Tees Valley Local Cycling and Walking Infrastructure Plan

Working Version - February 2020
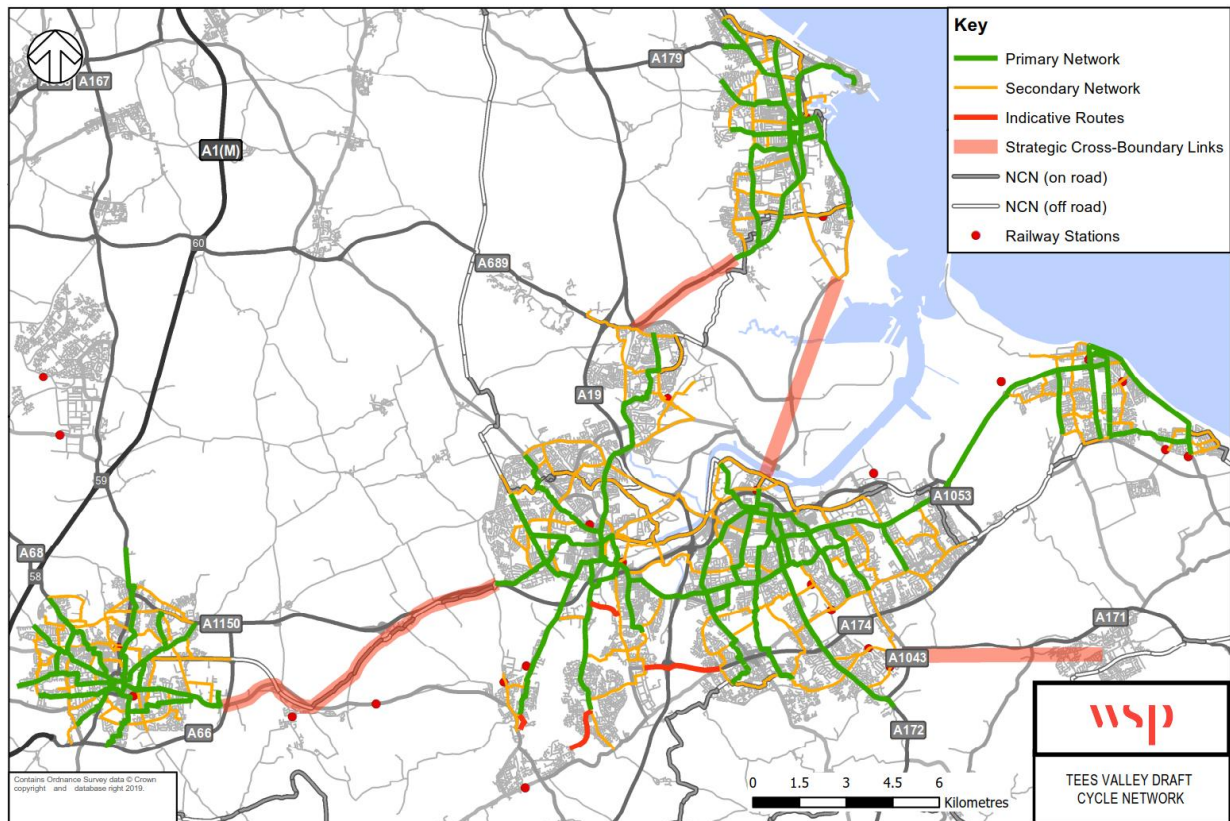
Key

- Primary Network
- Secondary Network
- Indicative Routes
- Strategic Cross-Boundary Links
- NCN (on road)
- NCN (off road)
- Railway Stations

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0 1.5 3 4.5 6 Kilometres

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TEES VALLEY DRAFT CYCLE NETWORK

Contents

Introduction

Local Cycling and Walking Infrastructure Plans (LCWIPs), as set out in the Department for Transport's (DfT) Cycling and Walking Investment Strategy (CWIS), are a new, strategic approach to identifying cycling and walking improvements. LCWIPs will enable a long-term approach to developing local cycling and walking networks and will ensure the region is well placed to make the case for future investment.

The key outputs of LCWIPs are:

- A network plan for walking and cycling which identifies preferred routes and core zones for further development;
- A prioritised programme of infrastructure improvements for future investment;
- A report which sets out the underlying analysis carried out and provides a narrative which supports the identified improvements and network.

By taking a strategic approach to improving conditions for cycling and walking, LCWIPs will assist the authority to:

- Identify cycling and walking infrastructure improvements for future investment in the short, medium and long term;
- Ensure that consideration is given to cycling and walking within both local planning and transport policies and strategies;
- Make the case for future funding for walking and cycling infrastructure.

While the preparation of LCWIPs is non-mandatory, LAs who have plans will be well placed to make the case for future investment.

LCWIP Process

The Department for Transport (DfT) has produced guidance to develop a LCWIP, this sets out the LCWIP process as taking 6 stages as outlined below:

1. **Determining Scope**: A Scoping Report will define the proposed delivery arrangements, project timescales and main towns (sub-areas) to be included in the LCWIP and will be agreed by the Project Board.

2. **Gathering Information:** Barriers to walking and cycling and related transport and land use policies and programmes will be reviewed to understand the extent to which the current network meets the needs of current and future users.

3. **Network Planning for Cycling:** A proposed strategic walking and cycling network is already well on the way to completion; this network has been developed using a range of local and national data sets.

4. **Network Planning for Walking:** as above.

5. **Prioritising Improvements:** Prioritisation will take into account our key policy drivers and areas that are important to us as a region.

6. **Integration and Application:** Once the LCWIP is complete and approved it is proposed to integrate the outputs into local planning and policies, prioritise future funding and seek external funding opportunities when available.

The Tees Valley LCWIP is structured around the six stages of the process, as per the flow diagram in Figure 1 below.

Figure 1 - LCWIP Process
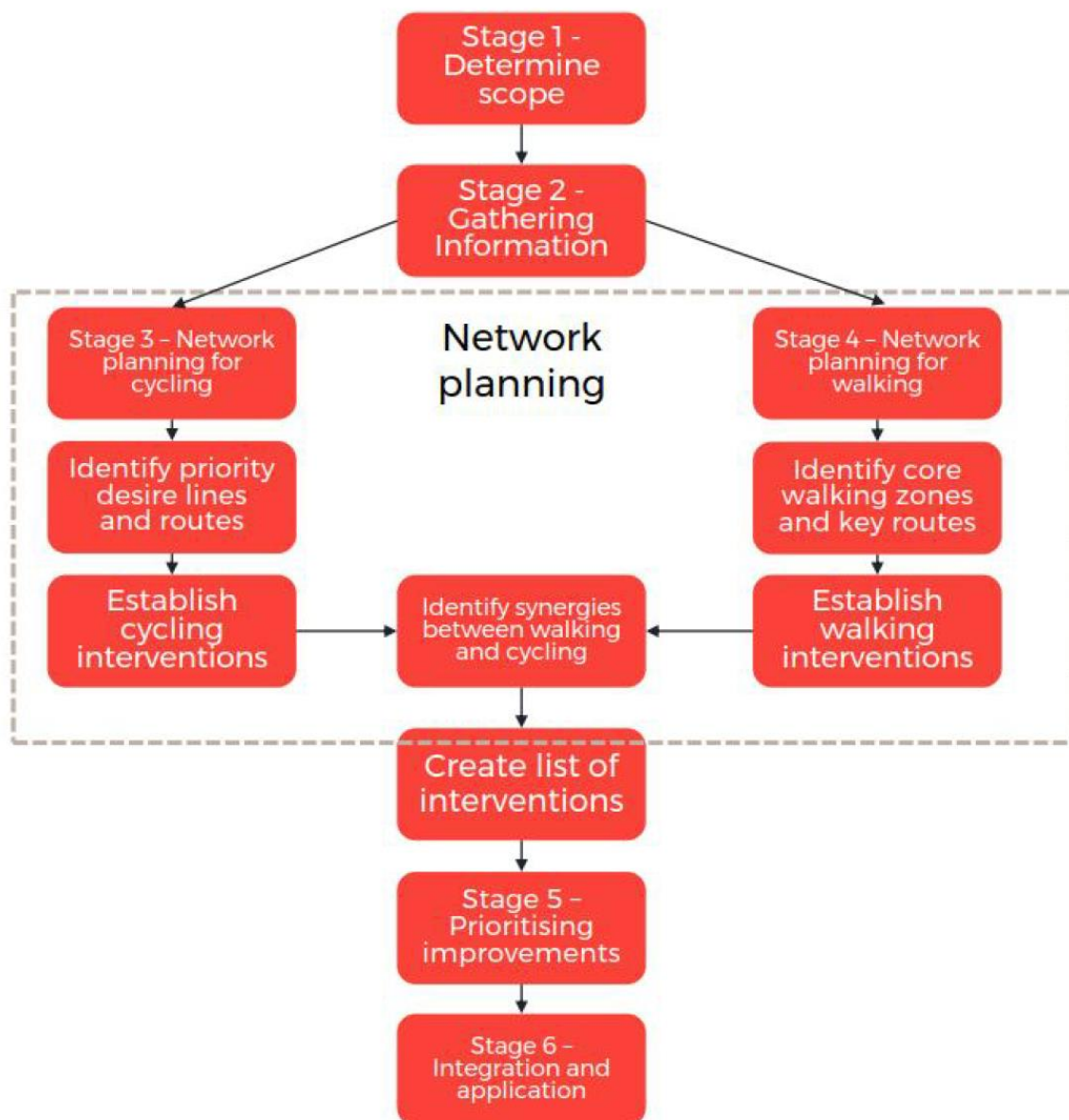
LCWIP Stage 1: Determining Scope

Establishing the Geographical Extent of the LCWIP

The Local Cycling & Walking Infrastructure Plan will cover the Tees Valley Combined Authority area as shown within the map below. This area includes the local authorities of Darlington Borough Council, Hartlepool Borough Council, Middlesbrough Council, Redcar & Cleveland Borough Council and Stockton-on-Tees Borough Council.

The Tees Valley is relatively flat, making it ideal for the promotion of utility cycling and the replacement of short / local car journeys. Utility cycling covers trips that have a specific purpose such as commuting, journey to school, shopping etc. The area already has approximately a network of cycling paths, often linked by advisory sections of on-road route. This LCWIP work aims to identify some of the most prohibitive gaps that are making it difficult for residents to take up cycling as a viable option for their door to door journeys.
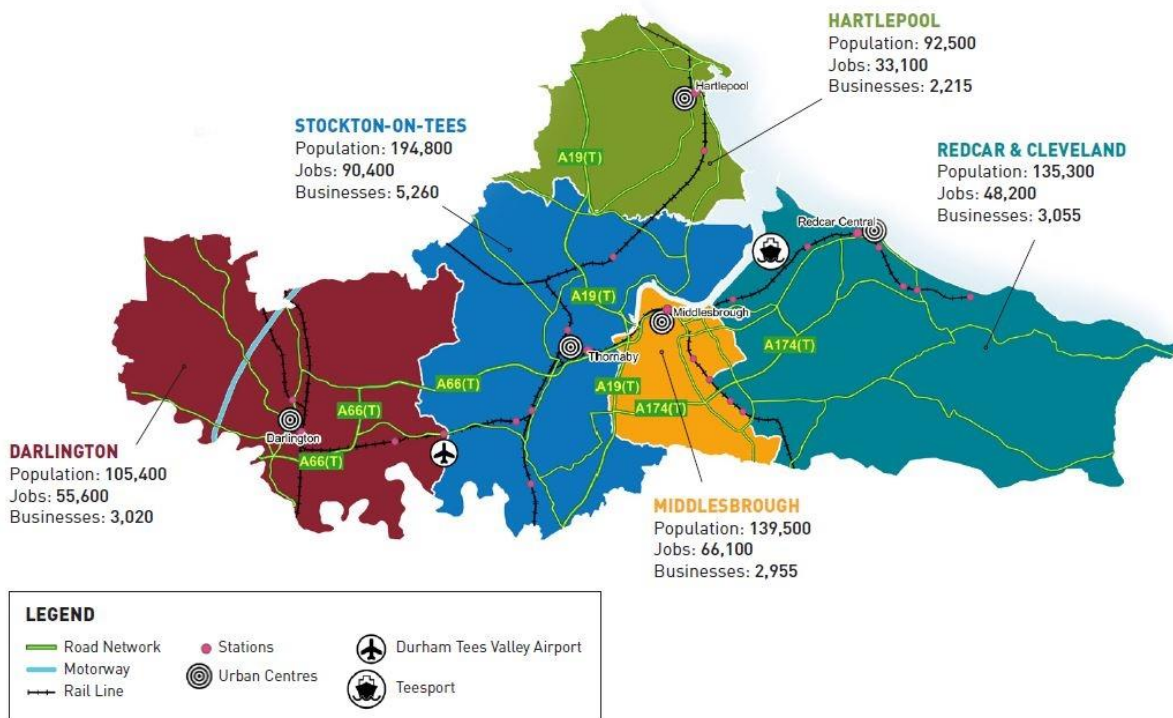
The Tees Valley Local Authorities have been delivering cycling and walking infrastructure, promotion and safety awareness schemes in partnership for several years, through the development of the Second and Third Local Transport Plans. The cycling and walking network has been under continual development through an ongoing process to fill gaps in the network and provide access for all. Most significant in terms of funding for walking and cycling projects has been the Local Sustainable Transport Fund (LSTF) between 2011 and 2015, and for 2015/16, the 2016/17 Sustainable Travel Transition Year Fund and the current DfT Access Fund which ends in 2020/21. Darlington also received funding between 2004 and 2009 as a Sustainable Travel Demonstration Town and between 2005 and 2011 as a Cycle Demonstration Town.

Investment over the last ten years has allowed infrastructure to be developed to a higher standard, making walking and cycling a more attractive option for existing and potential users. There have however only been finite amounts of funding, and therefore there are still gaps in the sustainable

transport networks and future infrastructure must accommodate the changing and future housing and employment development patterns that will accompany our growth aspirations.

As a result, there are strong foundations on which to build. For example:

We have already incorporated national cycle routes throughout Tees Valley and expanded the network of local routes. A number of routes have recently been improved using the Tees Valley's Local Growth Fund and local authority funding including: the River Skerne Access Corridor in Darlington; the link to Queens Meadow Business Park in Hartlepool; and improved links into Riverside Park in Middlesbrough.

- The Hub in Stockton on Tees is the UK's first active travel and cycle parking centre – it offers free information and advice on all aspects of cycling and walking, with regular guided rides and walks, and training courses on cycle maintenance and on road cycling. There are now also active travel hubs in Darlington (Bike Stop) and Middlesbrough (Middlesbrough Cycle Centre), plus active travel hub activities in Hartlepool and Redcar & Cleveland.

- There are programmes of guided cycle rides and walks being delivered across the Tees Valley. These offer encouragement and assistance to those who want to be more active and try alternative means of transport. In 2018/19 there were 500 guided cycle rides and 906 led walks.

- Residents across Tees Valley are also benefiting from free personal travel planning conversations to help them to get to work, education or training. Travel advisors are aiming to help make travelling around the Tees Valley cheaper, easier and healthier for individuals and for families, and they are also noting any comments residents may have which will help make improvements to sustainable transport options in the area. During 2018/19 the travel advisors engaged with 1,059 jobseekers and 4,707 households.

- School children across the Tees Valley are benefitting from pedestrian and cycle training, helping them to be safer on and around the roads and giving them the confidence to travel by sustainable modes of transport. In 2018/19 7,532 children were given pedestrian training and 2,209 were given Bikeability+ training.

Despite these and many other investments, further improvements are still required as cycling makes up just 2.1% of travel to work trips in the Tees Valley and walking just 11% (2011 Census). From our ongoing work, we have a good understanding of the issues that remain and these are outlined below.

Accessibility

The development of high quality sustainable transport access is vital in connecting the residents of Tees Valley to their employment, skills and training requirements. It is particularly important that those without access to a private car or who are unable to drive are provided with the means to access employment, leisure, health, retail and other essential services. Due to the topography and size of Tees Valley, cycling and walking could become a practical choice for many journeys.

The Tees Valley contains many communities that have limited travel horizons with residents rarely travelling much beyond their immediate local area when looking for education, employment and training opportunities. This limits the economic potential of the area since it narrows the opportunities available to people.

Evidence also shows that some of the priority employment locations in the region have exceptionally poor accessibility. There are issues of localised severance, where access is only safe by private car. For many people seeking training or employment opportunities, both a lack of infrastructure and awareness of their travel options are major barriers. There is therefore a need to better coordinate information, invest in infrastructure and provide advice and support.

However, the National Travel Survey 2015 reported that 41% of urban trips under 5 miles were made by foot/cycle in the North East region. A further 12 % of urban trips under 5 miles were made by public transport, leaving a large proportion of shorter trips that have the potential to use walking and cycling with the right infrastructure in place.

Safety

Statistics show how vulnerable cyclists can be as a road user group. There is a growing trend of pedal cyclist casualties. In the last year there were 128 slight injuries, 29 serious injuries and 1 fatality across the Tees Valley. This is of concern when we consider that pedal cyclists only make up around 1% of the total miles driven and ridden in the Tees Valley.

Conversely, the trend for pedestrian casualties is declining, as a result of the actions taken through previous Local Transport Plans where many interventions have been targeted at improving road safety.

With the growing use of cycling, we must consider investment in suitable infrastructure to counteract the accident statistics and support schemes that promote awareness of the cyclist as a road user. The Tees Valley also runs pedestrian training and Bikeability programmes to enhance safety of vulnerable road users. This in turn should support the growth of cycling within the Tees Valley as a safe alternative mode of transport.

Perceptions

There are negative perceptions about sustainable transport which can hinder its popularity. Two examples of transport perceptions which stifle the uptake of sustainable transport, taken from the Door to Door Strategy are that cycling is not safe and there is too much traffic, and that walking takes too much time.

In addition, local data from Transport Focus attitudinal surveys highlights issues around perceptions. Previously we have used this data to inform our sustainable travel programmes with proven results, and we need to continue to address these negative perceptions.

Governance

TVCA, in partnership with the five Tees Valley local authorities, will lead the development of the project.

The governance structure for the Tees Valley Combined Authority is shown below:
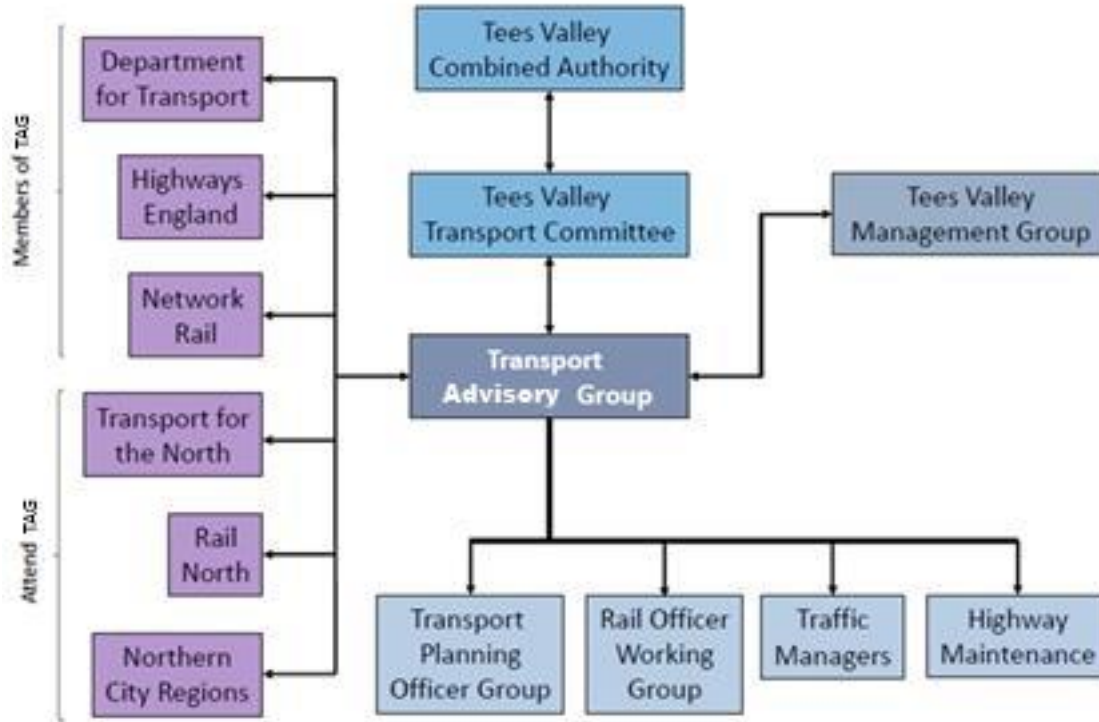
Tees Valley Transport Planning Officers Group – are the main lead for the project. The group meets on a monthly basis and will be responsible for:

- Agreeing the project approach and scope;
- Providing background detail and assisting with the collection of data; and
- Management of performance of external organisation in terms of delivery and quality.

TVCA Strategic Transport Planning Officer – Is the **project manager** and the chair of the Tees Valley Transport Planning Officers Group.

Tees Valley Transport Advisory Group – will oversee the management of the LCWIP development. They will agree the LCWIP approach and ensure that the project is delivered on time and to the required specifications.

TVCA Head of Transport – Is the **Senior Responsible Officer** and TVCA representative on the TVCA Transport Advisory Group.

TVCA Transport Committee – will approve the outcomes of the project and the final content of the LCWIP before it becomes public and is used towards any future funding decisions.

Engagement

A stakeholder mapping exercise was carried out to identify all parties that should be consulted and the likely level of their interest in the plan and walking and cycling more generally. The key stakeholders are those that have high influence and high interest and these were identified as:

Stakeholder / Group	Recommended Action
Public Health/CCGs	Develop a comprehensive approach to engagement across the 5 boroughs to ensure consistency and share resources.
Developers	Engage as early as possible. Ensure consistency with Planning Team in terms of statutory requirements (S106/CIL).
Disability Groups	Engage as early as possible. Refer to CIHT report 'Creating better streets: Inclusive and accessible places' for most recent discussion.
Other Landowners	Identify other major landowners.
Politicians - specific MPs, Councillors, Cabinet Member for Transport	Identify areas of potential controversy at the outset. Incorporate 'good news stories' proactively into briefings. Use other champions to add political weight.

Other stakeholders who have a high level of influence but low interest are also key and the aim in engaging with them is to raise their interest levels. The stakeholder mapping exercise identified the following groups and individuals:

- Tees Valley Development Corporation
- Other MPs
- Chief Executives
- Other internal departments including Planning and Economic Development

The stakeholders identified in the lower influence, but high interest section should be treated as key stakeholders but to a lesser extent. They should be shown consideration and kept informed of plans, ideally ahead of general consultations, but it may not be necessary to tailor consultation to them to the same extent as highly influential stakeholders.

Public consultation will occur at the corridor level to influence the detailed design stage.

Timescales for Implementation of LCWIPs
The Tees Valley LCWIP is intended to be a live document which will be reviewed annually following its approval. The plan is likely to be adopted late 2020 and delivery will begin on priority corridors in 2020/21 with an initial 3 year programme of works to begin to deliver the priority corridors.

LCWIP Stage 2: Information Gathering

Policy context

The current cycling and sustainable transport policy situation across Tees Valley and the wider region has been reviewed to ensure proposals align with local, regional, and national policy.

The following list provides a summary of the policy and strategy documents considered.

- National Planning Policy Framework;
- White Paper: Creating Growth, Cutting Carbon;
- DfT Cycling and Walking Investment Strategy;
- Local Cycling and Walking Infrastructure Plan Guidance (2017);
- Tees Valley Strategic Economic Plan: the industrial strategy for Tees Valley (2016-2026);
- Tees Valley Strategic Local Transport Plan (Emerging);
- Connecting the Tees Valley: Cycling and Walking Strategy (Draft); and
- Local transport and infrastructure plans.

This will be treated as a live policy review and be updated with further relevant policies and strategies which may emerge during the life of the LCWIP.

Tees Valley transport network

The primary transport network in Tees Valley is mapped in **Figure 2**.

Figure 2 – Primary transport network in Tees Valley

Tees Valley is traversed by several routes of the strategic road network, including the A1(M) which is an important national north-south link between London and Edinburgh, and the A19 which runs parallel to the A1(M) and is a regionally significant route. The principal east-west routes are the A66 and A174, which act as a spine through the combined authority; the former is also a strategic link

across the Pennines to the M6 in Cumbria. These strategic road routes are supplemented by a network of local roads that largely radiate from the principal towns, and serve the majority of local trips within and between the urban areas in Tees Valley.

The East Coast Mainline, which is a nationally-strategic rail link, passes through the west of the combined authority, and has a station in Darlington that is an important gateway to the Tees Valley. The station is served by the Tees Valley line that provides regional connections to Middlesbrough and Redcar. Tees Valley is also served by three other local railway lines, with stations across each of the five authorities supporting access to local service centres.

There are five National Cycle Network (NCN) routes within the combined authority, connecting each of the major habitations, employment areas and transport hubs:

- NCN Route 1 (Coast and Castles Route) travels approximately parallel to the coastline, through Redcar, Middlesbrough and Stockton-on-Tees. It extends north to Newcastle and south to Scarborough.

- NCN Route 14 (Darlington to South Shields) runs from Darlington north-east to Hartlepool, through Stockton-on-Tees where is intersects with NCN Route 1.

- NCN Route 65 (Hornsea to Middlesbrough) is a north-route link through Middlesbrough, from Stainton to the town centre, via Hemlington, Tollesby and Linthorpe. It connects to NCN Route 1 to the north.

- NCN Route 165 (Walney to Whitby Route) only passes through Darlington borough, south of the town, and provides connections to Barnard Castle and Whitby.

- NCN Route 168 (Kildale to Saltburn-by-the-sea) is a rural route that links NCN Route 165 to NCN Route 1 in Redcar and Cleveland.

There is a local cycle network that permeates Tees Valley, with a concentration of cycle routes in Darlington and Stockton-on-Tees boroughs. These comprise both traffic-free paths and on-road cycling, with the highway routes including sections of full segregation from traffic as well as stretches with no specific provision for cyclists. A number of Public Rights of Way (PRoW), consisting of bridleways and footpaths, also extend across Tees Valley.

The existing transport network in Tees Valley has been reviewed in the development of the LCWIP, with the location of transport hubs and the national and local cycle routes considered to ensure that a coherent, comprehensive and inter-connected walking and cycling network is proposed.

Travel to Work Patterns

The primary mode of travel to work used by residents in TVCA is driving a car or van, with 62% of residents in employment driving to work (2011 Census). However, this figure varies between the boroughs, as can be seen in Table 1 below, reflecting a combination of socio-economic and transport access factors.

Table 1 - Method of Travel to Work in Tees Valley Combined Authority boroughs

Mode	Darlington	Hartlepool	Middlesbrough	Redcar and Cleveland	Stockton-on-Tees
Train	1.8	1.3	1.4	2.2	1.3
Bus, minibus or coach	6.9	6.8	8.9	5.9	5.8
Taxi	0.8	1.8	1.7	0.7	0.7
Motorcycle / scooter/moped	0.4	0.5	0.4	0.5	0.5
Driving a car or van	59.1	60.5	57.1	64.4	66.3
Passenger in a car or van	6.8	8.4	8.5	7.1	6.9
Bicycle	2.3	1.9	2.5	1.6	1.9
On foot	12.8	11.4	12.4	9.5	8.2
Work mainly at or from home	8.5	6.5	6.1	7.2	7.3

Table 2 – Ten highest MSOA to MSOA commuting flows in Tees Valley Combined Authority, and the modal split.

MSOA pairs (bi-directional flows)		Total trips	Car Driver	Car Psgr.	Bus / train	Walk	Cycle	Other
Internal trips within Stockton-on-Tees town centre (ST014)		1,056	37%	7%	9%	41%	4%	2%
Linthorpe (M009)	Middlesbrough town centre (M001)	975	49%	10%	15%	19%	4%	3%
Faverdale (D001)	Darlington town centre (D008)	968	62%	10%	16%	6%	3%	3%
Internal trips within Middlesbrough town centre (M001)		953	18%	5%	5%	65%	3%	4%
Cockerton (D006)	Darlington town centre (D008)	904	45%	7%	22%	20%	3%	3%
Eastbourne (D009)	Darlington town centre (D008)	837	40%	8%	22%	25%	4%	1%
West Darlington (D011)	Darlington town centre (D008)	829	62%	10%	6%	17%	4%	1%
Newport ward (M003)	Middlesbrough town centre (M001)	812	26%	5%	7%	56%	3%	3%
Ingleby Barwick (ST014)	Stockton town centre (ST023)	769	82%	8%	4%	1%	3%	2%
Internal trips within Darlington town centre (D008)		769	23%	3%	4%	67%	2%	1%

The borough with the highest proportion of commuters walking to work, recorded in the 2011 Census, was Darlington, where 12.8% of journeys to work were made on foot. For journeys to work

that were made by bicycle in 2011, the largest proportion was in Middlesbrough, where 2.5% of commuters cycled to work.

Middle layer Super Output Areas (MSOA) are used in the Census to present area statistics in England and Wales. MSOA have a mean population of 7,500 people and provide a suitable scale for population analysis. Journey to work data has been analysed, and the ten highest commuting flows within Tees Valley are shown in the table 2.

The highest flow recorded in Table 2 above was internal within the MSOA that covers Stockton-on-Tees town centre, with 1,056 commuting trips recorded. Walking was the predominant mode of travel for these journeys, which is likely explained by the short distances travelled, within the MSOA. However, the proportion of car drivers was 37%, which is relatively high when compared to other internal town centre flows, such as Middlesbrough or Darlington (ranked 4th and 10th in the table above), where only 18% and 23% of commuters drove to work respectively. As such, there might be potential to increase the proportion of trips made by walking or cycling in Stockton-on-Tees town centre.

In contrast to the variation in the comparative numbers of walking trips, the proportion of commuter's cycling to work is relatively consistent across the MSOA flows listed in the table above, ranging from 2% to 4%. This is despite variations in the distances of the journeys. It would be expected that apart from the shortest trips, which are most likely to be made on foot, cycling would represent a more dominant mode of travel for the journeys that are between 1km and 5km. As such, there appear to be barriers to cycling for the journey to work between a number of the MSOA pairs that have the highest number of commuting trips.

The journeys listed in Table 2 are localised, being internal within boroughs, and they are on average less than 2.3km distance, with the longest being 5.7km. This suggests that there is significant potential for commuting trips within Tees Valley to be made by active travel modes, however this is not realised with a high dependence on the private car. Furthermore, five of the ten highest commuting flows for MSOA pairs in TVCA are within Darlington, indicating that there is a large concentration of employment in the town.

Trip Generators and Attractors

A variety of data sets have been used to inform the evidence base from which to develop a draft cycling and walking network. These have been used to identify key origin and destination sites in order to understand the various existing and future travel demand patterns across the combined authority area, and to assess the extent to which the existing cycling and walking networks support journeys. The various datasets are detailed in the following section.

Trip Origins and destinations

The LCWIP Technical Guidance states that trip origin points are usually the main residential areas, whereas there are various significant destination points, including workplaces, schools, transport interchanges and service centres.

The following trip destinations were identified in each Local Authority area:

- Employment areas or large individual employers;
- Educational establishments;
- Healthcare establishments;
- Retail facilities; and
- Community facilities.

The datasets outlined have been overlaid for each of the five Tees Valley authorities. These plots demonstrate the proximity of the existing cycling and walking networks to residential and employment sites, key services, educational sites and transport interchanges. Importantly, the plans also consider the proximity of the existing network to committed development sites, which will in turn add additional demand onto the TVCA transport networks. The plots demonstrate a number of potential opportunities to develop or improve cycling and walking infrastructure, to encourage a modal shift for shorter trips.

Deprivation and Car Ownership

The Index of Multiple Deprivation (IMD) is a composite of many types of deprivation, including Income, Employment, Education Skills and Training, Health and Disability, Crime, Barriers to Housing and Services, and Living Environment. It has been included to provide an indication of the area's socio-economic context, which might contribute to the potential for walking and cycling, as well as inform the priorities and objectives of this study.

There are significant areas of deprivation within Tees Valley, which are within the top 10% most deprived neighbourhoods nationally, and these are especially concentrated within Middlesbrough, Hartlepool and Stockton-on-Tees. There are relatively small pockets of deprivation in Darlington and Redcar and Cleveland. In general, it is the town centres and surrounding areas that are deprived, as can be seen in Figure 3. Nevertheless, there are noticeable disparities within Tees Valley, as many of these deprived areas are bordered by relatively affluent neighbourhoods.

Figure 3 – Index of Multiple Deprivation data mapped for each LSOA in Tees Valley.
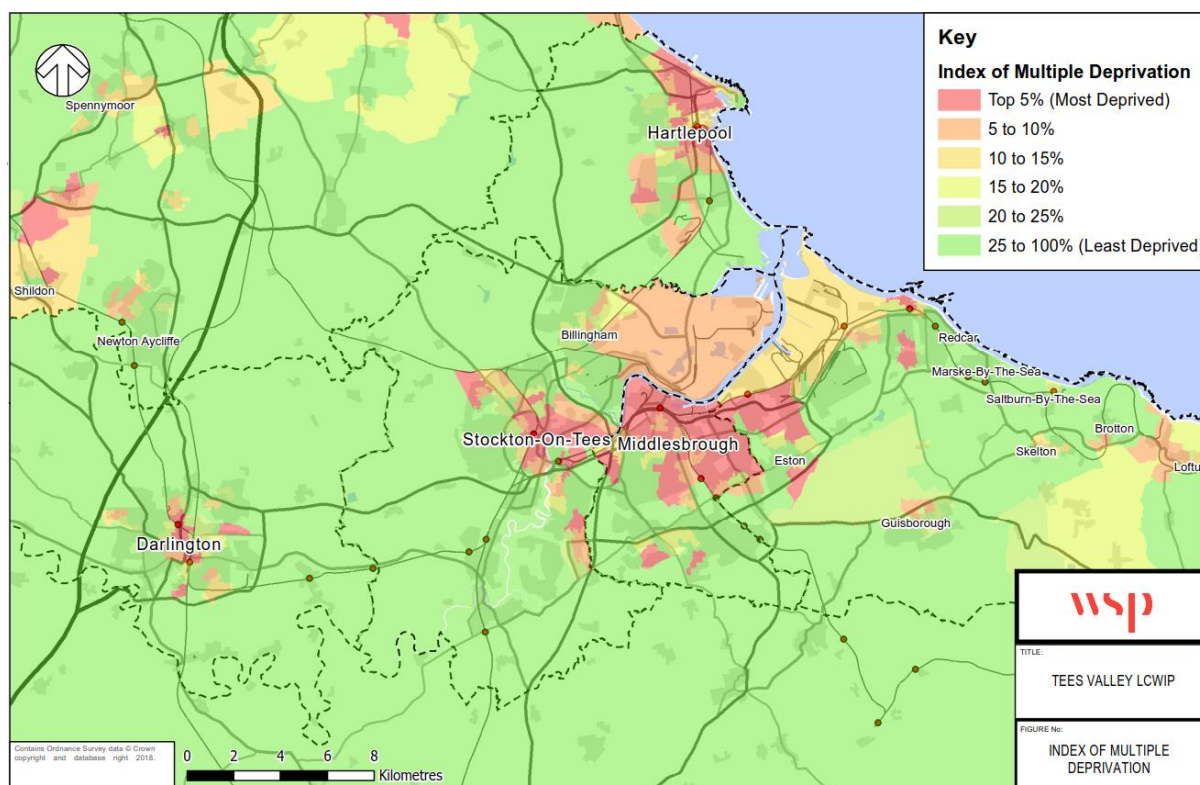
In Middlesbrough, 48.8% of Lower Super Output Areas (LSOA) are within the top 10% most deprived areas of England – the highest proportion for all local authorities – and a large number are in the top 5% most deprived category. The majority of these deprived LSOAs are located to the north and east of the borough, in the town centre, North Ormesby and Berwick Hills.

Hartlepool also has a high proportion of LSOAs within the top 10% most deprived areas nationally, ranking 10th amongst all local authorities. The largest area of deprivation is to the north of the town centre, encompassing most of the northern urban area, with several LSOAs within the 5% most deprived in England.

In Stockton-on-Tees, the LSOAs within the town centre and neighbourhoods to the east are within the top 5% most deprived areas nationally. There are several areas of Billingham that are in the top 10% most deprived, although these are geographically large areas that include industrial land along the River Tees.

Car Ownership

The average number of cars per households for each LSOA in Tees Valley is mapped in Figure 4. This data has been used here as a proxy for transport poverty, providing an indication of the accessibility level and reliance on alternative means of transport within the study areas.

Figure 4 – Car ownership levels in each LSOA within Tees Valley.
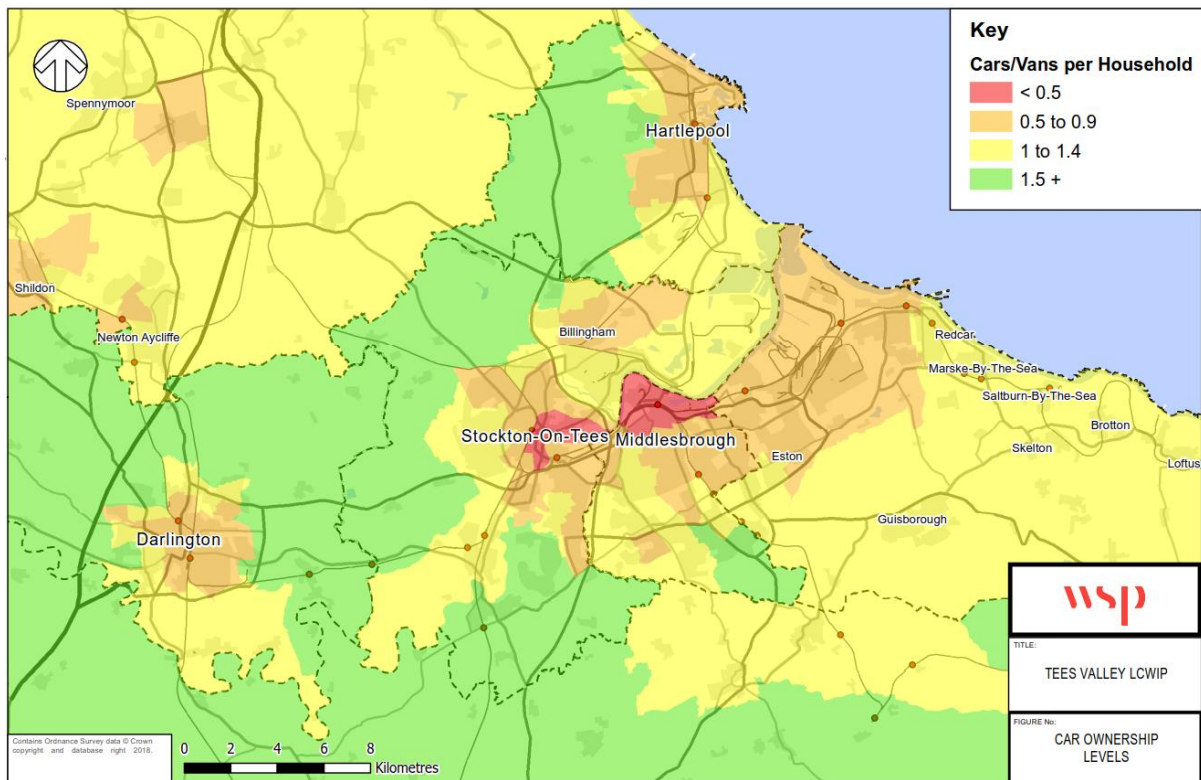
The car ownership data shown in the figure above demonstrates that in large areas of Tees Valley, a significant proportion of households do not have access to a private vehicle. In particular, within Middlesbrough and Stockton-on-Tees town centres, there are on average less than 0.5 cars per household. In these areas, there will be a dependence on alternative modes of travel, and therefore possibly greater potential to increase walking and cycling trips.

Furthermore, in areas with lower car ownership, and where public transport services are limited, there will be relatively poor access to services and employment. As such they are also generally amongst the most deprived neighbourhoods, as demonstrated by the data for Middlesbrough and Stockton-on-Tees town centres. However, these areas are mostly located in close proximity to town centres or large employment sites along the River Tees, and therefore there is an opportunity to

increase access to jobs and services by improving the local pedestrian and cycling infrastructure and thereby facilitate economic growth

Propensity to Cycle Analysis

An analysis of the Travel to Work origin-destination dataset recorded in the 2011 Census reveals that across the MSOAs within TVCA, between 1% and 5% of the working population cycle to work. This proportion is higher in the urban areas of the region, especially in Middlesbrough.

The figure below shows the 20 highest cycling flows between MSOA pairs in TVCA, which are focussed on the urban centres of Darlington, Stockton, Middlesbrough and Redcar. In particular, there is a concentration of trips made in Darlington, with 9 of the highest cycling flows in TVCA within the borough. The line widths are scaled by number of cyclists.

Figure 5 – Percent of commuters that cycle to work, with the 20 highest cycling flows for each origin destination pair mapped. (Source: 2011 Census)
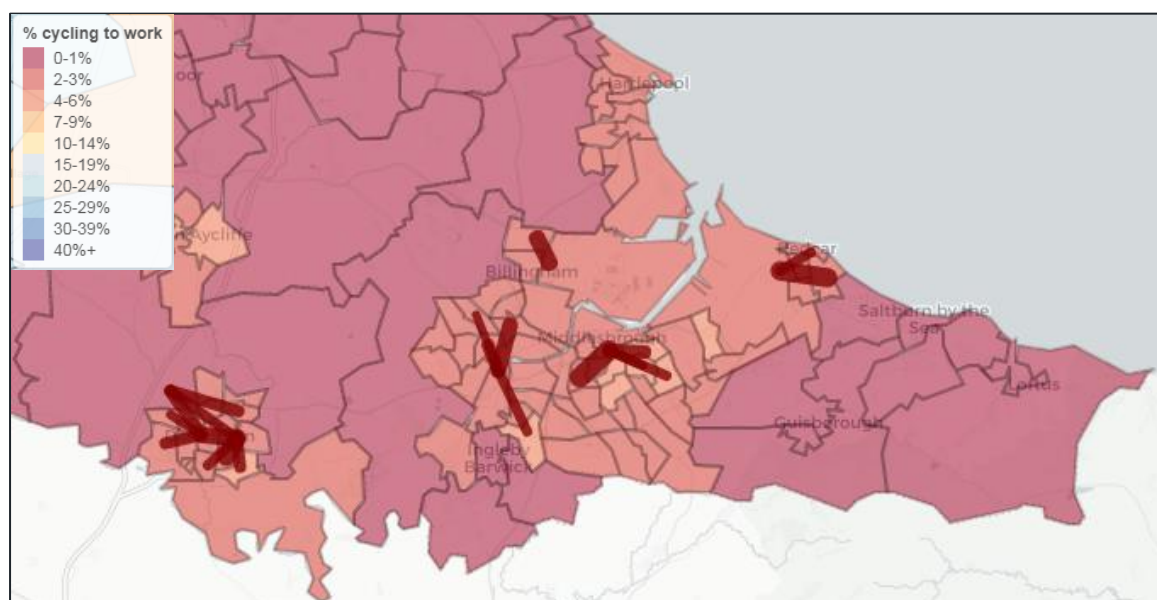
'Government Target' Scenario

In 2017 the Government published its first Cycling and Walking Investment Strategy (The Strategy). The Strategy sets out the Government's ambition to make walking and cycling the natural choices for shorter journeys or as part of a longer journey. The Strategy's objectives, by 2020, are to:

- increase cycling activity, where cycling activity is measured as the estimated total number of cycle stages made
- increase walking activity, where walking activity is measured as the total number of walking stages per person
- reduce the rate of cyclists killed or seriously injured on England's roads, measured as the number of fatalities and serious injuries per billion miles cycled
- increase the percentage of children aged 5 to 10 that usually walk to school

The Propensity to Cycle Tool (PCT) Online tool has been designed to help predict which areas have the greatest potential for increasing cycling. It shows where the greatest health and environmental benefits could be delivered by people choosing to cycle to work rather than driving and a number of different scenarios can be applied to the data including the Government Target scenario.

The Government Target scenario was generated by adding the observed number of cyclists in each origin destination (OD) pair in the 2011 Census, and the modelled number of cyclists in each OD pair, as estimated using the baseline propensity to cycle equations. The scenario is not a prediction of the future, but a snapshot indicating how the spatial distribution of cycling may shift as cycling grows based on current travel patterns. It is not a uniform application of growth, with the target varying between different MSOAs.

Figure 6, below, plots the 20 highest cycling flows between MSOAs expected within TVCA if the Government's national target is to be realised. The greatest number of commuting cyclists is between the same MSOAs in Middlesbrough as identified in the 2011 Census, with 132 commuting trips between MSOA001 (Middlesbrough Town Centre) and MSOA009 (Linthorpe). However there are differences with Figure 5 above, demonstrating that there are several MSOA pairs between which it is anticipated that the number of cyclists more than doubles in this scenario. These include cycling flows in Hartlepool, Billingham, Middlesbrough and Redcar. As such, there appears to be significant growth potential for cycling between the identified MSOAs, and a need to invest in the infrastructure to facilitate this.

**Figure 6 – Forecast Cycle Flows - PCT Govt Target Scenario**
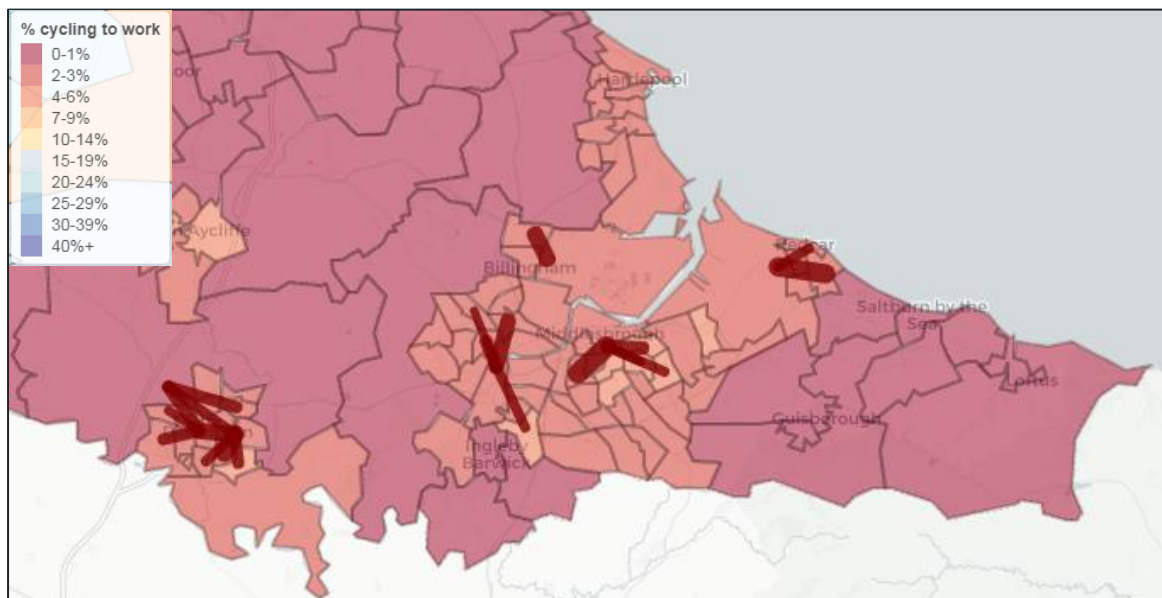
(Note: The base map shows the modelled percent of journeys to work made by bicycle under the Government's cycling target, based on the DfT's Propensity to Cycle Tool. The lines are the 20 highest cycling flows between MSOA origin-destination pairs.)

Figure 6 does not display internal cycling flows and thus excludes trips within MSOAs. The modelled highest cycling flow within a single MSOA is for Stockton-on-Tees 014, which is Stockton town centre. In the Government scenario, 97 commuters cycle to work within the MSOA, which is higher than the cycling flows into Stockton town centre from other MSOAs. This should therefore be considered when planning infrastructure improvements within the borough. The second highest flow for within MSOA cycling trips in this scenario is Middlesbrough town centre, where 85 cyclists are modelled.

The map below shows the fastest and quietest routes between the origin-destination pairs identified above in all boroughs except for Darlington. Quietness is rated as a percentage score. The quietest routes score 100%. Examples of these are cycle tracks and park paths, these are off-road routes and for cycling it doesn't get any quieter than that. Slightly less quiet are "Quiet Streets", at 75%, and

shared-use facilities at 80%. (Shared use are often too narrow, and there are pedestrians and other cyclists to avoid.) Busy roads score 50% or less.

Figure 7 – Fastest and quietest routes for the cycling flows in Hartlepool, Stockton, Middlesbrough and Redcar
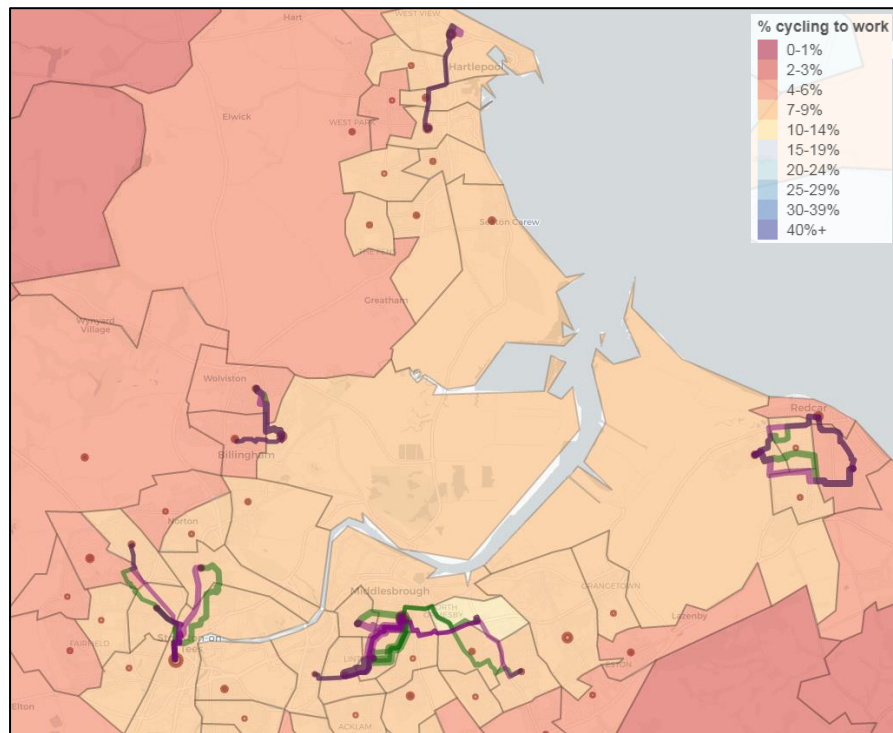
Figure 8 shows where the fastest cycle routes converge, and therefore where the highest total cycle flows are recorded. The busiest sections of the cycle network are forecast to be in Middlesbrough, Stockton and Hartlepool town centres.

Figure 8 – Route Network for the 'Government Target' scenario.
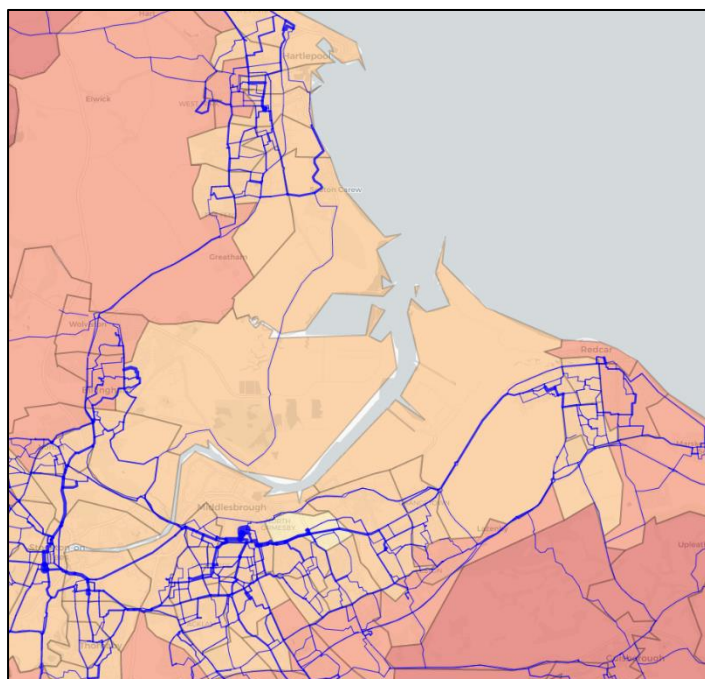
'Go Dutch' Scenario

To provide an ambitious vision for cycling in England, the DfT used cycling data from the Netherlands to estimate the number of trips to be made by bicycle between origin-destination pairs if English people were as likely as Dutch people to cycle a trip of a given distance and level of hilliness. There is a large increase in the proportion of journeys to work being made by bicycle. However, it does not take into account the differences in culture and infrastructure.

The Go Dutch scenario, unlike the Government Target scenario model which relatively increases cycle use, is an ambitious vision to what cycling in England and Wales could look like. It represents cycle flows if English and Welsh people were as likely as Dutch people to cycle a trip of a given distance and level of hilliness. The scenario captures the proportion of commuters that would be expected to cycle if all areas of England and Wales and the same infrastructure and cycling culture as the Netherlands (but retained their hilliness and commute distance patterns).
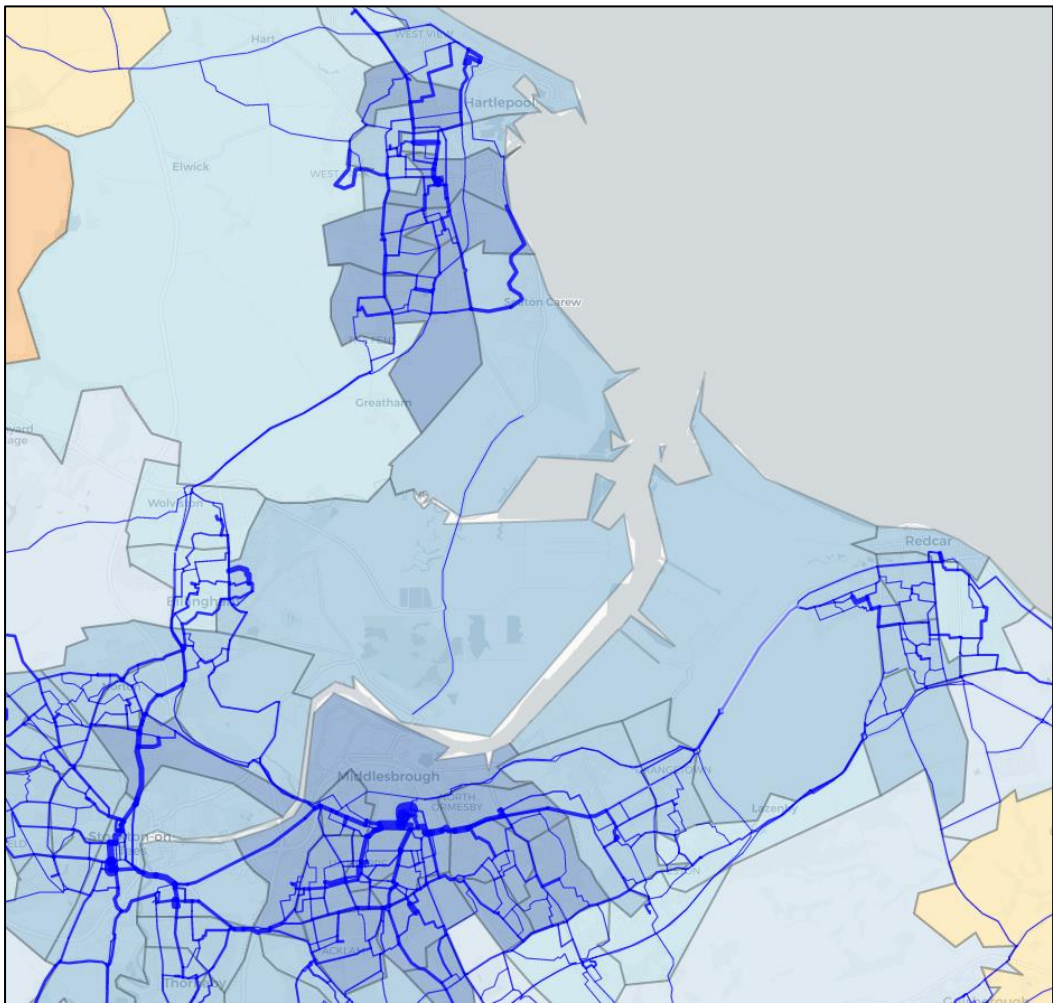
The 20 highest cycling flows in the model scenario are displayed in Figure 9 below. These are mostly the same as those in the 'Government Target' scenario, however there are less of the 20 highest flows in Middlesbrough and more in Hartlepool and Darlington. The highest cycling flows in this scenario are generally for shorter distances of less than 2km because of the Dutch reliance on the bicycle for trips of such length.

The model output suggests that there are a number of origin-destination pairs which are a short distance apart and with a flat route, but between which the proportion of commuters cycling is currently relatively low. Therefore, there is significant potential to increase the number of journeys to work by bicycle between these MSOAs.

Figure 9 – The base map shows the modelled percent of journeys to work made by bicycle under the 'Go Dutch' scenario. The lines are the 20 highest cycling flows between MSOA origin-destination pairs.
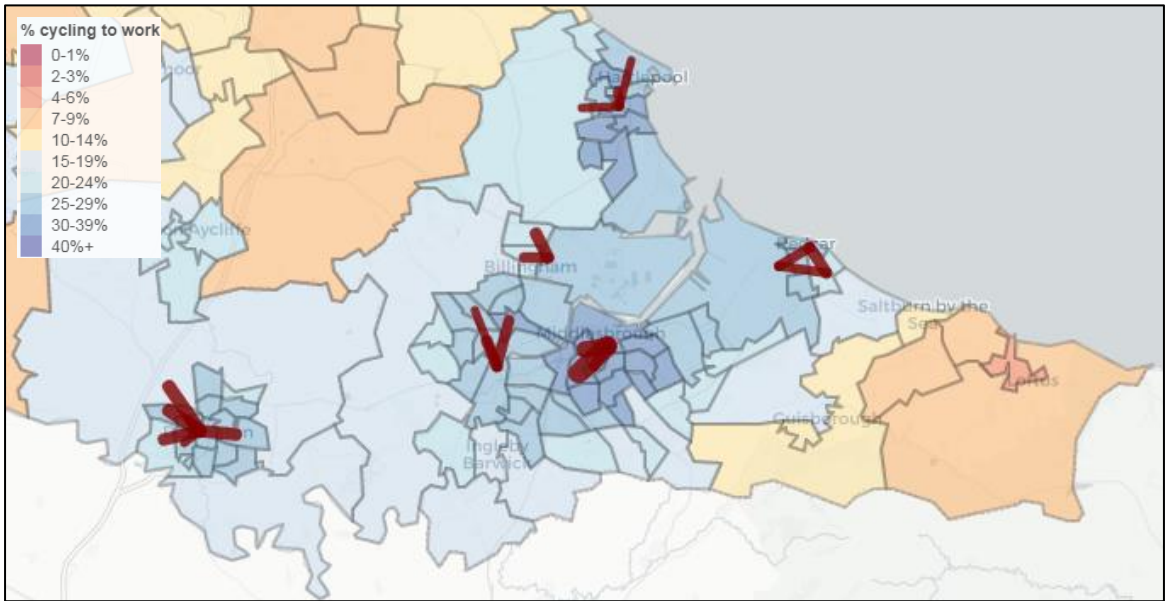
**Figure 10 – Route Network for the 'Go Dutch' scenario**

PCT Tool: Analysis of Boroughs

Ten highest cycling flows between MSOA origin-destination pairs in each borough under the Government scenario is shown adjacent to each section below.

Darlington

The 10 highest cycling flows in Darlington are focussed on the town centre, with the largest number of cyclists between Darlington 008 (Town centre) and 009 (Red Hall / Albert Hill / Eastbourne) – 94 commuters in the Government Target scenario – and Darlington 008 (Town centre) and 001 (Faverdale). There are also a number of well-used routes between other MSOAs, such as between Darlington 009 and 012 (made up of Eastbourne and Bank Top), with 76 cyclists making this journey.
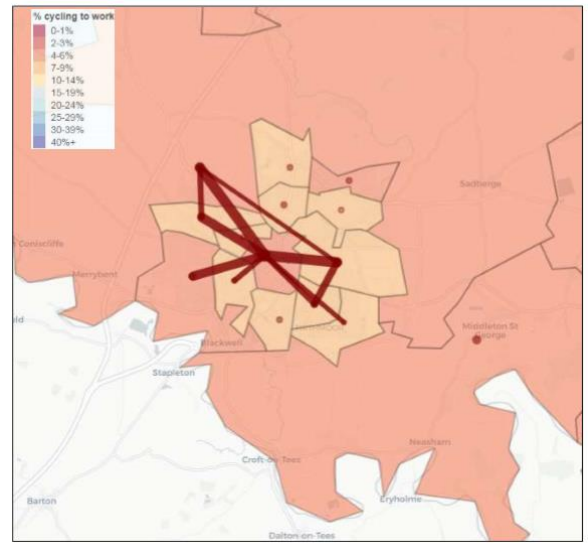
Hartlepool

An analysis of the number of cyclists travelling between MSOAs within Hartlepool, under the modelled Government Target scenario, shows that the highest flows are largely radial, to and from the town centre. This is shown in the accompanying figure.

The highest flow is from the north of Hartlepool to the town centre, with 74 cyclists travelling between these two MSOAs in the scenario above. This indicates that given the number of commuters who cycle to work in the 2011 Census, and the modelled propensity to cycle based on distance and hilliness, the largest number of cyclists are predicted to travel between Hartlepool 002 (West View) and 007 (Stanton/Hartlepool Town Centre).
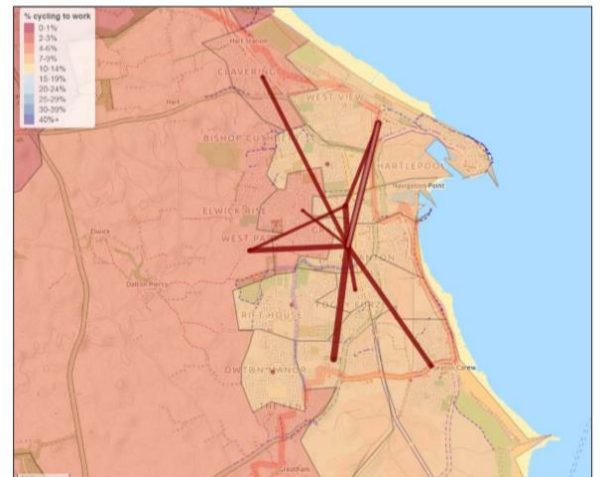

The next two highest modelled cycle flows in the Government Target scenario are recorded between the town centre and MSOAs to the south of the town – Hartlepool 010 (Rossmere Park) and 011 (Seaton Carew) – with 64 and 66 modelled cyclists respectively.

The largest number of internal cycling trips is within Hartlepool 002 (West View), where 61 cyclists are modelled in the Government Target scenario.

Middlesbrough

The highest cycling flows in Middlesbrough are centred on the town centre, with the busiest route in the Government Target scenario between Middlesbrough 001 (Town Centre) and 009 (Linthorpe) (132 cyclists). There is a relatively low number of internal MSOA cycling trips, with the highest in Middlesbrough 001, of 85 cyclists.
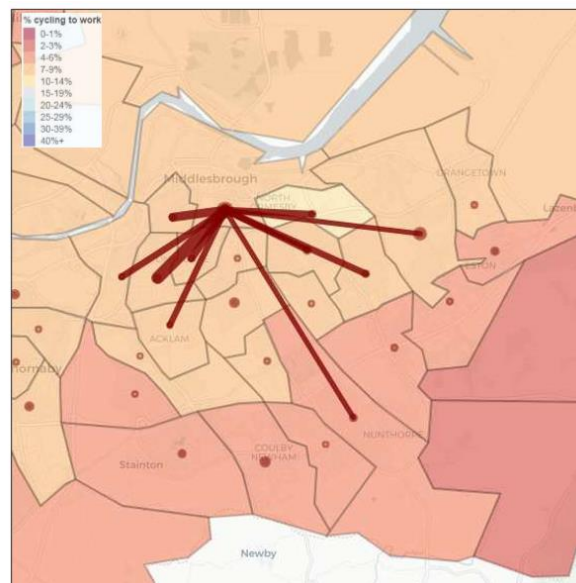

Stockton on Tees

In the Government Target scenario, the highest cycling flows within Stockton-on-Tees are largely centred on Stockton town centre. These are radial, and they are generally north-south, rather than east-west. Two of the top 10 cycling flows are in the north of the borough, within Billingham. Indeed the largest number of commuters cycling to work (96 cyclists) is modelled between Stockton 001 (Wolviston/North Billingham) and Stockton 003 which includes Cowpen Lane Industrial Estate. There are also a relatively large number of internal cycling trips within the latter, with 74 cyclists in the modelled scenario.
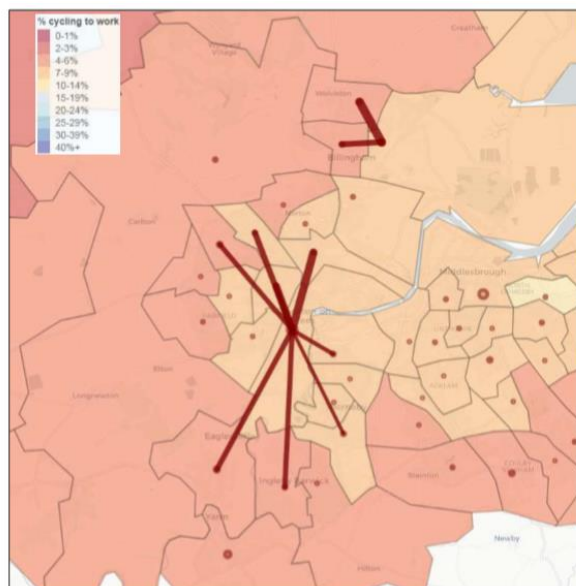
Redcar and Cleveland

An analysis of the number of cyclists travelling between MSOAs within Redcar and Cleveland, under the modelled Government Target scenario, shows that the highest flows are concentrated within Redcar. The largest numbers of cyclists are not to the town centre, but to Redcar and Cleveland 003 where the South Tees Development Corporation, Teesport and Wilton International is situated, a significant employment site. The highest number of commuters cycling to work in the Government scenario is 96, between Redcar and Cleveland 003 and 004, which is predominantly residential (Wheatlands/Mickledales).
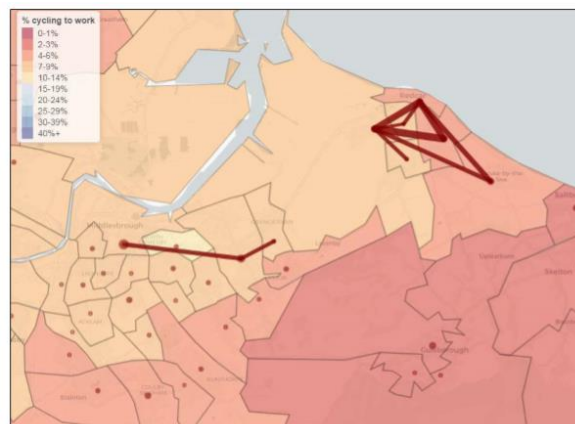
Two of the ten highest cycling flows are to and from Redcar and Cleveland 022 (Southbank and Teesville), in the west of the borough, with one of the routes being to Middlesbrough town centre.

LCWIP Stage 3: Network Planning for Cycling

Stage 3 of the LCWIP process involves:

- Identifying and clustering trip origin and destination points;
- Establishing desire lines for movement; and
- Planning network and identifying improvements.

The key output for Stage 3 is a Cycle Network Map, detailing a proposed network based around the routes people currently take and those people are likely to want to take, both now and in the future. Network development involves an evidence-based review to identify key existing and future desire lines between origins and destinations throughout Tees Valley, and ensuring these are suitably connected by a joined-up primary network and supported by a network of secondary links. The development of the Tees Valley Cycle Network Plan follows a 5-stage process as detailed below.

Step 1 - Clustering Analysis

Following on from the trip origin and destination mapping in Stage 2, a clustering exercise was conducted which involved grouping origin and destination points within close proximity to represent locations where a large of number of trips are focussed

Step 2 – Identifying Desire Lines

As per DfT LCWIP recommendations, desire lines between the origins and destination clusters have been mapped, representing the most direct route between points, irrespective of the existing network and barriers. Where neighbouring clusters had similar or converging desire lines, these were combined to avoid cluttering of the map. The existing and potential travel demand between origins and destinations was used to inform the identification of desire lines where there is likely to be a relatively large number of trips. An example of the clustering and desire line plots is shown in Figure 11 below.

Figure 11 – Clustering and Desire Line Plot (Darlington)
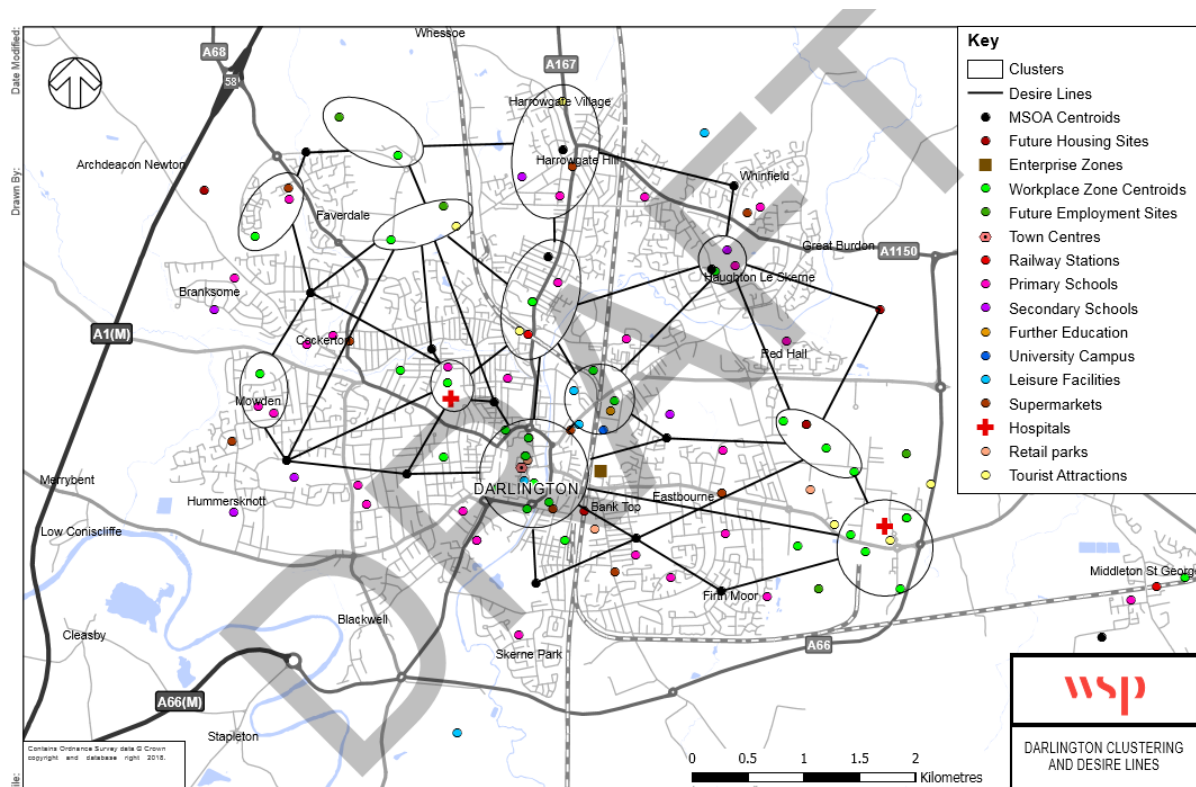
Step 3 – Applying a Link Hierarchy

The next step in network planning outlined in the LCWIP guidance is to classify the desire lines based on the relative cycling demand and their potential role in the network. This will ensure that a comprehensive and cohesive cycling network is developed and can inform a phased programme of work. The following hierarchy was applied, based on the DfT LCWIP guidance:

- Primary: High flows of cyclists are forecast along desire lines that link large residential areas to trip attractors such as a town or city centre.
- Secondary: Medium flows of cyclists are forecast along desire lines that link to trip attractors such as schools, colleges and employment sites and/or links that connect primary corridors.

Step 4 – Mapping Desire Lines to the Network

GIS software was then used to map these desire lines to the network, based on expected route alignments informed by existing infrastructure and the PCT routing. The routes selected take into account existing roads, paths and structures but do not consider current constraints, such as carriageway width or traffic management restrictions such as one-way orders.

Additional links where necessary were added to the plan to ensure that key routes are joined up and to ensure a suitable 'mesh density' is provided. Evidence suggests that in a joined-up urban cycle network, cyclists should typically not have to travel more than 400m to get between cycle routes of similar quality.

The mapping of routes relative to desire lines and application of hierarchies forms the basis of the Cycling Network Plan. This task was repeated for each of the five Local Authorities in Tees Valley. Strategic cross-boundary links connecting neighbouring authorities were also plotted, based on existing and aspirational routes.

Step 5 - The Tees Valley Cycle Network Plan

A draft Cycle Network Map for the LCWIP study area has been developed. This consists of detailed network plan for each authority and key cross-boundary links connecting neighbouring towns.

Network plans for Darlington, Hartlepool, Middlesbrough, Redcar and Stockton are presented in Figures 12 to 18 below.

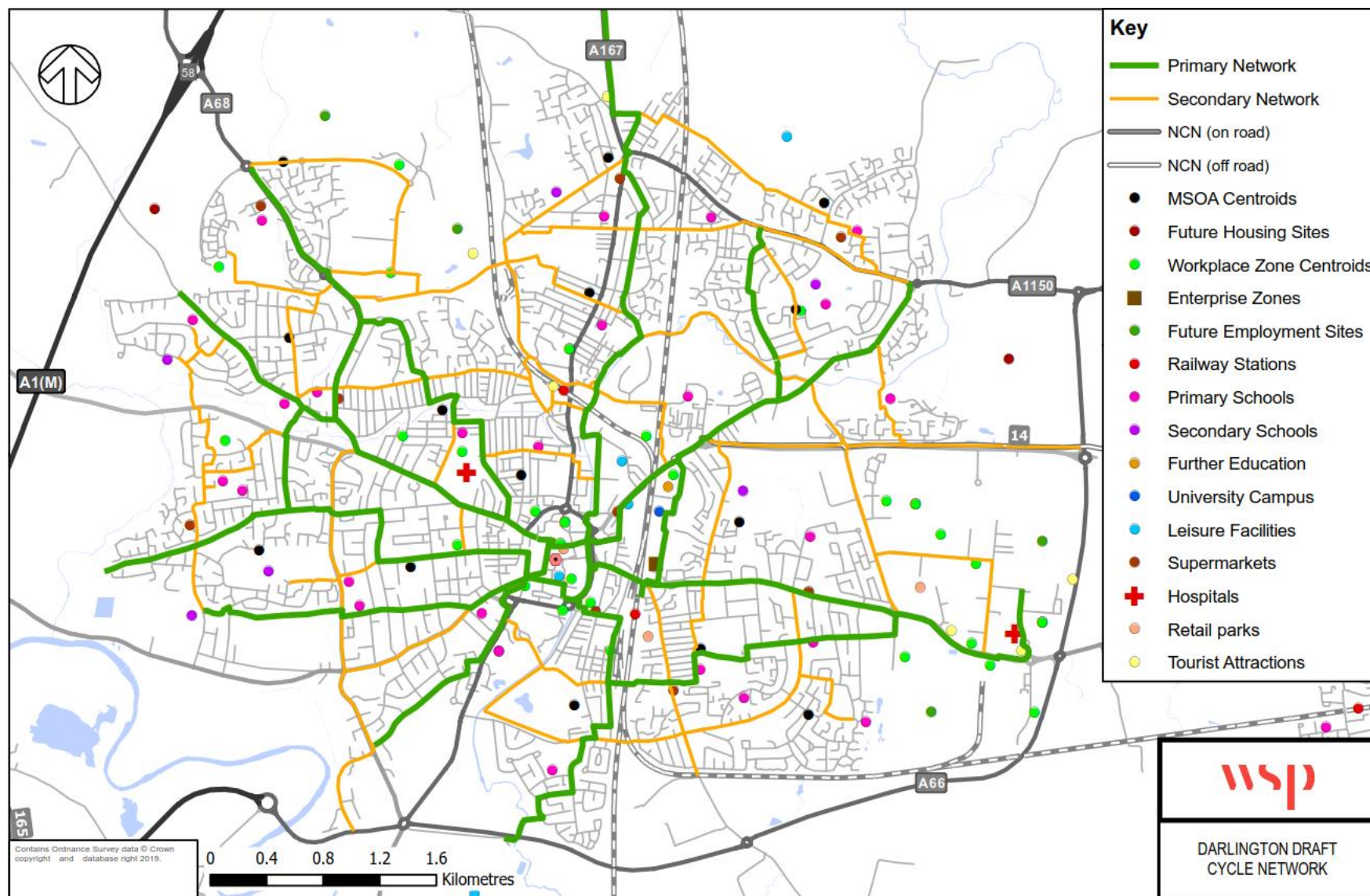**Figure 12 – Darlington Cycle Network Plan**
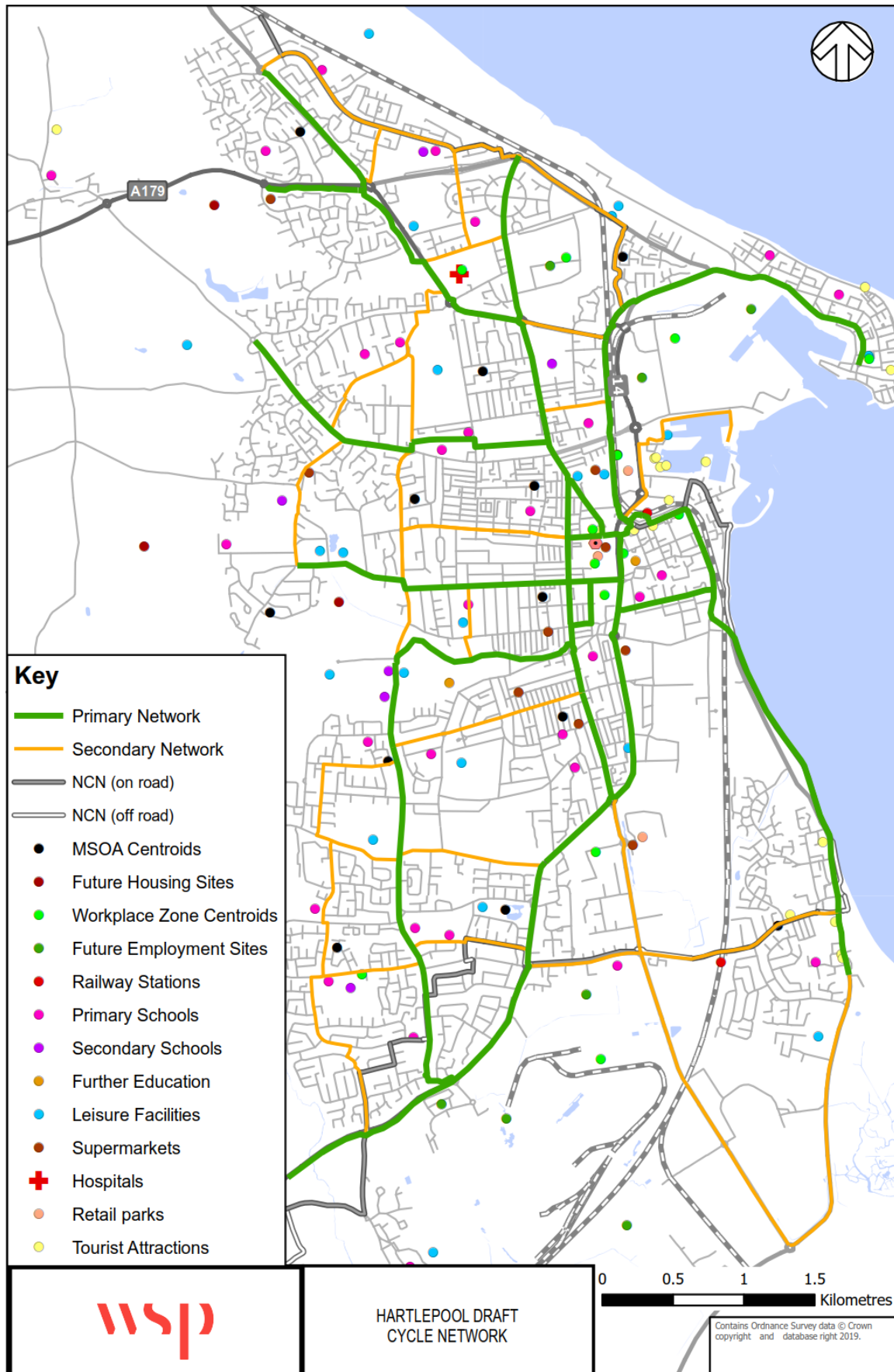
Figure 13 – Hartlepool Cycle Network Plan

Key

- Primary Network
- Secondary Network
- NCN (on road)
- NCN (off road)
- MSOA Centroids
- Future Housing Sites
- Workplace Zone Centroids
- Future Employment Sites
- Railway Stations
- Primary Schools
- Secondary Schools
- Further Education
- Leisure Facilities
- Supermarkets
- Hospitals
- Retail parks
- Tourist Attractions

wsp

HARTLEPOOL DRAFT
CYCLE NETWORK

0   0.5   1   1.5
Kilometres

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Figure 14 – Middlesbrough Cycle Network Plan

Key

- Borough Boundary
- Primary Network
- Secondary Network
- Indicative Routes
- NCN (on road)
- NCN (off road)
- Tourist Attractions
- Leisure Facilities
- Future Housing Sites
- Supermarkets
- Further Education
- University Campus
- MSOA Centroids
- Enterprise Zones
- Workplace Zone Centroids
- Future Employment Sites
- Hospitals
- Retail parks
- Primary Schools
- Secondary Schools
- Railway Stations

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0   0.6   1.2   1.8   2.4
Kilometres

wsp

MIDDLESBROUGH DRAFT CYCLE NETWORK

Figure 15 – Redcar Cycle Network Plan

Key

- Primary Network
- Secondary Network
- Indicative Routes
- NCN (on road)
- NCN (off road)
- MSOA Centroids
- Future Housing Sites
- Workplace Zone Centroids
- Enterprise Zones
- Future Employment Sites
- Railway Stations
- Primary Schools
- Secondary Schools
- Further Education
- Leisure Facilities
- Supermarkets
- Hospitals
- Retail parks
- Tourist Attractions

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0   0.4   0.8   1.2   1.6
Kilometres

WSP

REDCAR DRAFT
CYCLE NETWORK

Figure 16 – Redcar and Cleveland Cycle Network Plan

Key

- Borough Boundary
- Primary Network
- Secondary Network
- NCN (on road)
- NCN (off road)
- MSOA Centroids
- Future Housing Sites
- Workplace Zone Centroids
- Enterprise Zones
- Future Employment Sites
- Railway Stations
- Primary Schools
- Secondary Schools
- Further Education
- Leisure Facilities
- Supermarkets
- Hospitals
- Retail parks
- Tourist Attractions

REDCAR & CLEVELAND
DRAFT CYCLE NETWORK

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Figure 17 – Stockton Cycle Network Plan

Key

——	Primary Network
——	Secondary Network
——	Indicative Routes
——	NCN (on road)
——	NCN (off road)
●	MSOA Centroids
●	Future Housing Sites
●	Workplace Zone Centroids
■	Enterprise Zones
●	Future Employment Sites
●	Railway Stations
●	Primary Schools
●	Secondary Schools
●	Further Education
●	University Campus
●	Leisure Facilities
●	Supermarkets
✚	Hospitals
●	Retail parks
●	Tourist Attractions

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wsp

STOCKTON DRAFT
CYCLE NETWORK

Figure 18 – Tees Valley Combined Authority Cycle Network Plan

LCWIP Stage 4: Network Planning for Walking

Stage 4 of the LCWIP process involves:

- Identifying and clustering trip origin and destination points;
- Establishing core walking zones (CWZs) and walking routes; and
- Auditing the main routes and identifying barriers.

The key output for Stage 4 is a proposed future Walking Network Map, detailing CWZs and supporting key walking routes.

Clustering Analysis

Following the trip origin and destination mapping process in Stage 2, a clustering exercise was conducted which involved grouping origin and destination points within close proximity to represent locations where a large of number of trips are focussed

Core Walking Zones

Core Walking Zones (CWZs) are defined here as areas where relatively large numbers of walking movements are concentrated, and are therefore generally town centres or large employment sites. It is imperative that the pedestrian infrastructure within CWZs, and also connecting to the surrounding areas, is of suitable standard so as to support walking trips.

To identify the priority pedestrian areas (i.e. CWZs) in the TVCA area, the following data was reviewed to determine the existing pedestrian volumes, and likely potential for walking trips:

- MSOA Journey to Work data (Census, 2011)
- Clustering analysis performed in Stage 3
- Car ownership data
- Index of Multiple Deprivation (IMD)

Firstly, Journey to Work data was analysed to rank all MSOAs within TVCA by the number of walking trips generated, and this was used to identify the areas that experience the greatest pedestrian activity. The top ten MSOAs by number of walking trips are provided in Table 5 below.

Table 5 - Top ten MSOAs with the highest number of commuting trips made on foot.

Rank	MSOA Area	No. of Walking Trips
1	Darlington town centre	2,740
2	Middlesbrough town centre	2,440
3	Stockton-on-Tees town centre	1,544
4	Hartlepool town centre	1,414
5	Hartlepool Marina	1,119
6	James Cook Hospital, Middlesbrough	1,096
7	Redcar town centre	1,093
8	Darlington East (bound by B6279 & B6280)	1,029
9	Newport, Middlesbrough	928
10	Eastbourne, Darlington	857

Next, the origin and destination data that was sourced and clustered (see Chapters 2 & 3) was used to identify areas with a number of significant trip destinations in close proximity, which are likely to attract a high number of trips for utility and commuting purposes. It is evident that the largest destination clusters largely correlate with the MSOAs listed in Table 5 above.

Car ownership data and the Index of Multiple Deprivation was reviewed to assess the likely mobility of communities. In areas where fewer households have access to a private vehicle, there is a greater reliance upon, and thus higher levels of walking (and cycling). As such, there is greater potential for increased active travel with improvements to the pedestrian infrastructure in these areas. Moreover, areas with low car ownership and higher levels of deprivation can benefit from improvements to the pedestrian networks because of the resulting increased accessibility to services and employment opportunities. As such, the development of coherent and adequate walking networks can support wider economic development objectives.

Based on the various datasets assessed six CWZs have been proposed. These are:

- Darlington town centre;
- Middlesbrough town centre;
- Stockton-on-Tees town centre;
- Hartlepool town centre;
- Teesside University (Main Campus);
- Redcar town centre.

Given the shorter distances over which walking journeys are made, a 400m radius from a central proxy location was adopted to define the CWZs, representing an approximate five-minute walking distance.

Key Walking routes

The CWZs represent the focal points for pedestrian journeys across TVCA, and therefore the important walking routes that serve the CWZs from the urban areas have been identified and mapped using the data presented previously. It is recommended that only walking routes within 2km of the CWZs should be included because the proportion of journeys made on foot decreases significantly beyond this distance.

While the 2km isochrone allows the identification of Key Walking Routes (KWRs) in relation to each individual CWZ, the analysis of overlapping isochrones shows where KWRs are likely to serve multiple CWZs, and therefore have higher levels of demand.

The walking routes mapped were then prioritised using the Footway Maintenance Classification provided in the DfT's LCWIP Guidance document, which is as follows:

Table 6 – Footway Hierarchy in 'Well-Maintained' Highways

Cat.	Name	Description
1	Primary Walking Routes	Busy Urban shopping and business area, and main pedestrian routes
2	Secondary Walking Routes	Medium usage routes through local areas feeding into primary routes, local shopping centres etc.
3	Link Footways	Linking local access footways through urban areas and busy rural footways.
4	Local Access Footways	Footways associated with low usage, short estate road to the main roads and cul-de-sacs.

## Validation of Core Walking Zones and Key Walking Routes

TVCA were selected as one of the trial areas to apply the 'Walkability' Tool. The Walkability Tool predicts how likely it is that people within an area will walk, based on the following factors:

- Residential density;
- Land use mix;
- Public transport accessibility; and
- Street network structure.

The outputs of the tool include primary, secondary and tertiary walking zones. The primary walking zones are the areas where the level of walking is expected to be highest, and in most cases are located within the principal town centres of each of the five boroughs in TVCA. The secondary zones tend to incorporate the edge of town centres and local centres, including high streets.

There is a geographic correlation between the CWZs defined following the method outlined previously, and the primary and secondary zones identified using the tool (see Figure below). As such, the analyses complement each other, indicating that these central areas in each town are the focus of pedestrian journeys. Therefore there is an impetus to ensure that the links and infrastructure within these zones are of a high standard to maximise the number of trips made on foot.

Figure 19 1– Example Walkability Outputs overlaid on CWZs and 2km catchment in Darlington
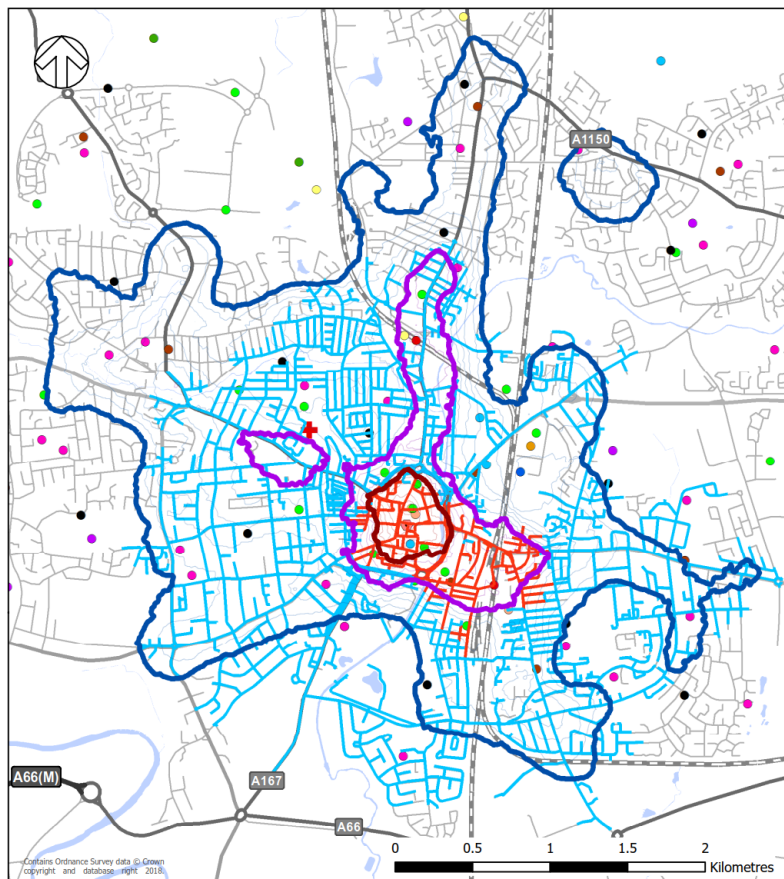
The Tees Valley Walking Network Plans

Figures 20 – 25 below show the Walking Network Plans for Darlington, Hartlepool, Middlesbrough, Redcar and Stockton respectively

Figure 20 – Darlington key walking routes
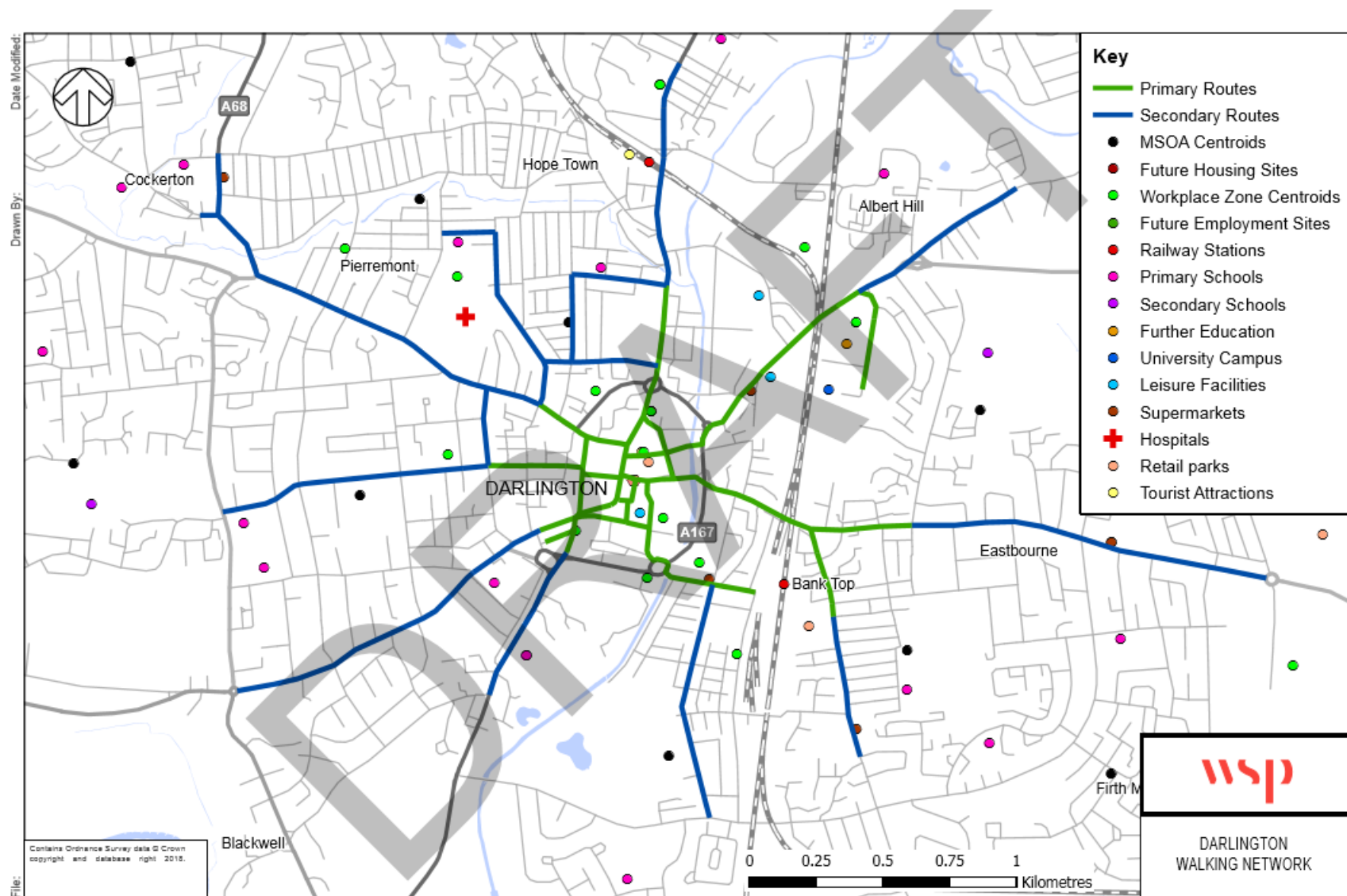
Figure 21 – Hartlepool key walking routes
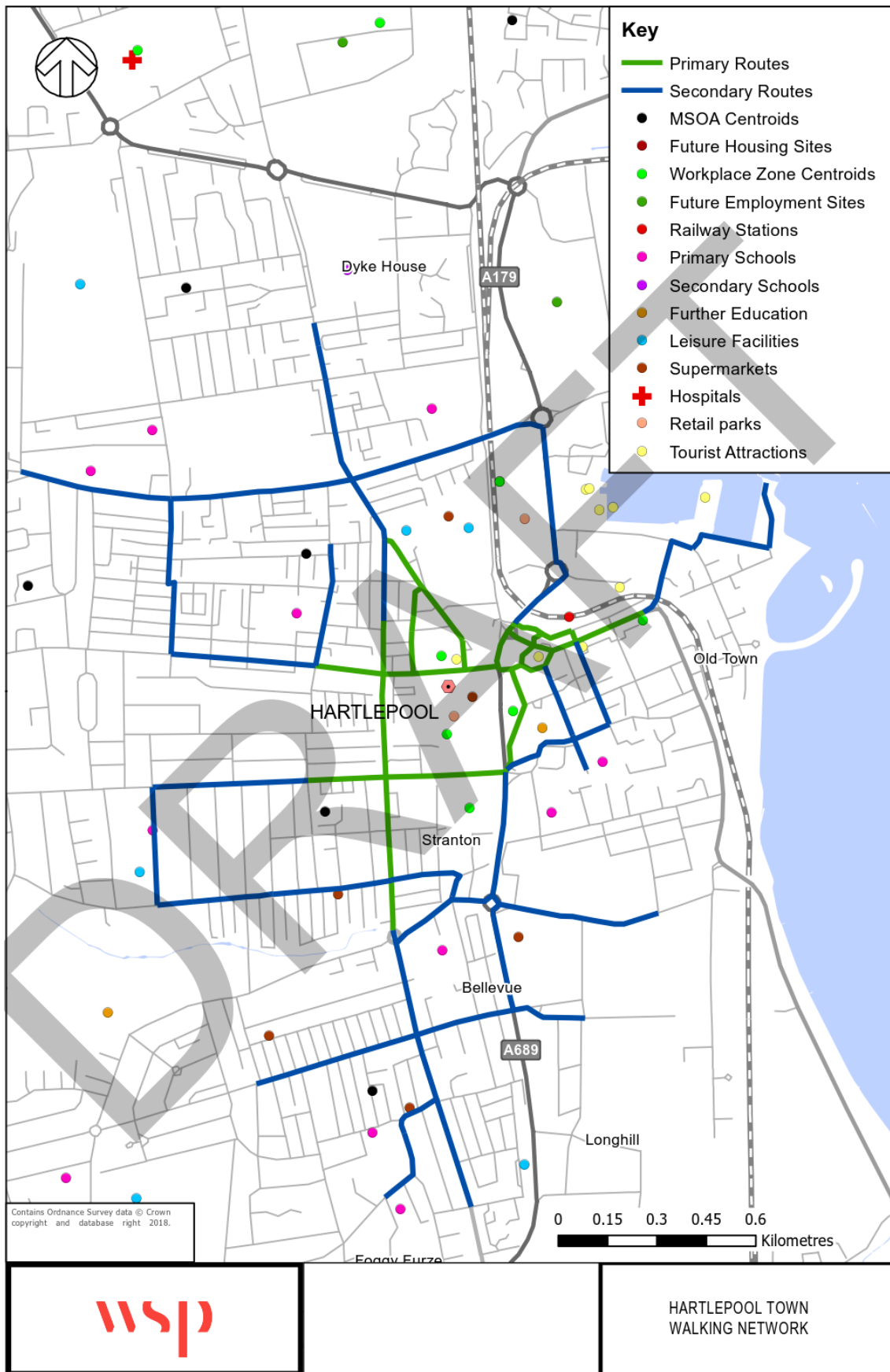
Figure 22 – Middlesbrough key walking routes
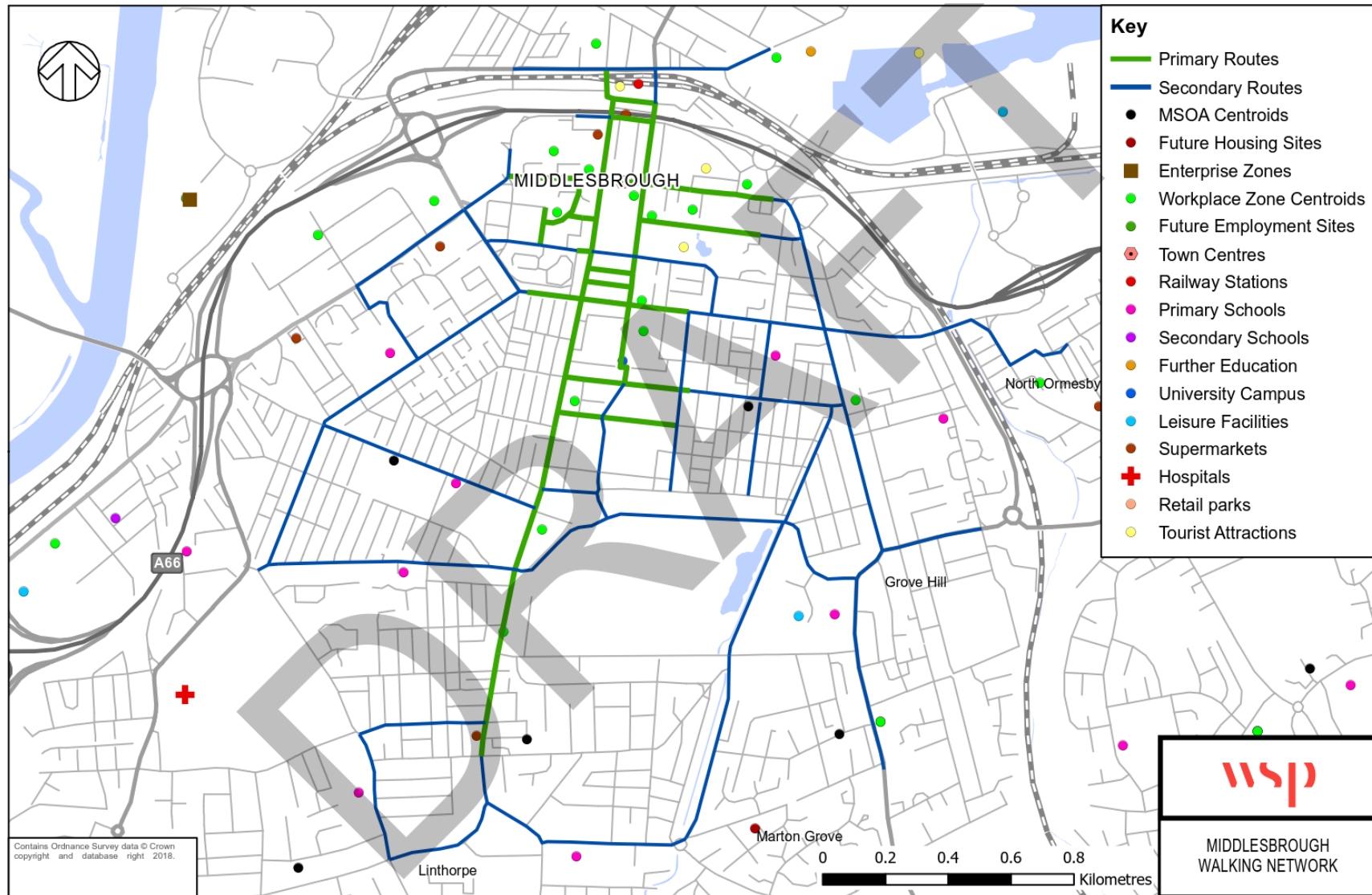
Figure 23 – Redcar key walking routes
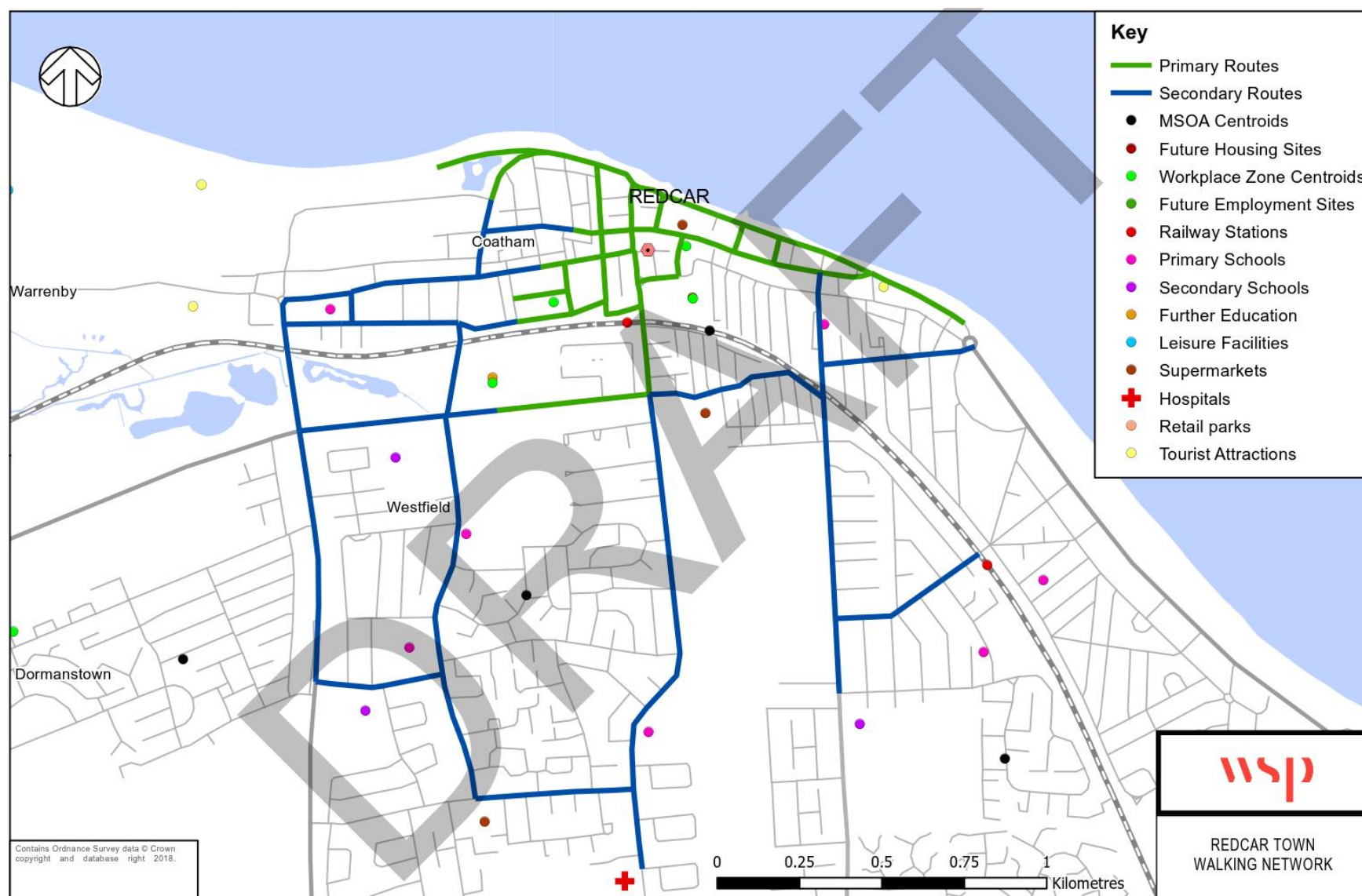
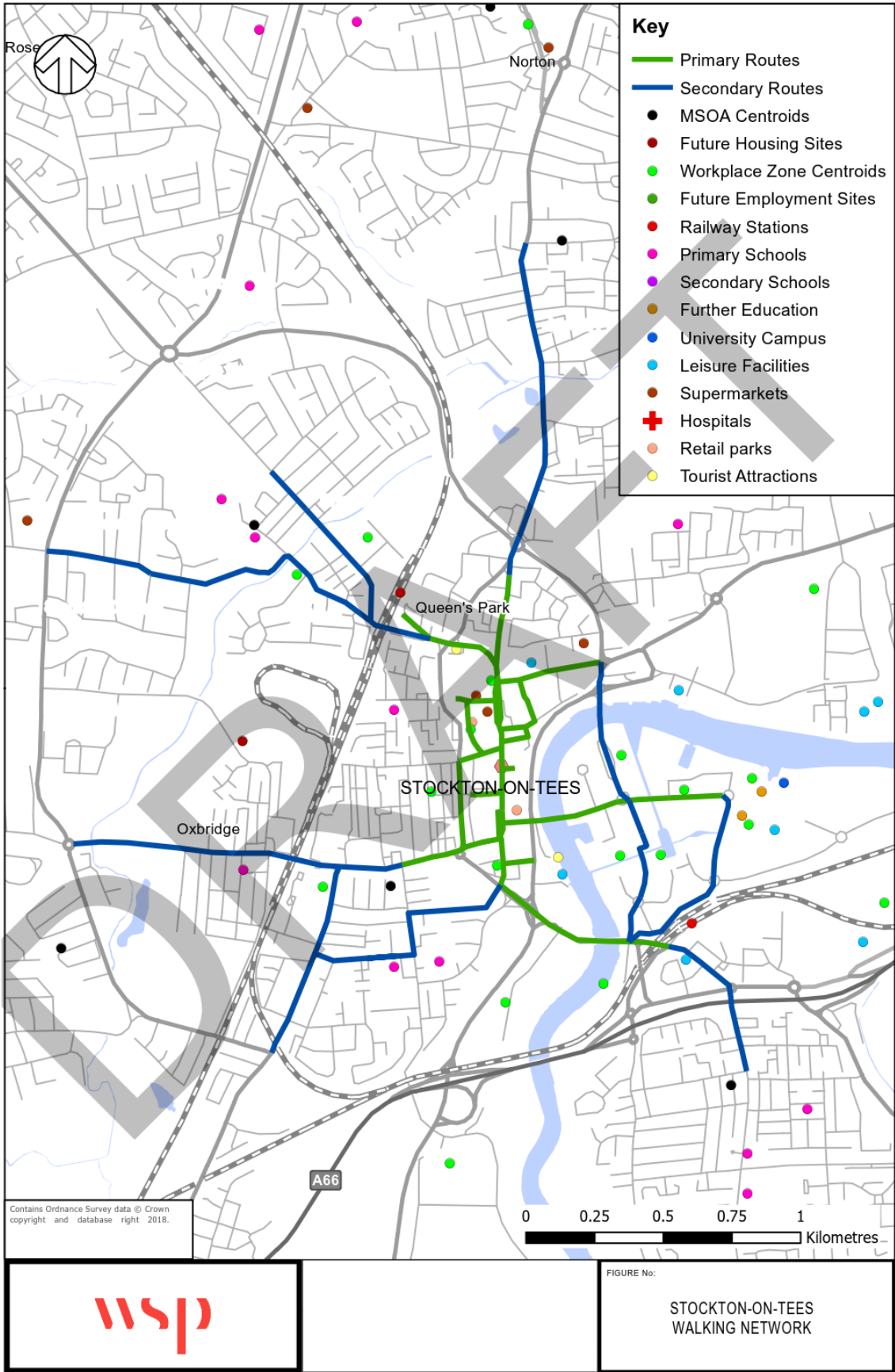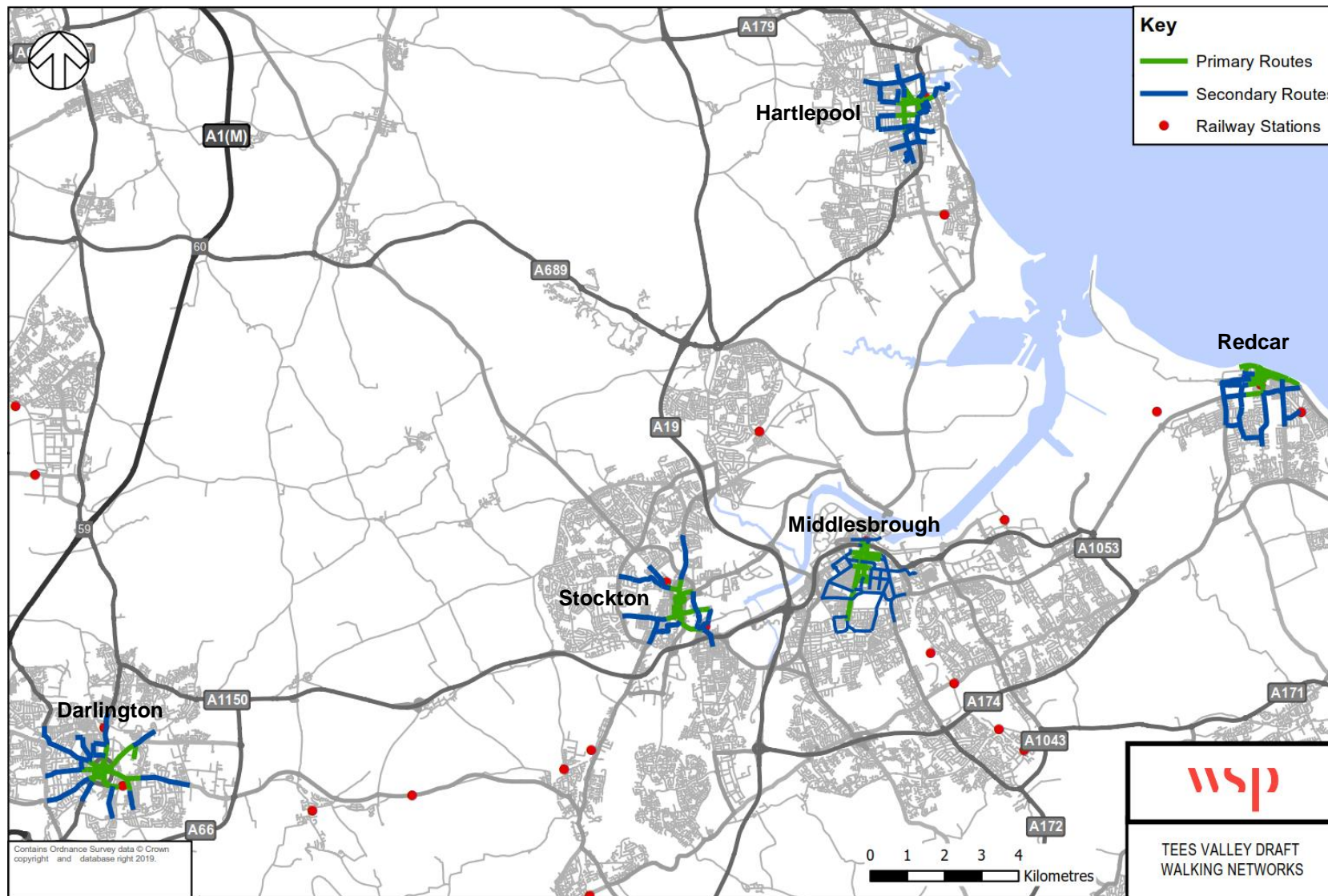**Figure 24 – Stockton Key Walking Routes**

Figure 25 – Tees Valley Combined Authority Walking Networks Plan

LCWIP Stage 5: Prioritising Improvements

The aim of Stage 5 is to develop a prioritised programme of cycling and walking infrastructure improvements for TVCA.

Step 1 - Identifying a Long-list of Priority Corridors

A longlist of corridors was identified for potential prioritisation and further development for each Borough following a review of the evidence by the Transport Planning Officers Group. These corridors were identified based on existing or potential demand and other objectives such as economic development or addressing accident hotspots.

The long list of corridors will be used to identify further schemes beyond those identified as the initial priority corridors. This list will be reviewed on a regular basis as some corridors may become less desirable and new corridors may need to be added in depending on where development occurs.

The rationale and alignment for each of the identified corridors in the long list is provided in the following tables and figures.

Hartlepool Priority Corridors – Long List

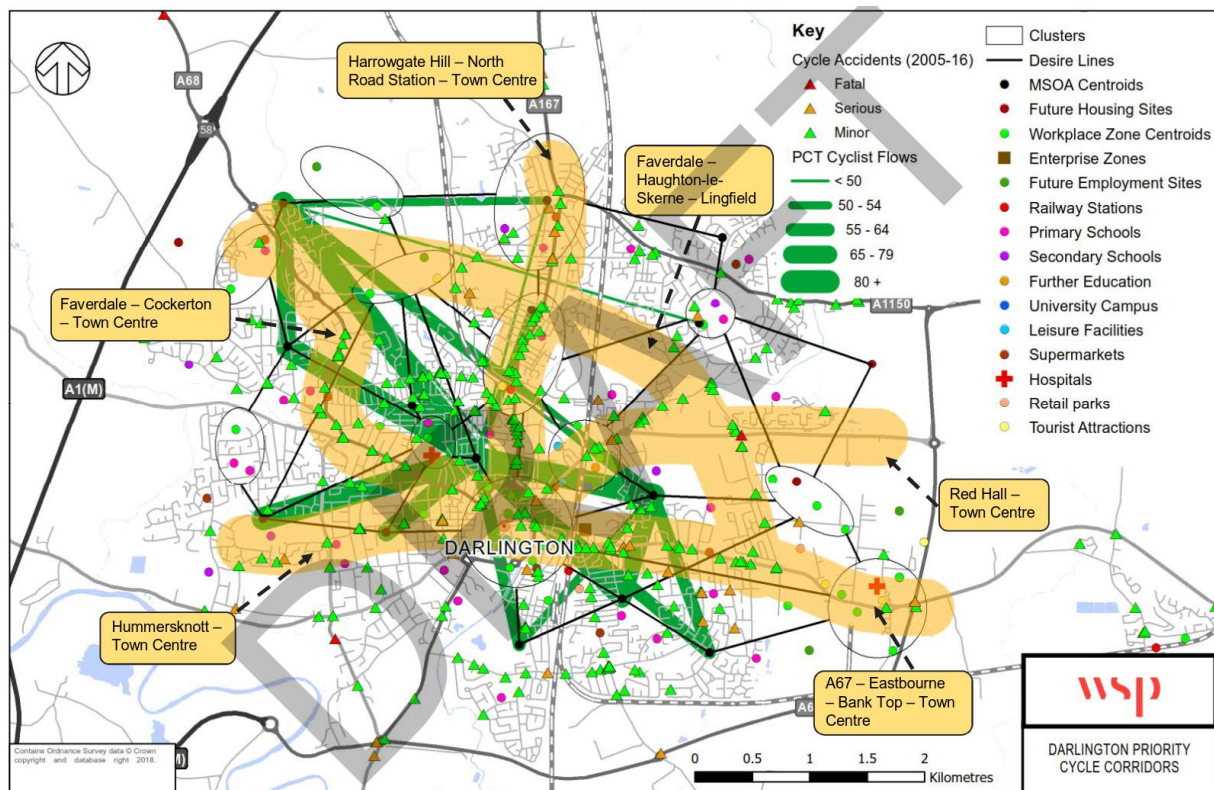| Corridor	Rationale
Town centre to Wolviston via Queens Meadow	• PCT forecasts show potential for growth in cycling demand from the south of Hartlepool. • The corridor connects residential areas, including future developments in south west Hartlepool and Wynyard, to key employment locations such as Queens Meadow and Park View Industrial Estate. • There were > 40 cycle accidents (2 fatal) recorded between 2005 and 2016 along the corridor, demonstrating current usage and a need for better safety. • Connect with recently completed cycling scheme on the route, supported under LGF programme.
Town centre to West View and Hart MSOAs	• Link to new residential development to the northwest of Hartlepool town centre, at present there is no existing cycle network to connect to the site. • Support Route 14 which provides excellent connectivity from north-south Hartlepool, and is expected to be a popular route for tourists. • Highest growth potential for cycling is to the north of the town centre.
Town centre to Seaton Carew	• High cycling potential shown in PCT analysis. • Multiple large employment sites along the corridor, including Park View Industrial Estate.
Town centre to West Park	• PCT projections show high cycle flows from the west of Hartlepool into the town centre. • Connects to residential development to the west of the town. • There are several serious cycling accidents within the corridor.
Town centre to the Headland	• PCT projections show high cycle demand potential to the north and north east of the town centre. • Improve access to employment at Hartlepool port. • Supports tourist attractions around Hartlepool Marina.

Figure 26 – Hartlepool Priority Corridors Plan

Darlington Priority Corridors – Long List

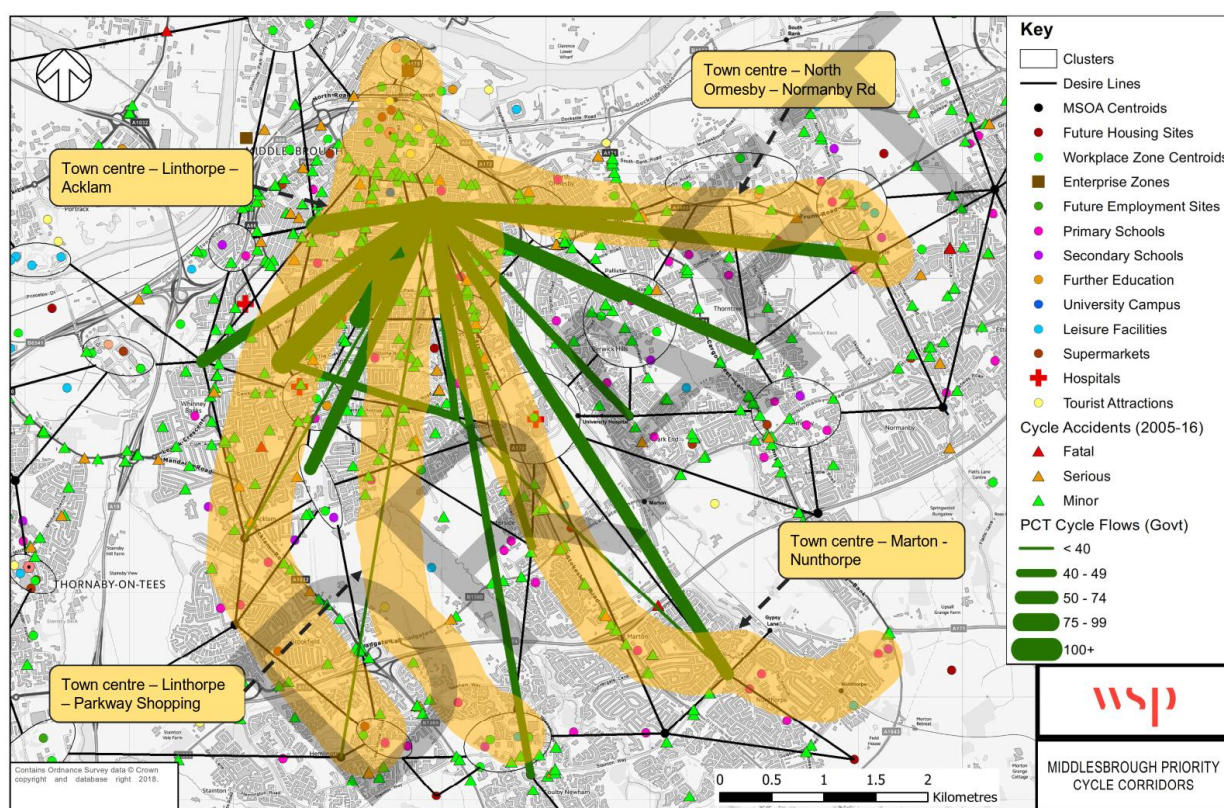| Corridor	Rationale
Darlington town centre to the east of the town as far as the A66	• Significant existing and planned housing and employment sites. • Areas of deprivation immediately to the east and northeast of the town centre. • Under the Government Target scenario there is expected to be large growth in cycling, focussed on the town centre with an increase in trips between here and Eastbourne and Haughton-le-Skerne.
Darlington town centre to Faverdale	• Significant existing and planned housing and employment sites. • There is a reliance on the private car for short commuting trips. • Under the Government Target scenario there is expected to be large growth in cycling focussed on the town centre with an increase in trips between here and Faverdale.
Town centre to Harrowgate Hill	• Large number of cycling accidents along the A167, indicating potential demand.
Town centre to Hummersknott	• PCT projections show high cycle demand from Hummersknott to town centre.
Town centre to Red Hall	• Connects to significant future development sites to the east of the town.
Faverdale to Lingfield via Haughton	• PCT analysis finds significant potential cycling demand for cross-town trips. • Provides an alternative route to those via the town centre.

Figure 27 – Darlington Priority Corridors Plan

Middlesbrough Priority Corridors – Long List

Corridor	Rationale
Middlesbrough town centre to Acklam	• Connect large residential development due to be completed south of Acklam to the town centre. • Government Target forecasts a large growth in trips to the town centre, most notably from MSOAs to the south west, such as Linthorpe and Acklam.
Middlesbrough town centre to Normanby Road	• Areas within the top 5% most deprived nationally and are in close proximity to Middlesbrough town centre, where there are employment opportunities and transport interchanges which provide regional connections. • Significant cycling potential to these MSOAs, and cross-boundary trips under the Government Target scenario.
Middlesbrough town centre to Nunthorpe	• PCT projections show high cycle demand from Marton and Nunthorpe to the town centre. There are also several strategic residential development sites in Nunthorpe. • Connections to James Cook Hospital, which is a significant trip attractor. • Large number of cycling accidents along the A172, and so need for improvements or alternative cycle route.
Middlesbrough town centre to Parkway Shopping Centre	• Relatively high potential for cycling identified in the PCT analysis. • Significant residential developments in proximity to the Parkway Shopping Centre.

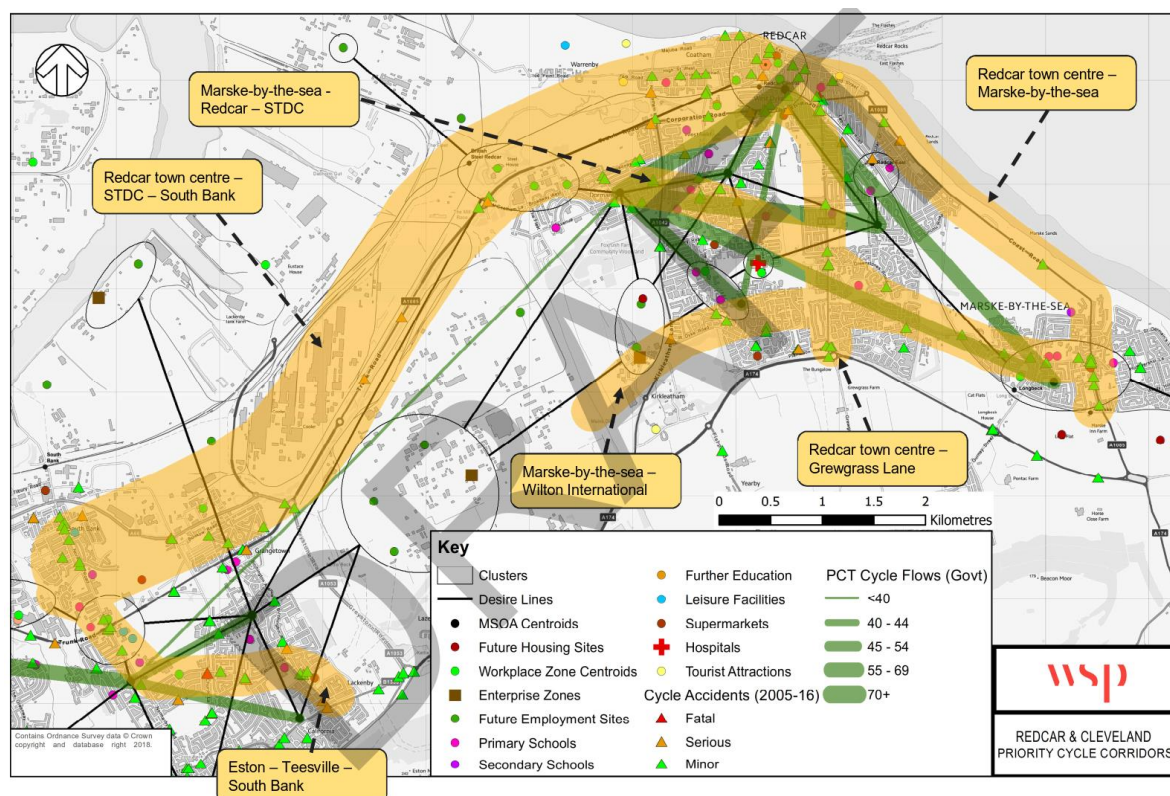**Figure 28 – Middlesbrough Priority Corridors Plan**

Redcar & Cleveland Priority Corridors – Long List

Corridor	Rationale
Redcar town centre to South Bank	• Improve cycling access to strategic employment sites within the South Tees Development Corporation, from areas such as South Bank and Grangetown, which are within the top 5% most deprived LSOAs in England. • PCT projections show highest cycle flows to be from the residential areas to the STDC and associated employment sites.
Old Lackenby to Skippers Lane Industrial Estate	• High potential cycling demand projected in PCT from residential areas of Old Lackenby, Eston and Teesville to employment sites surrounding South Bank. • One fatal and several serious cycling-related accidents along roads within the corridor.
Marske-by-the-sea to STDC	• PCT projections show high cycle flows from the residential areas of Marske and south Redcar to the STDC. • Connects intermediate trip attractors, such as Redcar Primary Care Hospital.
Marske-by-the-sea to Wilton International	• High cycling demand forecast in PCT to the MSOA that includes Wilton International and Kirkleatham Business Park.
Redcar town centre to Marske-by-the-sea	• PCT demonstrates potentially high cycling demand between the towns. This is likely to increase with future residential developments to the south of Marske. • Support local tourism routes along the coastline.
Redcar town centre to Grewgrass Lane	• Possibility of significant cycling demand from residential areas of Redcar east. • Severance by the racecourse separates residential areas of Redcar east from the NCN 1 route. Therefore this is a supporting north-south corridor. • Several cycling accident clusters along Redcar Lane.

**Figure 29 – Redcar & Cleveland Priority Corridors Plan**

Stockton Priority Corridors – Long List

Corridor	Rationale
Stockton town centre to Norton High Street	• Significant residential development immediately to the north of the town centre. • There is a reliance on the private car for short commuting trips. • PCT forecasts show potential growth in north-south routes to the city centre, particularly towards Norton, rather than east-west.
Norton to Billingham	• The A19 poses a barrier to cyclists between Stockton and Billingham, and as such creates severance. Therefore the potential cycling demand might be greater than that forecast in PCT, which uses the low existing flows. • Clusters of cycling accidents at the grade-separated junction of A19 and A1027, and thus there is a safety issue that should be addressed.
Stockton town centre to Thornaby	• Connection between primary service centres in the borough, between which there is relatively high cycling demand forecast in PCT. In particular, there are significant education and employment opportunities in Teesdale Business Park and the surrounding area. • Improve access to Thornaby station from residential areas to the south. • Large number of cycling accidents along the corridor, with clusters of serious accidents.
Stockton town centre to Ingleby Barwick	• PCT analysis finds significant potential cycling demand from Ingleby Barwick to the town centre. There are also important intermediate trip attractors, including Preston Farm Industrial Estate and Business Park.
Stockton town centre to Yarm	• Potential for high cycling demand from Yarm and Eaglescliffe to Stockton town centre identified through PCT. • Several accident clusters along the A135, and therefore safety issues along existing routes.
Stockton town centre to Fairfield	• Multiple MSOAs to the west of the town centre which are largely residential areas, that are highlighted in the PCT analysis as possibly having high cycling demand. • Provide improved cycling access for new residential developments on Yarm Back Lane.
Stockton town centre to Roseworth	• Significant cycling demand identified in PCT between Roseworth and the town centre. • Improve connections to University Hospital of North Tees and Stockton train station. • Support access to employment opportunities from deprived areas to the north west of Stockton. • Constraints along the existing main route, including narrow road space at several location, represent barriers to cyclists.
Billingham to Haverton Hill	• Connecting large residential areas to significant employment sites, such as Cowpen Bewley and Haverton Hill. • Low car ownership levels in Billingham, and thus cycling might represent a feasible travel option. • High potential for cycling identified in the PCT analysis. • Improve access to Billingham town centre and train station.
Wynard to Cowpen Bewley	• PCT projections show high cycle demand potential. • Connecting large residential areas to significant employment sites, such as Cowpen Bewley and Haverton Hill.
Billingham to Middlesbrough town centre	• These locations are geographically close, but there is severance caused by the River Tees. This is likely to result in supressed demand for cycling.

Figure 30 – Stockton Priority Corridors Plan
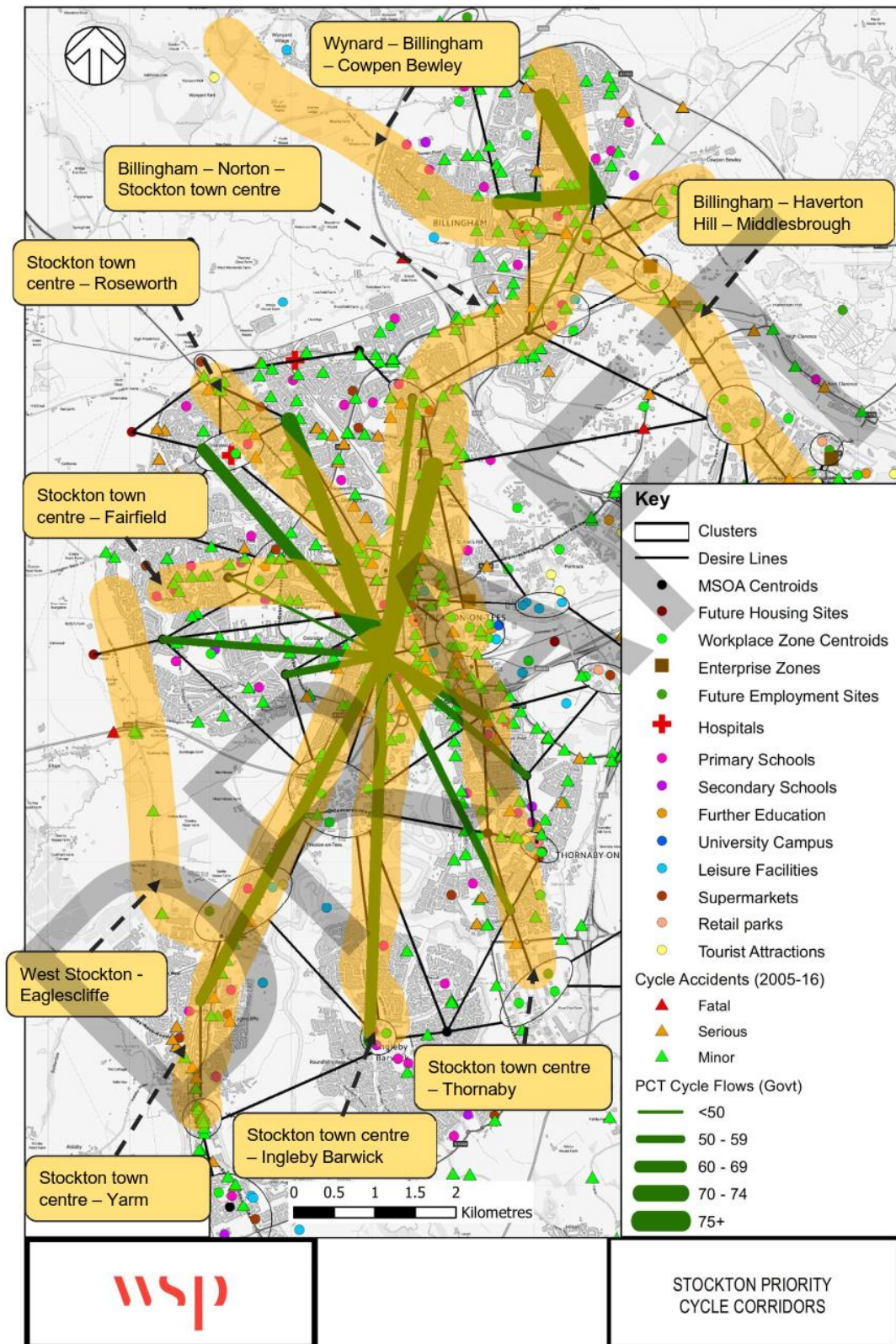
This long list of schemes was sifted, and a shorter priority list was created. This is covered in Stage 5.

Step 2 - Creating a Short-list of Priority Corridors

A shortlist of corridors will be identified for further development in the short-term.

It was also agreed that these separate cycling and walking interventions would not be considered in isolation. Thus is was proposed that corridors should be approached as active travel routes considering both potential cycling and walking interventions.

Step 3 - Establishing Infrastructure Improvements for Priority Corridors

Within each indicative corridor there will often more than one potential route option that could be taken forward for development. Therefore, the Route Selection Tool will be used to select the preferred route. Preferred routing options will be taken forward for further development and costing.

Step 4 -Corridor Assessment

A prioritisation framework has been developed to assess the corridors against the following:

- Effectiveness – the impact on the desired outcomes;
- Strategic fit – delivery against strategic objectives and alignment with local policy;
- Economic – infrastructure cost estimates, value for money and potential funding sources; and
- Deliverability – current stage of development and land ownership constraints.

A number of assessment criteria were identified under each of these four key themes. These will be applied to select the schemes to take forward for delivery.

LCWIP Stage 6: Integration and Application

Programme of interventions

In 2020 further design work will be carried out on each of the priority corridors which will identify which schemes and phases can be brought forward soonest. Once detailed designs are created the priority corridors will be assessed again for their effectiveness, strategic fit, economic and deliverability as set out in the LCWIP guidance.

Integration

To ensure the success of the LCWIP, consideration has been given as to how the plan is integrated with other local policy, strategy and plans covering transport, leisure and environment.

Figure 32 shows how the LCWIP fits with the local strategy and policy context.
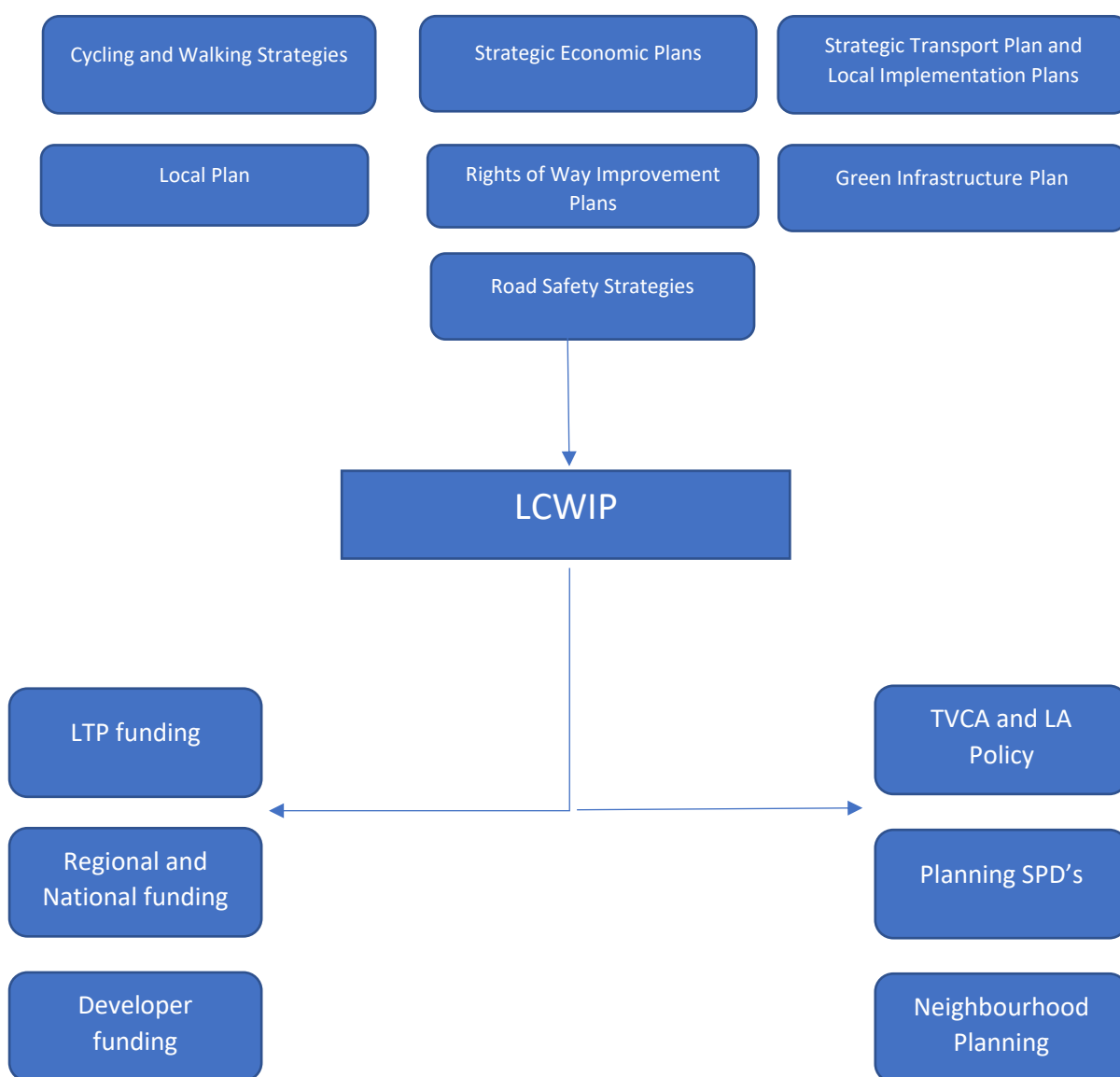
The LCWIP will form the delivery programme of the Walking and Cycling Strategy which is a daughter document of the Strategic Transport Plan. The LCWIP will also feed into each of the Local Authority's Local Implementation Plan and the LCWIP will be available to provide an evidence base that can be referenced in neighbourhood planning and other local plans such as area travel planning.

LTP Integrated Transport Funding is used to improve the network for non-motorised users and the LCWIP will be used to inform the use of this funding. The LCWIP priority corridors will also be used to inform the footway and cycling hierarchies of the Asset Management network, giving weight to maintenance decisions when setting the LTP capital maintenance programme.

For larger schemes the authority will be dependent on the availability of national funding opportunities, it is anticipated that by having completed the LCWIP process this puts the authority in a stronger position to be eligible if funding becomes available.

Reviewing and updating the LCWIP

In line with other transport plans, it is envisaged that the LCWIP will need to be reviewed and updated approximately every four to five years to reflect progress made with implementation. LCWIPs should also be updated if there are significant changes in local circumstances, such as the publication of new policies or strategies, major new development sites, or new sources of funding.

Monitoring and Evaluation

A monitoring and evaluation plan will be developed for each route as it is progressed. For a route the plan will set out the following information:

- data requirements for collection
- how data will be collected
- when data will be collected
- sample size requirements
- outputs for the scheme
- key outcomes for the scheme
- lessons learned for improving future schemes

As routes begin to develop into a network, monitoring and evaluation plans will build in analysis of the potential benefits of a network approach. Evaluation findings will inform designs of future routes being developed.