cycling and walking can be maximised in a way that is appropriate to the differing environments, such as greater prioritisation of leisure and the visitor economy in the countryside and targeting areas of intensive peak-time travel for work and education in the urban areas. The three zones are:

- Derby, Nottingham and the urban connections in the south of the counties;
- North Urban (the principal market towns of Chesterfield, Mansfield and Ashfield);
- Market Towns and Rural Hinterlands.

The LCWIP identifies:

- A network of strategic routes linking the principal attractors across the region. This links with local networks and established routes; and
- Core Walking Zones in the central areas of the main settlements across the region

The network components have been grouped into short (1-3 years), medium (3-5 years) and long (5+years) programme components that reflect local priorities their deliverability (including the current development status of schemes, i.e. feasibility and design work undertaken on them to date) and funding opportunities.

Economic appraisal of the proposals suggests that the benefit: cost ratio of the whole 15-year network programme will be medium to high, comparing very favourably to other transport programmes. BCRs for individual components of cycling and walking projects across the D2N2 area scored even more highly, for example those that were analysed for the Local Growth Fund Sustainable Transport Programme and the Transforming Cities Fund bid. Maps summarising the main proposals for the cycle network and core walking zones are presented in Section 4 of the report.

Future Monitoring and Review

The partners have agreed a monitoring programme that uses some of the data sources that informed the 'core indicators' for development of the LCWIP together with new data sources. that will be collected in future, including those being used in related programmes such as the TCF. The monitoring encompasses both quantitative and qualitative evaluation.

Although the LCWIP has a fifteen-year lifespan, a review will be undertaken approximately every five years to help monitor progress and to make adjustments to the programme and priorities in response to future events. A review at the five-year point will also enable time for some understanding of the impact of schemes delivered during the first few years of implementation.

1 Introduction and Scope

1.1 The D2N2 LCWIP

1.1.1 The four local authorities of Derby, Derbyshire, Nottingham and Nottinghamshire have collaborated to produce this Local Cycling and Walking Infrastructure Plan. The plan covers the same area as the D2N2 Local Enterprise Partnership (LEP) area and its scope reflects the ambition to continue to deliver improvements through joint working so that the people of the area can live more healthy, sustainable and prosperous lives.

1.1.2 This report sets out the rationale behind the LCWIP and includes proposals for improvements and extensions to the cycle network and core walking zones across the region. The report is set out as follows:

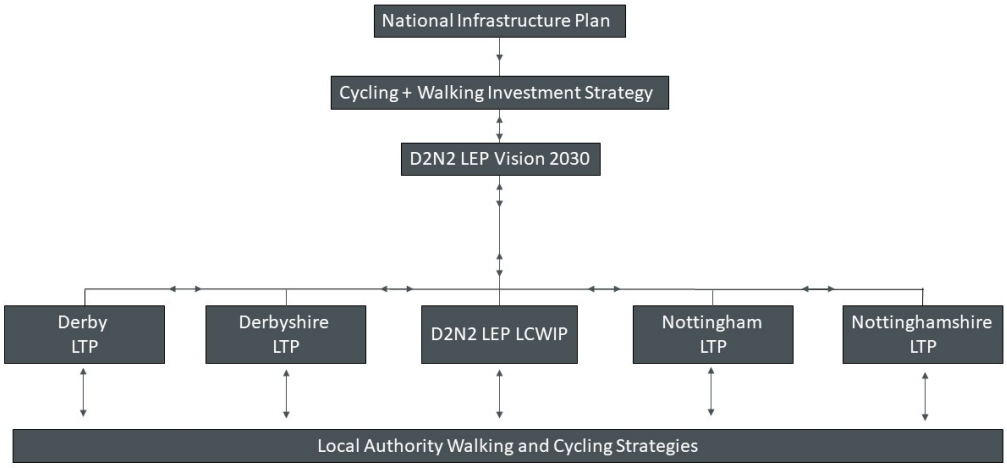
- Chapter 1 explains what the LCWIP does, its geographical extent and the governance arrangements for development and future delivery;
- Chapter 2 summarises the background information about policies, the local economy, related programmes and travel demand that have been examined to inform the LCWIP;
- Chapter 3 explains the processes for planning the regional network for cycling and identifying the core walking zones;
- Chapter 4 summarises the regional proposals for infrastructure improvements and explains the process of prioritisation and selection of routes included in the LCWIP;
- Chapter 5 summarises the engagement that was held during development of the LCWIP;
- Chapter 6 provides a high-level economic appraisal of the cycling network proposals;
- Chapter 7 sets out the ambition for a consistent approach of delivering world class design and obtaining sustained funding from multiple sources to cover the life of the plan;
- Chapter 8 covers the proposed arrangements for monitoring and review, to record progress, the impact of the infrastructure improvements and to plan the forward programme of delivery;
- Appendices A to D detail the rationale, proposals and programme for each highway authority;
- Appendix E provides an overview plan of the regional cycle route and core walking zone proposals;
- Appendices F to J provide more detailed background information about the information used to develop the LCWIP and case studies that illustrate how the LCWIP objectives are being met.

1.1.3 All four local authorities have a strong track record of delivering improvements for cycling and walking. This has enabled the LCWIP to be founded on a solid base of evidence gathered during previous studies and delivery programmes. The focus of the D2N2 LCWIP is therefore on the alignment of programmes to develop a more joined-up approach, and to enable the delivery partners to benefit by sharing differing levels of knowledge and experience.

1.2 What is a Local Cycling and Walking Infrastructure Plan

1.2.1 The national Cycling and Walking Investment Strategy forms part of the Infrastructure Act 2015. The strategy sets ambitious targets to increase levels of cycling and walking (sometimes referred to as active travel), particularly for short trips that could replace private car travel. An increase in active travel will contribute to improvements in public health and fitness, access to education and employment, reduction in carbon emissions, improvements to local air quality, and easing traffic congestion. This will help the partners to address the important social, health, economic and environmental challenges across the region.

Figure 1.1: Links between the LCWIP and national and local strategies



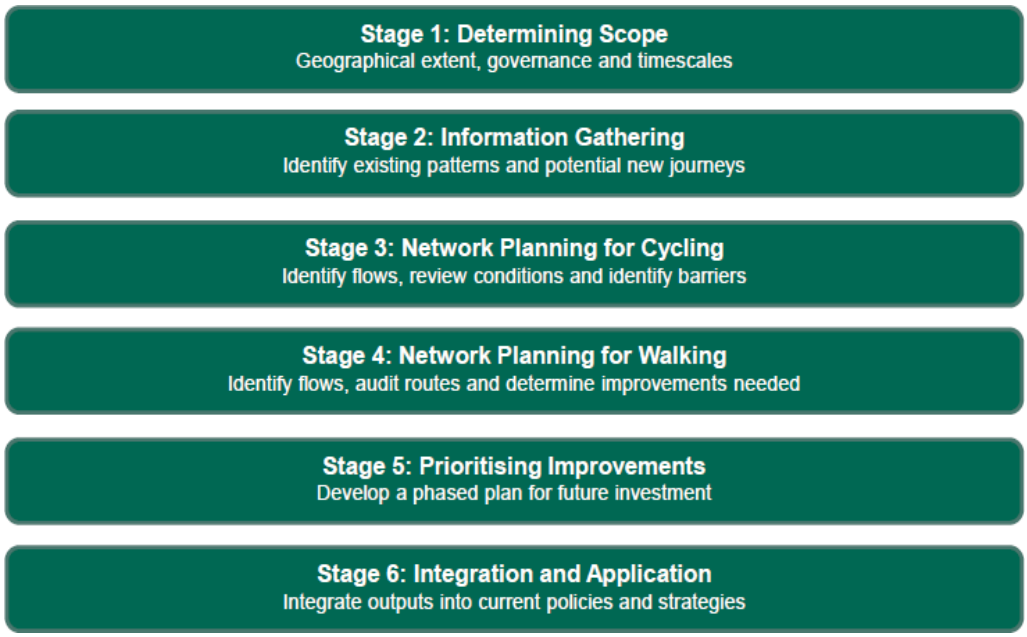
1.2.2 Elements of the Infrastructure Act are required to have a programme of investment. Local Cycling and Walking Infrastructure Plans provide evidence of the capital investment required for cycling and walking. LCWIPs are referenced in the National Planning Policy Framework to help ensure active travel infrastructure is incorporated into land-use planning as well as transport strategies.

1.2.3 Figure 1.1 shows the inter-relationships between strategies. Programmes for cycling and walking infrastructure are best determined at a local level, although every LCWIP contributes

to the wider national objectives and targets set out in the Cycling and Walking Investment Strategy. The development of the LCWIP has been informed by various regional and local strategies, and the LCWIP will in turn be an integral part of future strategies (see Section 2.3 and Appendices A-D).

1.2.4 The six stages to develop an LCWIP are described in Figure 1.2 below:

Figure 1.2: LCWIP Development



1.2.5 The LCWIP outputs are summarised in Figure 1.3 as:

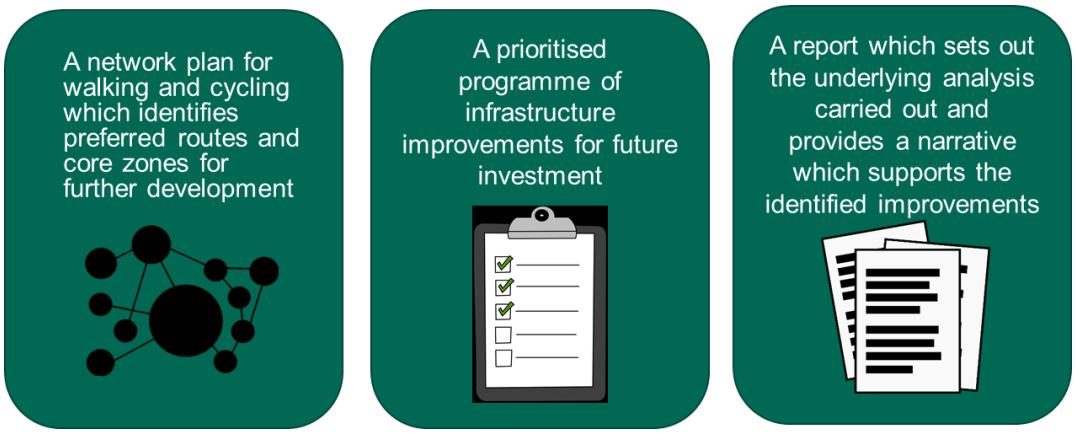
- network maps identifying cycle route networks and core walking zones
- list of potential improvement works for cycling and walking
- narrative report explaining the background to the maps and scheme proposals.

1.3 Strategic Aims and Objectives

1.3.1 The LCWIP reflects the shared transport objectives of the four partners. Commuting, tourism and visitor journeys often cross administrative boundaries. The D2N2 LCWIP aims to deliver a sub-regional strategic network of cycling routes – including internal and external cross-boundary links – and focussed interventions for walking at key locations.

1.3.2 Increasing cycling and walking across the D2N2 area will help support the region to meet the economic challenges and opportunities for a change in society travel habits from the COVID-19 pandemic. Bold action, such as the development of direct and high-quality strategic cycling and walking routes, will be essential to support a green and more sustainable recovery and repurposing of our high streets and visitor destinations and to make them better for everyone. The LCWIP strategic aims will support the D2N2 cities, market towns and their hinterlands to become sustainable service hubs where walking and cycling activity increases as people change their working habits, such as increased working from home. We also need to embed the change towards more use of walking and cycling during the COVID-19 pandemic by building better quality infrastructure to attract more people to travel shorter distances by walking and cycling, to develop communities as sustainable travel interchange hubs to replace car trips for onward travel for longer journeys and connectivity across the sub-region.

Figure 1.3: Main Outputs of the LCWIP Process



1.3.3 The preparation of the LCWIP has provided a valuable opportunity for the partners to work together in a coordinated team to develop a network plan that spans the whole D2N2 area while also recognising local priorities.

The LCWIP provides an evidence base for investment over a ten to fifteen year period from 2020, but the impacts will be monitored and this is a live document that will be regularly reviewed and updated by the partners.

Figure 1.4: Objectives

i) Underlying the universal strategic objectives are specific priorities within each authority, and local community priorities within different parts of each authority. These local objectives are often shared with the contiguous part of the adjacent local authority.

- Journey Purpose

i) The LCWIP considers all active travel journeys whether for utility or leisure:

- Active travel modes have great potential to increase their share of short-distance local trips, particularly within urban areas where there is a concentration of short commute journeys for work and education. Substituting walking or cycling for short car trips will help meet carbon reduction, air quality, public health and physical activity goals and

support a green recovery for high streets and visitor destinations after the COVID-19 pandemic.

- Active travel is an important component of the leisure and visitor economy, especially in Derbyshire and Nottinghamshire which attract ramblers and cyclists from across the world as well as the nearby conurbations of Greater Manchester, West Yorkshire, the West Midlands and South Yorkshire that are within an hour's travel time. Improving the 'offer' for walkers and cyclists is part of our LCWIP to maximise growth of the visitor economy by encouraging longer and repeat visits and extending the season. This in turn provides more employment as well as the opportunity to promote sustainable tourism, for example enabling more people to visit and travel around without the use of a car.

1.4 Geographical Scope

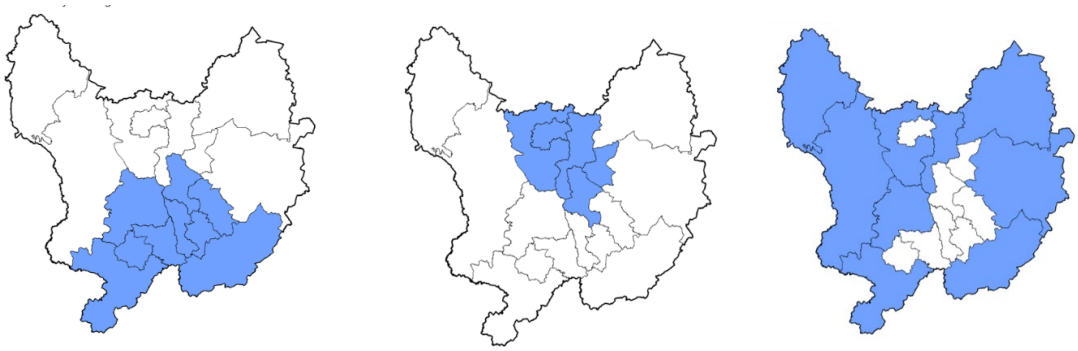
1.4.1 The D2N2 LEP subregion contains the largest population without a combined local authority. The subregion has a large and diverse geography. The two cities of Derby and Nottingham, the former coalfield and market towns in Derbyshire and Nottinghamshire, and an extensive rural hinterland.

1.4.2 The LCWIP is presented as three zones that cross administrative boundaries but reflect some common socio-geographical characteristics and transport needs, so that the benefits from more people cycling and walking can be maximised at the local level. This reflects findings of the engagement and data gathering which revealed differences in the functions and patterns of transport across the region. The three zones are illustrated in Figure 1.5:

- Derby, Nottingham and the urban connections in the south of the counties;
- North Urban (the principal market towns of Chesterfield, Mansfield and Ashfield);
- Market Towns and Rural Hinterlands

1.4.3 Active travel is an important component of the leisure and visitor economy, especially in Derbyshire and Nottinghamshire which have always attracted ramblers and cyclists from nearby conurbations. Improving the 'offer' for walkers and cyclists is part of strategies to increase visitor spend by encouraging longer and repeat visits and extending the season. This in turn provides more employment as well as enabling more people to visit and travel around without the use of a car.

Figure 1.5: D2N2 LCWIP Zones: Derby, Nottingham and the urban connections in the south of the counties; North Urban (including Chesterfield, Mansfield ad Ashfield), Market Towns and Rural Hinterlands



N.B. Some District/ Borough Council areas are contained within more than one Zone e.g. Amber Valley and South Derbyshire to represent their individual roles as self-contained market towns and service and employment hubs for the surrounding rural areas, as well as hosting key commuter travel corridors to the cities and larger market towns.

1.4.4 These zones do not reflect administrative boundaries. For example Amber Valley and South Derbyshire are included in more than one zone as they include self-contained market towns which serve the surrounding countryside, as well as hosting important commuter corridors to the larger towns and cities.

1.4.5 This LCWIP includes strategic cycling routes within and between these component parts, and identifies the main settlements where walking improvements should be focussed.

1.4.6 The zonal differentiation helps to ensure that prioritisation reflects some common local objectives within each zone, enabling a balanced programme across the whole region that might otherwise be skewed by the demands of the larger towns and cities. This approach enables different core indicators to be prioritised within each zone that better reflect the unique needs of that zone, regardless of the administrative boundary.

1.4.7 All four partner authorities have been actively investing in active travel and tourism initiatives for decades. The LCWIP builds on their local knowledge and existing infrastructure while using the analysis of travel data to help validate and support the case for future improvements to fill in gaps, and to improve and extend the network. The LCWIP has enabled the four local authorities to collaborate with a common aim to increase cycling and walking across the whole D2N2 area.

1.5 Governance and Delivery

1.5.1 This sub-regional scale LCWIP is able to consider the many trips and transport corridors that cross political boundaries, and thus to plan a seamless regional network. The LCWIP has been

developed by a joint panel of officers representing the four authorities, together with inputs from stakeholders (see section 1.7).

1.5.2 Although the LCWIP analysis is presented by zone, delivery will be overseen by each highway authority, with joint-working where a route crosses administrative boundaries and where delivery is being led by a range of partner agencies.

1.5.3 It is intended that over time the LCWIP will be absorbed into updates of regional and local transport plans and a wider range of other policy documents such as health and well-being policies – the 'Integration and Application' stage of the LCWIP. The LCWIP will facilitate implementation of schemes as funding comes forward either from public-sector programmes, partnerships with third sector organisations and with planning contributions from regeneration and development works.

1.5.4 The LCWIP is a live document that will respond to future transport challenges and funding opportunities. For example, work undertaken to develop the LCWIP informed the cycling and walking elements of the successful Transforming Cities funding application. Many local areas are developing COVID-19 recovery plans and the preparation of the LCWIP has provided an integral strategic approach to embedding a green and sustainable approach at the heart of these plans. The plans aim to build on the significant increases in cycling and walking during the COVID-19 pandemic, such as reallocating public space for social distancing and to increase connectivity for walking and cycling. The LCWIP provided the strategic context for a successful application to the Emergency Active Travel Fund (EATF) and for the delivery of permanent active travel infrastructure to drive travel behaviour change in EATF tranche 2.

1.5.5 The LCWIP will be regularly updated as planned schemes are completed and further network improvements are planned, for example, travel patterns that were analysed for the current LCWIP will need to be re-examined in the light of new developments that might alter demand.

1.5.6 Although the LCWIP analysis is presented by zone, delivery will be overseen by each highway authority, with joint-working where a route crosses administrative boundaries and where delivery is being led by a range of partner agencies.

1.5.7 Over time the LCWIP will be absorbed into updates to the regional and local transport and land use policies and guidance – the 'Integration and Application' stage of the LCWIP. This will facilitate implementation of schemes as funding comes forward either from public-sector programmes, partnerships with third sector organisations and with planning contributions from regeneration and development works.

1.5.8 The LCWIP is a live document that will respond to future transport challenges and funding opportunities. The work undertaken to develop the LCWIP informed the cycling and walking elements of the successful Transforming Cities funding application. Another example is the recent response to Covid 19 which has seen significant increases in cycling and walking, and a requirement to reallocate public space for social distancing. The LCWIP provided the strategic context to support bids for emergency funding.

1.5.9 The LCWIP will be regularly updated as planned schemes are completed and further network improvements are planned, for example, travel patterns that were analysed for the current LCWIP will need to be re-examined in the light of new developments that might alter demand. The document will also be reviewed in the light of alternative/updated datasets or assessment methodologies that may become available in the future.

1.6 Stakeholders and Partners

1.6.1 The wealth of mature and experienced regional and local stakeholder organisations have previously helped to bring forward cycling and walking improvements across the LCWIP area. Stakeholders across the D2N2 area have again provided knowledge and advice to strengthen the LCWIP. Many stakeholders already strongly support the delivery of cycling and walking infrastructure including the public, private and voluntary sectors. Some stakeholders are landowners of existing cycling and walking routes and will continue to be key players in future delivery of the LCWIP infrastructure priorities and achieving an increase in the number of people cycling and walking.

Figure 1.6 Event for stakeholder input to LCWIP

For example, the important role of cycle tourism for D2N2 is widely supported by local partnership working such as the 'Visit. Sleep. Cycle. Repeat" (VSCR) project delivering cycle tourism infrastructure across the North Derbyshire and North Nottinghamshire boundaries.

1.6.2 The D2N2 LCWIP will therefore be a key delivery plan for many other organisations and be owned and used by these groups across the D2N2 area to help secure investment for further cycling and walking schemes in the sub region.

1.6.3 Parts of the region are already strongly associated with cycling – the Peak District being a favourite destination for mountain bikers and on-road cyclists enjoying a challenge, as well as families keen for a more sedate day out along the many traffic-free trails. For many cyclists, Nottingham means only one thing – the historic marque Raleigh. Because of the low-lying Trent Valley places like Long Eaton, Broxtowe and Newark, have much higher cycling rates than the national average, with much of the infrastructure already in place to support this.

Figure 1.7: Nottingham's Cycle Parks scheme has secure 'park and ride' at public transport hubs

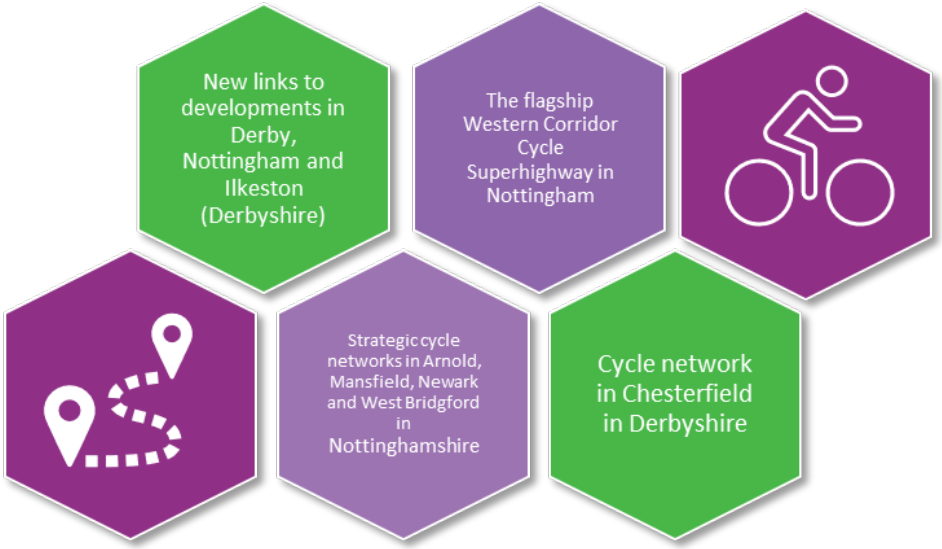
2 Gathering Information

2.1 Cycling and Walking delivery within the D2N2 sub-region

2.1.1 The four D2N2 local authorities have a strong track record of working together – including the shared challenges of the former northern coalfields and the significant overlap in travel demand across the boundaries of Derbyshire and Nottinghamshire, within the built-up areas around the individual cities (the suburbs of which lay in part in the hinterland counties); as well as between Derby and Nottingham cities. There is a shared ambition to improve connectivity to other sub regions e.g. Greater Manchester, South Yorkshire, Lincolnshire, Staffordshire, Cheshire and Leicestershire.

2.1.2 The four authorities have a strong record of working together. For example, they successfully secured £18m for active travel infrastructure from the Local Growth Fund in 2015, as illustrated in Figure 2-1.

Figure 2-1: D2N2 LEP Local Growth Fund (LGF)



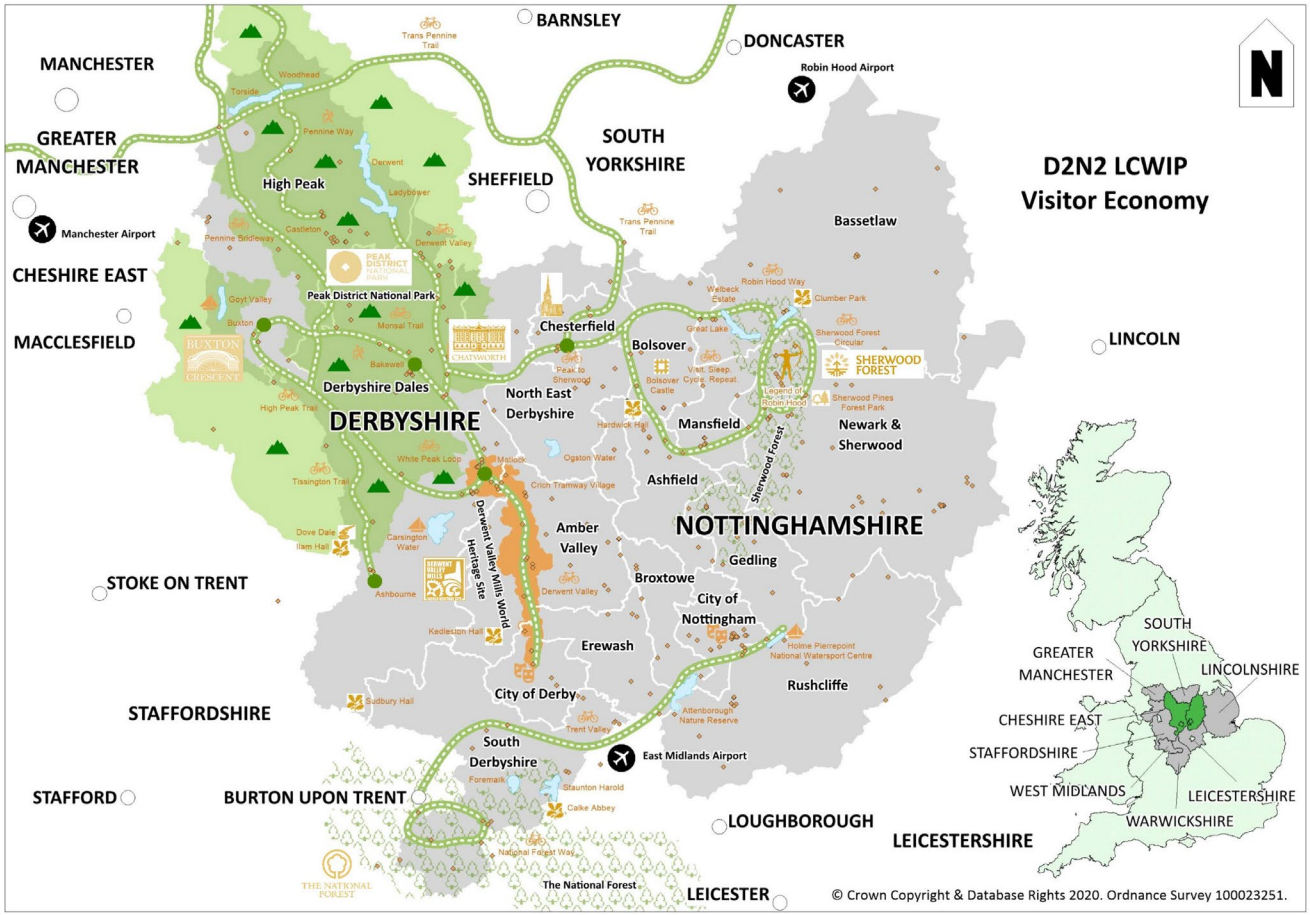
2.1.3 There is a long history of active travel investment across the sub region. Derbyshire adopted Greenway strategies from 1998, which have acted as a catalyst to partnership working including 135km (83 miles) of new multiuser routes over the last ten years, part of a 406km (252 mile) network across Derbyshire.

2.1.4 Derby was one of the pioneering Cycling Towns for Cycling England and home to the velodrome at Derby Arena; Nottingham's Workplace Parking Levy has enabled substantial investment in local transport; Nottinghamshire, Nottingham and D2N2 LEP have developed the Enterprise Zone cycle routes to link businesses around Beeston, including the Boots

Headquarters and Enterprise Zone. Partners submitted a successful £161m bid to the Transforming Cities Fund to improve sustainable transport in Derby and Nottingham, including development of e-bike Expressways between Derby, Nottingham and East Midlands Airport Employment Zone.

Figure 2.2: Why Invest in Cycling and Walking

Figure 2.3: The Visitor Economy



2.1.5 The visitor economy is a vital component of the D2N2 area as illustrated in Figure 2.3. Many places such as Sherwood Forest and the Peak District National Park are already important for cycle tourism and walking, providing high-quality, nationally recognised trails and challenge routes for road and mountain biking, and connections to national long-distance routes such as the Trans Pennine Trail and the Pennine Bridleway. There are still many other local attractions that would encourage sustainable tourism with the benefit of better access for people cycling and walking including the completion of the White Peak Loop, V.S.C.R., the Sherwood Forest Circular and connections into the Derwent Valley and surrounding transport hubs.

2.1.6 The proximity to adjacent urban areas can bring large numbers of day visitors by car, who bring disbenefits such as road danger and congestion, but spend little in the local economy. As slower modes, cycling and walking can be a great way to explore an area in more detail and spend more time in a location, increasing the potential for overnight tourists and short breaks. Because most people don't want to carry large amounts of food and drink when walking or cycling, they are also more likely to spend more in the area even on a day trip.

2.1.7 Tourism contributes to the local economy through a combination of direct spending, indirect spending and social value. Cycle tourism represents a growing and valuable tourist market, particularly in rural areas, and can provide new incentives for people to visit an area and help support local trade and businesses. Long distance cycle routes, which are predominantly rural, can generate as much as £30 million per year to the local economy, enough to sustain over 600 full time equivalent jobs. Cycle tourists on average spend more i.e. around 9% per head per trip, or around £81 per head more per trip than people arriving at venues by car (Value of Cycling DfT/PJA, March 2016). Research based on a model developed between Sustrans and the University of Central Lancashire 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.

2.1.8 Transport for London research published in 2018 shows that improvements to make it easier and safer to walk and cycle in London's town centres and high streets led to an increase in retail rental values, more retail space being filled and a 93% increase in people walking in the streets.

2.1.9 Unlike most transport schemes, schemes that improve cycling and walking infrastructure generally have a positive impact on health, safety and the environment which can lead to cost benefit ratios that are typically much higher than is usual for new roads and highway improvements.

2.2 Links to Other Policies and Programmes

2.2.1 The LCWIP has been informed by existing transport, land-use and economic policies and programmes for the sub-region and within each partner authority. As local policies are updated, the LCWIP can be embedded into the Local Transport Plan, Local Plans and other strategic documents at regional and local authority levels. This will further embed cycling and walking infrastructure into future highway improvement schemes, regeneration schemes and new development.

2.2.2 Figure 1.1 illustrates how the LCWIP fits into the wider policy framework. This section summarises the content of the relevant national and regional policies, while local ones are discussed in appendices A to D. A more detailed case study for Derbyshire is also included in Appendix I.

2.2.3 All four authorities in the sub-region have mature strategies for cycling and walking, meaning that many components of the LCWIP are already embedded into policy and planning as a result of previous work. The regional LCWIP has enabled the partners to take a strategic overview of cross-border routes and to consider the differences between the largest cities, the industrial town centres and the market towns, all of which present different challenges and opportunities for cycling and walking infrastructure.

National Policy

2.2.4 The **Infrastructure Act 2015** placed a duty on the Secretary of State to set out a **Cycling and Walking Investment Strategy** (CWIS) and to develop an associated programme of work. The headline ambition of the Cycling and Walking Investment Strategy is *"to make cycling and walking the natural choices for shorter journeys, or as part of a longer journey."*

2.2.5 The LCWIP is the mechanism by which local authorities and their partners are planning investment in local routes that will deliver the vision of the national policy.

2.2.6 The **National Planning Policy Framework** guidance recognises that LCWIPs form an important part of the documentation for local transport in associated with land use planning.

2.2.7 **Public Health England: 'Working Together to Promote Active Travel'** May 2016, wants the main focus to be on cycling and walking to increase physical activity.

2.2.8 The National Institute for Health Research report, **'Moving Matters – Interventions to Increase Physical Activity' July 2019** emphasises the need to provide suitable environments to support physical activity, as well as reflecting personal beliefs and habits, and developing people's motivations and capabilities to become more active.

2.2.9 The D2N2 LCWIP reflects the scale of ambition set out in the government's recent **Gear Change** active travel vision.

2.2.10 **Highways England** has a commitment to consider cycling and walking infrastructure in all schemes as part of its agreement with government. These are set out in its **Cycling and Accessibility Strategies**. Highways England also has a programme of designated funds within each Roads Investment Period for working alongside local highway authorities to make improvements where local cycling and walking routes cross or run alongside the strategic road network.

2.2.11 The **Rail Delivery Group** works with Network Rail and train operating companies to improve conditions for people cycling and walking to stations. Requirements are set out in DfT franchise agreements and the group also often administers designated funds for station improvement plans, cycle parking, cycle hire and other enhancements that are periodically released by DfT.

Regional Policy

2.2.12 The **D2N2 LEP Vision 2030 Strategic Economic Plan** sets out the co-benefits of economic growth and health and well-being. This includes significant investment in placemaking projects that enhance the public realm and connectivity for walking while at the same time creating attractive places that bring inward investment from business.

2.2.13 The Vision 2030 SEP states that "The D2N2 LEP has invested in cycling infrastructure to promote sustainable access to key employment sites, enhanced visitor experiences, and high-quality leisure and recreation opportunities, in urban and rural environments. D2N2 LEP will continue to promote investment in cycling infrastructure, to support our vision of a sustainable and healthy economy."

2.2.14 A detailed case study of how the LCWIP aligns with local policies in Derbyshire to support the strategic case for investment is included as Appendix I . Local policies and strategies for individual authorities are summarised in Appendix A to D.

2.3 Developing the Evidence Base

Travel Demand

2.3.1 Making the case for spending on cycling and walking infrastructure requires an understanding of:

- local journey patterns to identify where short journeys are taking place;
- how many people are travelling;
- their journey purpose.

2.3.2 Analysis of this data has helped to prioritise places where the infrastructure improvements could deliver a high return on investment through increased active travel. An understanding of journey purpose helps when considering the merits and likely economic benefits of individual routes or design solutions.

2.3.3 All four partner authorities have previously developed cycling strategies and have ongoing programmes of investment based on previous research. Analysis of demand data for the LCWIP has helped to validate existing parts of the network and identify areas for improvement or extension.

2.3.4 As one would expect, the main hubs of commuter activity are within the two major cities along with the larger market towns and key public transport hubs. These locations have an agglomeration of trip attractors that generate demand along radial routes to each centre. Hubs of visitor activity are also focussed where there is an agglomeration of nationally known attractions and high-quality landscapes that draw large numbers of visitors.

Policy Objectives

2.3.5 The evidence base also demonstrates where the network will help to meet the objectives set out in 1.3 such as improved access to education and employment, improved air quality, improved public health, supporting the local economy and carbon reduction.

2.3.6 Core indicators have been developed to help to demonstrate where cycling and walking interventions can help meet the mutually-agreed sub regional priorities. The core indicators can also be used to determine which funding sources may be most appropriate, for example criteria such as improving public health or promoting tourism.

Building on Previous Work

2.3.7 All four authorities have benefited from previous active travel programmes such as Cycling England, the Local Sustainable Transport Fund, the Local Growth Fund as well as their own investment in regeneration and highway improvement works that have delivered cycling and

walking infrastructure. Officers and stakeholders have been able to identify opportunities to complete missing links in the network and areas where existing routes require upgrades.

Demand data – commuting patterns

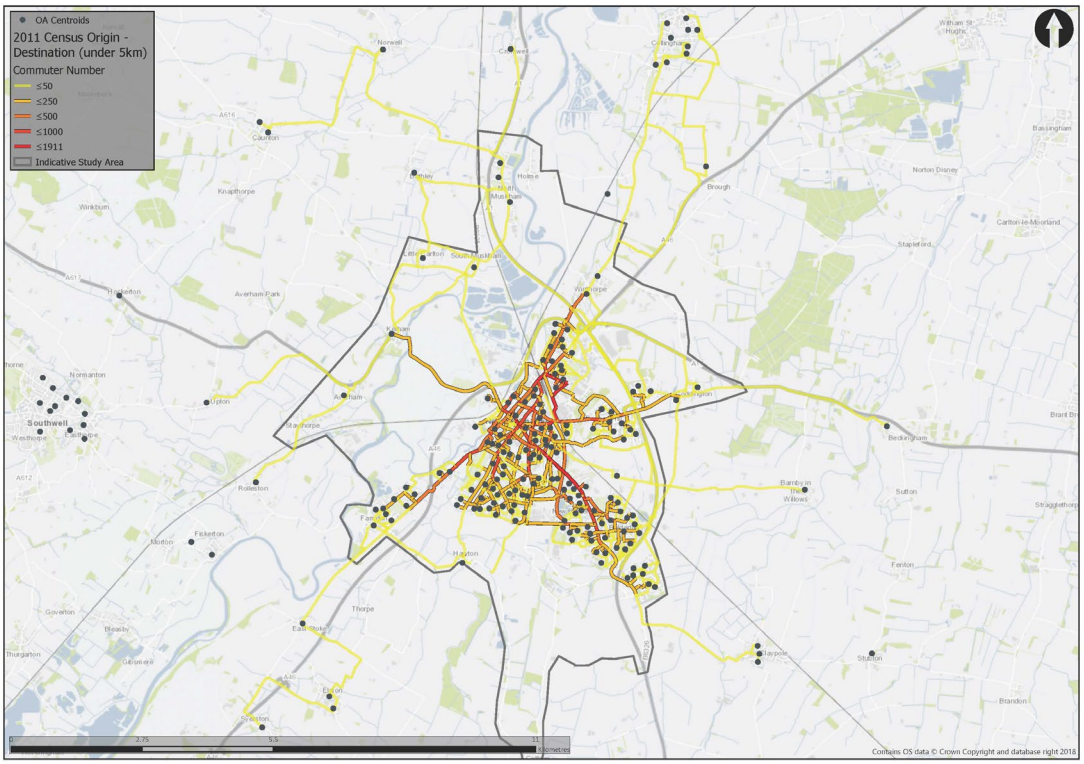
2.3.8 The 2011 Census Journey to Work Data forms the basis of the Propensity to Cycle Tool (PCT). The GIS team used the open source data from the PCT to develop a bespoke demand assessment for D2N2. The commute is only one type of journey and the data is almost ten years old. The commute is significant however because it is most closely associated with:

- Regular short trips that could potentially transfer to walk or cycle
- Peak time traffic congestion and the associated traffic danger and air pollution
- Trips to fixed destinations such as schools, workplaces and railway stations that can most easily be targeted with complementary behaviour change programmes

2.3.9 Origin-destination points from the census data were plotted and then snapped to the nearest rights of way available for cycling and walking. Upper limits of 5km and 8km (based on averages in the National Travel Survey) were applied to filter out longer journeys to ensure the distances could be walked or cycled on a daily basis.

2.3.10 Officers and stakeholders also mapped other trip generators including education, leisure, tourism and significant recent and planned local developments.

Figure 2.3: PCT analysis of commuter trip patterns in Newark, Nottinghamshire



2.4 Demand Data – Leisure and Tourism

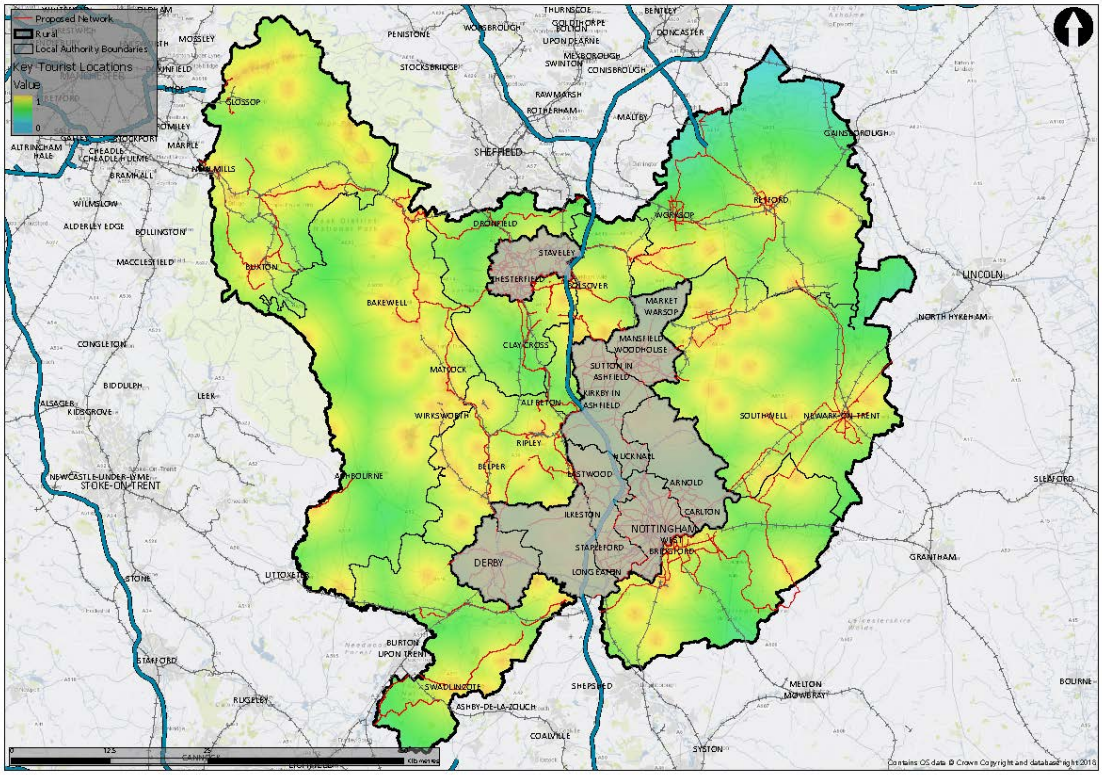
2.4.1 Tourism is a major economic driver across the region due to cultural attractions, industrial heritage and the natural beauty of the countryside. Several off-road trails already attract high numbers of visitors. Multi-user trails are recognised for their importance as destinations where:

- beginners can gain confidence in a safe traffic free environment,
- people of all ages and abilities can enjoy the countryside on level, easy graded paths (see image of Monsal Trail);
- businesses directly provide employment in cycle hire, refreshments, tourist services and accommodation and also support supply chains in the wider local economy;
- the trail forms part of a network supporting local journeys to school, training and work on foot and by bicycle.

Figure 2.4: Monsal Trail provides access for all

2.4.2 Monitoring data from stations on the established trails is used to identify trends and monitor the success of investment, and has been used to inform the local cycling strategies described in Appendices A to D. The Monsal Trail for example, shows consistent year-round usage with an annual combined pedestrian and cycle flow of over 330,000 users that exceeds flows on many urban routes. It demonstrates the importance of these routes to the visitor economy in the sub-region. The main visitor destinations and existing route networks were mapped to help identify gaps in the existing network that could be addressed in the LCWIP period. Each authority then used the information to devise local routes to popular destinations and address gaps in their existing networks as illustrated overleaf.

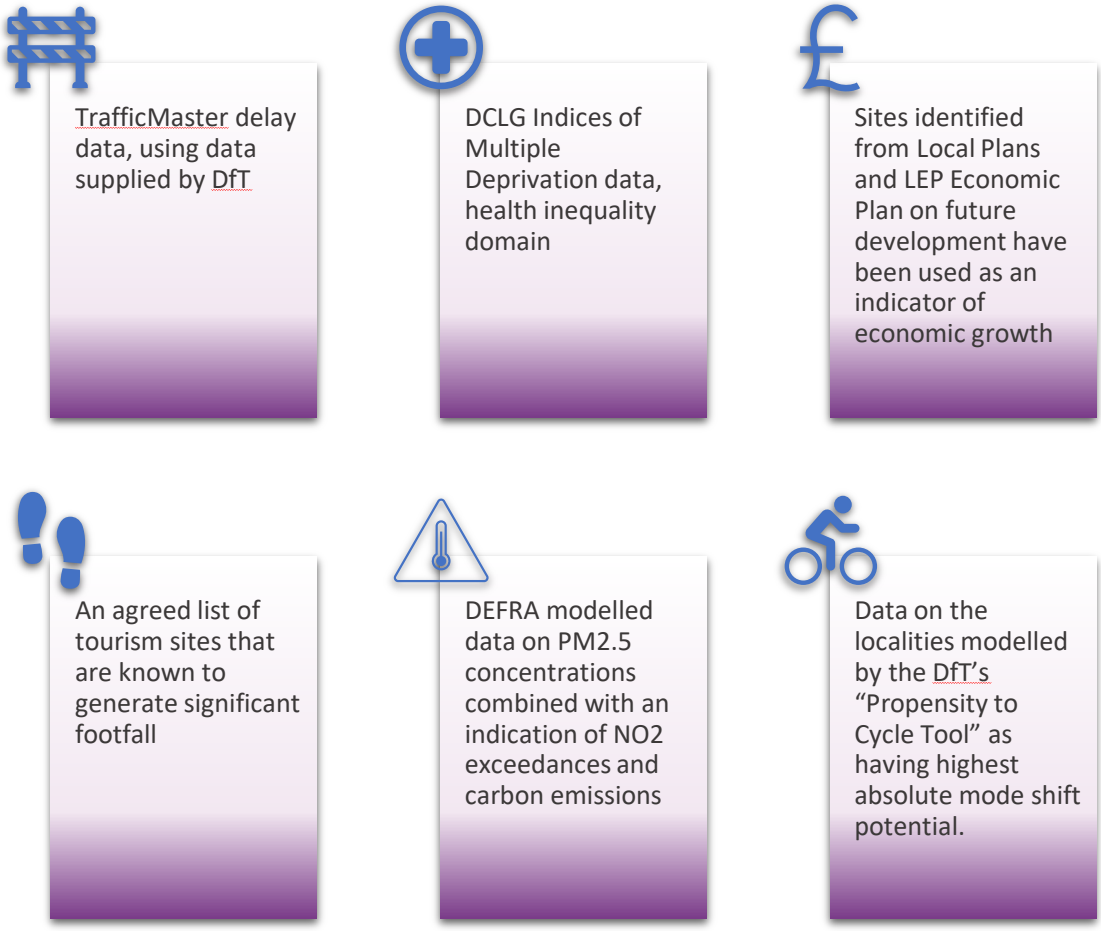
Figure 2.5: Heat map of popular tourism sites and proposed network



2.5 Data Sources for Core Indicators

2.5.1 Core Indicators are data sets that demonstrate how building new active travel infrastructure can support each of the strategic objectives set out in 1.3, reflecting the broader policy environment set out in sections 2.2 and 2.3 and the local appendices. The indicators include quantitative and qualitative information. The method is described in more detail in Appendix F.

2.5.2 The core indicator data sources used are as follows:



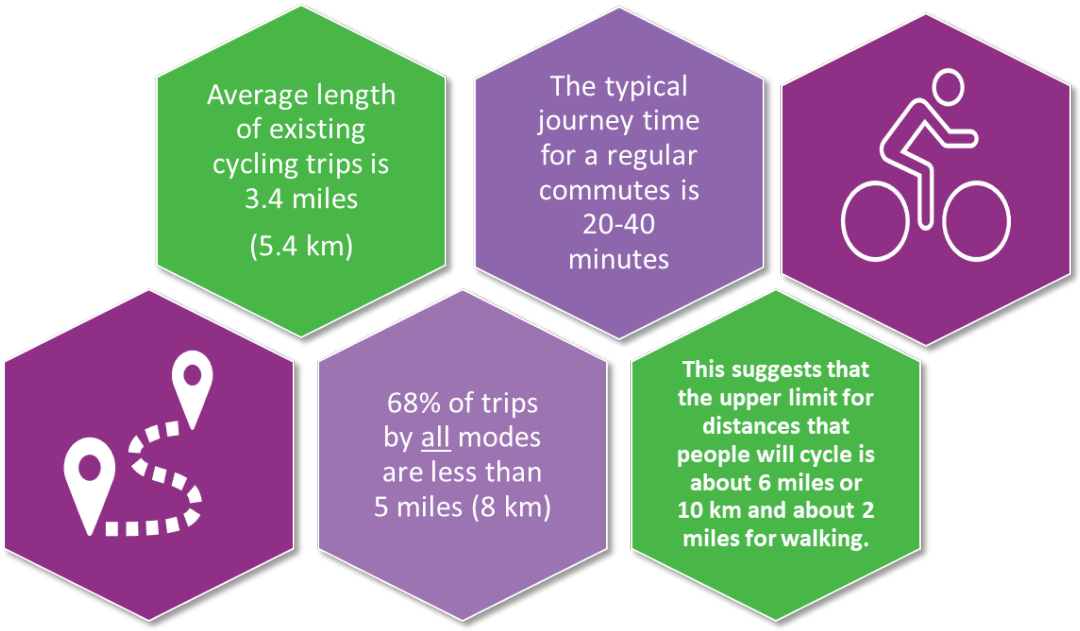
2.5.3 Each authority has assembled a prioritised list of schemes based on the above indicators, fit with existing plans, programmes and opportunities. The 'long-list' of schemes was then prioritised and categorised with consideration of local issues, such as development dependencies and local political priorities and their deliverability (including the current development status of schemes, i.e. feasibility and design work undertaken on them to date) to determine whether the selected schemes fall into the short, medium or longer-term delivery category.

3 Planning the Network

3.1 Introduction

3.1.1 The D2N2 LCWIP network plan reflects the detailed knowledge of officers and stakeholders gained through the delivery of previous projects and the development of area strategies. Desktop analysis of travel patterns, planning proposals and other spatial data in GIS has helped to illustrate and validate the network plans.

Figure 3-1: National Travel Survey 2018, DfT



3.1.2 Demand data analysis is based on identifying urban areas with a prevalence of short trips of less than 5km for cycling and 2km for walking, reflecting typical trip lengths for these modes in the National Travel Survey. This was then combined with the analysis of leisure-based cycling described in section 2.5. The data led approach therefore has some limitations when dealing with a large diverse area where longer inter-urban and rural routes also form part of the strategic network. Inputs from previous studies, officers and stakeholders have therefore informed the planning and prioritisation process.

3.2 Walking network planning

3.2.1 Cities, market towns and rural areas have a long-established network of footways and footpaths that provide access for commerce, leisure, services and interchange for onward travel. As our villages, towns and cities evolve, roads and streets change to reflect a different role and purpose. For example, in the Peak District National Park many villages have changed from local service centres to visitor and holiday destinations but are not currently designed to accommodate high levels of pedestrian use. Town and city centres are responding to the

immediate threat of Covid and longer term reduction in traditional retail floorspace as more shopping moves online.

3.2.2 The assessment of walking infrastructure through this LCWIP will therefore focus on strategic local improvements that support the evolution of urban communities in cities, market towns and rural areas and opportunities for 'placemaking' to support the green economic recovery as centres evolve with more hospitality businesses and a return of residential development. Smaller scale measures such as new or improved crossing points on major roads or other physical barriers, maintenance issues and increasing footway capacity will be addressed in local networks.

Figure 3-2: Derby City Centre

3.2.3 Most everyday (non-leisure) walking trips are less than one mile in length, and this includes walking as one stage of a journey combined with another mode such as bus, rail or car. In urban areas the main purpose of walking trips is for local access to employment, education, goods and services. People typically walk at around 3mph which also places a natural limit on the distance that most people will walk as part of a regular journey due to time constraints. Many proposals to bring forward cycle routes will also incorporate facilities for pedestrians and horse riders in the countryside sections.

3.2.4 Walking for leisure or exercise is different. People will spend more time and walk further. Multi-user paths will continue to be investigated and delivered, bringing benefits for pedestrians, cyclists and often equestrians too.

3.2.5 Walking interventions are focussed on 'core walking zones' that are usually the town and city centres where there is a concentration of trip attractors in close proximity. Improvements are determined through site investigations using a 'Walking Audit' that looks at where pedestrian access to and through these zones can be improved with better infrastructure.

This includes access to public transport interchanges and direct access to longer linear routes and public open spaces. An example walking audit from Nottingham is included in Appendix I.

3.2.6 There is less requirement for a cross-sub regional plan for walking, as the shorter distances for utility walking trips yield little demand for new cross-boundary infrastructure, although both cities have borders with the neighbouring county that are within the built-up area. The LCWIP is a vehicle to provide a consistent approach to ensure improvements for walking are made across the sub region.

3.2.7 In the market towns and surrounding countryside, walking is an important part of the tourism mix. The needs of pedestrians in this context are met through the improvement and development of trails and other public rights of way (PROW), but it is also important that attractive public spaces are available in the towns as this encourages people to stay longer and spend locally.

3.2.8 Each authority has developed its walking network plan according to what is most locally relevant for the typical walking trips in the area. These are summarised in Appendices A to D.

3.3 Cycling network planning

3.3.1 The development of the cycling network has been informed by well-developed local strategies and plans which have then been validated and supported through GIS analysis of trip patterns in the urban areas. The PCT is not used as a basis for analysis in rural areas where commuting is a far less significant component of travel. Partners also have access to local evidence, including the network of cycle counters and regular visitor surveys. The locally collected data helps to inform local priorities and support funding applications.

3.3.2 All existing journey to work trips (by all modes) up to 5km and 8km length were mapped to identify key corridors where there is potential to undertake trips by sustainable modes, which are predominantly in the towns and cities. This data for all modes is indicative of where short trips are taking place that could potentially transfer to cycling, not where people are already cycling. The object is to identify where there is significantly unmet potential that could be unlocked through the provision of better infrastructure that would appeal to a broader base of users.

3.3.3 The plots at 5km reflect the average distance of existing cycle trips, and thus assumes that people shifting from other modes of transport would be willing to cycle up to this average distance. E-bikes and higher quality infrastructure both have the potential to extend the range that people are prepared to cycle by reducing the effort required and cutting journey times.

3.3.4 There is usually much greater scope for car journeys to shift to cycling than walking, given that a high proportion of car trips are longer than 1 mile but shorter than 5 miles. This is a range considered optimal for cycling but too far realistically to walk for non-leisure purposes. While there are many car trips that are short enough to walk, the proportion of people walking up to 1 mile is far higher than the proportion of people cycling up to 5 miles.

3.3.5 The data analysis and associated modelling have been used as a complement to already well-developed local plans for cycling, helping to identify gaps in the network and giving an indication of potential usage to help with prioritisation. The LCWIP process helps to validate existing routes and to identify new links that would complement existing and planned networks.

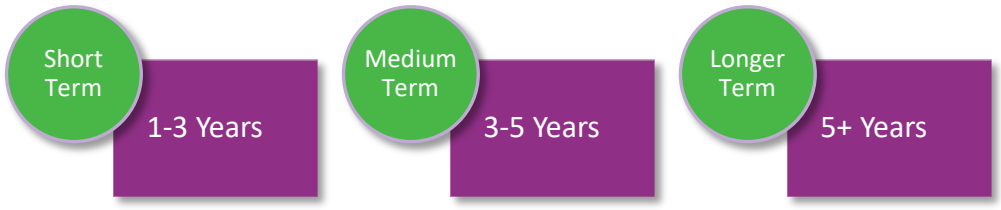
3.3.6 The partners identified and agreed a strategic network of cycle routes to improve and develop across the region. This D2N2 network is illustrated in Appendix E. The network plan excludes routes that have already been sufficiently improved for cycling, and does not include local links. In total 1012 links were identified for the D2N2 sub region. Each local authority is also developing network plans, for example Derbyshire has developed a full hierarchy of strategic, local and town networks. The process involved full public consultation to agree the strategic network and appraisal against sustainability objectives and requirements for future business cases. Derbyshire County Council has now formally adopted the strategic network and the priorities contained within the LCWIP.

4 Programme Prioritisation

4.1 Introduction

4.1.1 The prioritisation exercise considers the potential increase in active travel, the strategic fit of routes to deliver policy priorities, and the contribution of routes to connect gaps and deficiencies within the existing network.

4.1.2 The prioritised plans for investment are summarised in sections 4.3 to 4.5 and sit within an overall timeframe of up to fifteen years:



4.1.3 The LCWIP prioritises schemes that contribute to the delivery of strategic objectives, and will enable the authorities to identify opportunities for future funding bids. Prioritisation is not constrained by existing funding. Committed schemes form some of the short term proposals but funding sources for the medium to long term are unknown. The region has been on a trajectory of increased funding for cycling and walking over the last decade.

4.1.4 The LCWIP demonstrates how larger scale and more consistent funding could deliver significant potential uplift in cycling and walking, and the economic benefits that this would yield to the region. The Partnership can demonstrate past successes of this approach, for example through previous investment in active travel and immediate plans for the short term through Tranche 2 of the Derby/Nottingham TCF bid which includes parts of the LCWIP network.

4.1.5 Each authority has identified and appraised the proposed network across their respective areas and zones (the city authorities by definition are only in one zone) to determine the priority routes for development through the LCWIP.

4.1.6 The allocation of schemes into a prioritised sub-regional programme reflects the mutual benefits where routes overlap administrative boundaries, as well as local priorities within each zone.

4.1.7 Each local authority has assessed the deliverability and priority of potential routes to set out a programme for short, medium or longer term projects. Dependencies with other related projects such as major improvement schemes, planned new developments, feasibility and

responses to current and future challenges were considered. The LCWIP is a live document that can be reviewed and updated as schemes are delivered, as new sources of funding become available, as new or revised data sources and assessment methodologies become available, and as new scheme proposals are developed.

4.1.8 Through a series of workshops, the steering group appraised the evidence to ensure continuity of cross-boundary connections so that truly sub-regional network is delivered. Cross-boundary schemes do not necessarily need to share the same timescale in each authority (although the intention is to coordinate delivery through joint working), so long as a joined-up route will ultimately be delivered.

4.2 Notes on Prioritisation

4.2.1 The LCWIP builds on previous work undertaken by the local authorities to plan and deliver routes across the region. During development of the LCWIP, officers considered how to plug gaps in existing networks and places where existing routes need to be improved.

4.2.2 Derbyshire County Council (DCoC) identified a hierarchy of 'Key Routes' and 'Local Routes' in its Cycling Plan to deliver 'World Class' infrastructure. This LCWIP includes priorities extracted from the Key Cycle Network (KCN) plan, approved by Cabinet in January 2020. Nottingham identified radial and orbital corridors in the 2011 cycling strategy. Derby developed a signed network within the Cycle Derby programme. Nottinghamshire identified strategic corridors in several towns through its Cycling Delivery Plan and LGF funded strategic cycle networks.

Figure 4-1: Derby cycle routes

4.2.3 Priorities are subject to change/approval by councillors as the LCWIP proceeds through to formal adoption within the various local authorities. The network plans will be subject to periodic review. The content in sections 4.3 to 4.5 reflects priorities for the short to medium term at the time of writing (2020).

4.2.4 Only strategic cycle routes are included in this LCWIP. The strategic routes are supported by local and town networks that will be developed by each authority, making use of future funding streams and developer contributions to deliver the local route connections.

4.2.5 The priorities were broadly identified through consideration of the demand data, the core indicators and policy fit. The exercise was undertaken by individual authorities throughout the LCWIP process. The highest scoring top five priority routes from each of the three geographic zones form the indicative short and medium programme for the LCWIP. The selected routes are those that have high potential to increase walking and cycling, will be able to demonstrate good value for money from public and private sector investment, and support the wider priority outcomes within each zone.

4.2.6 The LCWIP is used only as a strategic planning tool, not a design process. Schemes have not yet been assessed in terms of 'deliverability'. The network will require further significant investment in feasibility studies and route option selection within the corridors to determine scheme designs and support submission of outline business cases to secure investment.

4.2.7 The LCWIP also reflects an overarching commitment to maintain and improve the current and future network, maintaining and raising the standard to make cycling convenient, safe and accessible to a wide range of users.

4.3 Derby, Nottingham and the urban connections in the south of the counties

Area:

City of Derby. City of Nottingham. Derbyshire (Amber Valley, Erewash, South Derbyshire). Nottinghamshire (Ashfield, Broxtowe, Gedling, Rushcliffe).

Narrative – Key Strengths:

Links into and connecting the cities/East Midlands Airport (EMA). HS2 Growth Strategy, Transforming Cities. Access to employment (commuting – key internationally recognised employers), education (universities), health, and transport hubs. Supporting significant economic growth opportunities (jobs and houses). Connections to market towns and development of town networks e.g. Long Eaton and Ilkeston in Derbyshire; the Beeston area and Arnold/Mapperley area in Nottinghamshire.

Local Example Initiatives

Transforming Cities Fund – Cross boundary connections and joint working across all four authorities.

Links to HS2 East Midlands Hub Station, Toton GZ.

Town networks e.g. Ilkeston/Long Eaton.

Emergency Active Travel Fund

Design Features

- Strategic inter-urban cycle expressways (segregated routes), hard surfaced. Supplemented by a network of high quality walking and cycling routes connection into neighbouring towns, urban centres and transport hubs.
- Separate cycle tracks and footways within the highway boundary of urban main roads.
- City centre regeneration.
- Public realm enhancements.
- Upgrades to canal towpaths and Greenways.
- Integration with major infrastructure projects (HS2, EMA).
- Modal filters.
- Low traffic neighbourhoods.

Short-term Priority Project Corridors

- Nottingham & Derby to EMA
- Strategic Derby to Nottingham Routes via HS2 East Midlands Hub Station
- Ilkeston and Ripley/Belper to Derby (Great Northern Greenway & Bennerley Viaduct)
- Derby Connectivity (North). Little Eaton Branch Line
- Swadlincote to Burton
- Holme Pierrepont to Wilford
- River Trent Crossing
- HS2 Connectivity – East Midlands Hub Station to Stapleford & Long Eaton
- A612 Corridor (Colwick)
- Erewash Canal (Langley Mill to Ilkeston)
- Nottingham City Centre Cycle Corridors e.g. Broadmarsh Redevelopment
- Nottingham City and Derby City On-Street E-Cycle Hire Scheme
- Gedling Country Park Access
- Wheatcroft to Keyworth
- Hucknall to Nottingham

Potential Funding Opportunities

- Derby & Nottingham Transforming Cities Fund
- Town Deals – Long Eaton, Stapleford
- Future High Streets Fund – Derby City Centre - St Peters Cross, Heanor, Nottingham City Centre – West End Point
- Highways England Designated Fund
- HS2 Connectivity
- Local Growth Fund (LGF) – Woodville Swadlincote Regeneration Route
- Private sector including developer funding
- Emergency Active Travel Fund

Case Study: Line 2 of the Nottingham Tram Network

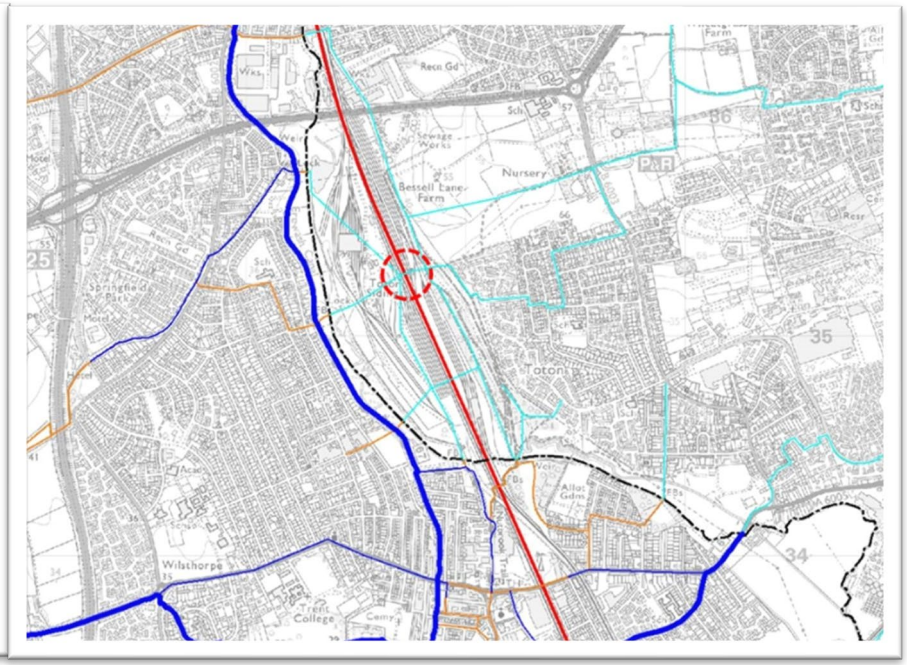
4.3.1 In August 2015, Line 2 southern section of the Nottingham Tram network opened linking the train station in the city centre with the suburb of Clifton and its Park & Ride. The first 5km of the route is mainly off road and was constructed with a minimum 3m wide shared pedestrian/cycle path alongside it. This has formed the core of the strategic southern cycle corridor in Nottingham, designated route N1. From the station the route runs through Queens Walk to the River Trent, where traffic was completely removed for the tram, cyclists and pedestrians. The old Toll Bridge across the river was converted for tram, cyclist and pedestrians only too. This major transport corridor was built in cooperation with neighbouring Rushcliffe Borough Council and Nottinghamshire County Council across whose boundaries it runs. In the year to February 2020 125,500 cyclist were recorded on the path south of the Trent, with a daily average of 350 (10,500 per month). In May 2020 during Covid19 lockdown this rose to 840 a day, with 26,000 in the month.

HS2 Connectivity – East Midlands Hub Station Toton

4.3.2 The main ”asks” made to HS2 Ltd and DfT in relation to cycling and walking are:

- Northern Links: Between Derby Road and the A52, Bessell Lane should be designed to solely facilitate bus, cycle and pedestrian movements. Vehicular access should not be permitted (except for emergency vehicles)
- East-West Links: Non-paying railway passengers are always able to use the concourse to enable east-west links across the trace
- East-West Links: Active travel links should be provided directly to Toton (to the top of the escarpment)
- Southern Links: Commitment to provide a high quality underpass environment to provide a safe route for vehicles, NET, cyclists and pedestrians
- Southern Links: Demonstrate that the proposed location for the replacement pedestrian and cycle bridge will maximised local connectivity between Toton, Long Eaton and the wider foot and cycle network

East Midlands HS2 Growth Strategy (Sept 2017) (Section 3.6 p33): https://www.emcouncils.gov.uk/write/East_Midlands_HS2_Growth_Strategy_-_September_2017.pdf



4.4 North Urban – The principal market towns of Chesterfield, Mansfield and Ashfield

Area:

Derbyshire (Chesterfield, North East Derbyshire, Bolsover). Nottinghamshire (Mansfield, Ashfield).

Narrative – Key Strengths:

Chesterfield, Mansfield, Ashfield. Densely populated large towns.

Chesterfield Cycle Network. Facilitate significant growth plans within the Northern Growth Zone/Mansfield/Ashfield. Connections into Chesterfield Station Masterplan (HS2). Transport hubs. Onward connections to Peak/Sherwood.

Local Example Initiatives:

Visit Sleep Cycle Repeat

Chesterfield Cycle Network – A61 Corridor infrastructure and wayfinding

HS2 Chesterfield – Peak to Sherwood

Emergency Active Travel Fund

Station Link, Chesterfield

Case Study: The A61 Cycle Corridor

Why was the route needed?

The A61 corridor is a busy major road running on a north-south axis connecting Chesterfield to the M1 motorway and Sheffield. The A61 corridor forms part of the North Derbyshire Growth Zone with several major brownfield sites being redeveloped for housing and employment. Travel demand is anticipated to significantly increase as these major developments come forward, and be further boosted when HS2 services call at the town's rail station by 2040. The town is relatively self-contained. A high proportion (64%) of all journeys to work are therefore short, providing a high propensity for securing modal shift to walking and cycling.

What we did?

The Council commenced a programme of cycle improvements in Chesterfield from 2010 following the development of a proposed cycle network for the town. Work has focussed on creating a north-south spine linking all the major development sites with key activity areas, such as employment, retail, education and leisure, as well as the railway station and town centre. The 'Standard Gauge' project (red routes on map) completes the two remaining 'missing' sections to create a complete 8km off-road route. The project has been delivered with close liaison with local cycling and walking stakeholders; who have been instrumental in scoping a new method of wayfinding with route branding by March 2021. The intention is to expand the wayfinding concept across the wider network in the future.

What impact has it had?

At one location south of the railway station there were 131 cyclist journeys per day (2019) with most travelling during peak commuting periods. During the COVID-19 lock-down cycling levels have more than doubled to 300 cyclist journeys per day (2020). It is anticipated that levels will continue to increase following improvements to connectivity north and south of the town centre and as other cycling connections are made.

Funding and Delivery

The scheme cost of £2.11m was funded by the LEP and Local Growth Fund, delivered by Derbyshire County Council Highway Construction Services. The BCR for the scheme was 2.07.

Design Features

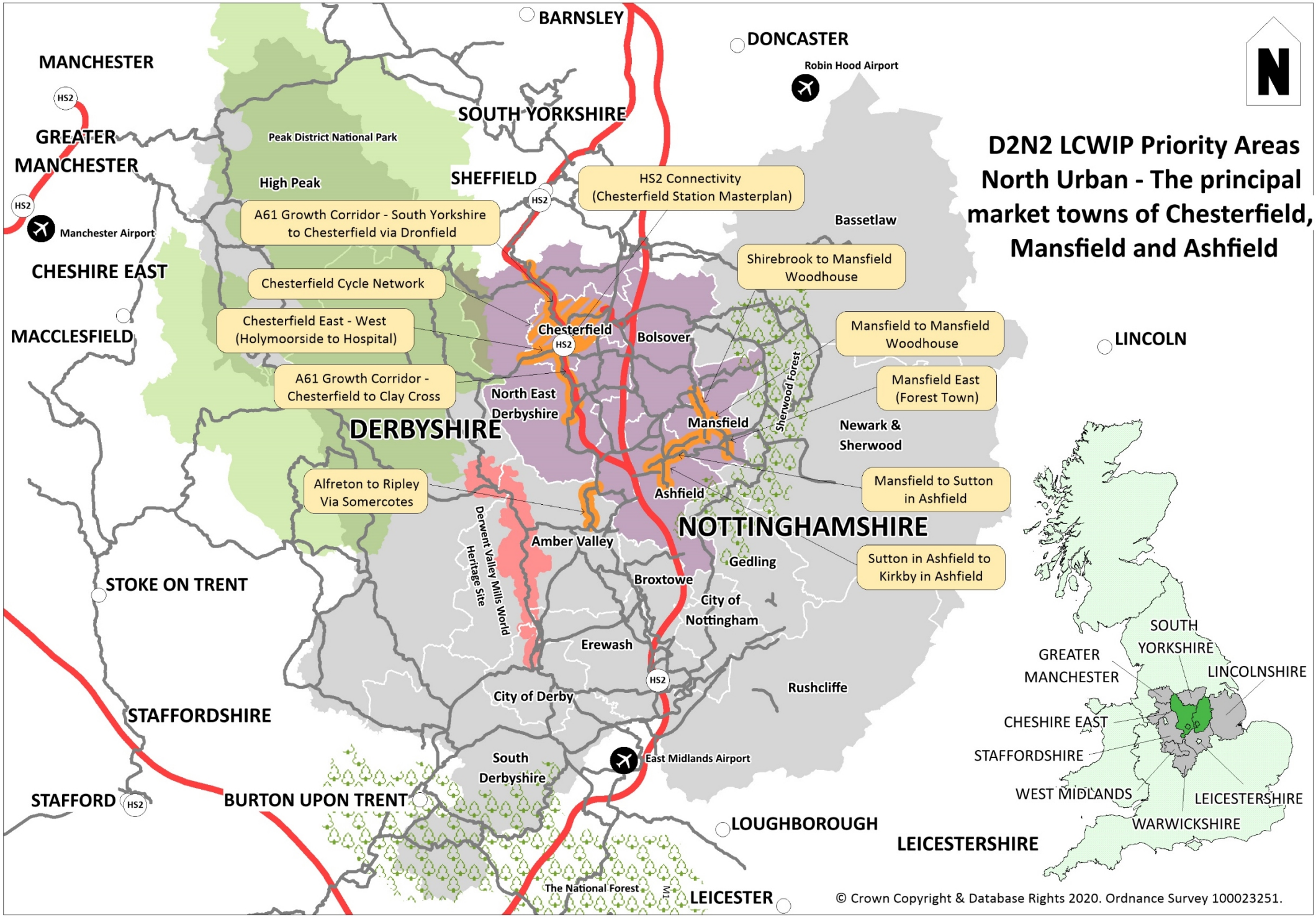
- Strategic network of cross boundary expressways connecting market towns and key destinations
- Local network of high quality walking and cycling routes
- Sealed surface segregated routes with lighting.

Short-term Priority Project Corridors

- A61 Growth Corridor (N), South Yorkshire to Chesterfield via Dronfield
- A61 Growth Corridor (S), Chesterfield to Clay Cross
- Chesterfield Cycle Network
- HS2 Connectivity (Chesterfield Station Masterplan)
- Shirebrook to Mansfield Woodhouse
- Alfreton to Ripley via Somercotes
- Mansfield to Mansfield Woodhouse
- Sutton in Ashfield to Kirkby in Ashfield
- Mansfield East (Forest Town)
- Mansfield to Sutton in Ashfield

Potential Funding Opportunities

- Town Deals – Clay Cross, Kirkby in Ashfield, Mansfield, Staveley, Sutton in Ashfield.
- Future High Streets Fund – Mansfield, Sutton in Ashfield
- Local Growth Fund (LGF) - A61 Corridor/Chesterfield Station Masterplan
- Midlands Connect – Large local Majors (LLM) e.g. A619 Chesterfield – Staveley Regeneration Route
- EU Ambient Air Quality Directive (A38)
- European Regional Development Fund (ERDF) VSCR.
- Community Infrastructure Levy (CIL)
- Emergency Active Travel Fund



4.5 Market Towns & Rural Hinterlands

Area:

Derbyshire (High Peak, Derbyshire Dales, North East Derbyshire, Bolsover, Amber Valley, South Derbyshire). Nottinghamshire (Bassetlaw, Newark & Sherwood, Rushcliffe).

Narrative – Key Strengths:

Wider network of routes connecting key market towns and rural communities and visitor destinations.

Visitor economy – Access to key visitor destinations. Derbyshire World Class Destinations (Buxton Spa, Chatsworth, Hardwick, Calke Abbey, National Forest, Derwent Valley Mills World Heritage Site, Peak District National Park). Nottinghamshire, Sherwood Forest and Visitor Centre, Clumber Park, Welbeck and Country Parks. In certain areas infrastructure provided may function as a key visitor destination in itself. Sustainable tourism.

Rural connectivity – Access to employment, housing growth and connections to transport hubs within, and between market towns (commuting).

Local Example Initiatives:

Peak to Sherwood (cross boundary connectivity) including the Clowne Branch Line

Visit Sleep Cycle Repeat – Cross boundary connections and joint working

White Peak Loop (WPL) Long-term Derbyshire aspiration (Pedal Peak) – 'Completing the Loop'.

Design Features

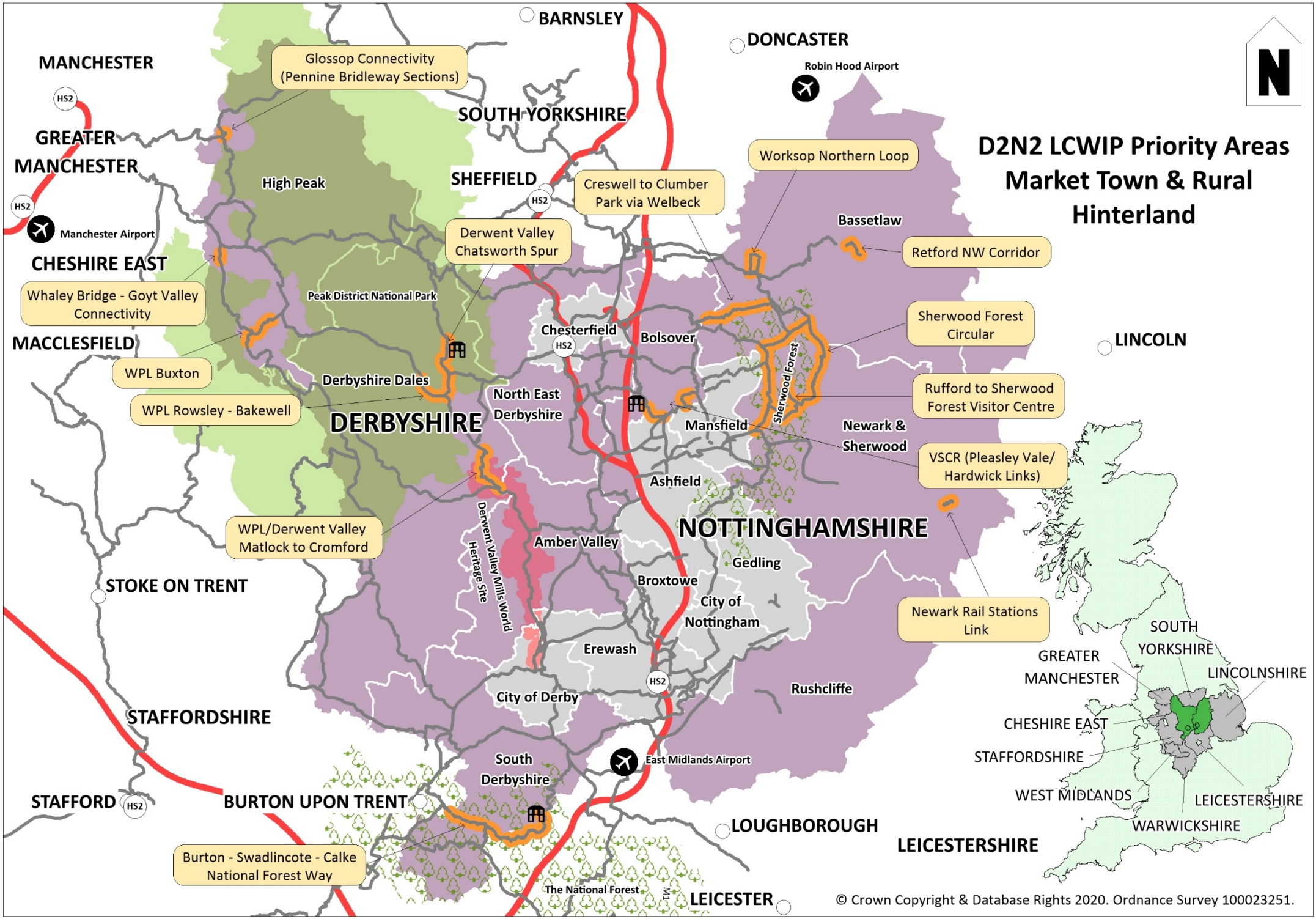
- Network of high quality walking and cycling routes within settlements with strategic connections. Supplemented by wider collections of routes or longer distance leisure trails e.g national trails and regional circuits.
- Multi-user trails (walking, cycling, horse riding) off-road trails.
- Aggregate, reverting to sealed surface e.g. Tarmac at the rural/urban interface.
- Traffic management, low traffic neighbourhoods and vehicle restricted areas with associated public realm improvements in the smaller market towns where separate cycle infrastructure is impractical due to narrow streets.

Short-term Priority Project Corridors

- Sherwood Forest Circular Route
- Sherwood Forest Visitor Centre to Rufford Country Park
- 'Closing the Loop' - White Peak Loop sections, Buxton, Bakewell, Matlock and Chatsworth Spur
- Glossop Connectivity (Pennine Bridleway Sections)
- Creswell to Clumber Park via Welbeck
- Burton-Swandlicote-Calke (National Forest Way)
- Whaley Bridge Goyt Valley Connectivity
- VSCR Sections – Pleasley Vale/Hardwick Links
- Newark Railway Stations Link
- Worksop Northern Loop
- Retford NW Corridor

Potential Funding Opportunities

- Town Deals – Newark on Trent
- Future High Streets Fund – Buxton
- Safer Roads Fund
- Housing Infrastructure Fund (HIF) – Hogshaw - WPL sections Fairfield, Buxton
- EU Funding for Visit Sleep Cycle Repeat (V.S.C.R.)
- Developer contributions and other private sector

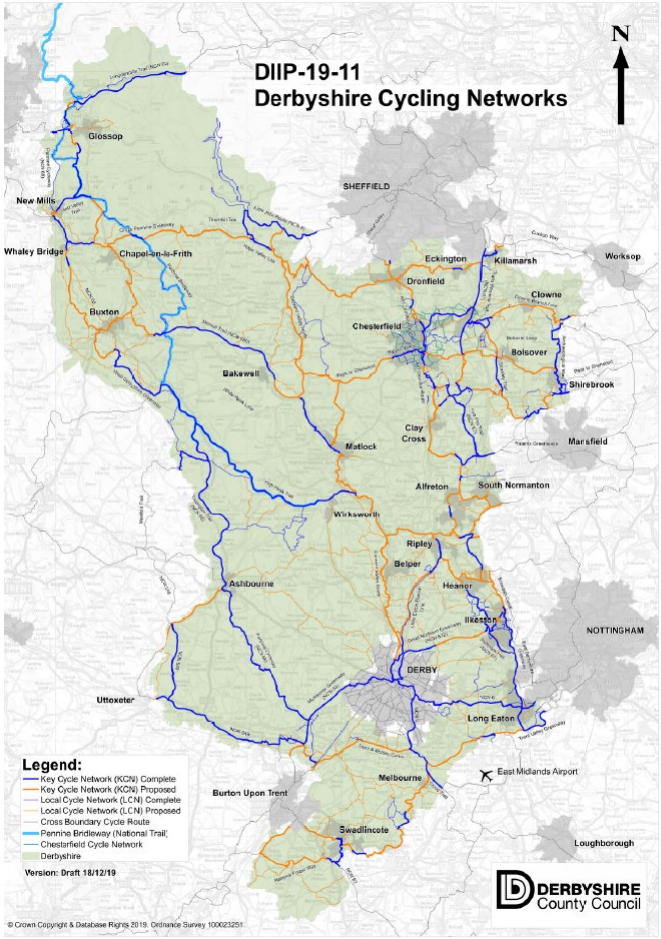


Case Study: Derbyshire's Key Cycle Network and the Visitor Economy

Derbyshire has been developing its cycle tourism offer over a very long period stretching back to the 1990s when some of the former railway lines were first resurfaced to provide multi-user trails. Since then the network has steadily been improved and extended including iconic features such as the viaducts and tunnels along the Monsal Trail. In addition to this the county has a number of urban networks in the principal towns, the most extensive of which is in Chesterfield.

In early 2020, Derbyshire's Key Cycle Network plans were formally approved by cabinet. The plans also form part of the D2N2 LCWIP.

The visitor economy related to cycling provides valuable local employment and brings in over £30m spending per year. Derbyshire hosts several events such as L'Eroica, which encourage visitors to stay and explore the county.



5 Stakeholder Participation

5.1 Process

5.1.1 Decision makers and campaigners have participated in developing the network plans. Stakeholder support is particularly important in the counties where a wide range of partners is involved in delivering and maintaining infrastructure for cycling and walking.

5.1.2 All four authorities have strong relationships with many delivery partners and stakeholders. The stakeholders have informed the previous strategies and network plans that have been fed into the LCWIP, for example during recent submissions to the Transforming Cities Fund. Most of these background strategies and plans have also been subject to full public consultation. This previous work provides a strong baseline of engagement for the LCWIP.

5.1.3 Three stakeholder events to engage with professional, political and user-group representatives were held at key stages to add their local knowledge, advice and scrutiny into the LCWIP. Attendance shown below. At initial meetings the LCWIP was explained and the aims and objectives were considered. Later, the processes for collating data and prioritisation, and then finally the four D2N2 Highways Authorities invited comments their proposals.

Figure 5-1: Workshop attendance

5.1.4 The meetings used question and answer sessions and facilitated workshops for attendees to feed into the LCWIP. All contributions were recorded. At the later meetings, breakout workshops considered the important issues within each of the three zones that form the LCWIP.

5.1.5 A report summarising the discussions was prepared by Sustrans after each of the three stakeholder events.

5.2 Key Outcomes

5.2.1 Some of the key findings from the engagement process have helped to shape the LCWIP including:

- Splitting the area into Zones with common characteristics
- Consider leisure and tourism opportunities as well as utility cycling
- Develop a monitoring and evaluation framework to help provide data to support future investment
- Undertake further engagement once the LCWIP is finalised to enable a stakeholder review

5.2.2 The events and outcomes are described in more detail in Appendix H.

6 Economic Appraisal

6.1 Introduction

6.1.1 This section sets out the high-level economic case for the investment in a D2N2 sub-regional Strategic Cycle Network based on the suggested increases in cycling for transport. It also considers where increased spending by leisure cyclists and walkers brings additional economic benefits through the visitor economy in the countryside and in town and city centres.

6.1.2 Three mode shift scenarios have been modelled: two conservative ones based on the Government's target of doubling cycling, and a third scenario that assumes widespread use of electric Bikes (e-Bikes) with Dutch quality infrastructure. These scenarios have been taken from the DfT's Propensity to Cycle Tool (PCT) [1] .

6.1.3 A wide range of external grant funding opportunities is available that support outcomes that are related to more walking and cycling, such as those aimed at improved public health or regeneration of high streets. The authorities are experienced in developing business cases and appraisal methodologies for active travel and leisure and have made many previous successful applications.

6.1.4 Achieving the government target would seem reasonable given the impact of high-quality infrastructure where it has previously been provided in the D2N2 area. E-Bikes are also introducing a new population to cycling, and helping to overcome the natural barrier of gradients which could otherwise supress utility and leisure cycling levels.

6.2 Analysis

6.2.1 The BCR calculation covers a wide range of schemes across a diverse geography. Sensitivity calculations were undertaken that vary both the assumed costs and assumed ridership of the proposed network.

6.2.2 The two conservative scenarios (meeting government targets) provide positive BCRs, but it should be noted that this high-level approach has not been able to fully capture potential impacts of modal shift due to the limitations of the input data, nor does it capture economic benefits from day leisure trips (as opposed to tourism) that start and finish entirely within the area. A global uplift has been applied to cover tourism benefits for the whole network. While this approach will inevitably under estimate 'hotspots' in the Peak District and

[1] www.pct.bike

elsewhere, it does at least acknowledge the leisure cycling that also takes place in towns and cities.

6.2.3 The discussion section of the technical appendix suggests potential approaches that could refine the BCR calculations as the programme takes shape. In general, as individual active travel schemes and packages are analysed for funding or in post-implementation monitoring, they tend to score very highly as illustrated in recent TCF applications and LSTF projects.

6.2.4 The E-Bike scenario scores highly due to enabling more and longer journeys as the 'decay' factor of hilliness is removed.

6.3 Results

6.3.1 The summary results are shown in Table 6.1 below. These scores compare very favourably with other transport schemes, and would undoubtedly improve for individual schemes where more robust data was available. With the lower scheme cost estimates span between 'High' and 'Very High' depending on scenario without inclusion of tourism benefits, with a maximum of 8.05.

Table 6.1: Monetised Costs and Benefits, 60-year present values (000s)

Scenario		Government Target		Government Target Near Market		e-Bikes
		Core S1	Scenario	Core	Scenario	Core
Health	Reduced risk of premature death	£484,857	£969,715	£583,212	£1,166,424	£3,438,317
	Absenteeism	£38,998	£77,996	£46,909	£93,818	£276,551
Journey Quality	Ambience of improved facilities	£263,613	£438,552	£276,133	£463,592	£799,171
Reduction in Marginal External Costs (Mode Shift)	Congestion	£12,108	£36,663	£13,866	£40,178	£87,281
	Infrastructure	£66	£199	£75	£219	£475
	Accident	£1,185	£3,587	£1,357	£3,931	£8,540
	Local Air Quality	£112	£341	£129	£373	£811
	Noise	£72	£219	£83	£241	£522
	Greenhouse Gases	£485	£1,470	£556	£1,610	£3,498
	Indirect Taxation	-£664	-£2,010	-£760	-£2,203	-£4,786
Tourism	Increased spend	£101,314	£202,629	£121,866	£243,733	£718,461
Investment Costs		£914,863	£914,863	£914,863	£914,863	£914,863
Maintenance		£99,980	£99,980	£99,980	£99,980	£99,980
BCR		1.36	2.61	1.58	3.04	8.05

7 Implementation

7.1 Design Guidance and Standards

7.1.1 High quality cycling and walking networks will be achieved by adopting clear, well-conceived and innovative development and design standards.

7.1.2 Nottingham and Nottinghamshire have created and adopted local cycle design guidance primarily based on the latest edition of Sustrans Handbook for Cycle Friendly Design which itself reflects the content in Local Transport Note 1/20. These guides cover in more detail the more relevant local issues such as cycle interaction with trams, route maintenance and monitoring. Derbyshire is in the process of developing formally adopting LTN 1/20 as the main reference for the Key Cycle Network, and for new routes and improvements, including upgrades to existing National Cycle Network routes within the county.

7.1.3 The local guidance produced by Sustrans provides detailed technical advice on key issues around on and off-highway cycle infrastructure whilst signposting users to a library of further national and international resources including Local Transport Note 1/20 Cycle Infrastructure Design, cycling and walking content of the Design Manual for Roads and Bridges (CD195 and CD143), and the Transport for London 'Streetworks Toolkit' includes Placemaking, Walking and Cycling Design guidance. These resources offer additional technical details that are not included in LTN 1/20.

Replacement of old narrow footbridge on multi-user trail, Derbyshire

7.1.4 Routes will be of the highest quality to accommodate all users and abilities (cycling, walking and horse riding) and to ensure that new infrastructure does not inconvenience people with sensory disabilities. The authorities will encourage innovative design and high quality public realm so that the infrastructure itself helps to attract more people and thereby to support the regeneration of local economies.

7.1.5 The widths, surface materials, lighting requirements will be assessed on a case by-case basis to reflect the local context and ensure that routes are fit for purpose for their location and level of use. For example, Derbyshire may opt to provide recycled, permeable, semi-sealed surfaces as used previously on their off-road leisure routes in rural locations while in urban locations and inter-urban commuter routes a highway-standard surface will be specified.

7.2 Implementation

7.2.1 Implementation plans will be developed for each zone, and will help to identify the opportunities and funding sources for the future delivery of a pipeline of schemes. In the short term, potential funding sources currently include the EATF, Transforming Cities, Town Deals and Future High Streets Fund.

7.2.2 For the period to 2023, Transforming Cities funding is the most significant funding source for the LCWIP programme in Derby and Nottingham and the Urban Connections zone. It is estimated that TCF Tranches 1 and 2 will deliver 23% of the Nottingham priority cycling network. The Derby-Nottingham Joint TCF bid focusses on providing strategic cycle corridors between the two cities and to East Midlands Airport Employment Zone. The schemes are being planned and will be delivered in cooperation with the two other D2N2 partners Derbyshire and Nottinghamshire, passing through their areas. We will also be working with Leicestershire County Council, Kegworth Parish Council and the Airport operator on the routes to East Midlands Airport.

7.2.3 Nottingham TCF Tranche 2 includes proposals to invest in cycling and walking in the City Centre including major public realm enhancements and improving links to key public transport interchanges. It is also proposed to invest in important LCWIP corridors, continuing the major start made on the Nottingham Cycle City Ambition Programme between 2015-19.

7.2.4 Nottingham City Council are working closely with Sustrans on the enhancement and improvement of the National Cycle Network in the city. The agreed scheme is to move a section of NCN6 off road from local estate streets onto the major orbital cycle path OR3 alongside the Ring Road. This scheme will be delivered in 2020/21. The LCWIP also includes a proposal to link the NCN6 with NCN15 in West Bridgford via the newly constructed cycle path around the Boots Headquarters and bridge over the Midland Main Rail line to the University of Nottingham.

7.2.5 Nottingham City Council has used the LCWIP to generate an outline fifteen-year programme of cycling and walking schemes in the City (see Appendix A). This will deliver all of our strategic cycling network by 2035. The City Council has work in in partnership with Nottinghamshire County Council to formulate cross boundary routes into the Nottingham

suburbs. The LCWIP will be a fundamental part of the proposed Nottingham Cycling & Walking Strategy, which the City Council will develop in 2020. This will incorporate the proposed revision to the Council's Cycle Strategy and the Nottingham Cycle Design Guide (https://www.nottinghaminsight.org.uk/d/aA6KjR8). The revision work on the guide will be linked closely to LTN1/20. Delivery of the programme will be dependent on gaining sufficient funding through various sources such as the LEP, LTP, and any other Government allocations

7.2.6 Nottingham City Council intends to invest annually in walking improvements to the key walking zones through the LCWIP. This will include the City Centre, district centres and around the two Universities, hospitals, major employment sites, schools and public transport interchanges (a plan of these locations is set out in this Appendix A). It will also look to improve conditions for sustainable travel in residential areas through filtered permeability projects The Council will support continued investment in upgrading public rights of way as set out in the Nottingham, Rights Of Way Improvement Plan (ROWIP). Pedestrian route audits undertaken by the City Council with the assistance of members of the University of Nottingham and the Nottingham Local Access Forum will inform the nature of the improvements.

7.3 Sustainable Future Funding

7.3.1 It will be easy to make the case for including cycling and walking elements from within the LCWIP as other specific funding streams related to the core indicator prioritisation, such as tourism or air quality/carbon reduction become available.

7.3.2 The LEP is an important conduit for investments in local transport in the sub region, based on the strategic fit of schemes to deliver core objectives which coincide with the wider aspirations of the LEP. The authorities will make a joint bid to the LEP, subject to political approval, to continue to fund cycling schemes. It will also be important to ensure that walking and cycling measures are fully integrated into future LEP strategic highway improvement and interchange investments.

7.3.3 Local Transport Plans will continue to be a significant source of funds within each highway authority. The LCWIP provides the base for developing a forward programme of work, including network development as an integral part of major schemes for new roads and improvement of existing highways.

7.3.4 The strategic network and core walking zones also provide a means to secure contributions from development applications and other major infrastructure schemes by third parties, including works by Highways England on the Strategic Road Network, and major rail projects

such as High Speed 2. The top short to medium term priority schemes for the partners within each zone are listed in sections 4.3 to 4.6.

8 Monitoring, Evaluation and Review

8.1 Introduction

8.1.1 The final stage of an LCWIP is Monitoring and Evaluation. The DfT guidance suggests that authorities should review and update the LCWIP approximately every 4-5 years to reflect progress. A five year interval will enable time for some 'impacts' to be measured from early schemes. Plans should also be updated if there are significant changes in local circumstances – new policies, strategies or funding, to ensure continued alignment with economic growth objectives and wider land use proposals.

8.1.2 One of the key issues identified in preparation of the LCWIP, in common with other parts of England, is that there is very little consistent data collection on active travel. This leads to over-reliance on the census journey to work data, which has limitations when applied over a wide area, especially in rural areas where peaks in travel demand are not always associated with commuting activity.

8.1.3 The lack of data reflects that historically active travel has not always been a priority, but is also a legacy of intermittent funding such as Cycling England and the Local Sustainable Transport Fund where data collection has terminated at the end of the funding period due to lack of revenue support. This often makes it impossible to measure the full impact of the programmes post-implementation. It would be beneficial therefore to establish a funding stream and programme of data collection as a short term priority that would then enable the LCWIP to be refined in its next iteration. This iterative process is known as the ROMEF Rationale, Objectives, Appraisal Monitoring, Evaluation and Feedback) cycle (see Appendix H).

8.1.4 This principal is therefore applied to the LCWIP with each cycle lasting 4-5 years within the 15 year programme. The proposed evaluation approach outlined below and in appendix F sits particularly well within this cycle as it will test, using the monitoring data, the theory of the programme and enable it to be fine-tuned at the end of each cycle. With this in mind any evaluation should report back at the end of each cycle. It is therefore proposed that the evaluation would provide at least 2 interim reports and a final report at the end of the 15 year period.

8.2 LCWIP Objectives and Targets

8.2.1 Clear programme objectives are a key starting point for both scheme development and therefore form the cornerstone of any evaluation approach. In Section X six priorities for the LCWIP have been identified and discussed, from this, six programme objectives have been developed. The the evaluation will assess the progress towards achieving these objectives:

- **Objective 1 -** Support Economic growth
- **Objective 2 -** Support tourism and the visitor economy
- **Objective 3 -** Constrain Traffic Congestion
- **Objective 4 –** Address Climate Change and Improve Air Quality
- **Objective 5** - Address Health Deprivation to improve quality of life, health and wellbeing.
- **Objective 6** - Increase the mode share for Cycling and Walking across D2N2 area by increasing the number of cycling and walking trips and promoting mode switch from the car to these active modes.

8.2.2 A key target will be to meet the government's CWIS cycling and walking mode share ambition which is enshrined in Objective 6. While it is important to achieve this nationally set target it is also important to appreciate that a programme such as the LCWIP will be implemented over a long period of time during which there are likely to be economic, social, technological and policy changes which will influence the take up of active travel in ways which cannot be anticipated at the appraisal stage. The consequence of this will be to make this target either under or over ambitious and thus it is necessary to be cautious with regards to using this target as the primary measure of success. However, the proposed evaluation approach is designed to take into account this change and therefore be capable of delivering an assessment as to the degree to which this target has been met.

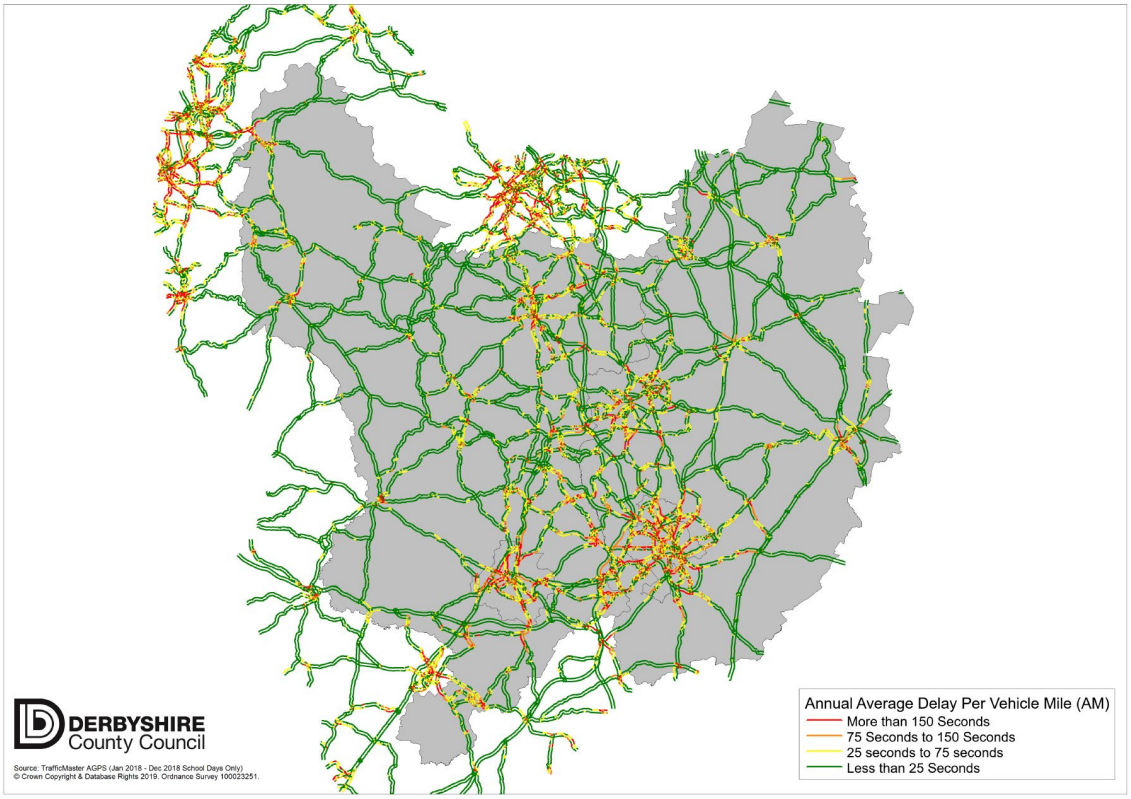


Figure 8-1 Congestion Map showing annual delay relevant to Objective 3

8.2.3 The most significant recent factor influencing the uptake of active travel options is the Covid-19 pandemic which has driven temporary and most likely permanent changes to travel patterns. The evaluation will need to take this into account when considering changes to levels of active travel especially in the earlier years of the LCWIP. There is a considerable amount of ongoing research as to the impact of Covid 19 on transport choices, both locally and nationally, and this will be a key tool to help take into account the impact of Covid 19 on the impact of the LCWIP.

8.3 Evaluation Approach

8.3.1 Appendix I presents the suggested Evaluation approach including the draft LCWIP logic map and supporting tables.

8.3.2 The LCWIP Logic Map presents the theory as to how the LCWIP will meet its objectives. This has been drafted by Nottingham City Council's Evaluation team based on the Active Travel Logic Map developed as part of the Nottingham and Derby City Council's Successful Transforming Cities bid. However, it has been adapted so that it is specific to the D2N2 LCWIP. The logic map will undergo revision by the D2N2 Councils in order to agree the final Logic Map. The logic map, therefore, serves not only provide a framework for evaluation, but also assist in developing the strategic case for schemes and scheme development.

8.3.3 A range of indicators have been identified (See Appendix I, Table I3) which are capable of testing the logic presented in the LCWIP logic map and, thus, track progress towards the LCWIP objectives. The indicators will also be analysed with a view to assessing the value for money of the scheme and benefits realisation.

8.3.4 The change observed in these indicators will be subject to further research to take into account exogenous changes which could impact the ability of the package to meet its objectives and thus to determine if the observed changes can truly be attributed to the package.

Appendix A Nottingham City Council

Local Policy Context

A world-class transport network that is efficient and accessible to all is seen by the City Council and its partners as being an important element in establishing Nottingham as a world class city. We have already invested heavily in Public Transport, most recently - the extension to our tram network. However, we now need to match this investment in cycling and walking to ensure that Nottingham is a thriving sustainable city economically, environmentally and socially. It is important that the City take a lead on delivering for pedestrians and cyclists.

Cycling is growing in popularity Nottingham where there has been a 47% increase on 2010 cycling levels to 2018. High cycling levels already occur amongst some large organisations in the cities. Travel surveys have shown that around 10% of Boots HQ and of City Council main office employees cycled and more would consider cycling if infrastructure was improved This suggests there is potential for further growth. Investment in dedicated cycle routes, and resurfacing and widening existing links, has accelerated this increase in the last five years. However, cohesive networks of suitable safe, segregated routes are not yet comprehensive. Consequently, cycling levels are well below full potential.

As set out in the Nottingham LTP, influencing how local trips take place can yield significant benefits with walking or cycling often being a quicker and lower cost alternative to the car or public transport for many short trips. They are often the easiest ways for most of us to get more physically active. More walking or cycling for short journeys has benefits for individuals in terms of their health (they are more likely to achieve a healthy weight and to have better mental wellbeing). For many people they are very important for increasing access to jobs and services. There are benefits for communities too with safer and more pleasant streets, better air quality and lower carbon emissions, and reduced congestion.

Integrated cycling and walking offers high value for money, which considering wider budget pressures are more achievable. At the heart of this strategy is to make cycling and walking the modes of choice for local journeys.

Cycling Infrastructure

Nottingham City Council is committed to delivering a world class-cycling network through our Cycle City Vision and Strategy/Action Plan. These were produced in 2015 and 2016 respectively and set aims, targets and actions to increase the levels of cycling for transport, leisure, work, education and sport up to 2021.

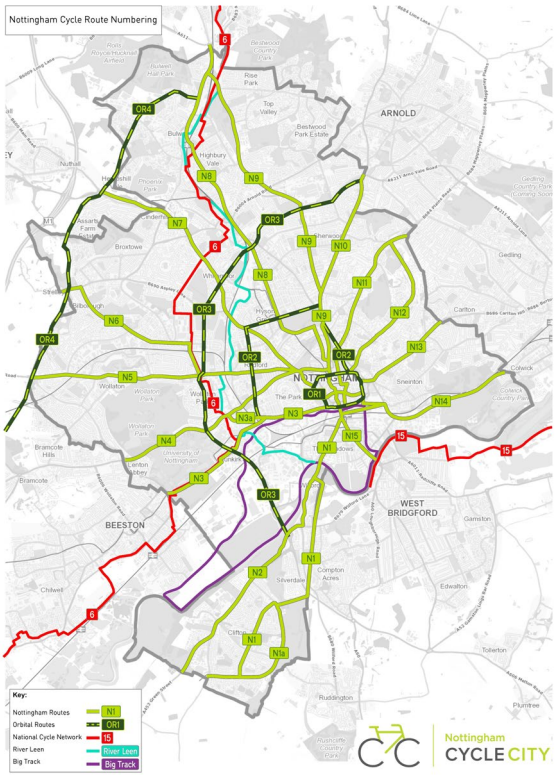
Within the vision, we identified that our key outcomes from making Nottingham a Cycle City would be:

- A Well connected cycle network
- Safer streets for the bike
- Create a cycling culture with more people travelling regularly by bike
- A city for living in

To continue to deliver our vison our aims will be:

- To lead and plan for cycling in partnership
- To deliver an ongoing investment programme
- To communicate on and engage in our cycling plans and development
- To support and encourage participation and behavioural change
- To monitor and evaluate what we do

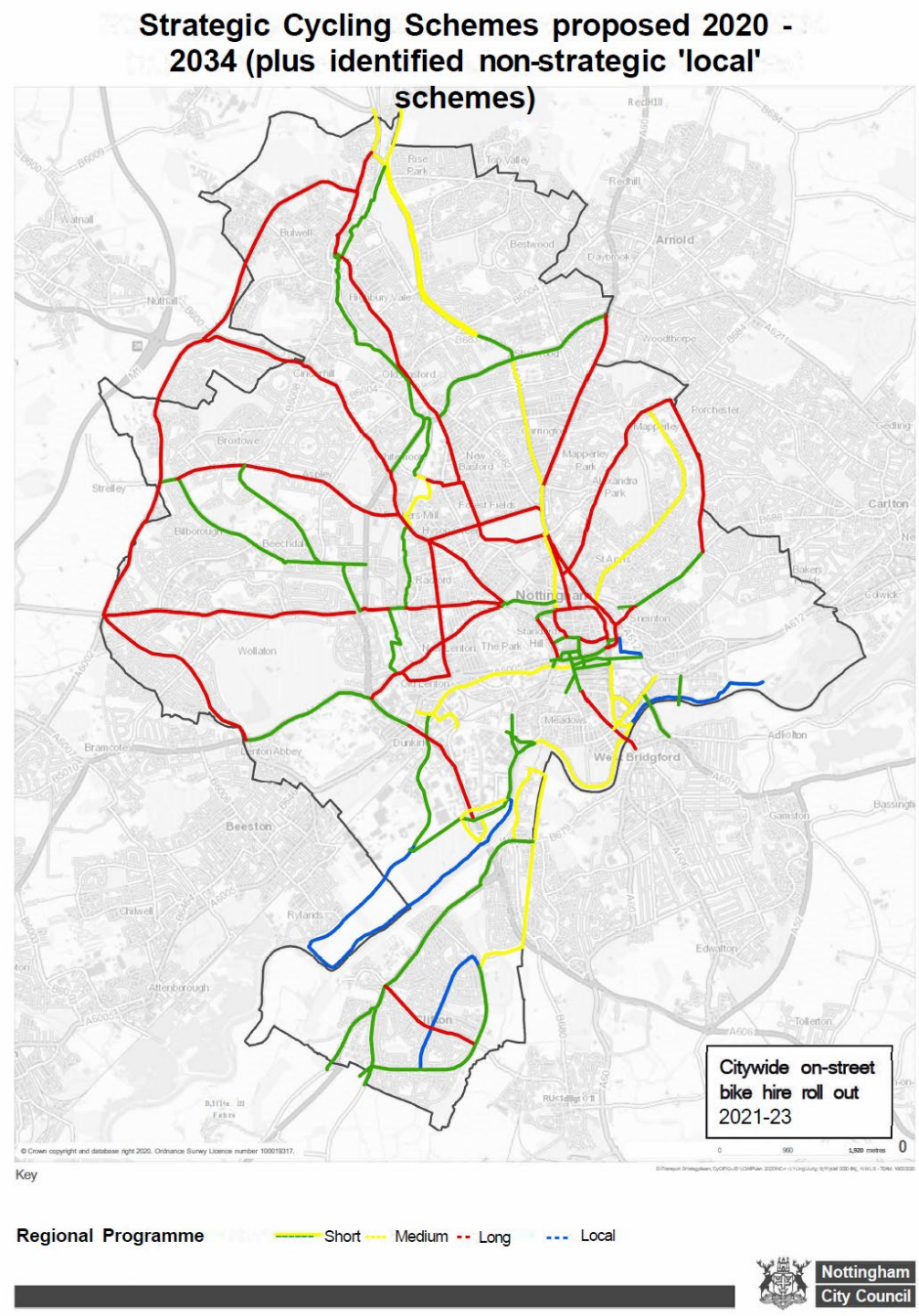
Both the cycling vision and strategy are in the process of being up dated to 2025. These will be incorporated with walking to produce a Cycling & Walking Vision and Strategy. The LCWIP will be our new action plan for both modes, for a much longer period.



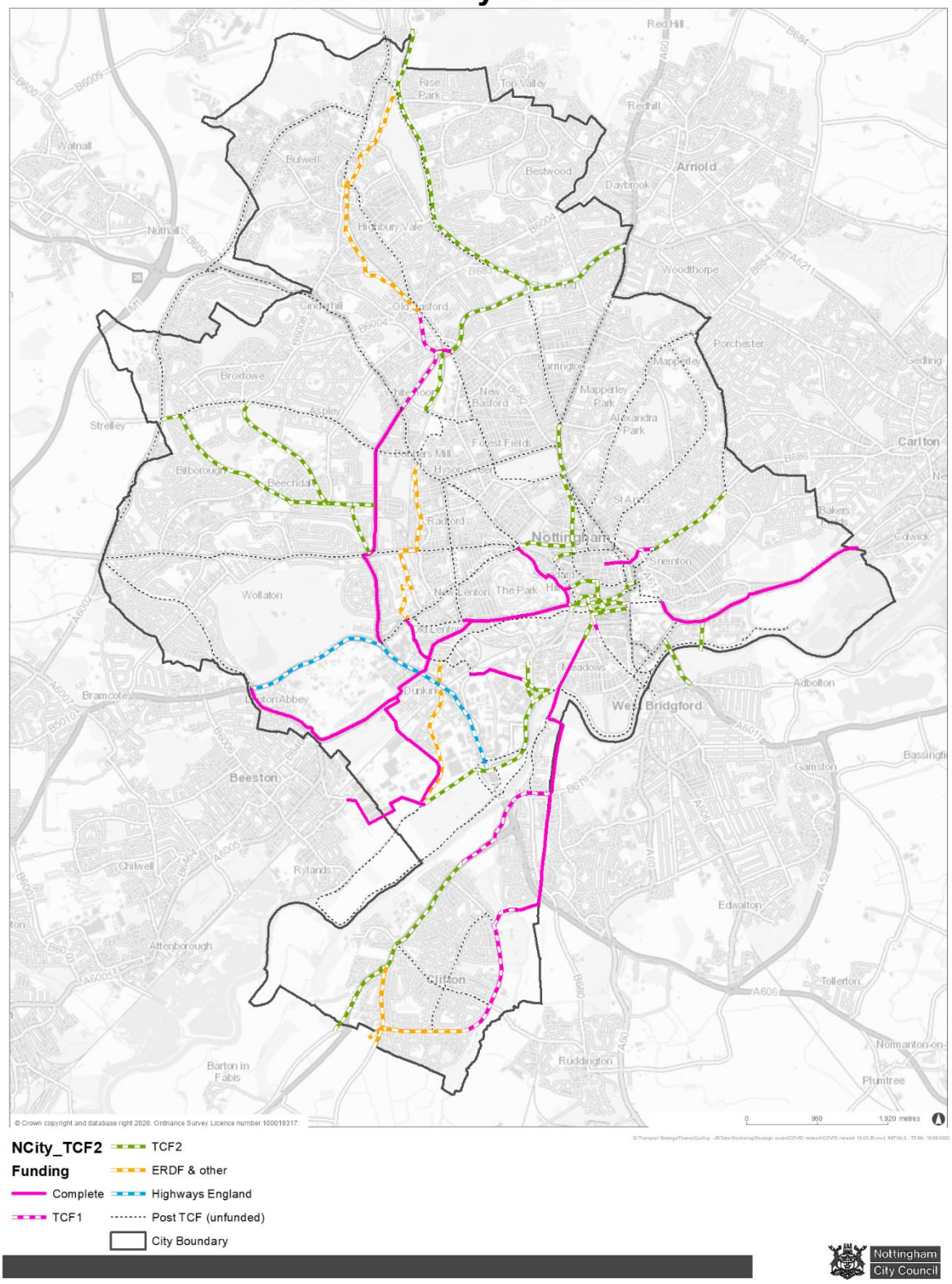
The City Council in close partnership with local transport stakeholders have delivered a variety of schemes and initiatives over the last five years with a view to increasing the number of people who cycle on a regular basis in Nottingham for a variety of purposes. Our aim is to ensure that we continue to implement the most effective measures, tools and innovative ideas to increase cycling levels in the City. This includes physical infrastructure improvements and softer measures, such as promotion and training, to get people on their bikes and establish cycling as a normal day-to-day and enjoyable activity.

The first phase of the Cycle City Ambition Programme from 2015 to 2019 has set us on track to provide the higher levels of investment required to deliver a world class cycling network. To this end Nottingham will continue to lobby and bid to the Government, the D2N2 LEP and others for further funding to continue much of the good work that has been done in recent years as part of the LTP, LSTF and other investments into cycling. Having our Vision, Strategy, LCWIP and own Design Guidance will help us to push for more cycling investment at local, regional and national levels.

The proposed network to be developed within the LCWIP period is shown below. Funding for short to medium term schemes is shown in the second image.



Nottingham City Council
TCF/LCWIP Cycle network



Walking Infrastructure

Making journeys by foot is not only free, easy, enjoyable and environmentally friendly, it is the most accessible form of travel. Journeys made by car or public transport will typically include a walking component in order to reach the final destination. Nottingham's urban and district centres, with high population density, are ideal to navigate by foot often providing a predictable, shorter, journey time than other modes of transport, particularly for journeys of less than a mile.

Walking also represents a vital transport mode for certain demographic groups, for example the young or older people who may no longer be able to drive. Maintaining a high-quality safe and connected pedestrian environment is crucial in reducing car journeys, promoting public transport use and helping to shape a healthy community. Improving access to the rights of way network provides access on the urban fringes, open spaces and wider countryside. The strategy for walking is primarily to enhance existing and create new walking links through the primary pedestrian route network and rights of way improvement programme.

Primary Pedestrian Routes: Over the past decade, primary pedestrian routes have been developed to better link inner city residential areas to the city centre along main walking corridors helping to reduce congestion by being made attractive routes to help improve people's access to various services and destinations, as well as parks and open spaces. The approach is to be extended to other parts of the city and district centres

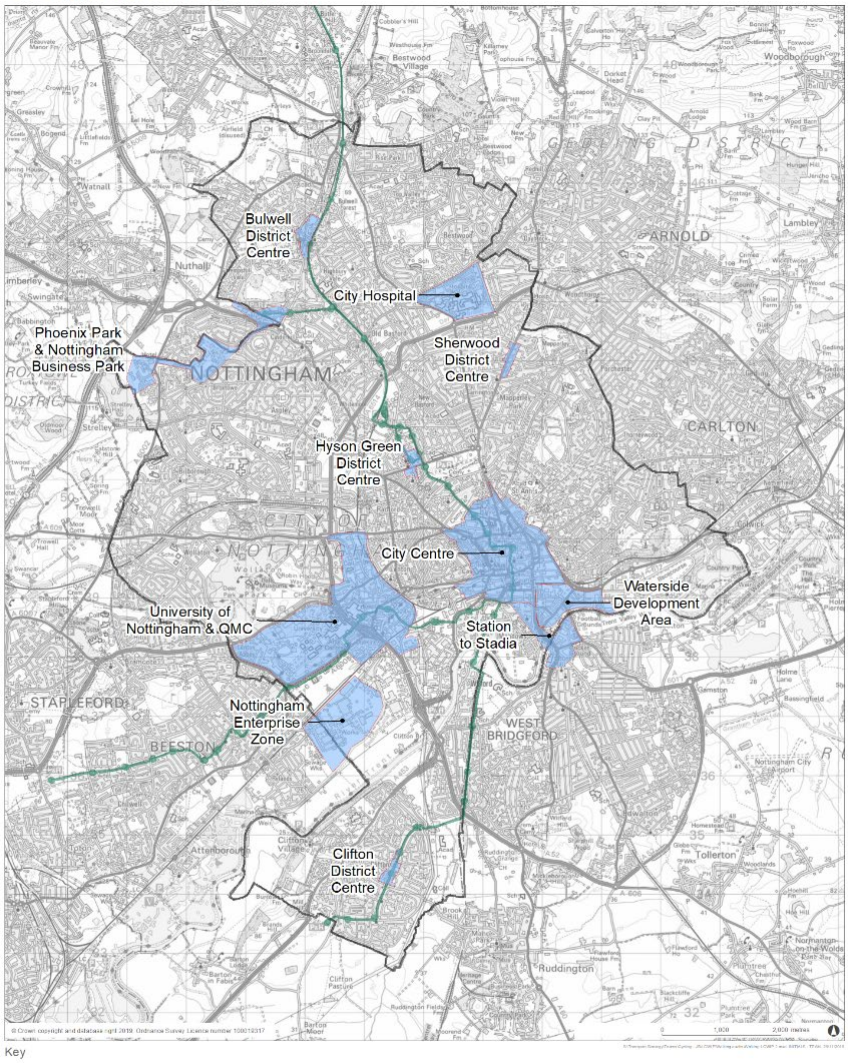
People Friendly Streets: Well-designed and maintained quality spaces have a positive impact on every person every day. The concept behind people friendly streets is about rebalancing the use and function of Nottingham's streets to create pleasant, accessible and safer streets to encourage visitors to be attracted to Nottingham and for citizens to enjoy and experience the city, its public spaces and diverse centres and neighbourhoods. A key strength has been the pursuit of the integration of road safety aspects into wider initiatives that simultaneously address accessibility needs, public transport improvements and support regeneration. The City Council has been considering safety enhancements into highway network design through coordinating safety needs with major planning applications and new developments at an early stage. Filtered permeability is a developing concept based on work undertaken in London implementing "mini Hollands". The aim is reduce through traffic in residential areas while improving the local environment. Schemes to improve access for disabled people will include the provision of dropped crossings, facilities at signalled crossings and physical access improvements schemes to address the safety requirements for people with disabilities and mobility impairments.

Master Planning: The City Council is committed to creating places for people having developed a suite of masterplans, guidance and briefs to offer clarity and consistency of advice on the design of

transport infrastructure improvements in keeping with the environmental, heritage and urban form of the city, informing the quality of development welcomed in Nottingham.

As shown above, good walking infrastructure is integral to all aspects of design across the city. For the LCWIP we have identified Core Walking Zones in distinct locations where there is good potential for more walking due to the nature of trip-making in those areas. These include the city centre, local district centres, an Enterprise Zone, a Business Park, a large hospital site and the extensive University campus and Queens Medical Centre. These sites will illustrate how walking improvements can be applied in different types of locality to advise future schemes rolled-out in other parts of the city, and present opportunities for related encouragement measures with local communities.

Nottingham Walking Zones



Priority Programme 2020 to 2035 (Draft – subject to Council Cabinet approval)

LOCAL CYCLING AND WALKING PROGRAMME: 15 YEAR CYCLE SCHEME PROGRAMME						
		Short term				
	Budget/estimate (£) totals across 15 year programme	2019/20	2020/21	2021/22	2022/23	2023/24
Transforming Cities Fund (TCF) Phase 1 (To be delivered 2019/20)						
Nottingham City area						
N1a - Farnborough Road & Silverdale paths	833,383.00	833,383				
N2 - A453/B679	530,000.00	530,000				
Station, cycle hub access and development	113,000.00	113,000				
Ring Road (see also Sustrans NCN stream)	637,219.00	300,000	337,219			
EZ access	45,398.00	45,398				
Canal towpath	118,000.00	118,000				
Cycle parking	25,000.00	25,000				
Programme total	**2,302,000.00**					
ERDF/LTP						
Funding back from Clifton works	564,000.00		564,000			
Blue green underspend to be spent by Sept 20	250,000.00		250,000			
Church Street/Lincoln Street (additional to TCF investment)	100,000.00		100,000			
ERDF Phase 2 River Leen and Canal towpath (supported by additional £250k from TCF)	250,000.00		125,000	125,000		
Programme total	**250,000.00**					
Sustrans (match funding TCH stream C4)						
OR3 - Ring Road NCN - see also TCF 1 Ring Road	486,000.00		486,000			
Programme total	**1,123,219.00**					
LTP/LEP						
Maintenance (specific cycle allocation)	500,000.00	100,000	100,000	100,000	100,000	100,000
N13 Handel Street	160,000.00	160,000				
Programme total	**660,000.00**					
TCF Phase 2						
Funding Stream Ai (Individual elements that make up the Broadmarsh cycle proposals.						
Broadmarsh and connecting cycle routes	5,139,725.00		1,000,000	1,000,000	3,139,725	
Canal Towpath (matched with additional £250k ERDF)	374,000.00		124,000	125,000	125,000	
Funding Stream Ai (medium level funding bid)						
OR1 Toll House Hill including Poynton Street and Wollaton Street (walking and cycling)	858,000.00		258,000	300,000	300,000	
N5 Talbot Street	1,188,000.00			500,000	688,000	
Funding stream Bi						
N1 extension EMA connections (Notinghamshire and into Leicestershire)	2,303,750.00		703,750	800,000	800,000	
N13 extension A6005 (Nottinghamshire and Derbyshire through to Derby).	4,500,000.00		197,000	2,000,000	2,000,000	
Funding stream Bii						
e-bike hire scheme in partnership with Derby (500,000 to 4,000,000 first contract)	5,000,000.00			3,000,000	500,000	500,000
Funding stream Cv						
Trent River crossing	8,130,000.00		130,000	2,000,000	6,000,000	
Trent River crossing connections	1,145,000.00		145,000	500,000	500,000	
OR3 Ring Road	1,210,000.00		605,000	605,000		
N9 Hucknall Road (Ring Road to Greenway)	220,000.00		220,000			
River Leen (Wilkinson Street to Church Street)	277,625.00			277,625		
Queens Drive (Thane Road via P&R, Crossgate Drive junction, Riverside Way through to NG2) including NCN 15 connection with County Council and Sustrans	2,638,000.00		238,000	1,200,000	1,200,000	
N6 Wigman Road and Beechdale Road	2,622,233.00		122,233	1,250,000	1,250,000	
N13 Carlton Road	1,243,475.00		43,475	600,000	600,000	
Hucknall Road northern cycle corridor	1,678,000.00		278,000	700,000	700,000	
Mansfield Road south of Hucknall Road	561,000.00			61,000	500,000	
A612	237,000.00		37,000	200,000		
Pprogramme total	**36,849,808.00**					
Schemes delivered by external partners funding not secured						
Highways England						
OR3 - Dunkirk - QMC	500,000.00					500,000
N4 - Priory - QMC	1,500,000.00					1,500,000
Nottingham Station cycle parking investment - links to footbridge	100,000.00			100,000		
Future High Street Fund (walking and cycling)	4,000,000.00			2,000,000	2,000,000	
Beyond TCF 2 post March 2023 including TCF high scenario schemes as part of wider schemes						
N9 - Hucknall Road	7,400,000					2,000,000
N10 - Mansfield Road	4,000,000					2,000,000
N11 - Woodborough Road	2,500,000					2,500,000
Walking/local cycle schemes						
Transforming Cities Fund City Centre public realm.						
Segregated cycle route Wilford Street to Trent Street						
Canal Street						
Collin Street						
Carrington Street	**20,000,000.00**					
Station Street						
Trent Street						
Queens Bridge Road						
Middle Hill						
Walking and local cycle connections (starting after TCF city centre investment)	500,000.00					500,000.00
Estimated total spend 2019/20 to 2023/24	**81,047,808.00**					

LOCAL CYCLING AND WALKING PROGRAMME: DRAFT 15 YEAR CYCLE SCHEME PROGRAMME			
		Medium term	
	Budget/estimate (£)	2023/24	2024/25
Maintenance (specific cycle allocation)	200,000.00	100,000.00	100,000
Funding stream Cv (high funding scenario) Not funded by TCF phase 2			
N14 extension A612 phase 1 (in Nottinghamshire - budget to be agreed with County Council)	300,000.00		300,000
Funding stream Bii			
e-bike hire scheme in partnership with Derby (500,000 to 4,000,000 first contract)	5,000,000.00	500,000.00	
Beyond TCF 2 post March 2023			
N4a - Wollaton Vale	2,500,000		
N9 - Hucknall Road (first year in short term)	7,400,000		3,700,000
N10 - Mansfield Road (first year in short term)	4,000,000		2,000,000
N15 - Arkwright Street and links to River/Trent Bridge)	1,000,000		
Bridge/s not addressed during Tranche 2 including network connections (requires wider contributions such as County Council and S106)	8,000,000		2,000,000
OR1 - Inner orbital	4,000,000		
Walking/local cycle connections	1,000,000.00		500,000.00
Total spend in year			**8,600,000**

LOCAL CYCLING AND WALKING PROGRAMME: DRAFT 15 YEAR CYCLE SCHEME PROGRAMME									
		Long term							
		2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34
Maintenance (specific cycle allocation)	800,000.00	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Funding stream Bii									
e-bike hire scheme (500,000 to 4,000,000 first contract)	5,000,000.00	500,000	500,000						
Beyond TCF 2 post March 2023									
City Centre east (Connecting Eastside connections)	3,000,000						3,000,000		
N1 - To Clifton. Lighting (Nottinghamshire and Rushcliffe)	500,000	500,000							
N2a - Green Lane (Clifton to Ruddington)	1,000,000					1,000,000			
N2 - Wilford Main Road/Ruddington Lane connection	1,000,000			1,000,000					
N3a - Connection between N3 and N4	500,000				500,000				
N4 - Derby Road	5,000,000				2,000,000	3,000,000			
N5 - Wollaton Road	3,000,000	3,000,000							
N7 - A610	4,000,000			4,000,000					
N8 - Radford Road/Vernon Road/Highbury Road	2,500,000		2,500,000						
N12 St Anns Wells Road and Ransom Road	1,100,000					1,100,000			
OR1 - Inner orbital	4,000,000	2,000,000							
OR2 - Boulevards	4,000,000			2,000,000	2,000,000				
OR4 - A6002	4,000,000		4,000,000						
Riverside path north bank. Developer funded									
HS2 connections	5,000,000					2,500,000	2,500,000		
Cycle parking expansion (linked to cycle hire scheme)	500,000	500,000							
Cycle routes alongside future tram lines									
East - west connections across the Meadows associated with Lady Bay	1,000,000			1,000,000					
Aspley Lane	3,000,000				3,000,000				
Canal (funding allocated via ERDF to be assessed once funding steam complete)	2,000,000						2,000,000		
River Leen - opportunities to be taken in line with private land development	3,000,000	2,000,000	1,000,000						
Walking/local cycle connections	4,000,000.00	500,000.00	500,000.00	500,000.00	500,000.00	500,000.00	500,000.00	500,000.00	500,000.00
Total spend in year		**9,100,000**	**8,600,000**	**8,600,000**	**8,100,000**	**8,200,000**	**8,100,000**	**600,000**	**600,000**

Appendix B Nottinghamshire County Council

Local Policy Context

The County Council Plan 'Your Nottinghamshire Your Future' Council Plan sets out an ambitious vision for the future of Nottinghamshire. It details the Council's priorities, aims and objectives which other local strategies, including those related to 'place making' and transport, will aim to deliver.

The importance of 'place' in improving people's wellbeing and prosperity should not be underestimated and research shows that one of the characteristics that successful places tend to have is good connectivity, with the ability to move easily by car, bus, train, cycle or on foot between jobs, homes and local services, and where businesses can link with each other locally, nationally and internationally.

The Nottinghamshire Local Transport Plan 2011/12-2025/26 (LTP) sets out Nottinghamshire's transport strategy (including those related to cycling and walking) which aims to deliver the Council's priorities; whilst the LTP Implementation Plan details the County Council's priorities for its delivery (including those related to cycling and walking) during the current spending review period (currently 2018/19-2020/21).

The long-term transport vision for Nottinghamshire is at three spatial levels, including "*within local neighbourhoods, to provide safe and sustainable access to local facilities and services, such as health, schools, colleges and local shops. This will include priority for pedestrians, cyclists and those with mobility difficulties*"

Cycling and walking therefore play a key role in all three of the LTP transport goals to:

- provide a reliable, resilient transport system which supports a thriving economy and growth whilst encouraging sustainable and healthy travel
- improve access to key services, particularly enabling employment and training opportunities, and
- minimise the impacts of transport on people's lives, maximise opportunities to improve the environment and help tackle carbon emissions.

Cycling also forms an essential role in the delivery of a number of corporate strategies which all include reference to cycling and walking, including:

- the Joint Health & Wellbeing Strategy for Nottinghamshire (and its associated action plan)
- Nottinghamshire Air Quality Strategy

- Nottinghamshire County Council's Visitor Economy Strategy
- Nottinghamshire County Council Environment Strategy & Policy
- Local land-use strategies (e.g. Local Plans).

Cycling Network Development

Nottinghamshire's Cycling Strategy Delivery Plan was approved in 2016 and specifically details how the Council, working with partners, aims to increase cycling in Nottinghamshire to deliver the aims of the LTP.

The vision for cycling in Nottinghamshire has been developed to help deliver national and corporate objectives, particularly those relating to the economy and health and included priorities to:

- Secure central government funding and Local Growth Funds to increase the amount of funding available for cycling improvements within Nottinghamshire; and to allow for the offer of free cycle training for school pupils of all ages.
- Work towards increasing the amount of transport funding spent on cycling to 5% of total highways capital spent in Nottinghamshire; and increase cycling levels from 3% to 10% of all trips by 2025 to reflect the cycling investment
- Develop and provide a prioritised high quality, comprehensive, cycle network linking people to jobs, training and other essential services in all of the major towns/local centres in the county.
- Develop prioritised high quality, well connected, and safe leisure/tourist cycle routes to help develop and promote the local visitor economy and encourage healthy leisure activities.
- Encourage more people to cycle more often by creating opportunities for people to ride and enabling them to do so.
- Improve safety for cyclist through the provision of targeted safer infrastructure as well as education and training for all road users.
- Ensure that neighbourhoods are designed with the needs of pedestrians and cyclists as the priority road users. This will include 'cycle proofing' all new and improved highway infrastructure and broader 'place making' schemes.
- Provide for the integration of cycling with other longer distance passenger transport modes.
- Maintain, repair and upgrade our existing cycle routes and other cycling facilities to ensure they remain high quality.

Very similarly to the LCWIP, strategic networks in a number of towns have been developed by identifying existing cycle facilities; a range of likely destinations where people want to travel to; proposed development sites; local transport conditions; and potential demand along proposed corridors; and over the last five years funding has been secured to start the delivery of these networks (including 17km of off-road and on-road routes).

Feasibility and development work have also been undertaken on identifying improvements to the visitor economy related cycle networks that are prioritised in Nottinghamshire County Council's Visitor Economy Strategy 2018-2029. These will predominantly be routes that make off-road cycling and walking a much stronger visitor experience by:

- improving connectivity between the priority visitor attractions in the county
- delivering a network of well signed trails and circular routes
- working with neighbouring counties to develop tourism opportunities across the D2N2 area.

It is intended that the D2N2 LCWIP will enhance the work already undertaken to deliver the Cycling Strategy Delivery Plan but it's also recognised that the D2N2 LCWIP primarily focuses on the main strategic cycling and walking corridors. The County Council is therefore undertaking further route assessment work to complement the D2N2 LCWIP at a more local level which may impact on the Nottinghamshire priorities included within the LCWIP.

Core Walking Zones

Nottinghamshire County Council continues to invest in new and existing walking networks (urban, rural and public rights of way). This includes annual programmes of improvements funded through its integrated transport and capital maintenance block allocations. The priorities for this investment are set out in the LTP Implementation Plan and PRoW Management Plan to deliver County Council priorities and commitments.

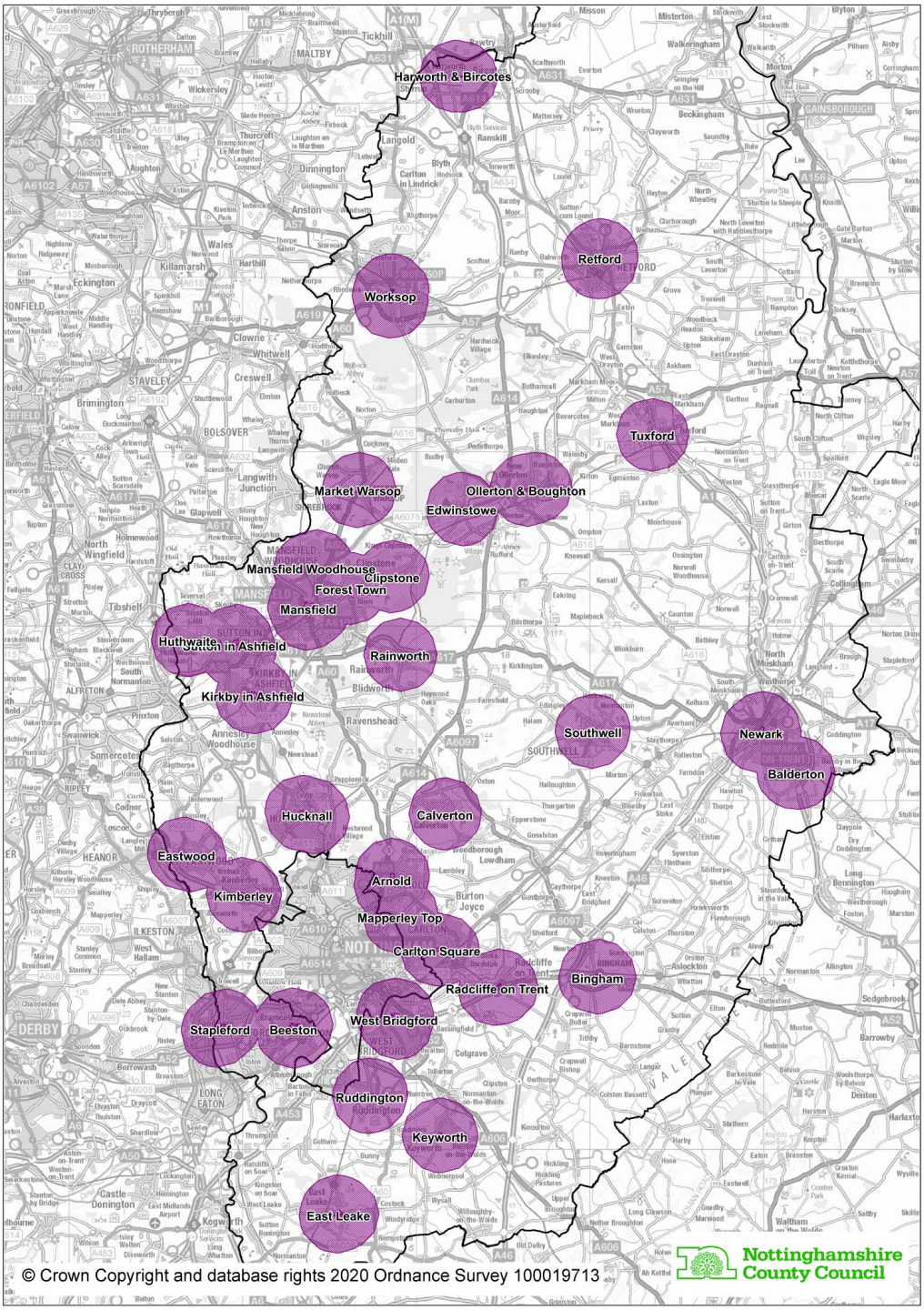
Improvements will be identified through stakeholder involvement (e.g. Local Access Forum), a programme of route audits, and prioritised based on evidence of need and their ability to deliver national, County Council, and local transport objectives, particularly those related to:

- increasing the economic vibrancy and appearance of market towns
- enabling people to access education, training, jobs, local services and leisure
- addressing reported road traffic collisions
- addressing local congestion and air quality issues
- improving health and wellbeing

- improving connectivity within and between communities (including integration between modes of transport).

The market towns and local centres are the main walking trip generators within Nottinghamshire due to the range of local facilities and services they offer within them and the biggest concentration of short trips. These are consequently the locations where there is the greatest potential to encourage people to make more short trips on foot and have and therefore these have been identified as the core walking zones (as shown in Figure B1 below) for further investigation for potential pedestrian improvements. Improvements will be prioritised on routes with the greatest footfall (or potential to significantly increase footfall should the improvements be made to them).

Figure B1 Nottinghamshire Priority Town Centre Walking Zones



Visitor economy related investment will be prioritised on improving existing and developing new trails on routes that deliver the priorities set out in the Nottinghamshire Visitor Economy Strategy 2018-2029. Similar to the cycling route improvements these will predominantly be routes that make off-road cycling and walking a much stronger visitor experience by:

- improving connectivity between the priority visitor attractions in the county
- delivering a network of well signed trails and circular routes
- working with neighbouring counties to develop tourism opportunities across the D2N2 area.

Implementation

The Local Transport Plan 2011/12-2025/26 (LTP) sets out Nottinghamshire's long-term transport strategy and the County Council's Cycling Strategy Delivery Plan also includes an action plan setting out how the Council, working with partners, aims to increase cycling in Nottinghamshire to deliver the aims of the LTP. The LTP Implementation Plan detailing the County Council's priorities for its delivery during the current spending review period (currently 2018/19-2020/21) is determined and approved by County Council members for implementation at the appropriate Committee.

Programmes of integrated transport improvements, including those related to cycling and walking, are also developed annually to help deliver County Council priorities set out in its strategic documents and are similarly determined by County Council members for implementation at the appropriate Committee.

The D2N2 LCWIP and local route assessment tool will help inform where such schemes will be delivered; and will be used as an 'options sifting tool' to help identify improvements for potential future funding bids should funding opportunities arise (and should County Council members prioritise such programmes). As well as being subject to member approval the programmes/schemes to be delivered will be dependent on the funding sources available for their delivery (as and when it becomes available); and subject to feasibility, local community support and value for money assessments.

The County Council also works in partnership with its district council local planning authorities to identify and secure developer contributions. It is hoped that the D2N2 LCWIP and local route assessment tool will also help identify appropriate schemes; and for the planning authorities to use it to justify securing developer contributions for their delivery.

Provisional Approved Short Term Priority Programme

	SHORT TERM				MEDIUM TERM		LONG TERM	
	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
TCF Phase 2 (confirmed)								
Nottinghamshire County area								
Funding stream B4								
A6005 (Nottinghamshire area)								
EMA connections (A453 Notts section)								
Funding stream C1								
A612 cycle facilities (City bdy to Private Road No.1)	£ 215,000							
Funding stream C5								
River Trent Crossing (cross boundary with Nottingham)								
Schemes delivered by external partners								
Highways England								
A46 (Newark to Lincs boundary)								
A52 (Coventry Lane to City boundary)								
A52 (Gamston to Holme House)								
A52 (Holme House to Radcliffe on Trent)								
Canal & Rivers Trust								
Chesterfield Canal: Wharf Road to A620								
Chesterfield Canal, Welham to Retford town centre								
Grantham Canal: Hickling to Harby								
Other								
South Notts Rail Network Netherfield to Gedling								
URBAN CONNECTIONS IN THE SOUTH OF THE COUNTY								
Holme Pierrepont to Wilford and Holme Pierrepont connections			£ 1,350,000	£ 1,350,000		£ 2,333,333	£ 2,333,333	£ 2,333,333
HS2 connections/Stapleford Town Fund		£ 2,200,000	£ 2,200,000	£ 2,200,000				
A612 cycle facilities (Private Road No.1 to Burton Road)		£ 1,750,000	£ 1,125,000	£ 1,125,000				
A6211 Arno Vale Road: Thackeray's Lane to Saville Road		£ 400,000						
NORTH URBAN AREA								
Mansfield Woodhouse to Shirebrook			£ 2,116,667	£ 2,116,667	£ 2,116,667			
Mansfield to Mansfield Woodhouse		£ 1,365,000	£ 1,365,000					
Sutton in Ashfield to Kirkby in Ashfield				£ 2,345,000	£ 2,345,000			
Mansfield East		£ 1,070,000	£ 1,070,000	£ 1,070,000				
Mansfield to Sutton in Ashfield				£ 1,730,000	£ 1,730,000	£ 1,730,000	£ 1,730,000	
Pleasley Hill to Meden Trail		£ 840,000						
A611 Derby Road, Mansfield		£ 960,000						
RURAL AREA								
Sherwood Forest Visitor Centre to Rufford Country Park		£ 1,125,000	£ 1,125,000					
Sherwood Forest circular route		£ 2,083,333	£ 2,083,333	£ 2,083,333				
Clumber to Creswell via Welbeck				£ 350,000				
Creswell to NCN near Budby					£ 400,000			
Newark stations link		£ 1,000,000	£ 1,000,000					
Appleton Gate, Newark		£ 500,000						
Balderton Gate, Newark			£ 1,000,000					
Beacon Hill Road, Newark				£ 1,000,000				
Worksop northern loop			£ 2,333,333	£ 2,333,333	£ 2,333,333			

Notes (Dec 2020):

The programme is subject to review following the completion of further prioritisation work currently underway. On completion of this work, Nottinghamshire County Council members will review and determine the short, medium and long-term priority programme.

The Transforming Cities Fund programme (TCF Phase 2) is still subject to determination at a future Nottinghamshire County Council Policy Committee meeting.

Appendix C Derbyshire County Council

Local Policy Context

Derbyshire's ambition is to become the most connected and integrated county for cycling in England, recognised as a world class cycling destination for all, and for more people of all ages and abilities to be cycling regularly for leisure, active travel, commuting and sport.

A detailed case study of the various cross-cutting policy links for Derbyshire is included in Appendix J, which illustrates the strategic case for the LCWIP within Derbyshire. Within the Cycle Network planning section of this appendix there is also a link to the full council report that set out the case for investment in January 2020.

The **Derbyshire Local Transport Plan (LTP) 2011-2026** identifies five transport goals:

- Supporting a resilient local economy;
- Tackling climate change;
- Contributing to better safety, security and health;
- Promoting equality of opportunity; and
- Improving quality of life and promoting a healthy natural environment.

The **Derbyshire Economic Strategy Statement (DESS) & Derbyshire Infrastructure Investment Plan (DIIP)**S states that addressing strategic transport issues will be a key component in providing the infrastructure for growth. Three strategic objectives have direct transport references:

- Invest in infrastructure to improve connectivity and create the conditions for growth;
- Unlock the potential of Derbyshire's land and property assets; and
- Connect people to economic opportunity.

The DIIP will provide the future governance arrangements for bringing forward Derbyshire's Key and Local cycling and walking network proposals supported through the D2N2 LCWIP.

The **Derbyshire Climate and Carbon Reduction Manifesto** has three pledges to tackle climate change, with direct reference to cycle and walking infrastructure:

- Support and promote the development of low carbon travel and low emission vehicles, introduce electric vehicles into our fleet and explore opportunities for low carbon fuels for HGVs.
- Call on the UK government to ensure the level of investment and national planning regulations support our ambition to reduce greenhouse gas emissions in Derbyshire.
- Support low carbon businesses to establish and flourish in Derbyshire, creating new jobs across the county.

Integration with Land Use Planning: Local planning in Derbyshire is carried out at several levels, and the LCWIP proposals will ultimately be incorporated/referenced in the (proposed) Strategic Planning Framework for Derbyshire, the District/ Borough Council and Peak District National Park Authority Local Plans and Parish and Town Council led Neighbourhood Plans. The D2N2 LCWIP will strengthen links to local planning strategies, including regional and cross-boundary considerations.

The Derbyshire Health and Wellbeing Strategy 2018-2023: seeks to achieve a Derbyshire that enables people to live healthy lives through physical activity, and other things such as healthy eating. This includes reducing the percentage of the population that are physically inactive and an increase in active travel to schools and workplaces.

Cycling Network Development

The Derbyshire Cycling Plan 2016 and earlier Greenway Strategies are closely aligned to LCWIP, establishing a cross-sector approach to partnership working leading to a transformation in cycling. The D2N2 LCWIP builds on the work already started in Derbyshire, extending the partnership working to a sub-regional level. The delivery embraces a multi-user approach supporting walking, cycling and horse-riding. In January 2020 the Cabinet approved a long term plan for the funding and delivery of the Key Cycle Network illustrated in Figure 1 (see Implementation for details).

The KCN development included a prioritisation exercise which helped to define the programme. The publication of the Derbyshire Cycling Plan provided the catalyst for a full review of Derbyshire's existing and proposed multi-user trails to define a new hierarchy of Key Strategic and Local cycle networks. The Key Cycle Route Network (KCN) was reviewed with local public consultation, alongside the preparation of the D2N2 LCWIP.

The LCWIP will support the Plan's four strategic aims:

- **Infrastructure connectivity** – high quality connected routes, in all cycling environments, supporting all forms of cycling, creating and supporting economic growth.
- **Increased participation** – behaviour change approaches and targeted participation programmes at community level will support and enable more people to cycle, closing the gaps in participation and reducing health inequalities.
- **Effective communication and marketing** – excellent, well-connected marketing and communications for Derbyshire residents and visitors to the county, helping to change behaviour, increase confidence and get more people cycling regularly.
- **Advocacy** – cross sector advocacy for policy change and implementation at the highest level.

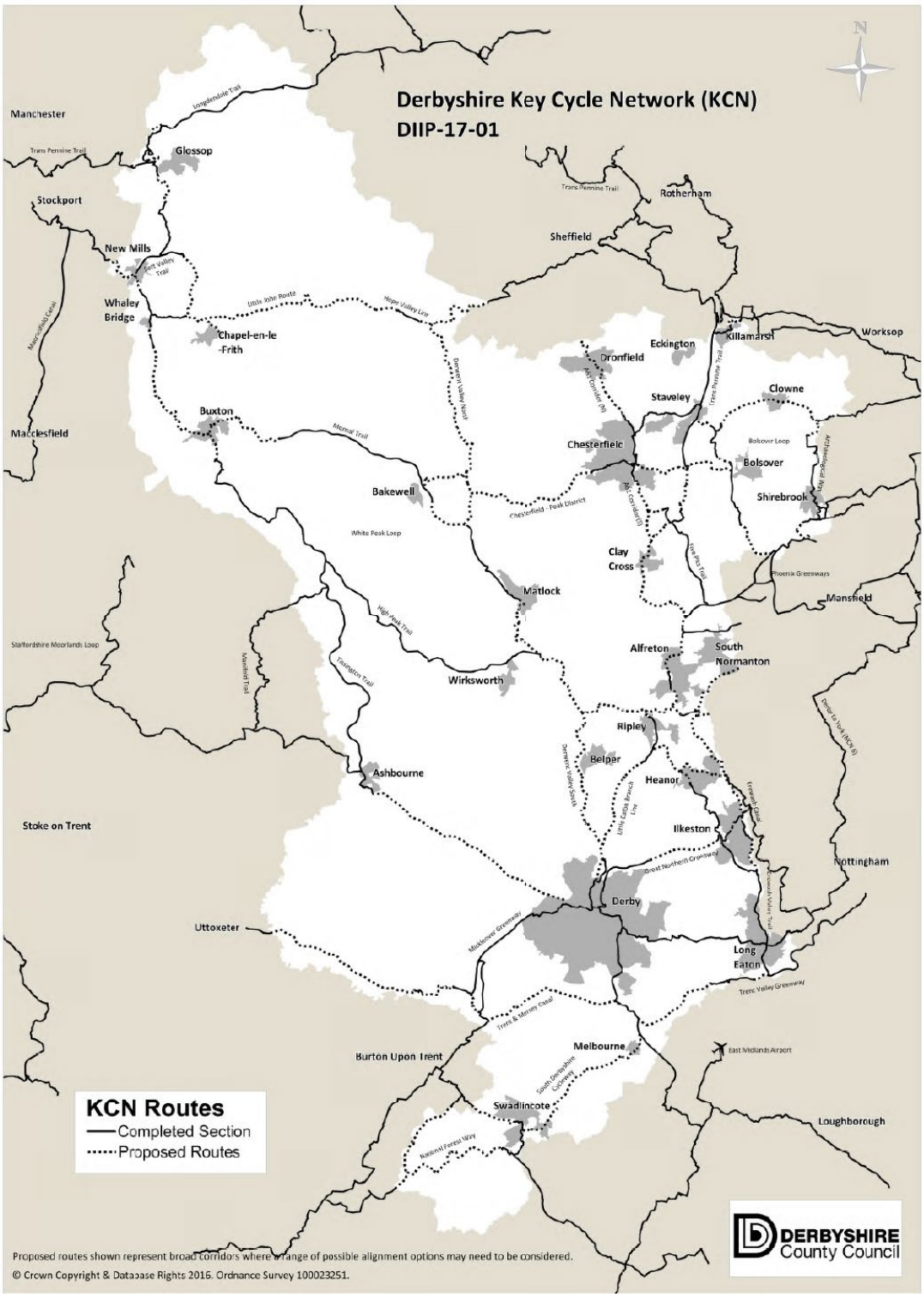


Figure 1: Derbyshire Key Cycle Network

Walking Network development

The main focus for the development of the county's walking network is provided by Derbyshire's Rights of Way Improvement Plan (RoWIP). This forms an integral strand of the Local Transport Plan which has been the main source of year on year funding for walking. It is based on extensive public consultation and subject to on-going input/monitoring by the county's two Local Access Forums.

The provision of good quality trails and attractive, circular routes within the network is considered to be important to help support the local economy and boost tourism. The demand for this type of safe route for everyday and recreational journeys is largely met by the county's expanding network of Greenways or multi-user trails which generally caters for walkers, cyclists and horse riders.

These inclusive routes also aim to meet the five design outcomes of attractiveness; comfort; directness; safety and coherence, meeting the needs of vulnerable pedestrians such as disabled people or those with young children.

The Derbyshire Cycling Network Map with its hierarchy of routes (Key Cycle Network, Local Cycle Network and Town Networks) also provides the Walking Network Map for the LCWIP, detailing the preferred walking routes for further investigation and development.

Walking trip generators are concentrated in and around Derbyshire's key market towns where there are a range of local amenities that could be expected to attract a significant number of pedestrian trips. These core walking zones are shown in Figure 2. These are the urban areas with greatest potential to encourage people to make more short trips on foot. New routes or improvements to existing infrastructure will be designed to accommodate walkers, cyclists and horse riders when appropriate. A case study for Buxton is set out in Appendix J.

The **Rights of Way Improvement Plan** (2013) is a long term vision for improving access to the countryside and built environment. The aims of the plan are consistent with the LCWIP to increase walking activity:

- Ensure that the public rights of way network is open and available for use.
- Provide an up-to-date and widely available Definitive Map and Statement.
- Provide a more connected, safe and accessible network suitable for all users.
- Improve the promotion, understanding and use of the network.
- Encourage greater community involvement in managing local rights of way.

The D2N2 LCWIP is closely aligned to both the ROWIP and Derbyshire Cycling Plan as the vast majority of existing and new strategic cycling and walking infrastructure in the County will be available as multiuser routes for both walkers and cyclists; and where appropriate horse riders.

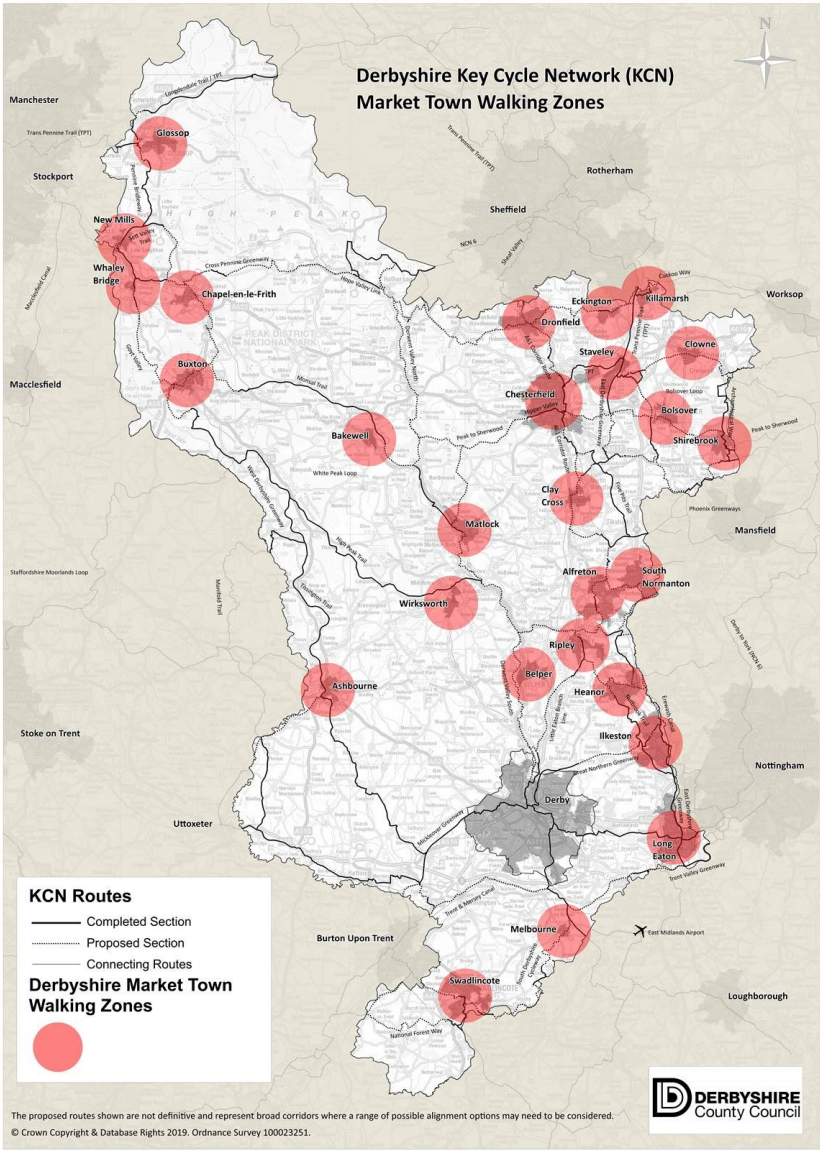


Figure 2: Derbyshire's Core Walking Zones

Implementation

In January 2020 the Derbyshire Cabinet agreed to further develop and fund the Key Cycle Network (KCN) in the County. Full implementation of the KCN will be based on the criteria related to external grant funding. Where a project is dependent upon submitting a full business case development

application , this will be based on the Green Book criteria. namely strategic, economic, finance, commercial and management. The full cabinet report is available at:

https://democracy.derbyshire.gov.uk/documents/s2561/Key%20Cycle%20Network.pdf

Early 'sifting' of scheme options has been carried out so that more detailed work can be done on a smaller number of proposals. The main sifting considerations are:

- **Strategic**
  - How well the project fits with wider strategic objectives and supports local and national policies and priorities.
- **Economic**
  - Demonstration of the project's value for money. This is based upon a comparison of a project's estimated costs and the tangible benefits it will bring to residents, visitors, commuters, users etc. This could include reduction in congestion, travel time, increase in productivity, etc.
- **Finance**
  - Consideration of all the resources required to deliver the project – this includes business case development, design costs, construction, ongoing maintenance, etc. It is necessary to identify the funding source of all this expenditure.
- **Commercial**
  - The degree of confidence in response to the project. For example in this case, the creation of new businesses such as cycle hire, food and drink or accommodation providers.
- **Management**
  - How project delivery would be: developed, organised, delivered and managed going forward.

On this basis, 26 are being taken forward (6 identified as short term i.e. in development and 20 medium term to consider in more detail). Whilst the appraisal and resultant prioritised programme of infrastructure focuses exclusively on the KCN, sections of the Local Cycle Network (LCN) will be considered for delivery alongside the KCN projects to provide local links. An example of this approach is the delivery of the Clowne Branch Line Greenway which forms the strategic route through the town centre, but will also provide the connections from the KCN to key local destinations as part of the delivery package.

The KCN delivery needs to take advantage of funding sources as they become available, even if these do not necessarily address those sections with the strongest priority case. The Council considers this is a pragmatic approach to enable delivery of the whole KCN network over time. Recent external funding used to support implementation of the County's cycling and walking infrastructure includes: Local Growth Fund, ERDF and the Integrated Transport Block.

The following sources of grant funding are likely to become available to support LCWIP delivery:

- Safer Roads Fund - Off-road route parallel to the A5004 Long Hill
- Highways England Designated Fund - Connections through the A38 at Little Eaton
- Housing Infrastructure Fund - Delivery of sections of the White Peak Loop
- Transforming Cities Fund - Strategic Routes between Derby and Nottingham
- Town Deals - Infrastructure around Staveley, Clay Cross and Long Eaton
- National Cycle Network funding - Bramley Vale and Hardwick Hall area
- Future High Streets Fund - Infrastructure in Buxton and Heanor

The D2N2 LCWIP has captured the shared, cross-boundary delivery priorities which help to strengthen the case for Derbyshire's KCN priorities.

Derbyshire KCN Prioritised Programme of Infrastructure Investment (Excluding Deliverability)

Link Description							Effectiveness/ Usage			Scores				Prioritisation	
Link No.	Description	Length (km)	Estimated Cost (£)	LCWIP - Greater Derby/Nottingham	LCWIP - North Urban	LCWIP - Rural Town & Hinterland	Adjacent Forecast High Commuting Corridor	Supports the Visitor Economy (Overnight Stays)	Adjacent Existing Leisure Corridor	Policy	Economic	Environment	Social	Total Score	Ranking
22	Macclesfield Road to Buxton Rail Station	1.8				✓	✓	✓	✓	94%	100%	67%	97%	100%	1
17	Buxton Rail Station to Fairfield Common (A6)	1.5				✓	✓	✓		94%	89%	25%	44%	98%	2
32a	A511 to Occupation Lane (WSRR)	0.8		✓		✓	✓		✓	72%	94%	45%	75%	98%	3
16	Calton Lees to Rowsley	2.7				✓		✓	✓	72%	98%	45%	9%	95%	4
19	Matlock Rail Station to Cromford (High Peak Junction)	7.0				✓	✓	✓	✓	93%	98%	0%	44%	95%	5
31	Newhall/County Boundary to Darklands Road, Swadlincote	4.1		✓		✓	✓		✓	37%	90%	87%	75%	95%	6
74	Unstone to Cemetery Road, Dronfield	2.4			✓	✓	✓		✓	72%	94%	45%	44%	95%	7
2	Pennine Bridleway/TPT - Glossop Road, Gamesley A626 to Gamesley Sidings (Dinting Vale)	1.1				✓	✓	✓		94%	45%	67%	75%	92%	8
32	Hastings Road, Swadlincote to A511 WSRR	0.7		✓		✓	✓		✓	37%	90%	67%	75%	92%	9
65	Avenue to Storforth Lane, Chesterfield	1.1			✓	✓	✓		✓	72%	90%	25%	75%	92%	10
73	Whittington Moor to Peak Resort	2.6			✓		✓		✓	72%	78%	45%	100%	92%	11
37a	Little Eaton Branch Line - Duffield Road, Little Eaton to Rawson Green, Kilburn	5.6		✓		✓	✓		✓	87%	85%	45%	44%	88%	12
43	West Hallam Depot to Ilkeston (A609)	2.3		✓			✓		✓	90%	45%	87%	75%	88%	13
50	Erewash Canal - Bridge Street, Ilkeston to Langley Mill Marina	4.5		✓			✓			87%	78%	25%	97%	88%	14
55	Swanwick Junction to Crays Hill, Leabrooks (Leabrooks Railway)	1.6		✓		✓	✓			72%	67%	87%	75%	88%	15
56	Crays Hill, Leabrooks to Park Pavilion	0.4		✓		✓	✓			72%	67%	98%	44%	88%	16
77	Clowne Branchline - Oxcroft Junction to Skinner Street, Creswell	7.4			✓	✓			✓	86%	67%	87%	44%	87%	17
5	George Street, Whaley Bridge to Chapel Road, Horwich End (B5470)	0.9				✓	✓		✓	54%	45%	100%	75%	82%	18
18	Coombs Road, Bakewell to Rowsley (A6)	3.9				✓		✓	✓	94%	67%	25%	9%	82%	19
21	Ladmanlow to Macclesfield Road, Buxton	1.7				✓		✓	✓	94%	27%	67%	75%	82%	20
32b	Woodville to Calke Abbey	7.6		✓		✓	✓	✓	✓	12%	94%	45%	44%	82%	21
33	Darley Abbey to Ford Lane, Little Eaton	2.1		✓			✓		✓	87%	78%	10%	97%	82%	22
44	Manners Avenue to Cotmanhay Road	1.0		✓			✓		✓	87%	85%	45%	9%	82%	23
75	Cemetery Road to Callywhite Lane, Dronfield	0.7			✓	✓	✓		✓	54%	94%	10%	44%	82%	24
15	Baslow to Calton Lees (Chatsworth Estate)	4.9				✓		✓	✓	12%	98%	4%	44%	79%	25
40a	Lowes Hill, Ripley to Hammersmith	0.8		✓		✓	✓			54%	85%	67%	9%	79%	26
53	Shipley Country Park, Heanor to Glue Lane	1.5		✓		✓	✓			12%	67%	98%	75%	79%	27
54	Glue Lane, Heanor to Erewash Canal, Eastwood	4.6		✓		✓	✓			12%	78%	87%	75%	79%	28
1	Pennine Bridleway/TPT - New Road Tintwistle to Woolley Bridge Road, Hadfield	1.7				✓	✓	✓		94%	35%	10%	75%	72%	29
20	Harpur Hill to Ladmanlow via HSE land	3.6				✓		✓	✓	94%	16%	67%	44%	72%	30
32c	Calke Abbey to Melbourne (Cloud Trail)	6.7		✓		✓		✓	✓	37%	90%	25%	9%	72%	31
38	Rawson Green, Kilburn to Station Road, Denby Bottles	1.3		✓		✓	✓		✓	72%	67%	67%	9%	72%	32
39	Station Road, Denby Bottles to Denby Business Park, Marehay	0.7		✓		✓	✓	✓	✓	72%	85%	25%	9%	72%	33

Indicative Programme Category

Short Term (typically <3 years) – projects which can be implemented quickly or are committed i.e. already under development.

Medium Term (typically <5 years) – projects where there is a clear intention to act, but delivery is dependent on further funding availability or other issues (e.g. detailed design, securing planning permissions, land acquisition).

Long Term (typically >5 years) – more aspirational projects or those awaiting a defined solution.

Stage 1 Cost Estimate

- £0 - £100,000
- £100,000 - £500,000
- £500,000 - £1,000,000
- £1,000,000 - £5,000,000
- £5,000,000 - £10,000,000

Version 2.1 20/11/2019

56a	Wimsey Way, Somercotes to Trent Grove, Alfreton	0.6		✓		✓	✓			12%	67%	87%	75%	72%	34
57a	Alfreton Station to A38 Underpass via Cotes Park	3.8			✓	✓	✓			12%	85%	45%	75%	72%	35
80	A632 Bolsover to Markham Vale (Bolsover Branchline)	3.4			✓	✓				54%	57%	67%	75%	72%	36
7a	Peak Forest Tramway - Chapel Milton (A624) to Chapel	1.6				✓				37%	57%	87%	44%	66%	37
26	Canal Bridge, Willington to Stenson Road	4.1		✓		✓			✓	54%	57%	67%	44%	66%	38
34a	Duffield to Belper	6.1		✓		✓	✓	✓	✓	37%	90%	1%	75%	66%	39
45	Nelson Street, Cotmanhay to Bennerley Viaduct/County Boundary	0.8		✓			✓		✓	54%	78%	25%	44%	66%	40
56b	Trent Grove, Alfreton to Alfreton Station	2.2		✓		✓	✓			12%	78%	45%	75%	66%	41
62	Clay Cross to Station New Road, Tupton/Station Road, Hepthorne	3.1			✓	✓	✓			54%	78%	25%	44%	66%	42
75a	Callywhite Lane, Dronfield to Bowshaw/County Boundary	2.0			✓	✓	✓		✓	54%	89%	4%	44%	66%	43
75b	B6057 to Greenhill Park County Boundary	0.9			✓	✓	✓		✓	12%	67%	67%	75%	66%	44
17a	Fairfield Common (A6) to Topley Pike	5.3				✓	✓	✓		94%	45%	4%	9%	62%	45
26a	Stenson Road to Swarkestone Junction	4.8		✓		✓			✓	54%	57%	67%	9%	62%	46
47	Ripley (Hammersmith) to Swanwick Junction	2.6		✓		✓	✓		✓	0%	78%	87%	9%	62%	47
53a	Glue Lane, Heanor to Ripley Greenway, Marehay	3.5		✓		✓	✓			12%	57%	67%	75%	62%	48
78	Archaeological Way - Wood Lane, Shirebrook to Pleasley Vale Outdoor Centre	2.4			✓	✓	✓		✓	72%	45%	67%	9%	62%	49
3	Pennine Bridleway - Green Lane, Simmondley to Monks Road	1.8				✓		✓	✓	94%	10%	67%	2%	56%	50
4	New Mills River Goyt / Sett Valley Trail to Peak Forest Canal	1.4				✓	✓		✓	12%	78%	25%	44%	56%	51
12	Hope Valley - Castleton to Bamford	6.5				✓		✓	✓	87%	57%	10%	9%	56%	52
24	Eggington Junction to Eggington Village (Derby Airfield)	2.0		✓		✓	✓		✓	37%	57%	67%	9%	56%	53
41	Lime Lane, Morley to Stanley	2.4		✓					✓	90%	10%	45%	75%	56%	54
67	Sheffield Road, Killamarsh to Norwood	1.6			✓	✓	✓		✓	72%	35%	67%	9%	56%	55
79	Pleasley Trail to Hardwick Estate	2.6			✓	✓		✓	✓	72%	45%	45%	9%	56%	56
10	Peak Forest Tramway - Whitehough Head Lane to Charley Lane	1.2				✓				54%	16%	98%	9%	47%	57
10a	Peak Forest Tramway - Green Lane, Chinley to Chapel Milton (A624)	0.8				✓				54%	27%	87%	9%	47%	58
28	Longhorse Bridge to Trent Lock	3.4		✓			✓		✓	54%	57%	25%	9%	47%	59
40	Derby Road, Marehay to Ripley Greenway	0.2		✓		✓	✓		✓	72%	57%	25%	2%	47%	60
42	Stanley to West Hallam Depot	0.8		✓					✓	90%	10%	45%	44%	47%	61
52	Ironville to Pinxton M1 Underpass via Pinxton Wharf (Pinxton Arm)	5.4			✓	✓	✓			12%	35%	45%	97%	47%	62
57b	A38 Underpass to Pinxton	1.7			✓	✓	✓			12%	35%	67%	75%	47%	63
58	Westhouses Sidings - Westhouses to Gloves Lane, Blackwell	1.3			✓	✓	✓			72%	16%	87%	9%	47%	64
71	Arkwright Composting Site to Longcourse Lane	1.6			✓	✓	✓		✓	54%	27%	45%	75%	47%	65
72a	Stockley Trail, Carr Vale to Archaeological Way, Langwith Junction	7.6			✓	✓		✓	✓	12%	67%	10%	75%	47%	66
84	Dronfield East	2.3			✓	✓	✓		✓	12%	67%	25%	44%	47%	67
86	Eckington to TPT	2.4			✓	✓	✓			54%	45%	10%	75%	47%	68
34	Holm Avenue, Little Eaton to Duffield	2.1		✓		✓	✓	✓	✓	37%	67%	4%	44%	37%	69
37	Duffield Road Link, Little Eaton	0.3		✓			✓		✓	54%	45%	10%	44%	37%	70
46a	Bullbridge to Buckland Hollow (Excavator)	1.8		✓		✓			✓	0%	35%	87%	44%	37%	71
57	Alfreton Station to Westhouses	1.3			✓	✓	✓			37%	35%	45%	44%	37%	72
63	Hepthorne to Five Pits Trail (Hepthorne Lane Link)	0.4			✓	✓	✓			37%	16%	87%	44%	37%	73
63a	Holmewood to Doe Lea	4.1			✓	✓				37%	16%	67%	75%	37%	74
64	Station New Road, Tupton to Mill Lane, Avenue	1.8			✓	✓	✓		✓	37%	57%	10%	44%	37%	75

68c	Matlock to Beeley Moor	8.4				✓		✓	✓	37%	57%	67%	0%	37%	76
70	Chesterfield to Arkwright Composting Site	5.1			✓	✓	✓		✓	12%	67%	10%	44%	37%	77
72	Longcourse Lane to Stockley Trail, Carr Vale	2.7			✓	✓	✓	✓	✓	37%	57%	10%	44%	37%	78
76	Poolsbrook Country Park to Bridle Road, Woodthorpe	0.5			✓		✓		✓	37%	45%	10%	75%	37%	79
83	Dronfield Gosforth Valley	1.8			✓	✓	✓		✓	37%	67%	10%	9%	37%	80
6a	Goyt Valley - Goyt Lane (Errwood Reservoir) to Macclesfield Road, Buxton	5.2				✓		✓	✓	12%	35%	45%	44%	29%	81
7b	Peak Forest Tramway - Chapel to Dale Road, Dove Holes	3.6				✓	✓			12%	45%	45%	9%	29%	82
23a	Rolleston Curve	2.1		✓		✓			✓	37%	45%	25%	9%	29%	83
27	Sarson's Bridge to Wilne Lane, Shardlow	7.3		✓		✓			✓	72%	27%	25%	9%	29%	84
29	Stapenhill to Walton-on-Trent	4.5		✓		✓		✓	✓	12%	45%	25%	44%	29%	85
33a	Ford Lane to Holm Avenue, Little Eaton	1.5		✓			✓		✓	37%	45%	4%	75%	29%	86
66	Mill Lane to Chapman Lane, Grassmoor (Grassmoor Country Park & Five Pits Trail)	1.2			✓	✓				37%	27%	67%	9%	29%	87
69	Greendale Avenue, Holymoorside to Sommersal Lane (Hipper Valley Trail)	1.1			✓		✓		✓	72%	35%	10%	9%	29%	88
77a	Skinner Street to Crags Road, Creswell	2.0			✓	✓			✓	54%	27%	45%	9%	29%	89
79a	Hardwick Estate to A617 Glapwell	1.6			✓	✓		✓	✓	54%	45%	10%	9%	29%	90
7	Hayfield to Chinley	5.7				✓			✓	12%	16%	87%	9%	27%	91
35	Belper to Ambergate	4.2		✓		✓		✓	✓	37%	57%	1%	44%	27%	92
78a	Archaeological Way - Pleasley Vale Outdoor Centre to Meden Trail	0.3			✓	✓	✓		✓	72%	35%	4%	9%	27%	93
7c	Dale Road, Dove Holes to Dove Holes Railway Station	0.7				✓	✓			12%	16%	67%	9%	21%	94
46b	Buckland Hollow (Excavator) to Ripley (Hammersmith)	2.4		✓		✓			✓	0%	27%	45%	44%	21%	95
47a	Swanwick Junction to Newlands Road, Newlands	1.0		✓		✓	✓			0%	35%	25%	44%	21%	96
48	Cinder Bank, Ironville to Jacksdale Bridge	0.9		✓		✓	✓			12%	35%	25%	9%	21%	97
59	Temple Normanton to Sutton Spring Wood (Postmans Lane)	1.9			✓	✓			✓	54%	3%	67%	9%	21%	98
60	High Street, Stonebroom to Mickley (Mickley Branchline)	3.4			✓	✓			✓	0%	27%	67%	9%	21%	99
61	Mickley to Clay Cross	3.0			✓	✓	✓		✓	0%	27%	45%	44%	21%	100
85	Dronfield B6056 to Eckington	6.0			✓	✓				37%	16%	25%	44%	21%	101
7d	Dove Holes Railway Station to Daisymere Farm, Fairfield (WPL)	3.6				✓	✓			12%	16%	45%	9%	13%	102
14	Hathersage to Baslow	11.4				✓		✓	✓	12%	16%	10%	75%	13%	103
25a	County Boundary to Canal Bridge, Willington	2.9		✓		✓			✓	54%	10%	25%	9%	13%	104
30a	Rosliston Forestry Centre to Castle Gresley (A444)	6.4		✓		✓		✓	✓	0%	16%	45%	44%	13%	105
33b	Derwent Valley to Little Eaton Branchline via Holm Avenue	0.9		✓			✓	✓	✓	12%	45%	1%	44%	13%	106
36	Ambergate to Cromford (High Peak Junction, WPL)	6.6		✓		✓		✓	✓	37%	27%	25%	2%	13%	107
50a	Langley to Aldercar Lane	1.4		✓		✓				0%	35%	25%	9%	13%	108
59a	Sutton Spring Wood (Rock Lane) to Arkwright Town	2.0			✓	✓			✓	54%	3%	45%	9%	13%	109
77b	Duchess Street, Creswell to Frithwood Lane Bridleway	0.4			✓	✓			✓	54%	3%	45%	9%	13%	110
5a	Shallcross Road to Long Hill (A5004)	1.1				✓			✓	12%	3%	67%	9%	11%	111
79b	A617 Glapwell to Stockley Ponds	0.6			✓	✓			✓	54%	2%	45%	9%	11%	112
81	Archaeological Way - Ice Age Centre to Welbeck Park/County Boundary	0.7			✓	✓			✓	54%	3%	25%	9%	11%	113
25	Eggington to T&M Canal Towpath A38 NCN Replacement	0.4		✓		✓			✓	37%	16%	4%	9%	8%	114
46	Ambergate to Bullbridge	1.9		✓		✓		✓	✓	0%	35%	1%	44%	8%	115
68b	Beeley Moor to Greendale Avenue, Holymoorside	5.9			✓	✓			✓	12%	16%	25%	2%	8%	116
82c	Longshaw to A6187	0.7				✓			✓	12%	10%	45%	2%	8%	117

6	Goyt Valley - Long Hill (A5004) to Goyt Lane (Errwood Reservoir)	3.0				✓		✓	✓	12%	10%	45%	0%	4%	118
11a	Pennine Bridleway to Castleton	6.8				✓			✓	12%	3%	10%	44%	4%	119
13	Hathersage to Burbage (Coggers Lane)	3.7				✓			✓	12%	3%	45%	2%	4%	120
30	Walton-on-Trent to Rosliston Forestry Centre	3.4		✓		✓		✓	✓	0%	10%	25%	9%	4%	121
68a	Calton Lees to Beeley Moor	4.3				✓		✓	✓	0%	16%	25%	2%	4%	122
23	Ashbourne to Norbury/Rocester	8.5				✓			✓	0%	3%	10%	44%	2%	123
82b	Longshaw Estate Visitor Centre to Dronfield	10.6			✓	✓			✓	0%	3%	10%	44%	2%	124
11	Chapel Milton (A624) to Pennine Bridleway	2.9				✓			✓	12%	0%	67%	0%	2%	125
82	Derwent Valley to Grindleford Station	2.7				✓			✓	0%	0%	25%	9%	1%	126
82a	Grindleford Station to Longshaw Estate Visitor Centre	3.2				✓			✓	0%	2%	4%	2%	0%	127

Appendix D Derby City Council

Local Policy Context

Derby's Local Transport Plan (LTP3) highlights its vision of providing for people living and travelling within Derby with viable travel choices and an effective sustainable transport network.

In order to achieve its vision, Derby City Council identified five transport goals;

- Goal 1 – Support growth and competitiveness, by delivering a reliable and efficient transport network.
- Goal 2 – To contribute to tackling climate change by developing and promoting low-carbon travel choices.
- Goal 3 – To contribute to better safety, security and health for all people in Derby by improving road safety, improving security on transport networks and promoting active travel.
- Goal 4 – To provide and promote greater choice and equality of opportunity for all through the delivery and promotion of accessible walking, cycling and public transport networks, whilst maintaining appropriate access for car users.
- Goal 5 – To improve the quality of life for all people living, working in or visiting Derby by promoting investment in transport that enhances the urban and natural environment and sense of place.

The D2N2 LCWIP will aid Derby City Council in achieving its strategic goals and vision.

The LCWIP will support Derby City Council in its delivery of the Rights of Way Improvement Plan (ROWIP). The ROWIP contains actions that help Derby City Council ensure that the City's path network meets the needs of its users. It identifies a number of new routes and provides guidance to help improve the existing 45km of Public Rights of Way in Derby.

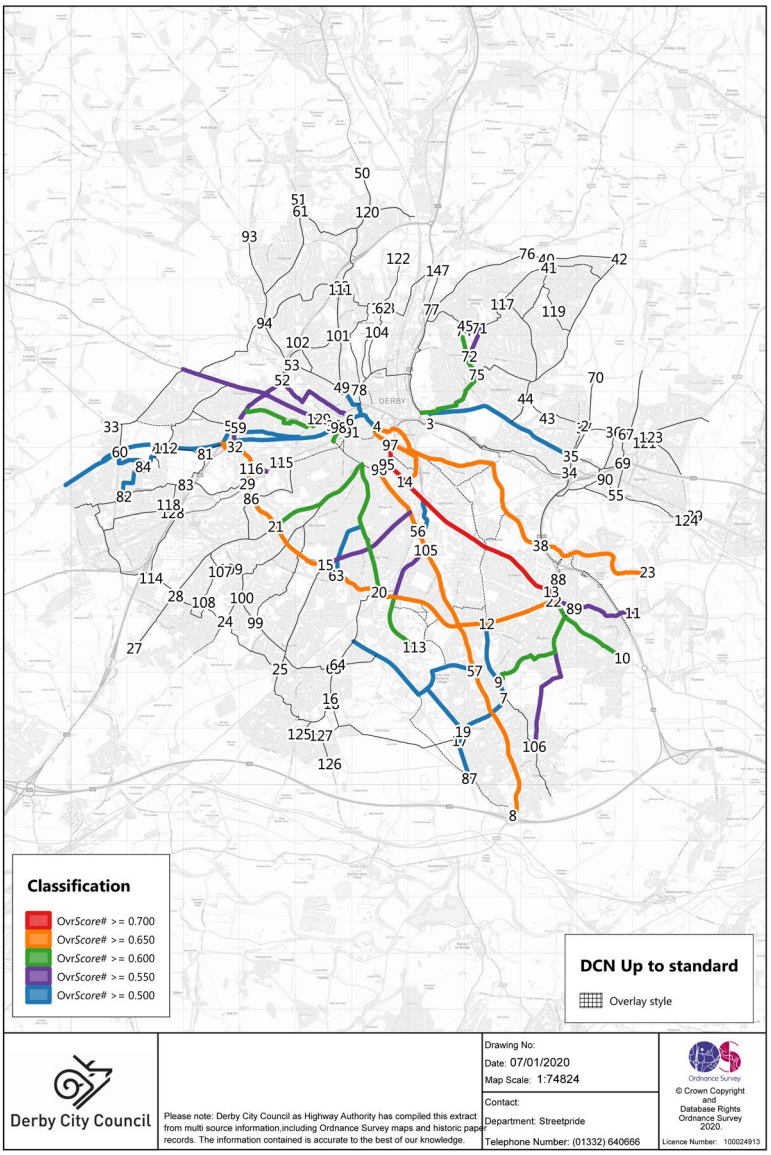
Cycle Network Development

The LCWIP process has been used to inform the development of a strategic cycle network plan for Derby. This network will be subject to consultation with stakeholders which will also assist with the prioritisation of future schemes. A significant proportion of housing growth in Derby is situated outside of the City boundary. The location of the these developments present a connectivity challenge, to ensure that new and existing cycling and walking routes provide a viable travel option for future residents and businesses.

The D2N2 regional LCWIP focusses on the opportunities for Derby City Council to deliver strategic routes along with neighbouring authorities to link new housing into local cycle route networks, including some new traffic-free routes that will also be suitable for pedestrians and disabled users.

Elsewhere, existing routes will be improved where necessary by widening, resurfacing, street lighting and have new signage.

Figure D1 Derby Priority Cycle Network Proposals



Walking network development

Derby City Council will focus improvements delivered through the LCWIP on core walking zones, such as; the City centre, district/neighbourhood centres and around major employment sites, hospitals, educational facilities and public open space. Derby City Council has identified a number of core walking zones. These walking zones can be seen in figure D2. Key pedestrian routes within and connecting the core walking zones will be audited to review quality, connectivity, facilities and street furniture etc. The reviews will aid Derby City Council in generating a programme of walking infrastructure improvements. Derby City Council has additionally looked at sources of major severance. Derby has a number of corridors where roads, rivers and railway lines create barriers that restrict walking journeys between core walking zones. The funnel routes created by the severance will be audited in order to maintain and improve local connectivity.

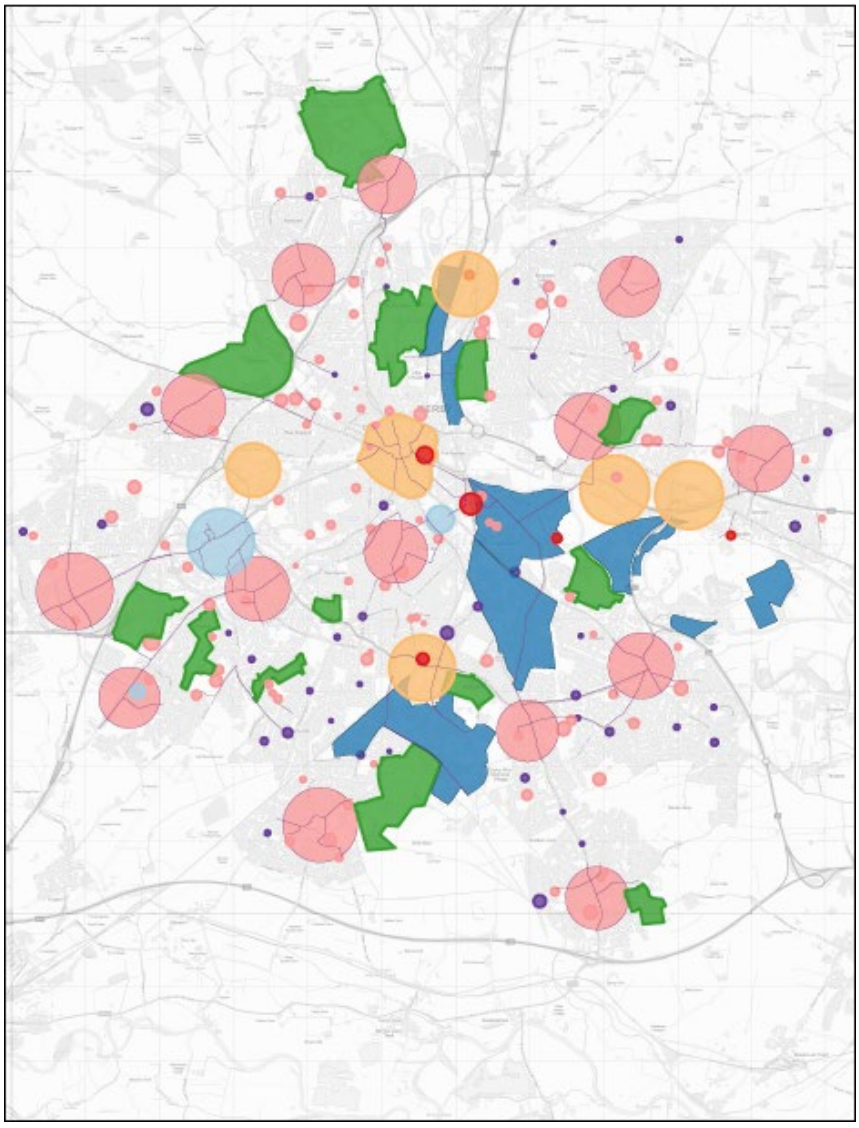


Figure D2 - Derby City Draft Walking network analysis

Green – Parks/ Public open space

Large Pink – District Centres

Small Pink – Education facilities

Purple - Neighbourhood Centres

Light blue – Hospital/ large medical facility

Orange – Retail Areas

Dark Blue –Employment areas

Red – Transport

Implementation

The LCWIP network plans will enable Highway Planners to assess and obtain developer contributions to deliver sections of the cycle network and provide localised mitigation and sustainability of developments. The result of the mitigation will enhance and add to the strategic cycle network along with each completed section adding value to those around it.

The LCWIP will help guide and prioritise the pedestrian accessibility schemes that are delivered through the annual work programme. Walking infrastructure will also be delivered within Derby's multi-user strategic off road network, where key pedestrian routes follow the same route as links identified within the strategic cycle network. Infrastructure improvements will look to cater for both user groups and will be investigated and audited accordingly. The routes considered in and around the core walking zones will also support the delivery of paths that are identified in the Rights of Way Improvement Plan.

The TCF proposals also include highway and public transport improvements with elements of public realm improvement to enhance cycling and walking. Further schemes will benefit from Developer investments, focusing on ongoing and allocated housing and business developments, offering employment opportunities.

Priority Programme 2020-2035 (Draft - subject to Councillor approval)

Scheme	Length of Improvement per KM	Comments	Minor	Major	Green way	Short	Med	Long	Locally Strategic Routes	Estimated Costs		
										Low (£1m km)	Medium (£1.5m km)	High (£2m km)
										1,000,000.00	1,500,000.00	2,000,000.00
Derby Canal, Spondon	1.25	Route along former Canal Corridor								1,250,000.00	1,875,000.00	2,500,000.00
Chequers Road Phase 1	0.288	Route along verge adjacent to Chequers Rd								288,000.00	432,000.00	576,000.00
Former Railway Line Phase 1 (Network Rail)	0.95	Routes on Network Rail Land								950,000.00	1,425,000.00	1,900,000.00
Raynesway Parapets (HE)	0.21	Bridge parapet improvement over A52								210,000.00	315,000.00	420,000.00
Campbell Street	0.235	On road cycle route								235,000.00	352,500.00	470,000.00
Osmaston Park Road/Moor Lane Signals		Access improvements to Campbell Street.								40,000.00	60,000.00	£80,000.00
NCN R6 Under Bridge Improvement - Railway Terrace		Widening and lighting of path								100,000.00	125,000.00	150,000.00
Riverside Path Phase 1 Alvaston Pk to Derwent Parade	0.897	Widening and lighting of path								897,000.00	1,345,500.00	1,794,000.00
Riverside Path Phase 2 Derwent Parade to Bass Rec	1.4	Widening and lighting of path								1,400,000.00	2,100,000.00	2,800,000.00
Riverside Path Phase 3 Bass Rec	0.613	Widening and lighting of path								613,000.00	919,500.00	1,226,000.00
Moor Lane	0.475	Routes between Elmwood Rd & Osmaston Park Rd								475,000.00	712,500.00	950,000.00
Wilmore Road East	0.365	Off road cycle route								365,000.00	547,500.00	730,000.00
Wilmore Road	0.04	Rolls Royce access improvement								40,000.00	40,000.00	£40,000.00
Chequers Road Phase 2	0.735	Route along verge adjacent to Chequers Rd								735,000.00	1,102,500.00	1,470,000.00

Riverside Path Phase 4	0.496	Route between Raynesway & Industrial Estate								496,000.00	744,000.00	992,000.00
Riverside Path Phase 5	2.96	Route between Industrial Estate & Borrowash								2,960,000.00	4,440,000.00	5,920,000.00
Canal Path	4.35	Route between Harvey Road & Swarkestone								4,350,000.00	6,525,000.00	8,700,000.00
Railway Terrace	0.337	Off road cycle route etc								337,000.00	505,500.00	674,000.00
Siddals Road	0.491	Off road cycle route etc								491,000.00	736,500.00	982,000.00
Morledge	0.103	Off road cycle route etc								103,000.00	154,500.00	206,000.00
Traffic Street	0.211	Off road cycle route etc								211,000.00	316,500.00	422,000.00
Calvert Steet	0.196	Off road cycle route etc								196,000.00	294,000.00	392,000.00
Mick-Mack Phase 1	0.245	Route through Friar Gate Goods Yard								245,000.00	367,500.00	490,000.00
Mick-Mack Phase 2	0.436	Route to the rear of Cathedral School								436,000.00	654,000.00	872,000.00
Mick-Mack Phase 3	0.089	Route to the rear of Builders Merchants								89,000.00	133,500.00	178,000.00
Mick-Mack Phase 4	0.441	Routes along Slack Lane								441,000.00	661,500.00	882,000.00
Mick-Mack Phase 5	0.272	Route through Slack Lane POS								272,000.00	408,000.00	544,000.00
Mick-Mack Phase 6	0.059	Route through Kingsway Park Close Private Land								59,000.00	88,500.00	118,000.00
Mick-Mack Phase 7	0.22	Route along Kingsway Park Close								220,000.00	330,000.00	440,000.00
Mick-Mack Phase 8	0.358	Highways England grade separation scheme								358,000.00	537,000.00	716,000.00
Mick-Mack Phase 9	1.23	Improvements to NCN Route 54/68								1,230,000.00	1,845,000.00	2,460,000.00
Mick-Mack Phase 10	0.776	Route through Onslow Road housing development								776,000.00	1,164,000.00	1,552,000.00
Mick-Mack Phase 11		Station Road Toucan (S106)								100,000.00	1,000,000.00	100,000.00
Nottingham Road Phase 2	1.79	Routes between Chaddesden Park Rd & Acorn Way								1,790,000.00	2,685,000.00	3,580,000.00
Nottingham Rd/Acorn Way Junction		Junction Improvement								600,000.00	700,000.00	800,000.00
Nottingham Road Phase 3	0.568	Routes between Acorn Way & Spondon Island								568,000.00	852,000.00	1,136,000.00
Meadow Road Junction		Junction Improvement								80,000.00	100,000.00	120,000.00
North Riverside Path	0.336	Routes between Derwent St & Meadow Road								336,000.00	504,000.00	672,000.00

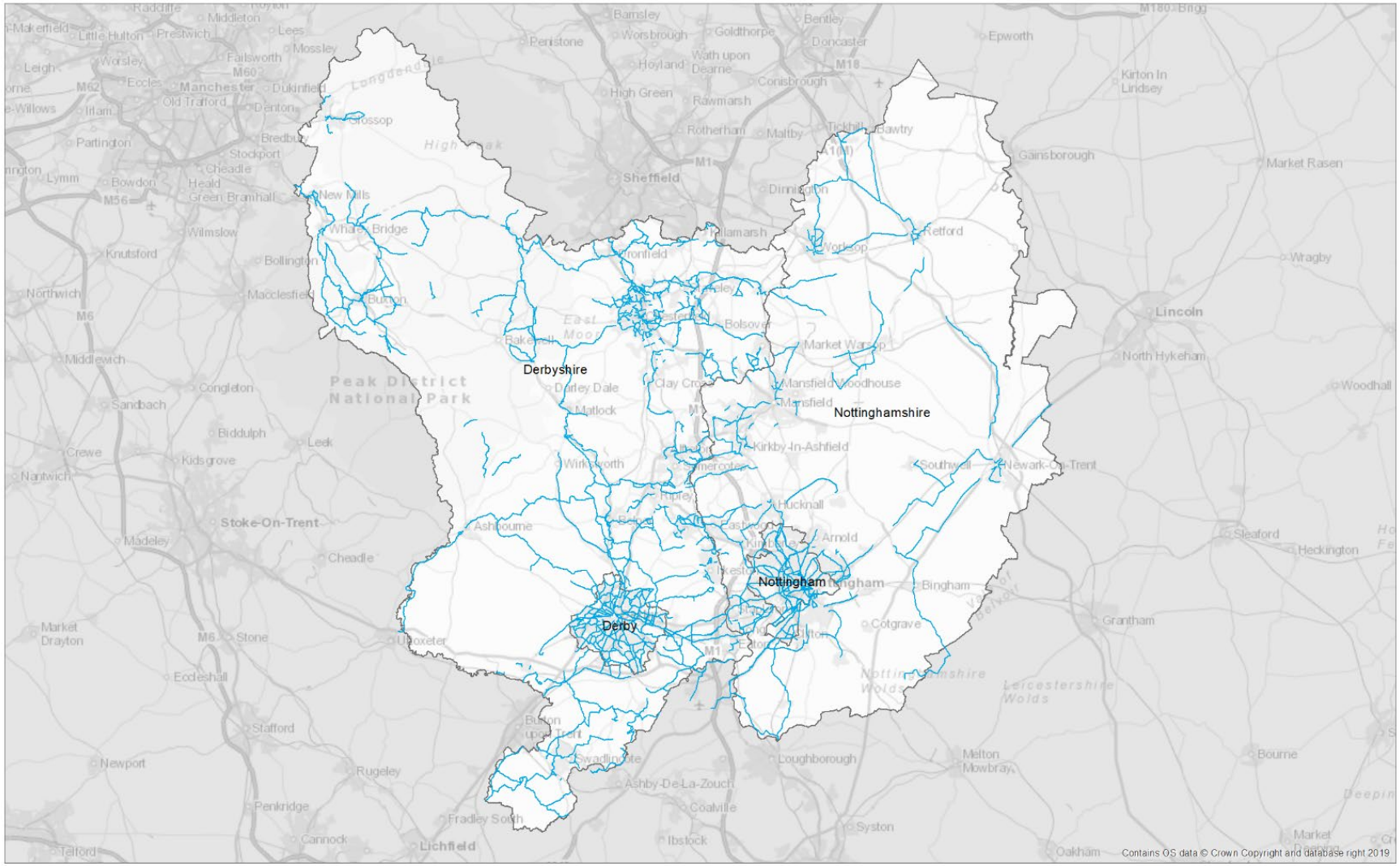
A52 Cycle Route Phase 1	0.549	Routes between Highfield Lane & Meadow Lane								549,000.00	823,500.00	1,098,000.00
A52 Cycle Route Phase 2	1.12	Routes between Meadow Lane & Raynesway								1,120,000.00	1,680,000.00	2,240,000.00
Links to Derby Canal	0.75	Cycle route links to Derby Canal								750,000.00	1,125,000.00	1,500,000.00
London Road Phase 1	0.436	Routes between Inner Ring Road & Midland Road								436,000.00	654,000.00	872,000.00
London Road Phase 2	1.6	Routes between Midland Road & Ascot Drive								1,600,000.00	2,400,000.00	3,200,000.00
London Road/Ascot Drive Junction Phase 3		Junction Improvement								800,000.00	900,000.00	1,000,000.00
London Road Phase 4	1.69	Routes between Ascot Drive & Raynesway								1,690,000.00	2,535,000.00	3,380,000.00
A5111 Ring Road Phase 1	0.902	Routes along Kingsway								902,000.00	1,353,000.00	1,804,000.00
A5111 Ring Road Phase 2	0.907	Routes along Manor Road								907,000.00	1,360,500.00	1,814,000.00
A5111 Ring Road Phase 3	1.2	Routes along Warwick Avenue								1,200,000.00	1,800,000.00	2,400,000.00
A5111 Ring Road Phase 4	0.786	Routes along Kenilworth Avenue								786,000.00	1,179,000.00	1,572,000.00
A5111 Ring Road Phase 5	1.97	Routes along Osmaston Park Road								1,970,000.00	2,955,000.00	3,940,000.00
A5111 Ring Road Phase 6	1.78	Route improvements to Harvey Road								1,780,000.00	2,670,000.00	3,560,000.00
Osmaston Road Phase 1	0.962	Routes between Inner Ring Road & Douglas Street								962,000.00	1,443,000.00	1,924,000.00
Osmaston Road Phase 2	2.2	Routes between Douglas Street & Harvey Road								2,200,000.00	3,300,000.00	4,400,000.00
Chellaston Road Phase 1	0.86	Routes between Harvey Road & Boulton Lane								860,000.00	1,290,000.00	1,720,000.00
Chellaston Road Phase 2	0.826	Routes between Boulton Lane & NCN Route 6								826,000.00	1,239,000.00	1,652,000.00
Derby Road	1.11	Routes between NCN Route 6 & High Street								1,110,000.00	1,665,000.00	2,220,000.00
Swarkestone Road	0.845	Routes between High Street & A50 Roundabout								845,000.00	1,267,500.00	1,690,000.00
National Cycle Network Route 54/68	2.35	Routes between Inner Ring Road & A38								2,350,000.00	3,525,000.00	4,700,000.00
Burton Road	1.94	Routes between Inner Ring Road & Warwick Ave								1,940,000.00	2,910,000.00	3,880,000.00
Normanton Road	1	Routes between Inner Ring Road & Peartree Road								1,000,000.00	1,500,000.00	2,000,000.00

Peartree Road	0.567	Routes between Normanton Rd & St Thomas Road								567,000.00	850,500.00	1,134,000.00
Portland Street	0.781	Routes between St Thomas Rd & Osmaston Park Rd								781,000.00	1,171,500.00	1,562,000.00
Victory Road	1.15	Routes between Osmaston Park Rd & Moor Lane								1,150,000.00	1,725,000.00	2,300,000.00
Boulton Lane	1.42	Routes between NCN Route 6 & Field Lane								1,420,000.00	2,130,000.00	2,840,000.00
Field Lane	1.14	Routes between Shardlow Road & Bouton Moor								1,140,000.00	1,710,000.00	2,280,000.00
Shardlow Road	1.8	Routes between Harvey Road & A6								1,800,000.00	2,700,000.00	3,600,000.00
Chaddesden Routes	1.78	Routes between Pentagon Island & Worcester Cres.								1,780,000.00	2,670,000.00	3,560,000.00
Markeaton Recreation Ground	1.49	Route between Inner Ring Road & A38								1,490,000.00	2,235,000.00	2,980,000.00
A38 Routes	1.82	Routes between Kingsway Island & Kedleston Road								1,820,000.00	2,730,000.00	3,640,000.00
Ashbourne Road Phase 1	1.45	Routes between Inner Ring Road & A38								1,450,000.00	2,175,000.00	2,900,000.00
Ashbourne Road Phase 2	1.5	Routes between A38 & Radbourne Lane								1,500,000.00	2,250,000.00	3,000,000.00
Dairyhouse Road	0.828	Routes along Dairy House Road								828,000.00	1,242,000.00	1,656,000.00
Walbroook Road	0.975	Routes between Warwick Ave & Dairy House Rd								975,000.00	1,462,500.00	1,950,000.00
Elton Road	1.06	Routes between Osmaston Park Rd to Osmaston Rd								1,060,000.00	1,590,000.00	2,120,000.00
Back Lane, Chellaston	1.75	Routes between High Street & Field Lane								1,750,000.00	2,625,000.00	3,500,000.00
Elvaston Lane	1.36	Route between Shardlow Road & Bridal Gate Lane								1,360,000.00	2,040,000.00	2,720,000.00
St Andrews View, Chaddesden	1.23	Routes along St Andrews View, Chaddesden								1,230,000.00	1,845,000.00	2,460,000.00
Slack Lane	1.1	Routes along Slack Lane								1,100,000.00	1,650,000.00	2,200,000.00
Mickleover Routes	2	Mickleover Routes								2,000,000.00	3,000,000.00	4,000,000.00
Onslow Road	0.505	Route improvement to NCN Route 54/68								505,000.00	757,500.00	1,010,000.00
NCN Route 54/68	6.26	Route improvement between Station Road and Etwall								6,260,000.00	9,390,000.00	12,520,000.00
Upper Dale Road/Stanhope Street	0.782	Routes between Stenson Road & Pear Tree Road								782,000.00	1,173,000.00	1,564,000.00
Merrill Way	0.79	Routes between Wilmore Road & Chellaston Road								790,000.00	1,185,000.00	1,580,000.00

Former Railway Line	1.09	Route between Wilmore Road & NCN Route 6								1,090,000.00	1,635,000.00	2,180,000.00
Litchurch Lane	0.668	Routes between Osmaston Road & London Road								668,000.00	1,002,000.00	1,336,000.00
Morledge	0.331	Route improvements along the Morledge								331,000.00	496,500.00	662,000.00
Full Street	0.325	Route improvements along Full Street								325,000.00	487,500.00	650,000.00
Queen Street	0.107	Routes along Queen Street								107,000.00	160,500.00	214,000.00
Great Northern Greenway	4.23	Route between Mansfield Road & Lime Lane								4,230,000.00	6,345,000.00	8,460,000.00

Appendix E D2N2 Network Proposals

D2N2 LCWIP Network



Appendix F Core Indicator Data Sources

Introduction

Each scheme is assigned a score between 0 and 1 based on its fit against each core indicator which helps to illustrate how the scheme would contribute to growth. It will also indicate where there are schemes that may address a range of core indictors well if not necessarily scoring very well against one in particular indicator. Each core indicator is explained in more detail below

Core indicator – economic growth

The economic growth core indicator works on the same proximity score principle as for tourism. The sites in this case are those allocated in the relevant district or city Local Plan, and where relevant the D2N2 Strategic Economic Strategy where these do not correspond to Local Plan allocations.

Grid squares within an allocated development site score 1, with the grid square furthest from any development scoring 0. A function has been applied so that scores decay exponentially as distance increases. Therefore routes passing through a development site or close by score most highly.

The economic growth core indicator does not reflect the relative impact of each site but is intended to show where complementary funding for investment might be obtained from planning gain such as Section 106 or Section 278 Agreements, and provides political and planning justification for contributions.

Core indicator – tourism and visitor economy

The tourism and visitor core indicator score is derived as combination of two components. Firstly, all tourism and visitor economy sites – henceforth "tourism sites" are mapped. Each authority drew up a list of sites. This was then combined into a single region-wide GIS table. A 50m x 50m grid was then created, with each grid square receiving a score of 1 if a tourism site is present or 0 for the grid squares furthest away from a tourism site. Therefore, grid points close to tourism sites score highly, with scores decaying away as distance increases. Grid squares with higher values have been given a higher preference when calculating the decay, creating an exponentially decaying effect where scores decrease rapidly before levelling out as they get closer to 0. Each route is then assigned a "Tourism Proximity Score" by taking the maximum grid square score along its length.

The second component is a "Tourism Cluster Score" as described by each authority. These are locations with a large concentration of visitor attractions, or zones where there is a significant volume of activity associated with tourism and the visitor economy, for example Sherwood Forest and parts of the Peak District. All schemes wholly or partially within the priority zones receive a component score of 1.

The overall score is calculated by weighting 0.8 x Cluster Score + 0.2 x Proximity Score. This weighting ensures that the key visitor attractions – all located within the Priority Zones – receive the highest focus in the core indictor scoring.

This approach to scoring supports the objective of encouraging cycling and walking visits that enable people to spend longer in an area, by making multiple visits in their trip, and not needing a car to tour around the area.

This component scoring and the weightings used see approximately 20% of the schemes scoring 0.8 or more, which suggests the weighting has achieved a good pareto distribution, and thus has been relatively successful achieving a core indicator score that draws out the most important sites.

The final prioritisation will reflect the local authorities' own understanding of the relative importance of each site.

Core indicator – congestion

The congestion core indicator is based on TrafficMaster data supplied by DfT. This has been processed by Nottinghamshire County Council to provide a delay score for each link in the road network.

Delay in the TrafficMaster data is calculated as the difference between AM peak time journey time and overnight "free-flow" journey time.

The core indicator score for delay is calculated by proximity to links in the highway network with a delay greater than 300 or 600 seconds per kilometre (5/10 minutes). Greatest proximity to congested corridors score 1, decaying exponentially to 0 for the most remote part of the network in terms of delay.

Proximity is used rather than an absolute normalised score, as the latter approach would score on highway routes higher than off highway routes. Offline links such as trails through parks and along canal paths are not part of the highway network and thus do not have a delay score associated with them in the source data; nor would some parallel residential streets. However, such links may run close to or parallel to the congested corridors. They can offer

potential for congestion relief. Using a proximity score is more desirable than only considering the delay as measured on the actual road.

The greatest delays as might be expected are in urban areas. These are also the places where cycling and walking has the greatest potential for modal shift because towns and cities have the biggest concentration of short trips.

Schemes that score highly against the delay criteria may be eligible for funding that targets congestion relief.

Core indicator – Carbon reduction and air quality

The core indicator is based on two factors:

- DEFRA modelled air quality data
- DfT Propensity to Cycle Tool modelled mode shift away from car commuting

A score for each is calculated, and then multiplied together before being normalised to derive an overall air quality core indicator score between 0 and 1.

Transport emissions are not solely responsible for poor air quality, but the process seeks to identify where transport has good potential to influence air quality because short car-borne trips could transfer to cycling. An area with poor air quality but low cycling potential would not score as highly as an area with similarly poor air quality but a higher potential for trips to transfer to cycling.

$PM_{2.5}$ concentration values from the DEFRA air quality model have been chosen for our initial modelling analysis because of their link to road transport, negative impact on public health and typical concentration around major roads. [2] $PM_{2.5}$ means particulate matter less than 2.5 micrometres in size, i.e. most easily absorbed into the blood stream via the lungs.

$PM_{2.5}$ data from 2017 is the latest year available. The values were normalised between 0 and 1, with 1 being the highest possible modelled value of $PM_{2.5}$ concentration.

Road transport is not the only source of $PM_{2.5}$ so it would not be logical to prioritise cycling and walking infrastructure solely based on air quality. For example, power generation is also a contributor to $PM_{2.5}$. Moreover, some areas of high concentration of transport-related $PM_{2.5}$ may be on strategic long-distance roads such as the M1 and A38, where only a very small proportion of journeys might be able to reasonably switch wholly or partially to walking or cycling.

[2] See e.g. https://laqm.defra.gov.uk/public-health/pm25.html

The core indicator score therefore reflects the potential mode shift from car commuting to cycle commuting as per the DfT's PCT model for the "Government target" scenario. The PCT models where reduction in carbon and other emissions is most likely to be derived from a mode shift to cycling, and where there is the greatest scope for trips to transfer to cycling based on the distance and topography of existing commuting trips. The census output areas have a modelled mode shift value in total number of commuters who could switch, so the normalised score attributes a value between 0 and 1, where 1 is the highest possible mode shift from driving to cycling for journeys to work.

The PCT model is based on 2011 census data whereas the air quality data is from 2017. While it might be reasonable to use the 2011 modelled air quality data to ensure a fair comparison between commuting patterns and air quality, there has been significant change in air quality. This is largely down to cleaner engines and a pronounced shift away from coal-fired electricity generation since 2015, with the UK government targeting 0% coal generation by 2025. This is particularly pertinent because the "Megawatt valley" of coal-fired power stations along the River Trent runs across the D2N2 region.

Core indicator – health deprivation

The score for the health benefit core indicator considers the DCLG modelling of multiple deprivation. This nationwide model considers several domains and sub-domains that combine to provide an overall index of Multiple Deprivation (IMD) [3]. While the overall IMD is a useful quick tool for practitioners and policy makers, DCLG publishes the domain and sub-domain data, which is useful for looking at specific aspects of deprivation.

Cycling for transport can have the effect of connecting people more easily to jobs and education, but the biggest benefit of more cycling stems from personal physical activity benefits and how these reduce morbidity and improve public health.

Each census output area is ranked nationally in the IMD data, including the specific domains, and placed in a decile (a segment representing 10% of the country by equal quantity). The core indicator score is therefore simply the national decile, i.e. a score from 0 to 9, then normalised to create a score from 0 to 1.

This scoring does not reflect background travel demand, as the provision of new or improved cycling and walking infrastructure can help tackle health problems –physical and mental – without necessarily reflecting existing travel habits. For example, new infrastructure can

3 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/579151/English_Indices_of_Deprivation_2015_-_Frequently_Asked_Questions_Dec_2016.pdf

attract new users by people changing where they go or what they choose to do for leisure activity.

While some morbidity and health deprivation issues locally may not be caused by physical inactivity, initiatives and charities such as *Wheels for All*[4] and *Wheels for Wellbeing*[5] advocate that accessible leisure cycling is something that is attainable to everybody, regardless of physical

Future LCWIPs will also consider Sport England's *Active Lives*[6] survey data, which measures people's typical physical activity habits, although samples tend to be small at the local level. This may be a useful reflection of changes in activity over time and in terms of health benefits, it might be a helpful predictor of future morbidity issues in combination with IMD health data.

Core indicator – modal shift

The score against the mode shift core indicator is generated by the absolute number of people who could switch to cycling (from any mode) as modelled in the DfT's Propensity to Cycle Tool (PCT) model in the "Government target scenario". This considers the prospect of the levels of cycling doubling nationally and assigns growth according to where trip distance and topography is most likely to support that. This number has been added to the "Government Target Scenario Increase in Walking" so that cycle mode shift that is not abstracting from walking can be prioritised.

Note that the increase in usage will include abstraction from pedestrians and public transport users, although predominantly the shift is away from driving.

The score is calculated by normalising the mode shift value – total modelled increase in cyclists – so that 1 is the greatest increase in any output area, and 0 the lowest.

[4] https://cycling.org.uk/wheels-for-all
[5] https://wheelsforwellbeing.org.uk/
[6] https://www.sportengland.org/research/active-lives-survey/

Appendix G Economic Appraisal

Overview

PJA was commissioned by the Department for Transport (DfT) to provide technical support to the four highway authorities that make up the D2N2 Partnership in their development of a joint, sub-regional LCWIP [7] for the D2N2 area [8]. As part of that technical support, PJA prepared an economic case that could be used to support funding bids for the overall D2N2 LCWIP programme.

This technical note set outs the methodology used and resulting estimated benefit-cost-ratio (BCR).

Demand Analysis

Network Data

PJA was provided with a priority network in shapefile format by each authority. Within each dataset, each route had been categorised into the following level of delivery:

- Short term (<3 years);
- Medium term (3 - 5 years);
- Long term (5 – 10 years); and
- Local routes connecting into the strategic priority network.

For the purposes of this appraisal, the analysis has taken into account all routes classified as deliverable within either short, medium or long term timescales. Schemes designated as "local routes" are assumed to be delivered outside the scope of the D2N2 LCWIP, and thus are excluded from the D2N2 LCWIP economic appraisal.

Origin - Destination Data

Using the database on the PCT.bike website, the following data was extracted for both Nottinghamshire and Derbyshire [9]:

- Lower-layer Super Output Areas (LSOA) population weighted centroids; and
- "All Flows" spreadsheet – setting out commuter flows in each scenario between all origin LSOAs and destination LSOAs in the study area.

[7] Local Cycling and Walking Infrastructure Plan
[8] Derby, Derbyshire, Nottingham, Nottinghamshire
[9] Nottinghamshire and Derbyshire data on PCT.bike includes the Unitary City districts as well as the Counties

One of the shortcomings of the method is that the only consistent data on travel patterns is from the Census Journey to Work. While this can be 'factored up' (see 4.2) to reflect trips for other purposes, it does not necessarily, for example, capture the spatial distribution of trips to important leisure destinations.

Data Extraction

Using ArcGIS Pro, the priority networks were merged into a single shapefile and then buffered by 200m so that all households within a 400m wide corridor are included. Although this is a tight buffer, it should be remembered that the majority of everyday cycling trips are under 5km and a significant proportion of journeys by all modes are also less than 5km.

The LSOA centroid shapefiles, downloaded from PCT, were layered over the buffered network. All centroids located within the buffered network were extracted and exported from ArcGIS as a .csv file so that the data could be manipulated within Microsoft Excel.

Within MSExcel, a list of potential Origin Destination pairings was created from the list of LSOA centroids extracted from within the buffered network.

Using a VLookup formula, it was then possible to extract commuter flows from the "All Flows" spreadsheet for any origin/destination pairing that fell within the buffered network.

Data was extracted from the following scenarios for each O/D pairing:

- **2011 Census Baseline Cycling** – Number of cycling commuter trips making this journey at the time of the 2011 Census;
- **Government Target Scenario** – forecast number of cycling commuter trips making this journey in the Government Target scenario;
- **Government Near Market Scenario** - forecast number of cycling commuter trips making this journey in the Government Near Market scenario; and
- **E-Bikes Scenario** - forecast number of cycling commuter trips making this journey in the E-bikes scenario.

For each scenario, the increase in cycling trips was calculated for each O/D pairing and also for the network as a whole. It should be noted that this increase was calculated once abstraction from walking was excluded.

Both "Government Target" Scenarios in the PCT assume a nationwide doubling in the number of cycle trips; however, this doubling is not absolute, but proportional according to several factors, i.e.

- Hilliness – flatter areas more likely to see a bigger rise in everyday cycling;
- Trip length – areas with high volumes of short trips have most potential for an increase in cycling; and
- Gender mode splits – increases in cycling may be derived from achieving a more equal gender balance. Areass with more favourable cycling conditions tend to have more equal levels of cycling among males and females

The "Near Market" scenario includes demographic factors that may suggest areas where increases in cycling might be more likely to occur.

The "eBikes" scenario assumes that not only higher quality cycling infrastructure is provided – i.e. similar to Dutch provision with concomitant higher mode shares – but also widespread use of eBikes effectively flattens the terrain and enables people to travel further. The eBikes scenario is calibrated by cross-referencing data in the Swiss and Dutch national travel surveys to understand the impact of hilliness.

Only trips with a start or end point within the network's zone of influence (the 200m) were considered. This means the increase in cycling predicted is likely to be pessimistic, as there will be journey possibilities opened up by the new infrastructure that have an origin, destination or both outside the 200m buffer. As previously stated, this trip analysis also excludes people who travel into the area to go cycling, but an adjustment has been made to add in a figure for tourism benefits.

The high-quality existing network was excluded from the analysis because the intention is to evaluate investment in potential new schemes and improvements. It is assumed that the proposed network will provide high-quality infrastructure that is accessible to all.

Economic Appraisal Methodology

Approach

Cost benefit analysis has been used to monetise the various social, environmental and economic benefits of the scheme and set this against the infrastructure cost, to determine value for money.

The majority of the analysis has been conducted in line with DfT TAG, specifically Unit A5-1 Active Mode Appraisal, estimating the health, journey quality and mode shift benefits. This allows the calculation of the welfare impact of the scheme, and therefore informs the 'initial' benefit-cost ratio (BCR).

Several locations within the D2N2 area attract a large number of tourists from the UK and abroad and play an important role in the sub-regional visitor economy. Key locations include:

- Peak District National Park, most of which is in Derbyshire;
- National Forest, a large part of which is in Derbyshire;
- Derwent Valley Mills World Heritage site, in Derby and Derbyshire;
- Cultural and visitor attractions in Derby and Nottingham city centres;
- Sporting venues along the River Trent in Nottingham and Nottinghamshire; and
- Sherwood Forest and Clumber Park, in Nottinghamshire.

Cycling is already a significant and growing part of the sub-regional visitor economy. andthe benefits of the cycle network could be substantial. For this reason, an additional value has been added to provide an indication of the impact on tourist spend. This metric is not within TAG, therefore the results are presented within an 'adjusted' (BCR) which represents the benefits to the D2N2 area.

The cost-benefit analysis is undertaken over a 60-year appraisal period, with benefits spanning between 2021 and 2080. The project will be delivered over a 15-year programme, so there is a build-up of all benefits between 2021 and 2035. Investment costs are profiled between 2020 and 2034. HM Treasury Green Book discount rates of 3.5% between years 1-30 and 3% between years 31-60 have been used, apart from health benefits which are discounted at 1.5%, as the 'wealth effect' component of the social time preference (discount) rate is removed.

All values are presented in 2020 prices.

Calculation of Benefits

The demand analysis set out in Section 2, resulting in one-way commuting trips for 2011 based on four scenarios: 1) Census Baseline (which becomes the 'do nothing' or 'without scheme'); 2) Government Target; 3) Government Near Market; and 4) E-Bikes. To inform the demands required for economic appraisal, the following assumptions have been used:

- Conversion of one-way to two-way trips is an increase of 90%, based on the illustrative case study in TAG A5-1;

- Conversion of 'commuting' trips to 'all purpose' trips based on journey purpose splits in TEMPro for cycling in Derbyshire and Nottinghamshire, where the purpose split for commuting is 34% [10];
- Average trip length (5km) and speed (9mph) taken from the National Travel Survey, giving an average journey time of 21 minutes;
- Proportion of cycle trips that would otherwise be in a car taken from summation of car (11%) and taxi (8%) diversion factors given in the TAG Databook;
- Car occupancy factors per km travelled (1.61) taken from the TAG Databook;
- Proportion of users who are in employment (56.4%) taken from the National Travel Survey;
- Background growth rate in trips (0.75% annually) taken from National Travel Survey Data 2006-2016 and used as default within the DfT Active Mode Appraisal Toolkit; and
- 75% of a cyclist's journey would use the proposed facilities.

Health Benefits

This comprises two components: *risk of premature death* and *absenteeism*.

Risk of premature death relates to how increased physical activity can prolong life and therefore reduce years of life lost, which can then be monetised by the statistical value of a life year. The methodology for estimating this follows the World Health Organisation Health Economic Assessment Tool (WHO HEAT) approach, with all parameters (except the demand variables set out above) in line with those set out in TAG A5-1.

Absenteeism relates to how increased physical activity can result in a reduction in yearly short-term sick leave absence, resulting in an economic benefit to employers. All parameters are line with TAG A5-1 including the yearly short term sick leave absence in the UK (4.3 days), 30 minutes exercise per weekday resulting in a 25% reduction in sick days and the output lost from a day's leave being equivalent to a working days' worth of an employer's value of time.

Journey Quality Benefits

[10] Given that many of the benefits relate to leisure time, it is appropriate to also model weekends. This adjustment has been made in three stages: 1) reduce the daily commuting trips in the model by: $\frac{Average\ Day\ Commuting\ Trips\ (Cycling)}{Average\ Weekday\ Commuting\ Trips\ (Cycling)}$ values in TEMPro; 2) convert commuting trips into all-purpose trips by: $\frac{1}{Proportion\ of\ cycle\ trips\ that\ are\ commuting\ (34\%)}$; and 3) use an annualisation factor of 365.

Journey quality refers to how the proposed facilities improve journey ambience and the perception of safety. A monetary value is prescribed to every minute spent using the infrastructure, effectively estimating the reduction in disutility associated with travel. The value for "segregated cycle route" has been applied to every forecast minute on the infrastructure of existing cycle trips, whilst half that value has been applied to new cycle trips, reflecting the rule of a half (change in consumer surplus associated with generalised travel cost with respect to a change in travel demand).

Mode Shift Benefits

Mode shift benefits relate to reductions in marginal external costs associated with a reduction in vehicle kilometres. These include:

- Decongestion;
- Reduced infrastructure wear;
- Fewer accidents;
- Improved local air quality;
- Less noise pollution;
- Lower greenhouse gases; and
- Smaller indirect taxation yield (disbenefit).

Values for each have been taken from the TAG Databook, and adjusted for traffic/congestion conditions in the East Midlands region. The TAG Databook forecasts values up to 2050, beyond this they have been increased in line with GDP per capita growth forecasts.

Tourism Benefits

Tourism contributes to the local economy through a combination of direct and indirect spending, as well as social value. Cycle tourism represents a growing and valuable tourist market, particularly in rural areas, and can provide new incentives for people to visit an area and help support local trade and businesses. Long distance cycle routes, which are predominantly rural, can generate as much as £30 million per year to the local economy, enough to sustain over 600 full time equivalent jobs6.

To estimate the benefits associated with the expected leisure use of cycling infrastructure, the average spend of leisure cyclists has been taken from the Pedal Peak Phase 2 Final Project Report. This is an ex-poste evaluation, conducted between 2013 and 2016, of cycle infrastructure delivered in the Peak District, funded by the Department for Transport Community Linking Places Fund tranche 2. The average spend of £32.597 includes spending on travel, parking, cycle hire, refreshments, local shops and accommodation8.

The spend has been applied to the number of one-way trips of the 'Tourism' journey purpose split (17%) only. To adjust for additionality (i.e. converting gross spend into net economic impact) a 10% reduction for leakage, a 25% reduction for displacement and a 1.5x multiplier9 have all been applied. These values are based on the 'Tourism' worked example in the Homes and Communities Agency (HCA) Additionality Guide (2014).

Calculation of Costs

Central cost estimates were provided directly by the Local Authorities, which have been treated as follows:

- Construction – provided by authorities [11];
- Preparation and administration costs – estimated to be 30% of construction cost;
- Risk – 20% contingency on top of investment cost;
- Optimism bias – 44%, consistent with TAG A1.2 for Stage 1 road schemes;
- Investment cost profile – straight line over 15 years (2020 to 2034); and
- Maintenance – 1% of construction cost occurring annually from 2021 with a 15-year build-up.

[11] The cost estimates Derbyshire included preparation, optimism bias a capitalised maintenance budget, which were removed for consistency with the other three local authority costs.

Table 1: Cycle Infrastructure Cost Estimates (000s)

Authority	Construction (c)	Preparation (p)	Investment Cost (c+p)	Risk Adjusted	With Optimism Bias	Maintenance (per year)	Present Value of Costs [12]
Derbyshire	£71,669	£21,501	£93,170	£111,804	£160,997	£717	£141,927
Derby	£110,771	£33,231	£144,002	£172,802	£248,835	£1,108	£219,360
Notts	£134,600	£40,380	£174,980	£209,976	£302,365	£1,346	£266,550
Nottingham	£195,426	£58,628	£254,054	£304,865	£439,005	£1,954	£387,005
Total	**£512,466**	**£153,740**	**£666,205**	**£799,446**	**£1,151,203**	**£5,125**	**£1,014,842**

These cost estimates are conservative, representing the highest potential specification at all locations, and may be reduced as the schemes are developed. Existing paths such as the Monsal Trail use a gravel surface for example, while 'good practice' assumes that a sealed surface is provided to enable commuter cycling. There will be other savings, for example where parts of the strategic network are delivered at minimal cost as an integral part of larger highway improvement schemes. A 'refined estimate' has been calculated with the following assumptions to enable a global lower-range cost estimate to be considered:

- Preparation and administration costs reduced to 20% to reflect economies of scale and scope in developing scheme infrastructure across the four local authorities;
- Risk reduced to 0%; and
- Optimism bias reduced to 15% to reflect Stage 2 road schemes.

[12] Over the 60-year appraisal period.

Table 2: Cycle Infrastructure Cost Estimates (000s) – Refined Estimate

Authority	Construction (c)	Preparation (p)	Investment Cost (c+p)	Risk Adjusted	With Optimism Bias	Maintenance (per year)	Present Value of Costs
Derbyshire	£71,669	£14,334	£86,003	£86,003	£98,903	£717	£92,581
Derby	£110,771	£22,154	£132,925	£132,925	£152,863	£1,108	£143,092
Notts	£134,600	£26,920	£161,520	£161,520	£185,748	£1,346	£173,874
Nottingham	£195,426	£39,085	£234,511	£234,511	£269,688	£1,954	£252,448
Total	**£512,466**	**£102,493**	**£614,959**	**£614,959**	**£707,203**	**£5,125**	**£661,995**

This would reduce the 60-year present value of costs from £1bn to £0.66bn.

Results

Core and Sensitivity Scenarios

It is considered that the travel demands estimated in section 2 are an underestimate as the origin-destination analysis accounts only for trips that take place wholly within the proposed network. It also does not account for trips that take place away from the network but might be diverted to use it. Therefore, two indicative sensitivity tests have been undertaken, 'S1' and 'S2', which increase the demands by 50% and 100% respectively, only to the Government Target and Government Near Market scenarios.

Roundly, these additional demand factors equate to a trebling and quadrupling of present cycling levels respectively, so somewhere midway between existing UK mode share (roughly 2%) and places like Denmark, Belgium and Germany where mode share in the double figures is typical, albeit with much regional variation. Indeed, places like Cambridge and Oxford already have cycling mode shares in double figures.

This approach of adding in additional demand was not replicated in the eBikes scenario as this model assumes that there is a high density of Dutch-quality cycle routes already in place, so adding in further demand on top of that to reflect interaction with the existing network is not likely to be realistic.

Table 3: Daily Cycle Trips by Scenario

Scenario	Government Target			Government Target Near Market			e-Bikes
	Core	S1	S2	Core	S1	S2	Core
Without scheme daily cycle trips	7,406	7,406	7,406	7,406	7,406	7,406	7,406
With scheme daily cycle trips	14,610	21,916	29,221	15,656	23,484	31,312	59,339
New daily activity travel trips [13]	5,155	7,732	10,309	6,200	9,300	12,400	36,553

AMCB Table

The analysis of monetised costs and benefits for a 60-year appraisal period by scenario are set out below.

Table 4: Monetised Costs and Benefits, 60-year present values (000s)

Scenario		Government Target			Government Target Near Market			e-Bikes
		Core	S1	S2	Core	S1	S2	Core
Benefits								
Health	Reduced risk of premature death	£484,857	£727,286	£969,715	£583,212	£874,818	£1,166,424	£3,438,317
	Absenteeism	£38,998	£58,497	£77,996	£46,909	£70,363	£93,818	£276,551
Journey Quality	Ambience of improved facilities	£263,613	£351,083	£438,552	£276,133	£369,862	£463,592	£799,171
Reduction in Marginal External Costs (Mode Shift)	Congestion	£12,108	£24,386	£36,663	£13,866	£27,022	£40,178	£87,281
	Infrastructure	£66	£133	£199	£75	£147	£219	£475
	Accident	£1,185	£2,386	£3,587	£1,357	£2,644	£3,931	£8,540
	Local Air Quality	£112	£227	£341	£129	£251	£373	£811
	Noise	£72	£146	£219	£83	£162	£241	£522
	Greenhouse Gases	£485	£977	£1,470	£556	£1,083	£1,610	£3,498
	Indirect Taxation	-£664	-£1,337	-£2,010	-£760	-£1,482	-£2,203	-£4,786
Tourism	Increased spend	£101,314	£151,972	£202,629	£121,866	£182,799	£243,733	£718,461
Costs (Broad Transport Budget)								
Investment Costs		£914,863	£914,863	£914,863	£914,863	£914,863	£914,863	£914,863
Maintenance		£99,980	£99,980	£99,980	£99,980	£99,980	£99,980	£99,980
Benefit Cost Ratios								
BCR (Initial)		0.79	1.15	1.50	0.91	1.33	1.74	4.54
BCR (Adjusted)		0.89	1.30	1.70	1.03	1.51	1.98	5.25

BCRs range from between 0.79 and 4.54, depending on scenario without inclusion of tourism benefits and 0.89 to 5.25 when tourism is included. This places benefits in either 'Low' or 'Medium' range' without tourism, and high with tourism added in..

[13] This is the number of new cycling trips, minus those that have switched mode from walking.

Sensitivity Test with Refined Cost Estimates

Cost benefit analysis has also been undertaken with the 'refined' cost estimates set out in Table 2. The benefits remain unchanged.

Table 5: BCRs with Refined Cost Estimates

Scenario	Government Target			Government Target Near Market			e-Bikes
	Core	S1	S2	Core	S1	S2	Core
BCR (Initial)	1.21	1.76	2.31	1.39	2.03	2.67	6.96
BCR (Adjusted)	1.36	1.99	2.61	1.58	2.31	3.04	8.05

With the lower scheme cost estimates, most of the BCRs fall between 'Medium' or 'High'.

Discussion and Recommendations

These initial BCR calculations show a wide range of impacts to reflect that the assessment at this stage is at a high level. This output is considered reasonable to provide high-level guidance on proceeding with the D2N2 Strategic Network. It is noted that the mode share increases are disappointing region-wide, being less than doubling in the government target scenario but clearly this global assessment will hide huge variations.

For example, the schemes that were included in the successful Transforming Cities Fund bid all scored very highly when placed in the context of their relationship with other transport schemes and their potential to deliver the aspirations of the TCF.

Potential Underestimates of current and future levels of cycling

Variations could be understood by further breaking down existing and "with scenario" ridership levels by area, as it may well be the long length of rural routes is masking what may well be very high mode shift figures in urban areas, and due to lack of data, we also have no accurate estimates of the numbers of people cycling for leisure in rural areas

The cumulative network effects are impossible to model, and therefore not fully captured in this methodology, but clearly as more high-quality and connected routes are provided, more cycle trips will be possible for more people. The data does not capture cycling where it is the minor stage of a journey, for example as an access mode for rail. Refinements could be made to consider the extent to which the infrastructure will increase the rail access mode share of cycling and therefore add to the number of cycle trips.

Potential Underestimates of wider benefits

Cycling infrastructure of this extent is likely to yield wider economic impacts or benefits outside of the transport market. For example, the decongestion effects of mode shift may unlock land for development or increase productivity through economies of agglomeration, whilst the increased connectivity may enable more individuals to enter the labour market. The welfare or economy (e.g. additionality modelling) impacts of these wider benefits has so far been unexplored.

Good cycling and walking infrastructure are essential elements of most 'placemaking' schemes which in turn have an influence in attracting companies to invest in the area. This helps to attract and retain higher skilled workers and students and to create jobs.

Individuals will be put off cycling by the weakest point or gap in the infrastructure. The overall value of the network is greater than the sum of its parts. A low BCR should not be a

reason to de-scope individual routes. The high-level network BCR can be used to support to the delivery of routes that by themselves would have struggled to yield a BCR of above 1. Routes must always be considered in the context of a wider strategic network that delivers against various policy objectives.

This is akin to the TGV/LGV programme in France, where the first route built achieved very high returns on investment, but completing the network to deliver the service proportionally around the country led to lower and lower returns on investment when looked at for each line in isolation.

As the programme is delivered, there will be new areas where additional links in the network could yield significant improvement to mode shift across the programme – especially when interaction with existing links is better modelled – and hence help improve the overall BCR should that be a motivating factor in funding decisions.

Cycling is still enjoying a revival, and there is a large uptake of E-bikes. It is likley therefore that there will be additional cycling journeys over and above modal shift as more people cycle more safely and more often.

Potential Overestimates of Costs

Some example costs provided by Transport for London and the Cycle Ambition Cities programme are included in the DfT LCWIP toolkit. These costs reflect high quality schemes in urban areas, and in many cases were the first attempt at such schemes by the local authority. It is likely that delivery costs per km can be reduced if there is consistent long-term funding because the design and delivery processes will be more streamlined.

Summary of Recommendations

The major constraint in accurately assessing travel demand across such a wide geographical area is the lack of accurate data about the spatial distribution and quantity of cycle trips. While the PCT is helpful in urban areas, it does not work for rural areas. Additional data such as mobile phone data, manual and automatic counters and sources such as Strava can help to build up a more accurate picture. The main disadvantages of other sources are the expense of obtaining the data and, when comparing routes across a wide area, potential inconsistencies in data collection. More widespread and consistent data collection across the D2N2 area would enable a more accurate understanding of trip patterns.

Lack of accurate data on current levels of cycling in rural areas, and the omission of tourists driving into the area to cycle, will have under-estimated the full impact of cycle day trips and tourism. At present, in line with TAG, the analysis is focussed on people travelling from places

within close proximity to the routes. The uplift to add in tourism benefits is likely to be an underestimate and could be revised if better data was available. Clearly tourism is not prevalent across all of D2N2 so any calculation would also need to consider the differences between the sub-areas in the LCWIP.

It is likely that maintenance costs have been overestimated. Routes within highways will be subject to routine maintenance with minimal additional costs to existing regimes. Off-road routes that are constructed with high-quality materials are likely to last several years without significant deterioration. More empirical case-study evidence would enable the maintenance element to be more accurately estimated.

As noted above, it is also likely that large parts of the network will be delivered with modest costs using 'quietway' type treatments with minimal infrastructure, and some will be delivered as part of other highway improvement works. There may therefore be reduced capital costs for delivery. The costs can be refined during the design process to enable the BCR to be recalculated.

Conclusion

The LCWIP has brought the four local authorities together and fostered a greater understanding of the inter-relationships and cross-border aspects of what is essentially a very local mode of travel. The TCF2 programme sets out a strong start to delivering the D2N2 network. It demonstrates how the authorities can work in partnership with routes being delivered in Nottinghamshire and Derbyshire. This cooperation and the work undertaken creating the LCWIP can help form the basis for the future investment plans for the D2N2 sub region.

Appendix H Stakeholder Participation

Engagement Meeting 1 Derby Velodrome Arena, May 23rd 2018, 50 delegates attended

Discussed:

Current broad priorities for cycling and walking across the D2N2 area and Data Sets and Prioritisation

Recommendations from the meeting were:

- To give further thought to how a wider audience can be engaged, particularly when the LCWIP priority schemes are agreed.

- To be clear at further workshops and meetings with partners about how the methodology works and how the different data sets have been used. This is required so that people can clearly see how the potential impact of schemes has been calculated.

- To address scepticism from some about the value of the LCWIP, especially in light of its relationship with key route plans and cycling infrastructure exercises that already have political and local support.

- To demonstrate clearly to stakeholders how routes will be practically prioritised for development following finalisation of the LCWIP map and report. This will be in part determined by the potential funding available and the conditions funders apply to any application process.

Engagement Meeting 2 New Art Exchange Nottingham, 24th October 2018, 48 delegates attended

Discussed:

Which key stakeholders need to be told about the LCWIP on its completion and levels of stakeholder influence

Who are the most likely funders of priority routes coming out of the LCWIP process and how the delivery of prioritised cycling and walking routes hits their agendas. What evidence will they need?

Recommendations from meeting

"Keep stakeholders engaged, especially regarding the completed LCWIP and what it shows. This is likely to need a further explanation of how schemes were assessed and prioritised.

There needs to be further thought regarding how the LCWIP is communicated to key partners with a need for the four Highway Authorities to discuss this further collectively."

Engagement Meeting 3 Nottinghamshire County Hall West Bridgford, 18th April 2019, 38 delegates attended

Presentations on the maps produced from the 5 main data sets which were

- Propensity to cycle tool kit
- Tourism
- Local plans
- Deprivation
- Congestion

These were then sub divided into:

- Derby and Nottingham Conurbation
- Rural Areas and Market Towns
- Northern Urban Area

Workshops were then held for each of the above for feedback, comments and ideas.

Recommendations from meeting

When the document is published, care will need to be taken regarding how the conclusions reached about route prioritisation across D2N2 and within the 3 three identified zones are communicated.

Local knowledge and expertise will be required to match priority schemes to potential funding in the future.

Communicate with stakeholders on written LCWIP to ensure they understand the conclusions reached and get behind the further development of key schemes identified.

Clarification on how the LCWIP would be reviewed and monitored."

Further Stakeholder Engagement

It is proposed to consult on the LCWIP once discussed with the DfT and then approved by decision makers at the four authorities

Appendix I Monitoring, Evaluation and Review

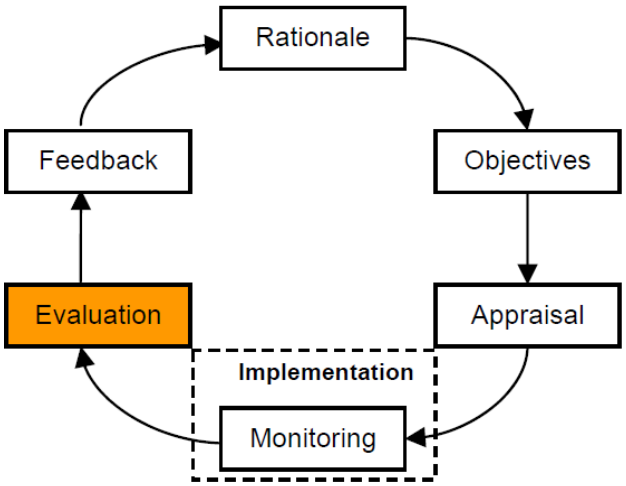
Introduction

The final stage of an LCWIP is Monitoring and Evaluation. The DfT guidance suggests that authorities should review and update the LCWIP approximately every 4-5 years to reflect progress. Plans should also be updated if there are significant changes in local circumstances – new policies, strategies or funding, to ensure continued alignment with economic growth objectives and wider land use proposals.

One of the key issues identified in preparation of the LCWIP, in common with other parts of England, is that there is very little consistent data collection on active travel. This leads to over-reliance on the census journey to work data, which has limitations when applied over a wide area, especially in rural areas where peaks in travel demand are not always associated with commuting activity.

The lack of data reflects that historically active travel has not been a priority, but is also a legacy of intermittent funding such as Cycling England and the Local Sustainable Transport Fund where data collection has terminated at the end of the funding period due to lack of revenue support. This often makes it impossible to measure the full impact of the programmes post-implementation. It would be beneficial therefore to establish a funding stream and programme of data collection as a short term priority that would then enable the LCWIP to be refined in its next iteration. Such an approach to policy formulation and refinement is well documented in industry literature and is termed the ROMEF (Rationale, Objectives, Appraisal Monitoring, Evaluation and Feedback) cycle.

Figure I1 The ROMEF Cycle



Source: Hills and Junge, 2010 P 10

This principal is applied to the LCWIP with each cycle lasting 4-5 years within the 15 year programme. The evaluation approach discussed below sits particularly well within this cycle as it will test, using the monitoring data, the theory of the programme and enable it to be fine-tuned at the end of each cycle. With this in mind, any evaluation should report back at the end of each cycle. It is therefore proposed that the evaluation output would be at least 2 interim reports and a final report at the end of the 15 year period.

This section sets out an evaluation strategy for the LCWIP. The LCWIP will develop and maintain a programme of measures over a 10 to 15-year period so the evaluation must be planned accordingly. Transport in the D2N2 region will undoubtedly be affected by many institutional, socio-economic and technological changes during that period. This changing 'context' will need to be taken into account if this evaluation is going to deliver a balanced view of the success of the programme. The length of the evaluation period in this case makes this crucial.

At this stage of the LCWIP development process it is too soon to provide a full evaluation plan, however it is pertinent to outline the evaluation approach that will be deployed. To this end, in this section we identify the programme's over-arching objectives and show, using logic mapping, how the LCWIP can achieve these. Additionally we provide a discussion as to how Theoretical Evaluation approaches may be suited to a longitudinal evaluation of this type. Research methods are identified that enable exogenous contextual change to be accounted for and achieve attribution of cause and effect between observed change and the LCWIP. To support this discussion a number of performance indicators are identified which are capable of testing the theory articulated in the logic map and tracking progress towards the objectives and targets.

This evaluation could be conducted in partnership with academia. This would ensure impartiality and rigour. Currently NCC is conducting a meta-evaluation of cycling interventions in Nottingham between 2013 and 2017 in partnership with Nottingham Trent University. The outputs from this, expected by the summer of 2020, have now been delayed due to Covid – 19 prohibiting the required survey work, but once completed it will be used to further inform the LCWIP.

Nottingham and Derby City Councils successfully bid for Transforming Cities Funding (TCF) which included funding for interventions focused on encouraging active travel. Thus the LCWIP is closely aligned to these proposals in the first 5 year period in Nottingham and Derby. While it is recognised that the TCF schemes do not impact on all areas covered by the D2N2 LCWIP, the evaluation approach outlined in this document draws on development work carried out in the preparation of the successful TCF bid. The draft logic map is based on the Active Travel Logic Map from this bid but has been further developed to reflect the LCWIP interventions for the entire D2N2 region. The general evaluation approach proposed for the Monitoring and Evaluation of the TCF is considered appropriate for the LCWIP. A similar approach has been proposed for the Future Transport Zone and has been successfully applied to the evaluation of the Nottingham Workplace Parking Levy Package.

LCWIP Objectives and Targets

In Section 2 six priorities for the LCWIP have been identified and discussed, from this, six programme objectives have been developed. A key role for the evaluation is to assess the progress towards achieving these objectives:

Objective 1 - Support Economic growth

Objective 2 - Support tourism and the visitor economy

Objective 3 - Constrain Traffic Congestion

Objective 4 - Improve Air quality and reduce carbon emissions

Objective 5 - Addressing health deprivation in order to improve quality of life, health and wellbeing.

Objective 6 - Increase the mode share for Cycling and Walking across D2N2 area by increasing the number of cycling and walking trips and promoting mode switch from the car to these active modes.

A key D2N2 target will be to meet the government's CWIS cycling and walking mode share ambition and this is enshrined in Objective 6. While it is important to achieve this nationally set target it is also important to appreciate that a programme such as the LCWIP will be implemented over a long period of time during which the exogenous variables which influence the take up of active travel may change in directions which cannot be anticipated at the appraisal stage. The consequence of this will be to make this target either under or over ambitious and thus it is necessary to be cautious with regards to using this target as the primary measure of success. However, the above evaluation approach should be capable of taking into account this change and therefore be capable of delivering an assessment as to the degree to which this target has been met.

Evaluation approach for the LCWIP

The first step in the evaluation process is to develop, and agree with key stakeholders, a logic map that clearly explains the consensus as to how the LCWIP is expected to meet the Programme objectives outlined above. This supports the Programme rationale already provided in previous sections of this document by articulating, in more detail, how, why and when the desired change will occur, thus mapping each step on the causal pathway from scheme implementation to the desired longer term impacts.

This logic map, therefore, serves not only provide a framework for evaluation, but also assist in developing the strategic case for schemes and scheme development. The evaluation will need to establish the impact of the LCWIP Programme as a whole, as well as the contribution made by individual schemes. The use of detailed logic mapping points the overall evaluation approach towards adopting the Theoretical Evaluation, Theory of Change approach (ToC), this approach is suited to the evaluation of the LCWIP as it is a diverse package of complimentary measures which will be implemented over a number of years. Such interventions are highly suited to Theoretical Evaluation approaches as they are capable of taking into account temporal contextual change, as well as allowing for causal attribution, i.e. they can demonstrate to what extent observed change is due to the implementation of an intervention rather than exogenous factors.

A range of indicators have been identified which are capable of testing the logic presented in the LCWIP logic map and, thus, track progress towards the LCWIP objectives. The indicators will also be analysed with a view to assessing the value for money of the scheme and benefits realisation.

These indicators are itemised and cross-referenced to the relevant objectives, as well as elements of the logic mapping.

The change observed in these indicators will be subject to further research to take into account exogenous changes which could impact the ability of the package to meet its objectives and thus to determine if the observed changes can truly be attributed to the package. While this will need to be considered more carefully in the final evaluation plan, techniques that could be employed to achieve this with schemes of this nature are as follows:

1. A quasi-experimental approach, whereby indicators in the area subject to this scheme are compared to those from other similar urban areas or other parts of the D2N2 area isolated from the scheme.
2. Time series analysis – subject to data ability, it would be possible to use a simple time series model to establish a statistical link between a relevant dependent variable and other independent variables, including one that acts as an intervention variable.
3. Direct interview surveys of stakeholders, whereby they are asked if they have changed their travel behaviour over the evaluation period and why. This will be essential to evidence improved access to employment and attribute any observed mode switch to the scheme.
4. A comparison of actual change with change expected according to the logic map.

The evidence from one or more of the above research methods, together with the changes to the indicators, will be triangulated to generate robust conclusions as to whether the LCWIP has met its objectives.

This process of testing the 'logic map' will be cyclical and thus will assist with a review of the programme at the end of each 4 to 5 year cycle providing the evidence and data required to fine tune the LCWIP.

The draft logic map is presented in Figure F1. It is chronological in nature and identifies the stages and linkages flowing from the initial context to the inputs, outputs, outcomes and eventual longer term impacts. It also shows which outcomes and impacts contribute towards the LCWIP objectives. The logic map will continue to be developed going forward in consultation with key LCWIP internal and external stakeholders until a final version is agreed. The D2N2 region was divided into three zones that reflect the different local contexts around the sub region and these are itemised for information within Figure I1.

It is also important to note that the above is an initial approach and that, as the LCWIP Programme is developed further, the logic mapping will be reviewed, redeveloped and optimised, and the data collection methodologies validated, if necessary.

The Covid-19 pandemic and the temporary and permanent changes to travel patterns that it has caused will need to be taken into account within the evaluation as this will be a key contextual factor. This will impact the demand for travel and mode choice in the early years of the LCWIP programmes and this will

create challenges in setting sensible baselines for the indicators. Furthermore the changes Covid 19 has initiated may well still be ongoing at the start of the LCWIP programme influencing the trajectory of indicators. There is a considerable amount of ongoing research as to the impact of Ccvid 19 on transport choices, both locally and nationally, and this will be a key tool to help take into account the impact of C19 on the LCWIP indicators.

The logic map has been strengthened by individual mechanisms of change. These mechanisms which enable the changes required to move from outputs to outcomes and impacts have been integrated into the logic map. The mechanisms that have been identified try to balance the need for them to be defined and discrete with recognition, that if they were broken down into the smallest units, there could be an unmanageable number. Table I2 identifies these mechanisms for change while Table I1 Itemises the exogenous contextual factors which could impact on the efficiency of the mechanisms. Tables I2 also identifies which contexts may impact on which mechanisms and describes what indicators can be used to determine to what extent these mechanisms are active. Although the indicators are briefly described in Table I2 they are referenced to Table I3 which lists the indicators and provides more detailed description of them. It should be noted that at this stage of development individual partners are in the process of reviewing the location of their existing monitoring equipment and as such the indicators used may vary according to individual capabilities and the scale of the individual schemes.

Figure F2 - D2N2 LCWIP Logic Map

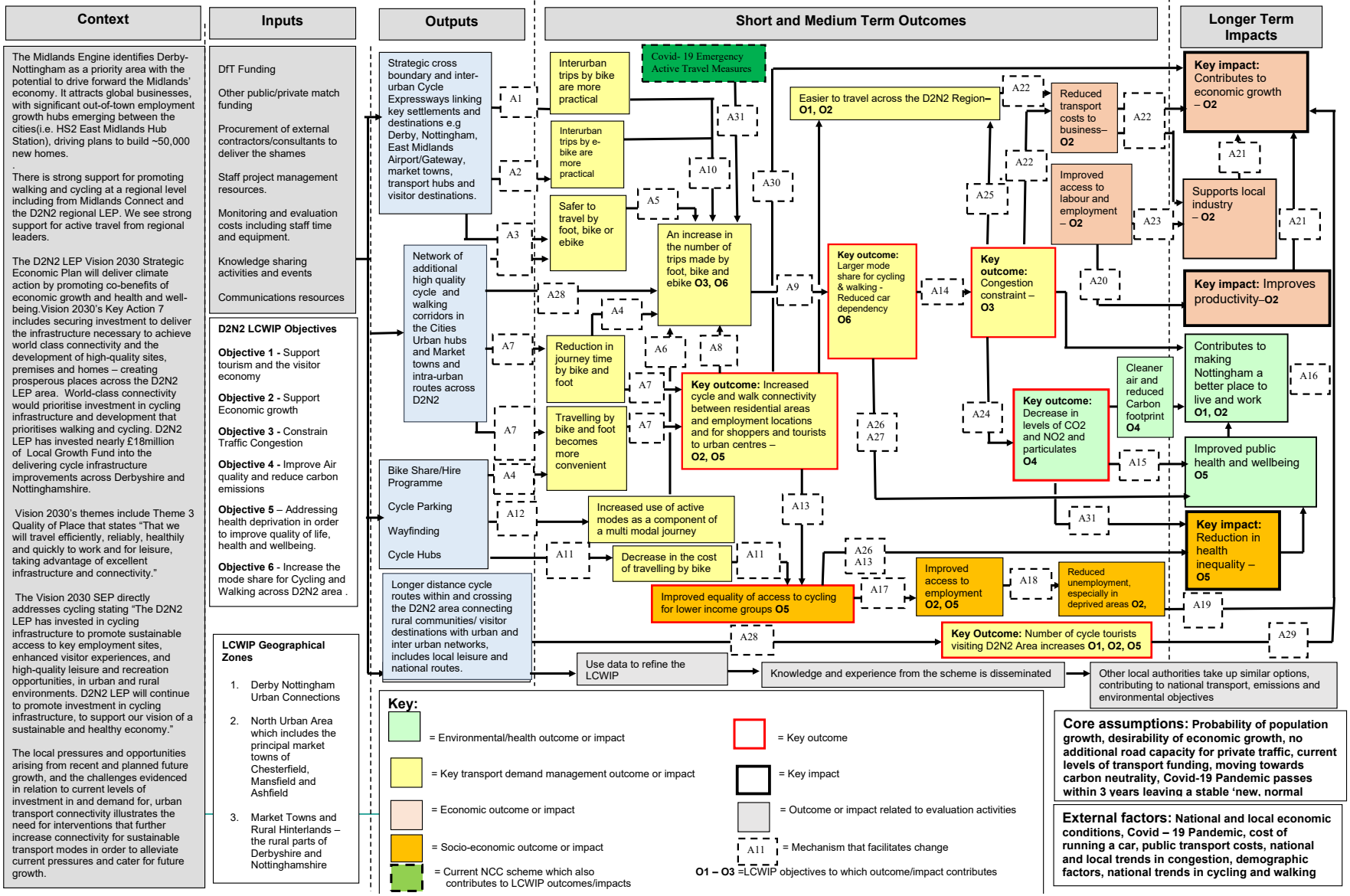


Table I1 Exogenous Contextual Factors

Ref	Context	Evidence base to support context
C1	Socio-economic characteristics	The D2N2 LEP Vision 2030 Strategic Economic Plan will deliver climate action by promoting co-benefits of economic growth and health and well-being. Vision 2030's Key Action 7 includes securing investment to deliver the infrastructure necessary to achieve world class connectivity and the development of high-quality sites, premises and homes – creating prosperous places across the D2N2 LEP area The workday population of the Derby Nottingham conurbation area is 1.4 million, the fifth largest outside London. The conurbation's 425,000 daily commutes are forecast to increase by 11% to 2033, with 55% of trips being into/out of Derby and Nottingham. The overall unemployment rate is 2.1% but ranges from 5.7% to 0.2%.Pockets of Derby and Nottingham have above average levels of unemployment. Many Nottingham residents do not own or have access to a car (0.76 cars per person), and although Derby has higher ownership (1.06 cars per person) there is lower public transport use. The population demographics are also varied with a significant young student population contrasted with an aging population. Derby and Nottingham have developed economies worth over £30bn per annum that are complementary rather than operating in competition. They have distinct high value sectors; Derby is a UK centre of excellence for transport equipment manufacturing accounting for 30% of its GVA, and Nottingham increasingly grows jobs in niche sectors such as life sciences, digital and financial technology. There are a range of business and professional services, with many in both cities. Lower productivity sectors (e.g. retail, health and care, visitor) provide significant local employment, and jobs growth is forecast over the next decade. Information for D2N2 North Urban and Small Towns/Rural Areas to follow

Table I1 Exogenous Contextual Factors

Ref	Context	Evidence base to support context
C2	Relevant local transport policies	There is strong support for promoting cycling and walking at a regional level including from Midlands Connect and the D2N2 regional LEP with see strong support for active travel from regional leaders. World-class connectivity would prioritise investment in cycling infrastructure and development that prioritises cycling and walking. D2N2 LEP has invested nearly £18million of Local Growth Funding into the delivering cycle infrastructure improvements across Derbyshire and Nottinghamshire. Vision 2030's themes include Theme 3 Quality of Place that states, "That we will travel efficiently, reliably, healthily and quickly to work and for leisure, taking advantage of excellent infrastructure and connectivity." The Vision 2030 SEP directly addresses cycling stating "The D2N2 LEP has invested in cycling infrastructure to promote sustainable access to key employment sites, enhanced visitor experiences, and high-quality leisure and recreation opportunities, in urban and rural environments. D2N2 LEP will continue to promote investment in cycling infrastructure, to support our vision of a sustainable and healthy economy." The LCWIP evaluation will need to refer to evaluation work being carried out for these initiatives and refer to them for context.
C3	Population growth and demographic change	This will partly determine trends in the demand for travel as well as mode choice.
C4	National & local economic conditions	Economic growth is linked to an increase in demand for transport and this will, therefore, impact on congestion and air quality across the sub region.

Table I1 Exogenous Contextual Factors

Ref	Context	Evidence base to support context
C5	Local background trends in transport costs on sustainable modes	This influences the attractiveness of non-car modes use compared with the car.
C6	Cost of travel by car	This influences the attractiveness of car use compared with other modes. This includes fixed costs such as the cost of buying a car, the cost of insurance and tax, as well as non-fixed costs such as fuel prices.
C7	Local congestion issues	This will manifest itself as a cost to business in lost time, increased transport costs, difficulties in access for the workforce and difficulty in accessing suppliers/customers. (Nottingham City Council estimates, based on an independent study by WS Atkins in 2011, that congestion in the AM peak period costs the City's economy £160m pa. - Other information for D2N2 to follow)
C8	Local arrangements for the provision of public transport	This will influence the ability to work in partnership with the bus, tram and train companies.
C9	National trends in congestion levels	Since 2011, DfT measures of congestion have seen a steady rise and this has impacted the ability of transport demand management interventions to realise a reduction in congestion.
C10	National air quality trends	It is assumed that air quality will gradually improve due to the fleet becoming 'cleaner' and this context will need to be taken into account within the evaluation.

Table I1 Exogenous Contextual Factors

Ref	Context	Evidence base to support context
C11	National/regional trends in health and wellbeing	These local trends will need to be used to benchmark changes to health indicators.
C12	Suppressed demand for travel by private car	This is released by road space becoming free due to a reduction in congestion or, alternatively, by an increase in household disposable income.
C13	National trends in cycle and walking trip numbers	These background trends upon which LCWIP is implemented will be important context.
C14	National and local trends in accidents involving cyclists and pedestrians	These background trends upon which LCWIP is implemented will be important context.
C15	Climate changes	A significantly wetter climate due to global warming would discourage cycling whereas longer hotter summers may make it more attractive
C16	The effectiveness of marketing the advantages of cycling and the new	How the D2N2 authorities market cycling and highlight the new infra structure provision will impact to what extent cycling is taken up and the new facilities used

Table I1 Exogenous Contextual Factors

Ref	Context	Evidence base to support context
	infrastructure provision	
C17	Covid-19 Pandemic	National and local research shows that this will influence the demand for travel and choice of mode. In the short term this will be driven by the need for social distancing and public concern over contracting the virus. But in the longer term there is likely to be significantly higher numbers of people working from home along with a permanent shift towards active travel while the long term impact on demand for travel by public transport remains unclear

Table I2 Mechanisms for Change

Ref	Mechanism for change:	Evidence to assess if mechanism is active	Relevant contextual factors see following table
A1	**Interurban cross boundary cycle routes that are strategic/regionally important** makes it more viable to habitually travel further by bike by providing a bespoke link	Stakeholder surveys: Cycle corridor users (**I_2)**. Before and after cycle (inc ebikes) counts **(I_18)**	C13 C17
A2	**Provision of interurban cycle lanes** provides the facility to use ebikes to make longer trips with less physical effort than using a conventional bike		
A3	**Provision of cycle corridors** makes cycling/walking safer and promotes that perception amongst users	Stakeholder surveys: Cycle corridor users (Cyclists and pedestrians) (**I_2)**. Accident rates involving cycles **(I_26)** Km of cycle routes introduced **(I_27)**	C14
A4	**Cycle route network easier to use -**encourages a mode switch from car and stimulates additional demand for travel by bike and foot.	Stakeholder surveys: Cyclists (**I_2)**, with questions regarding changes to travel behaviour and the causes of this. Mode share of travel across cordons in D2N2 urban areas **(I_15)** Before and after cycle and pedestrian counts around the in locations relevant to the LCWIP interventions **(I_18)**	C1 C3 C4 C5 C13 C15 C16

Table I2 Mechanisms for Change

Ref	Mechanism for change:	Evidence to assess if mechanism is active	Relevant contextual factors see following table
			C17
A5	**Cycling perceived as safer** thus those who want to cycle but did not previously regard it as safe enough now switch mode to the bike	Stakeholder surveys: Cyclists (**I_2)** with questions regarding perceptions of safety	na
A6	**Multimodal journeys** incorporating cycling now more practical due to high quality cycle links which encourage a mode switch from car only journeys and stimulate additional demand for travel.	Stakeholder surveys: Cyclists (**I_2)**.	C1 C3 C4 C5
A7	**Quicker journey times by bike** make travel by bike more attractive thus prompting mode switch away from other modes including the car	Stakeholder surveys: Cyclists (**I_2)**.	C7 C9
A8	**Increased cycle connectivity** makes travel by bike more attractive relative to other modes prompting switch to this mode	Stakeholder surveys: Cyclists (**I_2)**.	C1 C3 C4 C5 C13 C15

Table I2 Mechanisms for Change

Ref	Mechanism for change:	Evidence to assess if mechanism is active	Relevant contextual factors see following table
			C16
A9	**Mode share mechanism –** more trips by bike and foot due to mode switch and additional demand for travel being catered for by bike leads to an increase in cycle/walking trips while trips by private car are constrained by existing network capacity despite considerable suppressed demand for travel by this mode.	Stakeholder surveys: Cycle corridor Users (Cyclists and pedestrians) (**I_2)** with questions regarding changes to travel behaviour and the causes of this. Mode share of travel across cordons in D2N2 urban areas**(I_15)** Bespoke before and after modal share surveys in corridors benefitting from LCWIP interventions **(I_16)**	C1 C3 C4 C5 C13 C15 C16 C17
A10	**The introduction of a coherent high quality cross boundary cycle link between urban and interurban centres** makes journeys by bike or ebike practical	Stakeholder surveys: Cyclists (**I_2)**, Before and after cycle counts at key points on the network **(I_18)**	C13 C15 C16 C17

Table I2 Mechanisms for Change

Ref	Mechanism for change:	Evidence to assess if mechanism is active	Relevant contextual factors see following table
A11	**Greater availability of hire bike options** means that it is not necessary to own and maintain a bike thus lowering the cost of travel by bike	Number of hire bikes available **(I_9)**. Stakeholder surveys: Hire bike user surveys carried out by service providers **(I_3)**	na
A12	**Flexible bike hire options** allow for journeys with different start and end points without the need to transport or store a bike thus making it more practical to use cycling as part of a multimodal journey	Number of hire bikes available **(I_9)**. Hire bike user surveys carried out by service providers **(I_3)**	na
A13	**Increased cycle connectivity** makes some journeys practical/easier which increases access to transport for lower income groups with low levels of car ownership	Stakeholder surveys: Cyclists (**I_2)**.	na
A14	**Reduction in demand for travel by car** constrains traffic growth and congestion	Delay per vehicle mile **(I_11)** and journey time reliability **(I-12)** Before and after traffic flows in locations relevant to the LCWIP **(I_19)**	C9, C12

Table I2 Mechanisms for Change

Ref	Mechanism for change:	Evidence to assess if mechanism is active	Relevant contextual factors see following table
		Estimate number of car trips saved due to observed mode switch **(I_24).**	
A15	**Improved air quality** - a reduction in nitrogen dioxide (NO2) and particulate matter, reduces the impacts of transport on people's health, leading to a lower incidence of episodes of poor health, especially respiratory and cardiovascular conditions.	Number of health episodes linked to poor air quality **(I_22)**. Local authority sickness records **(I_23)** Modelled changes in NO2, PM2.5 and CO2 emissions **(I_13)** NO2 and PM2.5 levels from the NCC and DCC AQ monitoring network **(I_14)**	C10, C11
A16	**An improvement in public health** leads to a reduction in the number of days taken off sick within the workforce and then leads to an increase in productivity, a significant advantage of a low emissions economy.	Number of health episodes linked to poor air quality **(I_22)**. Local authority sickness records **(I_23)**	C11 C17
A17	**More efficient/greater use of cycling by the workforce** makes new employment opportunities viable due to greater accessibility.	Stakeholder surveys: Cyclists (**I_2)** Mode share of travel across cordons **(I_15)** Bespoke before and after modal	C4

Table I2 Mechanisms for Change

Ref	Mechanism for change:	Evidence to assess if mechanism is active	Relevant contextual factors see following table
		share surveys in corridors benefitting from LCWIP interventions **(I_16**	
A18	**Greater mobility** connects people to jobs.	Stakeholder surveys: Cycle corridor Users (Cyclists and pedestrians) (**I_2)**.	C4
A19	**Higher levels of employment** stimulate economic growth due to an increase in household income	Employment and unemployment data **(I_8)** GVA **(I_21)**	C4 C17
A20	**Labour force effects -** improved accessibility leads to an increase in the quantity and quality of labour and associated productivity improvements. This will also potentially lead to an increase in wage levels and disposable income as the existing labour pool seeks to use the new transport options to maximise their earnings and save on travel costs.	Survey of local businesses and their views on the supply of labour **(I_7)** GVA **(I_21)**	C4 C17
A21	**General equilibrium effects -** increased productivity, time and cost savings associated with increased transport capacity with increased usage of PT and active	GVA **(I_21)**	C4 C17

Table I2 Mechanisms for Change

Ref	Mechanism for change:	Evidence to assess if mechanism is active	Relevant contextual factors see following table
	modes and shorter journey times cause a general economic improvement as a new equilibrium of increased economic activity is achieved.	Employment and unemployment data **(I_8)**	
A22	**Reduction in journey time and increased reliability** reduces costs of transport from suppliers and to customers and lowers business costs	Delay per vehicle mile **(I_11)** and journey time reliability **(I-12)** Survey of local businesses and their views on the supply of labour and transport costs **(I_7)**	C9
A23	**Improved access to a larger pool of labour** makes Nottingham a more attractive place to do business	Survey of local businesses and their views on the supply of labour **(I_7)**	C4
A24	**Less queuing traffic and less traffic overall** lowers emissions of NO2, carbon and PM2.5	Modelled changes in NO2, PM2.5 and CO2 emissions **(I_13).** NO2 and PM2.5 levels from the D2N2 AQ monitoring networks **(I_14)**	C9, C10

Table I2 Mechanisms for Change

Ref	Mechanism for change:	Evidence to assess if mechanism is active	Relevant contextual factors see following table
A25	**Reduction in journey time and increased reliability** makes travel around D2N2 Urban areas easier	Delay per vehicle mile **(I_11)** and journey time reliability **(I_12)**	C9
A26	**Increased levels of activity lead to health benefits**	Number of health episodes linked to poor air quality **(I_22)**. Local authority sickness records **(I_23)**	C11
A27	**Increased levels of exercise leads to higher levels of Well being**	Stakeholder surveys: Cycle Corridor Users (Cyclists and Pedestrians) **(I_2)**	C11
A28	**Increase in the number of leisure cyclists using the new long distance cycle route spend time in the D2N2 area lead to an increase in visitors and proportion of overnight stays** while traversing the whole route or by using the sections of the route that lie within the D2N2 area.	Stakeholder surveys: Cycle route Users **(I_6)**	C15 C16
A29	**Leisure Cyclists access local services** contributing to the local economy. This will take the form of overnight accommodation and retail especially food and drink.	Stakeholder surveys: Cycle route Users **(I_6)**	C15 C16

Table I2 Mechanisms for Change

Ref	Mechanism for change:	Evidence to assess if mechanism is active	Relevant contextual factors see following table
A30	**Increased connectivity allows greater access to urban centres for tourists and shoppers** promoting a growth in relevant sectors of the economy in these locations	GVA sectoral analysis **(I_21)** Employment and unemployment data **(I_8)** Stakeholder surveys: visitors to the city centres **(I_4)** Stakeholder surveys: businesses in areas benefitting from the LCWIP **(I_7)**	C4 C17
A31	**Improvement of Air Quality benefits lower income groups who tend to live in areas more at risk from poor air quality**	Modelled changes in NO2, PM2.5 and CO2 emissions **(I_13).** NO2 and PM2.5 levels from the NCC and DCC AQ monitoring network **(I_14)**	C10, C11
A32	**Active travel is seen as a safer option than public transport due to concerns over Covid-19**	The July 2020 Nottingham City Council survey of the public asking them about their present and future travel respone to Covid-19 Stakeholder surveys: Cycle Corridor Users (Cyclists and Pedestrians) **(I_2)**	

Table I3 Indicators for monitoring the LCWIP

Ref	Performance Indicators	Data source	Summary of data collection methodology
I_1	Stakeholder surveys: Residents in the vicinity of LCWIP interventions	NCiC Highway Metrics team	A combination of before and after and post implementation surveys delivered by a combination of direct interview, hand out questionnaires and e-survey. They will include questions relating to mode switch, attitudes to cycling and walking and accessibility to employment sites.
I_2	Stakeholder surveys: Cycle corridor users (cyclists and pedestrians)	NCiC Highway Metrics team	
I_3	Hire bike/ebike user surveys	Appointed service providers	
I_4	Stakeholder surveys: visitors to the city centres	NCiC Highway Metrics team	
I_5	Stakeholder surveys: ebike Users	NCiC Highway Metrics team	
I_6	Stakeholder surveys: long distance cycle route users	NCiC Highway Metrics team	
I_7	Stakeholder surveys: businesses in areas benefitting from the LCWIP	NCiC Highway Metrics team	This will be a direct interview survey of business representatives in key locations which would stand to benefit from the LCWIP. The survey will aim to collect evidence for improvement to accessibility for the appropriate workforce and accessibility and connectivity of the employment site in general
I_8	Employment and unemployment data	Department of Work and Pensions	Monthly data published by Department of Work and Pensions

Ref	Performance Indicators	Data source	Summary of data collection methodology
I_9	Number of bikes made available for hire	Appointed service provider	Data from service providers
I_10	Number of bike hires	Appointed service provider	Data from service providers
I_11	Average journey time/delay per vehicle mile	TeletracNavman data from DfT	Calculated from TeletracNavman GPS data supplied by the DfT and by data calculated from ANPR data and Google maps
I_12	Journey time reliability		
I_13	Modelled changes in NO2, PM2.5 and CO2 emissions	NCC Transport Strategy	Emissions savings due to the LCWIP interventions will be calculated based on local authority air quality monitoring, observed mode switch from the stakeholder surveys, traffic flow and composition and mode share surveys data
I_14	NO2 and PM2.5 levels from the NCC and DCC air quality (AQ) monitoring network	D2N2 Authorities	AQ is monitored across all four D2N2 authorities' areas using a mixture of measuring devices, including diffusion tubes and real time AQ analyser units
I_15	Annual measures of mode share of travel across cordons in D2N2 Urban areas	D2N2 Authorities	Annual manual and automatic traffic surveys
I_16	Bespoke before and after mode share surveys in corridors benefitting from LCWIP interventions	NCiC Highway Metrics team	Manual count surveys of people movements by mode of travel

Ref	Performance Indicators	Data source	Summary of data collection methodology
I_17	Number and cost of ebikes available for hire	Appointed service provider	Data from service providers
I_18	Before and after cycle and pedestrian counts around the locations relevant to the LCWIP interventions	D2N2 Authorities	Manual and automatic counts of cyclists and pedestrians at council monitoring sites
I_19	Before and after traffic flows in locations relevant to the LCWIP interventions	D2N2 Authorities	Manual and automatic traffic counts
I_20	Number of ebike hires	Appointed service providers	Data from service providers
I_21	GVA by local authority area, sectoral analysis	Office for National Statistics	Annual data published by ONS
I_22	Health episodes related to poor air quality	Public Health England	
I_23	Sickness records from partner employers	D2N2 Authorities	Records held by the HR departments of the D2N2 Authorities
I_24	Estimate of car trips saved, based on observed mode switch	NCiC Highway Metrics team	Analysis of mode share and stakeholder user surveys to calculate change
I_25	Before and after footfall between PT hubs and city and market town centres	D2N2 Authorities	Manual or automatic counts of pedestrians
I_26	Before and after accident and casualty rates among pedestrians and cyclists	D2N2 authority Road Safety teams	Standard data from Police records

Ref	Performance Indicators	Data source	Summary of data collection methodology
I_27	Km of cycle corridors delivered	Project Managers	This will be recorded as part of the project management process
I_28	Inward Investment case studies	D2N2 Authorities	Based on experience of authorities in assisting inward investors
I_29	World Health Organisation HEAT model outputs, especially among low income groups	NCiC Highway Metrics	Health impact of the programme will be calculated based on the observed increase in cycling levels, together with estimates of typical cycling distances and other input information from the employee and residents surveys. This calculation will use the World Health Organisation HEAT model, as recommended in DfT WebTAG guidance. The additional benefit of any overall increase in physical activity will also be considered.
I_30	The July 2020 Nottingham City Council survey of the public asking them about their present and future travel respone to Covid-19 Stakeholder surveys:	NCiC Highway Metrics	This is an online survey to enable Nottingham City Council to guage the modeshift impact of Covid-19 so that it can make future plans for transport provision. It examines mode shift, the reasons for this and what measures would be helpful to mitigate the impact of Covid-19. It is based on 3 time frames, Inititial response, current response and future intentions.

Table I4 Provides a monitoring framework showing which Indicators can be used to track each LCWIP objective.

Table I4 LCWIP monitoring framework

Nottingham LCWIP Objectives	**Indicator ref.**	**Performance indicators relevant to objective**
Objective 1 - Support Economic growth	**I_21**	GVA by local authority area, sectoral analysis
	I_28	Inward Investment case studies
	I_8	Employment and unemployment data
	I_24	Estimate of car trips saved based on observed mode switch
	I_15	Annual measures of mode share of travel across cordons in D2N2 Urban areas
	I_16	Bespoke before and after mode share surveys in corridors benefitting from LCWIP interventions
	I_19	Before and after traffic flows in locations relevant to the LCWIP interventions
	I_11	Average journey time/delay per vehicle mile
	I_12	Journey time reliability
	I_1 to I_6	Evidence of mode switch from stakeholder surveys and accessibility improvements for employment sites

	I_7	Stakeholder surveys: businesses in areas benefitting from the LCWIP asking their views on the supply of labour and transport costs
Objective 2 - Support tourism And the visitor economy	**I_2**	Stakeholder surveys: Cycle corridor users (cyclists and pedestrians) questions on trip purpose and behavioural change will reveal changes to changing patterns of behaviour for visitors and tourism.
	I_4	Stakeholder surveys: visitors to the city centres, as above
	I_7	Stakeholder surveys: businesses in areas benefitting from the LCWIP. Businesses will be asked if visitors and tourist spending has increased and if so why.
	I_8	Employment and unemployment data
	I_21	GVA by local authority area, sectoral analysis
	I_25	Before and after footfall between PT hubs and city centres
	I_28	Inward Investment case studies
Objective 3 - Constrain Traffic Congestion	**I_11**	Average journey time/delay per vehicle mile
	I_12	Journey time reliability
	I_15	Annual measures of mode share of travel across cordons in D2N2 Urban areas
	I_16	Bespoke before and after mode share surveys in corridors benefitting from LCWIP interventions
	I_18	Before and after cycle and pedestrian counts around the locations relevant to the LCWIP interventions
	I_19	Before and after traffic flows in locations relevant to the LCWIP interventions

	I_24	Estimate of car trips saved, based on observed mode switch
	I_1 to I_6	Stakeholder surveys: evidence of mode shift to active modes.
	I_7	Stakeholder surveys: businesses in areas benefitting from the LCWIP. Businesses will be asked about their perception of congestion and accessibility to their site
Objective 4 - Improve Air quality and reduce carbon emissions	**I_11**	Average journey time/delay per vehicle mile
	I_12	Journey time reliability
	I_15	Annual measures of mode share of travel across cordons in D2N2 Urban areas
	I_16	Bespoke before and after mode share surveys in corridors benefitting from LCWIP interventions
	I_13	Modelled changes in NO2, PM2.5 and CO2 emissions
	I_14	NO2 and PM2.5 levels from the D2N2 air quality monitoring network
Objective 5 – Addressing health deprivation in order to improve quality of life, health and wellbeing.	**I_22**	Health episodes related to poor air quality
	I_23	Sickness records from partner employers
	I_29	World Health Organisation HEAT model outputs, especially among low income groups
	I_1 to I_6	Stakeholder surveys: evidence of shift to active modes and increased levels of cycling and walking especially amongst low income groups
	I_19	Before and after cycle and pedestrian counts around the locations relevant to the LCWIP interventions
	I_15	Annual measures of mode share of travel across cordons in D2N2 Urban areas

Objective 6 - Increase the mode share for Cycling and Walking across D2N2 area	**I_16**	Bespoke before and after mode share surveys in corridors benefitting from LCWIP interventions
	I_1 to I_6	Stakeholder surveys: evidence of mode shift to active modes.
	I_25	Before and after footfall between PT hubs and city centres
	I_18	Before and after cycle and pedestrian counts around the locations relevant to the LCWIP interventions
	I_19	Before and after traffic flows in locations relevant to the LCWIP interventions

Appendix J Detailed Case Studies

Walking Improvements in Buxton

This case study for the town of Buxton illustrates how the broad approach advocated by the fourth stage of the LCWIP process can be applied, providing a model to be rolled out across Derbyshire's market towns.

Mapping Trip Generators: Walking trip generators and the corridors that lead to them, including sections of the Key Cycle Network and Local Cycle Network, have been mapped in Figure 2.

Network Planning: Where there are several route options serving a corridor, audits will be conducted using the principles of the DfT's Route Selection Tool to help identify the preferred route. New routes may be subject to further consents, such as planning permission and landowner agreements.

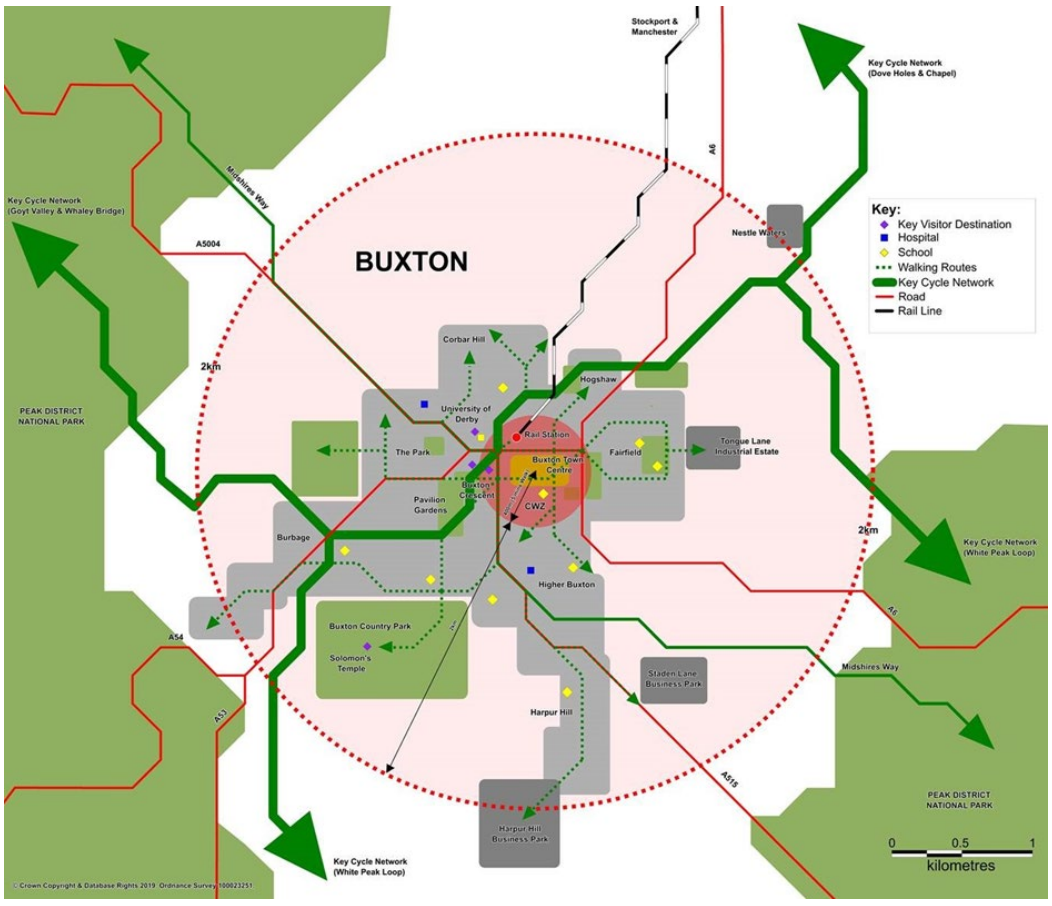


Figure 2: Buxton Walking Network Analysis

Prioritisation: Routes will be refined and prioritised on the basis of local knowledge gained through consultation and working with relevant stakeholders, including High Peak Borough Council, Buxton Town Team and other organisations/user groups who are brought together through the Workplace Travel Forum

for example. This partnership approach will facilitate the delivery of routes on the ground, and help unlock funding streams which might not otherwise be available.

A recent survey of visitors and local residents carried out by Buxton Town Team revealed that one of the biggest barriers which puts people off using the existing trails around Buxton was having to use busy main roads like the A6 and A515 to reach them. The Team has just finished consulting on its ideas for a walk and ride network for the town. This will also help inform the Buxton Town Travel Plan which is currently being developed to look at more sustainable travel options for local residents, visitors and businesses etc in the area.

Priorities for investment will also be influenced by the County Council's approach to the asset management of highway infrastructure across Derbyshire in line with DfT's published code of practice for Well-Managed Highway Infrastructure. The Network Hierarchy Plan which has been developed to provide a hierarchy that prioritises the maintenance of Derbyshire's most used roads is being extended to include a review of footways and cycleways in 2019

Identifying Infrastructure Requirements: The routes identified will be audited using the tool recommended in the DfT guidance to assess their current condition and suitability in order to identify where infrastructure improvements eg lighting, surfacing, dropped kerbs, safe crossing points, benches, cycle racks etc. are required. Similar audits have been carried out in Buxton and also at other locations working in conjunction with local groups, such as Transition Chesterfield. Moving forward these can be used to generate a package of works for which funding can be sought.

Integration: It is important that the networks are embedded in local plans and strategies so that any opportunities to provide new routes or improve existing ones are maximised. Where appropriate, developers will be asked to construct new sections of multi-user routes or contribute to the improvement of existing ones.

Buxton's Design and Place Making Strategy also includes design principles relating to Quality of the Public Realm and Ease of Movement/Connectivity, which are used to guide future town centre development. These should help to create town centre spaces that are safe, comfortable, well maintained, welcoming and accessible to everyone, as well as making the town centre easy to get to and move around in, particularly for cyclists and pedestrians.

Walking Audit at Nottingham City Hospital Core Walking Zone

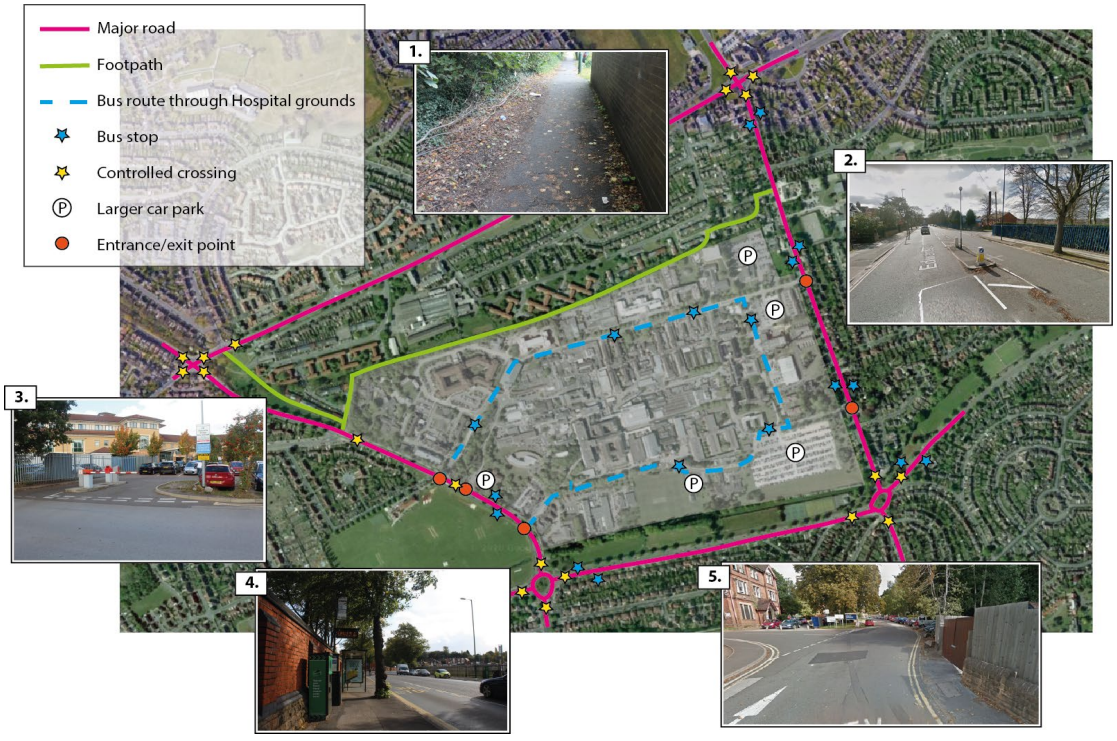
A walking audit of the site took place in November 2019 in a format prepared by Phil Jones Associates. This has been used for a number of audits across the City/D2N2 area to ensure consistency in the process.

There are two major hospitals in Nottingham and both are significant trip generators. Infrastructure improvements around the other hospital (the Queens Medical Centre) site have generated higher levels of cycling and walking in its vicinity compared with the City Hospital.

The accompanying plan shows some of the areas where investment will be focused to improve access for pedestrians in and outside of the grounds.

1- Footpath to the north of the site not linked to the hospital grounds and unlit.
2- No controlled crossing points at either entrance especially if walking in from the bus stops.
3- Some car parks are not connected to the footpath network resulting in pedestrians having to walk across grass or on the carriageway
4- Street furniture creating obstructions.
5- At the entrance to the Hospital, the footway disappears forcing pedestrians to walk in the carriageway.

The LCWIP process has identified key walking areas in the City including the City Hospital. Multi user routes around the City Hospital were included in the Council's successful Transforming Cities bid. The Hucknall Road corridor, which runs past the Hospital, will be upgraded for cyclists and pedestrian and routes and connections will be included as part of this upgrade. The sustainable transport focus of the Nottingham Transforming Cities programme and the joint working between the Public Transport and Cycling/Walking Teams will enable issues such as street furniture, bus stops and key walking routes to be addressed and aligned. The Council is working with the Hospital Trust to improve routes and access into and within their grounds.



Case Study: Cycling Infrastructure Development in Nottinghamshire

The identification and delivery of strategic cycling networks in each of Nottinghamshire's main urban areas is one of the priorities within the Nottinghamshire Cycling Strategy Delivery Plan. The cycle networks aim to provide arterial routes into and around the towns, building upon and upgrading existing facilities, to help stimulate and meet cycle travel demand, making towns and services more accessible, and linking neighbourhoods to jobs, training and other essential services.

Very similarly to the LCWIP, the networks were developed by identifying existing cycle facilities; a range of likely destinations where people want to travel to (e.g. locations of employment, retail, health, education, transport interchange, and leisure sites); proposed development sites; local transport conditions (e.g. journey time delay, existing cycling no's); and potential demand along proposed corridors (using existing data such as travel to work data, cycling data, etc.).

Whilst this work continues and will be enhanced through the development of the LCWIP, the initial network identification work helped the County Council to secure £2.15m of Local Growth Fund to deliver improvements to the cycling networks in Arnold/Mapperley, Mansfield, Newark and West Bridgford. These towns were selected for investment based on their ability to help deliver the large numbers of housing and/or employment planned for delivery within each of the towns.

In total £3.7m was invested in delivering 14km of new and improved cycle routes within the four towns (as well as associated infrastructure such as crossings). Within Newark, consultation undertaken with local residents and stakeholders helped identify the cycling improvements, as well as to prioritise them so that the limited funding available would be invested on the routes that residents considered the highest priority. Following this consultation almost £1m was invested in mixed strategic cycle routes consisting of 2.5km of new off-road segregated cycle routes; as well as reduced speed limits, signed routes along quieter roads, and cycle crossing facilities.

Derbyshire Policy Review and LCWIP Strategic Case

Introduction: The Strategic Case demonstrates the case for change and is a review of relevant local policies and strategies to illustrate why investment in cycling and walking networks is required, now and in the future.

The importance of a D2N2 LCWIP, set within the context of National and Regional strategy and context is set out in Chapter 2 and include:

- National Planning Policy Framework, *Department for Communities and Local Government (DCLG)*, 2012
- Building Our Industrial Strategy – Green Paper, *Department for Business, Energy and Industrial Strategy (BEIS)*, 2017
- Transport Investment Strategy, *Department for Transport (DfT)*, 2017
- Midlands Engine Strategy, *DCLG,* 2017
- Midlands Connect Strategy: Powering the Midlands Engine, *Midlands Connect*, 2017
- The D2N2 Local Enterprise Partnership Strategic Economic Plan, *D2N2 LEP*, 2014.

Figure 1 shows how the many local transport, health, environment, planning and economic growth strategies interconnect in Derbyshire to support LCWIP delivery.

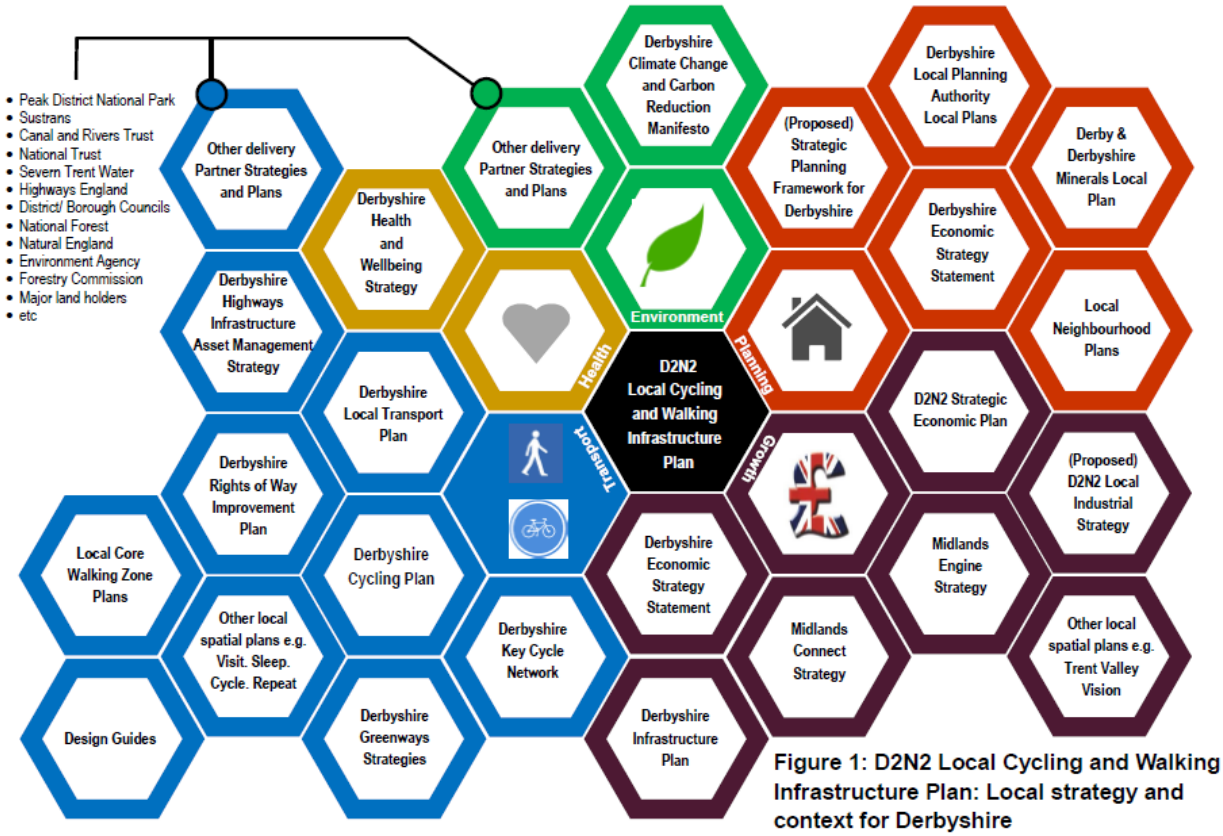
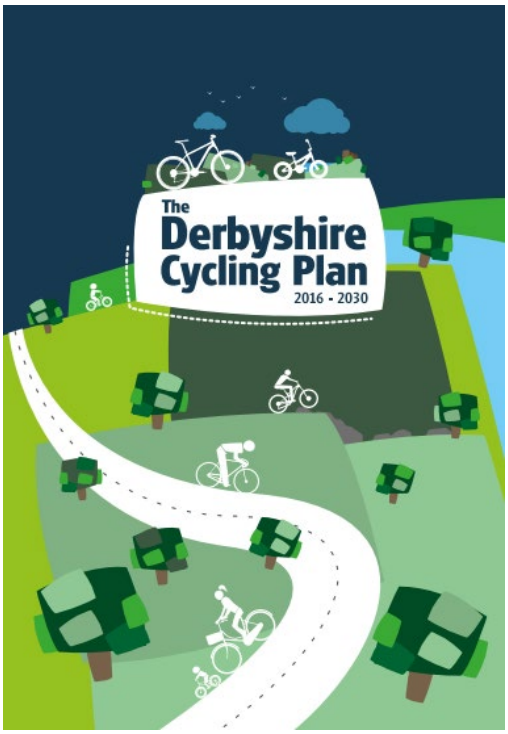


Figure 1: D2N2 Local Cycling and Walking Infrastructure Plan: Local strategy and context for Derbyshire

Local Strategy Context



The Derbyshire Cycling Plan (2016): The Derbyshire Cycling Plan is closely aligned to LCWIP ambitions, establishing cross-sector partnership working for a transformation in cycling. The D2N2 LCWIP builds on existing initiatives in Derbyshire to extend partnership working to a regional level. Although developed as a Cycling Plan the delivery of the Plan will be a multi-user approach supporting walking, cycling and horse-riding.

The Derbyshire Cycling Plan is owned by all partners at a strategic and community level and seeks to bring organisations together to make a significant difference to behaviour. Key sectors working together include:

- transport,
- economic development,
- tourism,
- housing,
- planning,
- sport,
- recreation,
- education, and
- health.

The LCWIP is therefore aligned with Derbyshire's ambition to become the most connected and integrated county for cycling in England, recognised as a world class cycling destination for all, enabling people of all ages and abilities to cycle regularly for leisure, active travel, commuting and sport.

The LCWIP support the Derbyshire Plan's four strategic aims:

1) **Infrastructure connectivity** – high quality connected routes, in all cycling environments, supporting all forms of cycling, creating and supporting economic growth.
2) **Increased participation** – behaviour change approaches and targeted participation programmes at community level will support and enable more people to cycle, closing the gaps in participation and reducing health inequalities.
3) **Effective communication and marketing** – excellent, well-connected marketing and communications for Derbyshire residents and visitors to the county, helping to change behaviour, increase confidence and get more people cycling regularly.
4) **Advocacy** – cross sector advocacy for policy change and implementation at the highest level.

Aim 1 has a direct connection between the Derbyshire Cycling Plan and D2N2 LCWIP to enable a consistent and long term approach to developing cycling and walking networks across the D2N2 sub region. The County Council has been preparing and implementing route network strategies, following similar principles to LCWIP, for more than 20 years e.g. through publication of Greenway Strategies and town networks. The publication of the Derbyshire Cycling Plan has provided the catalyst for a full review of Derbyshire's existing and proposed multi-user trails and local networks to define a hierarchy of Key Strategic and Local cycle

routes. The Key Cycle Route Network (KCN) for Derbyshire has been reviewed with local public consultation, alongside the preparation of the D2N2 LCWIP. It defines which are the most important strategic routes for commuter travel, leisure and tourism. The Greenway strategies remain important strategic documents for planning the Local Cycle Network routes (LCN) which will connect the KCN to key trip origin points.

Derbyshire Greenway Strategies (1998, 2006, 2008)

The timeline sets out some of the key dates and milestones which demonstrate the importance of providing cycling and walking networks in Derbyshire for enjoyment of the countryside as well as being a means of transport.

Partnership working has always been important for developing cycle and walking networks. The D2N2 LCWIP is able to draw on a long history of partnership working, including the preparation of greenway strategies since 1998. The importance of the greenway strategies, as a forerunner to the LCWIP, is clearly demonstrated by these acting as the catalyst to deliver 135km (83 miles) of new multiuser routes in Derbyshire in the last ten years with a 396km (246 mile) network now open across Derbyshire.

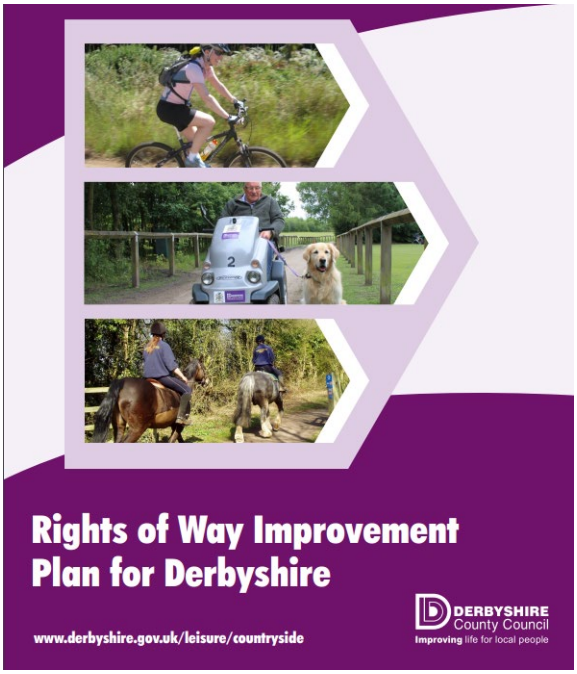
The principles of the Greenway Network were established in 1998 and have influenced the D2N2 LCWIP strategy to consider the diverse requirements for cycling and walking needs:

- Provide a safe environment for walkers, cyclists and horse riders. An adequate network should be provided for all users.
- The provision of utility and recreational routes; used by locals for journeys to work, shops and schools and casual leisure use.
- Provide routes which link urban areas, within and surrounding the defined area with the rural environment and countryside attractions.
- Provide routes well served by the public transport system.

- Connect with routes in neighbouring areas.
- Be developed with high priority for access for all.

Rights of Way Improvement Plan for Derbyshire (2013): The Rights of Way Improvement Plan (ROWIP) is a long term vision for improving access to the countryside and built environment to encourage enjoyment of Derbyshire's heritage, landscape and wildlife interests, promote healthier lifestyles and support the local economy. The five aims of the Plan are consistent with the LCWIP:

1) Ensure that the public rights of way network is open and available for use.
2) Provide an up-to-date and widely available Definitive Map and Statement.
3) Provide a more connected, safe and accessible network suitable for all users.
4) Improve the promotion, understanding and use of the network.
5) Encourage greater community involvement in managing local rights of way.



Derbyshire Local Transport Plan 2011-2026: The Local Transport Plan (LTP) for Derbyshire provides a transport policy for the 15-year period to 2026. The LTP aims to achieve a transport system that is fair and efficient, promotes healthy lifestyles, safer communities, safeguards and enhances the natural environment and provides better access to jobs and services, whilst also improving choice and accessibility of transport and integrating economic, social and environmental needs.

The LTP identifies five transport goals that are mirrored in the D2N2 LCWIP:

- Supporting a resilient local economy;
- Tackling climate change;
- Contributing to better safety, security and health;
- Promoting equality of opportunity; and
- Improving quality of life and promoting a healthy natural environment.

There are two key aspects to the priority regarding improving local accessibility and achieving healthier travel habits; ensuring access to essential services (particularly for those without access to a car) and the need to encourage healthier, more sustainable travel options for local journeys.

Derbyshire Economic Strategy Statement, *Derbyshire Economic Partnership*, 2014: The Derbyshire Economic Strategy Statement (DESS) sets out an economic vision for Derbyshire by collating the ambitions and growth objectives of all the local authorities, private and third sector partners across Derbyshire. It

ensures all stakeholders are working towards the same goal of creating more prosperous places and resilient communities. The vision is '*supporting economic growth in tomorrow's Derbyshire: preserving what makes the County special and promoting activity that is inclusive to all regardless of geography or economic disadvantage*'; and is underpinned by three strategic themes:

- Boosting investment and place-making;
- Fostering enterprise and business growth; and
- Creating the workforce to support growth.

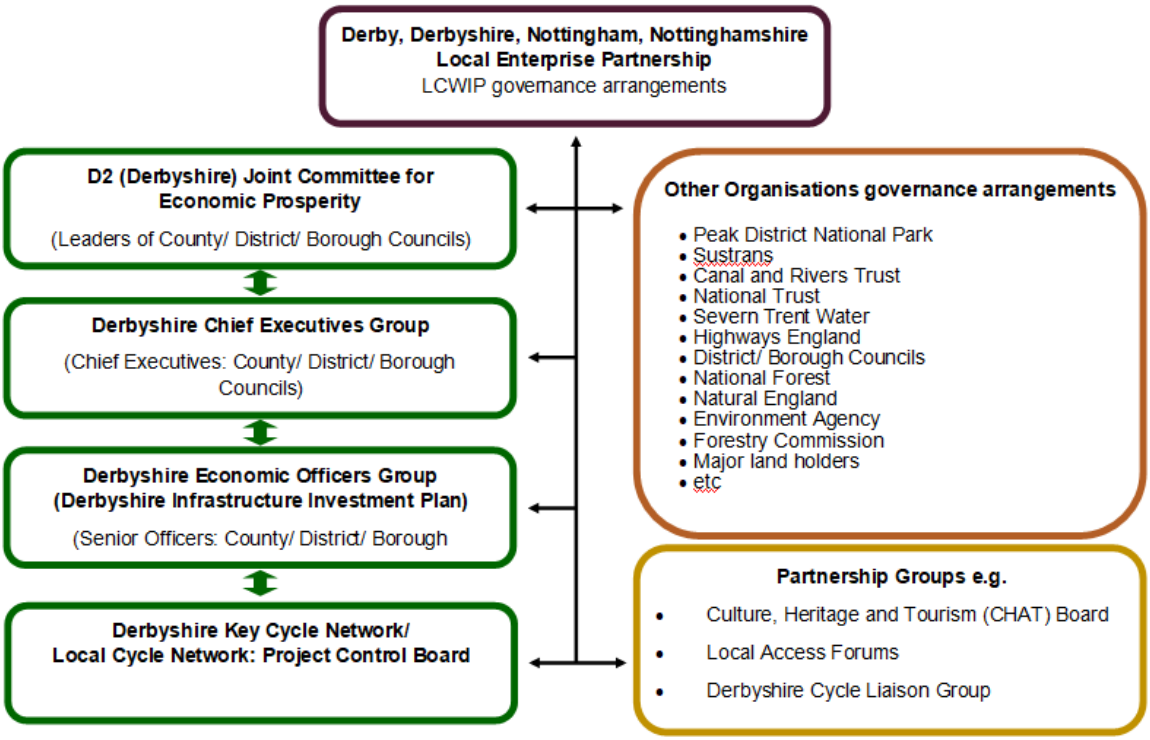
The DESS states that addressing strategic transport issues will be a key component in providing the infrastructure for growth. To connect communities and economic opportunities, investment in rail infrastructure, local transport schemes and development of the bus network is necessary. Ten strategic objectives are identified, with the following having direct transport references:

- Invest in infrastructure to improve connectivity and create the conditions for growth;
- Unlock the potential of Derbyshire's land and property assets; and
- Connect people to economic opportunity.

Derbyshire Climate and Carbon Reduction Manifesto, *Derbyshire County Council,* 2019: The County Council has made a strong public statement of its commitment to lead by example and bring people together to tackle climate change. The Manifesto identifies 14 pledges to tackle climate change. The following having references to cycle and walking infrastructure:

- Support and promote the development of low carbon travel and low emission vehicles, introduce electric vehicles into our fleet and explore opportunities for low carbon fuels for HGVs.
- Call on the UK government to ensure the level of investment and national planning regulations support our ambition to reduce greenhouse gas emissions in Derbyshire.
- Support low carbon businesses to establish and flourish in Derbyshire, creating new jobs across the county.

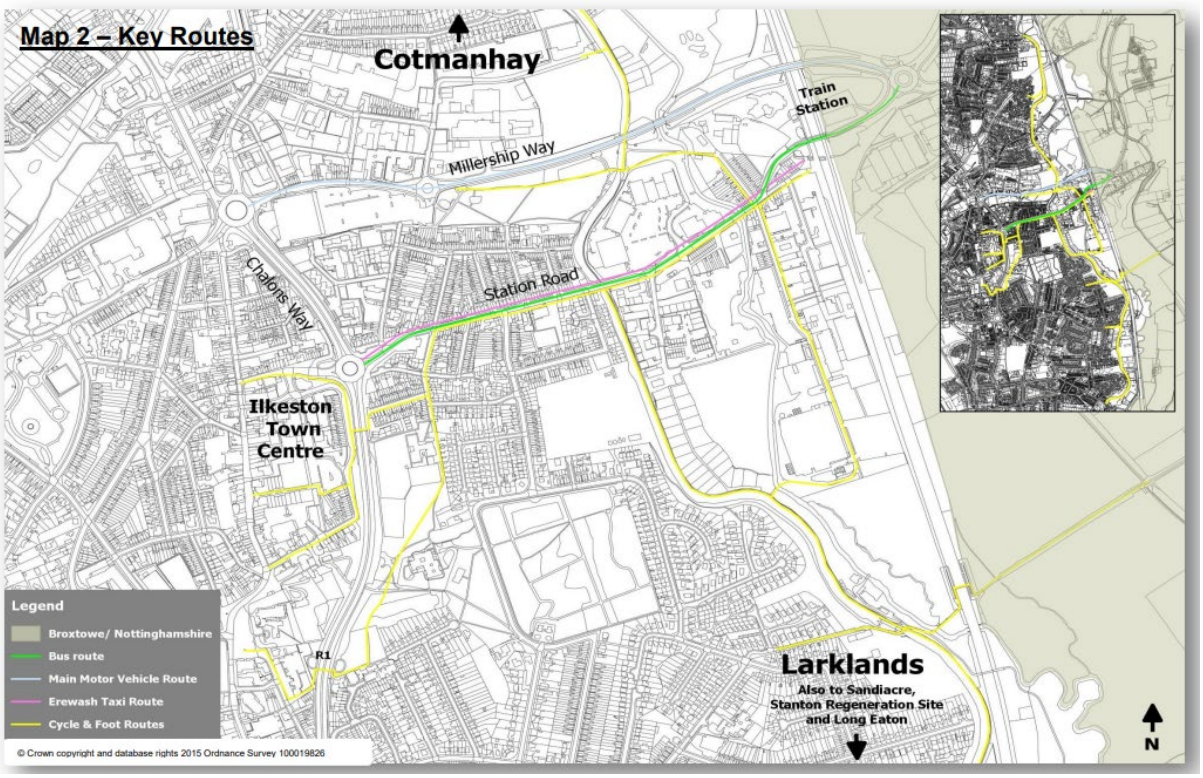
2.7 Derbyshire Infrastructure Investment Plan (DIIP): The Derbyshire Infrastructure Investment Plan provides a co-ordinated approach for public-sector partners to set out Derbyshire's community needs for infrastructure delivery. The DIIP will provide the future governance arrangements for bringing forward Derbyshire's Key and Local cycling and walking network proposals supported through the D2N2 LCWIP.



Integration with Land Use Planning

Local planning in Derbyshire is carried out at several levels, from the (proposed) Strategic Planning Framework for Derbyshire to District/ Borough Council and Peak District National Park Authority Local Plans to Parish and Town Council led Neighbourhood Plans. Derbyshire Greenway Strategies have been important evidence bases for local planning authorities to ensure that appropriate consideration is given to cycling and walking and enable the consideration and adoption of wider policy levers to encourage more cycling and walking. For example, the Ilkeston Gateway Supplementary Planning Document (2015) to promote enhanced access and better connectivity between Ilkeston and its new railway station. The D2N2 LCWIP will strengthen links to local planning strategies further, including regional and cross-boundary considerations.

The DIIP and incorporation of LCWIP and local cycling and walking networks into Local and Neighbourhood Plans is important to enable partners to bring forward the networks with support from the private sector, including developer obligations e.g. S106 contributions. The ability to seek appropriate contributions from the private sector or for developers to deliver or protect future alignments has been a key driver for the recent review of Derbyshire's Key and Local Cycle Network.



Extract from Ilkeston Gateway SPD

Derbyshire Health and Wellbeing Strategy 2018-2023: The strategy recognises that the health and wellbeing of Derbyshire's residents, workers and visitors is influenced by the physical environment in which we go about our daily lives and the social connections we sustain from childhood to older age. The Strategy seeks to achieve a Derbyshire that enables people to live healthy lives through physical activity, and other things such as healthy eating. To achieve this the Strategy will seek to reduce the percentage of the population that are physically inactive and an increase in active travel to schools and workplaces. A partnership group has been established to identify opportunities for working together towards an Active Derbyshire. The partnership is focussing on reducing physical inactivity in women and girls, young people and those living in deprived communities.

Other Organisations Plans and Strategies: Derbyshire's existing and proposed Key and Local multi-user network includes land owned by many organisations at a national, regional and local level and is reliant on partnerships for delivery and ongoing maintenance.

The D2N2 LCWIP provides a strategic framework for planning a multi-user network that can be embedded into partner organisations plans and strategies, further strengthening the joint local commitment to delivery of cycling and walking infrastructure in Derbyshire. Figure 1 illustrates some of the local partners and land/ asset owners with responsibility for parts of the existing and proposed Key and Local multi-user routes in Derbyshire. Some of the partners' infrastructure plans and strategies are illustrated below.