

What are the barriers to sustainable transport in Dorking?

SUB QUESTIONS:

- 1) What is the extent of existing cycle infrastructure, and does this limit further modal shift?
- 2) Why isn't the current alternative public transport offering not used by more people?
- 3) What are the perceived barriers to cycling from the satellite villages to Dorking?
- 4) Mole Valley Cycling Forum: 20 years of progress?

Thomas Harrington

Contents:

Introduction	2
History & Location:	4
Literature Review	9
Methodology:	16
SUB QUESTION 1:	20
Cycle Stands	20
Cycle Lanes & Tracks	25
Advanced Stop Lines	31
SUB QUESTION 2:	33
What is the existing public transport service?	33
Why do few people use public transport today?	37
Conclusion	37
SUB QUESTION 3:	39
Estimation of potentially cyclable journeys	46
Conclusion:	49
SUB QUESTION 4:	50
What progress has been made since 2000 to cycle infrastructure in Dorking?	51
Conclusion:	55
Evaluation:	58
Appendices:	60
Bibliography:	73

Introduction

As the UK emerges from lockdown due to the Covid-19 pandemic, the UK has a unique 'opportunity to transform the transport system to facilitate economic growth, meet legal obligations around carbon emissions and air quality, and tackle social exclusion.'^[1] . The government had already pledged a considerable amount of money in the December 2019 election campaign to improve bus services and encourage more active travel (primarily walking and cycling)^[2], whilst train travel was at record high levels in the country and more investment is promised for the industry. But further changes to the way society moves will be needed to make cities and lifestyles more sustainable to combat the climate crisis and meet the UN Sustainable Development Goals (SDGs).

The UN defines sustainable transportation as achieving "better integration of the economy while respecting the environment, improving social equity, health, resilience of cities, urban-rural linkages and productivity of rural areas" ^[3] Working with World Bank the IGOs (inter-governmental organisations) aim to create sustainable mobility for all to fulfill the SDGs by 2030. The Netherlands is often heralded as the champion of sustainable transportation, with many global cities aspiring to become similar in the long term.

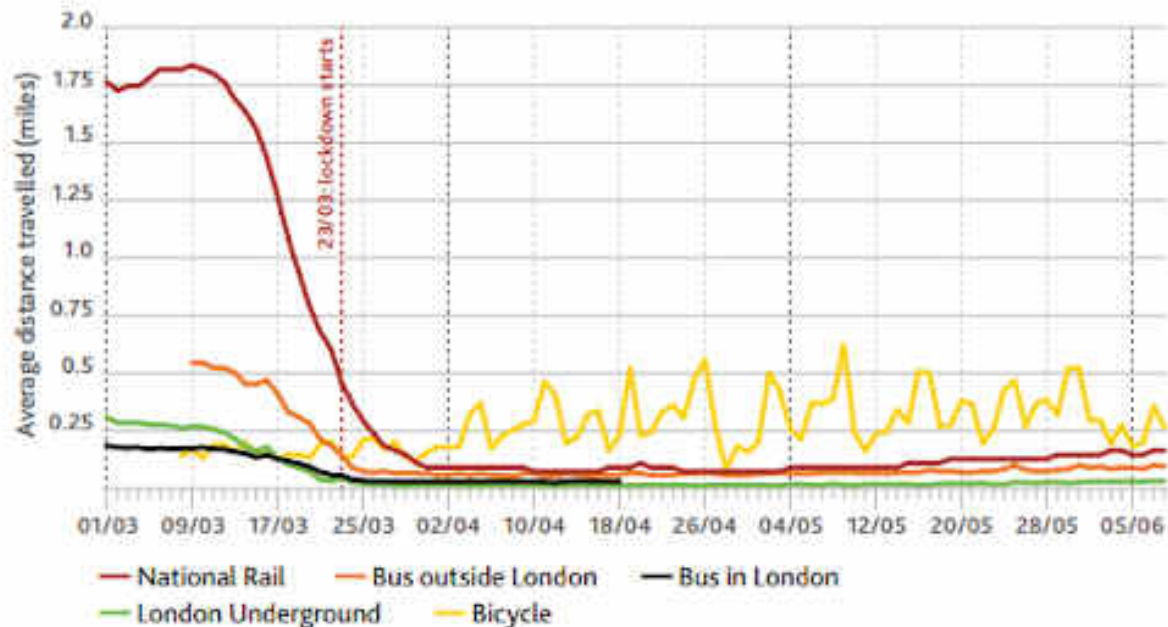
Despite the huge economic impact of the pandemic, it did bring many unforeseen benefits. Car journeys slumped to around 35% of pre-lockdown traffic, so many people used the unusually mild and sunniest spring on record ^[4] to enjoy the quiet roads by bicycle. This slump in road, rail and air traffic movements ^[5] caused lower levels of air, particulate and noise pollution, all which encouraged more people and families to find their bikes and get out. Bike shops were classed as essential business, so were allowed to remain open. They experienced record sales of new parts and bikes, particularly low cost cycles and e-bikes as people found their love of the sport for entertainment and exercise. Workshops prioritised maintenance of key workers' bikes, although the sheer demand on the supply chain and lower component production levels caused a severe backlog of work at many shops across the country. ^[6]

However, the pandemic caused public transport patronage to collapse as people were urged to stay at home and the bigger health risks of traveling with others in a confined space deterred those who needed to make essential journeys.

With the perceived health risks, there is a real concern that many people will revert to car dependency. Many people continue to view public transport as 'dirty', particularly as people return to commuting patterns for work and education. This is despite research by the RSSB (Rail Safety & Standards Board) and German rail operator Deutsche Bahn finding the chance of contracting Covid-19 on trains 1 in 11,000 ^[7]. If the UK follows a similar trajectory to Wuhan, China, where the virus emerged and car ownership doubled when lockdown restrictions were eased, the UK road network would be overwhelmed. The existing road network has struggled to cope with previous peak demands in some places; in the last 50 years car ownership levels have increased hugely yet the road network has not developed at the same pace. As well as the pollution problem, increased road traffic may cause a further negative feedback loop as busy roads discourage new more cautious cyclists from continuing to ride, back to more unsustainable transport modes. Road congestion costs the UK huge sums each year due to

wasted time and productivity. [8] Yet any road enhancement scheme will be far more costly to the taxpayer than a high quality cycle infrastructure network [9], and could face similar

Figure: 1 Graph showing average distance travelled, per person, per day, by mode of travel (excluding motor vehicles) in Great Britain, since 1 March 2020.



challenges to expanding Heathrow as climate change activists bring these schemes to a halt because it would not meet the UK's net zero CO2 emissions by 2050 law. [10] So for road users it seems like there will be little quick improvement unlike the pop-up bike lanes in major cities that were introduced to allow for social-distancing. [11]

[1]https://bettertransport.org.uk/sites/default/files/research-files/Covid_19_Recovery_Renewing_the_Transport_System.pdf

[2]https://www.bbc.co.uk/news/uk-politics-51453457?intlink_from_url=https://www.bbc.co.uk/news/topics/cjmzgwm35xkt/cycling&link_location=live-reporting-story

[3]<https://sustainabledevelopment.un.org/topics/sustainabletransport>

[4]<https://blog.metoffice.gov.uk/2020/05/29/spring-2020-the-sunniest-on-record-in-the-uk/>

[5]<https://www.bbc.co.uk/news/science-environment-52113695>

[6]https://www.bbc.co.uk/news/uk-northern-ireland-52878033?intlink_from_url=https://www.bbc.co.uk/news/topics/cjmzgwm35xkt/cycling&link_location=live-reporting-story

[7]<https://www.railmagazine.com/news/network/1-in-11-000-chance-of-contracting-covid-19-on-trains>

[8]<https://www.ceca.co.uk/wp-content/uploads/2018/11/Cebr-CECA-report-The-Social-Benefits-of-Infrastructure-Investment-FINAL-December-2018-compressed.pdf>

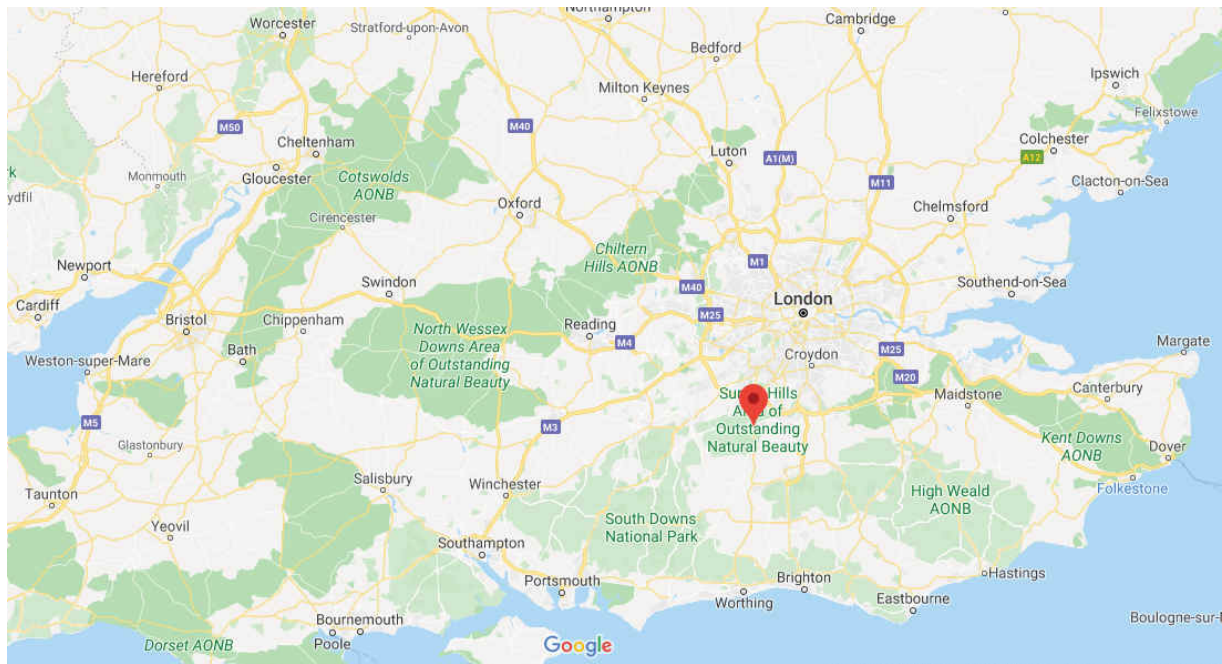
[9]Myth 9

<https://www.sustrans.org.uk/media/5224/common-misconceptions-of-active-travel-investment.pdf>

[10]https://www.bbc.co.uk/news/business-51665682?intlink_from_url=https://www.bbc.co.uk/news/topics/c48yr98919yt/heathrow-airport-expansion&link_location=live-reporting-story

[11]<https://www.bbc.co.uk/news/uk-52600708>

Figure 2: Map of Dorking in the Surrey Hills AONB. See insets on page 7 & 8



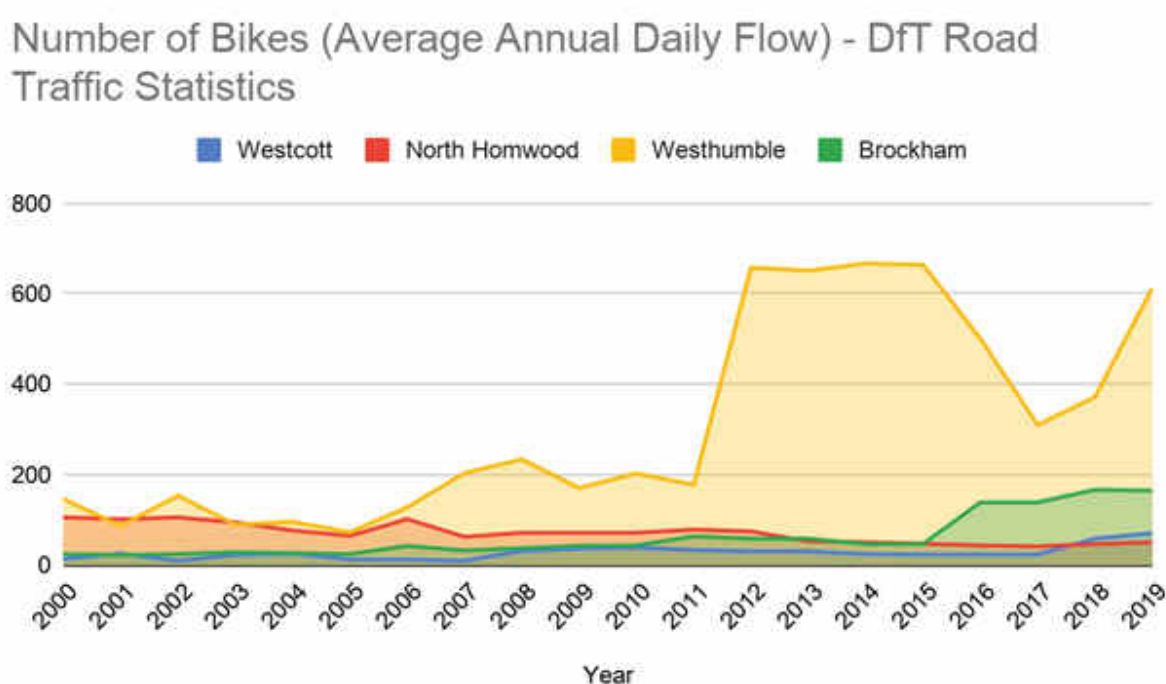
History & Location:

This investigation is going to assess the barriers to more sustainable transport in the town of Dorking, in particular why residents of local village communities do not cycle into the town. Dorking was chosen as it was a suitable size for this investigation and the town also faces similar challenges to the rest of the UK in achieving modal shift

Dorking is a small market town of a population of 12,000 located in the Surrey Hills Area of Outstanding Natural Beauty (see **Figure 2:**) 21 miles south of London. The London 2012 Olympics made the town, which is located between the North Downs and the Greensand Way (see **Figure 3:**), famous for cycling. The town started as a Roman rest point and marketplace on Stane Street, allowing locals to trade the local 5-toed chickens, which still form part of the town's identity today. Arrival of the railways in the town in the 1850s meant people could now commute to London, but the set-up of the green belt in 1955 has meant the town has not grown exponentially, keeping its market town feel. Today, after the success of Team GB in the 2012 Olympics and other high profile cycle race events (such as the Tour de Britain and the annual Prudential Ride London) which passed through the town, the area has become a magnet for cyclists (See **Figure 4:**) from across the south-east with some good cycling routes both on and

off road. The fame from such events draws many tourists from London, as it is well connected by rail, as well as from further afield, to climb the iconic Zig-Zag road up Box Hill. Cycling has become more popular and now is arguably a stronger image of the town's identity than the chicken breed once was; there is a roundabout on the A24 dedicated to each with large statues (see **Figures 5a & 5b**).

Figure 4: Area line chart showing the increase in cycling after Team GB success in the London 2012 Olympics for the cycle routes from studied villages to Dorking



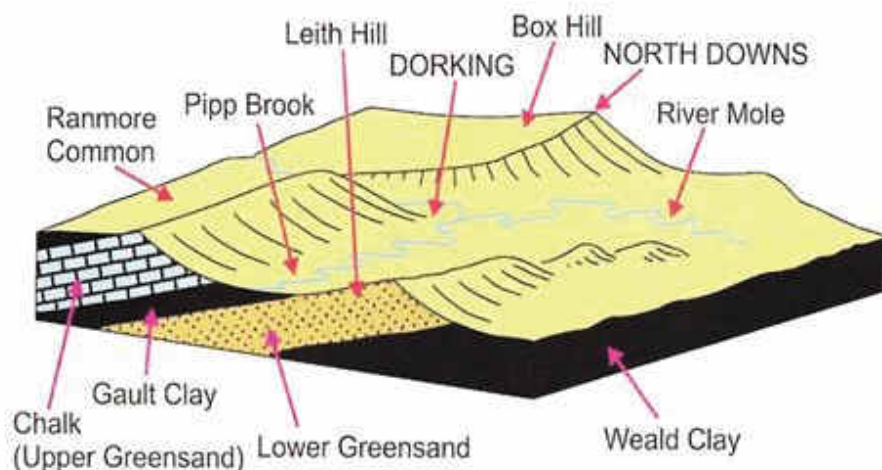
Brockham is a village approximately 1.5 miles east of Dorking on the River Mole with a population of just under 3000. The village is centred around its picturesque village green, which hosts the popular annual Bonfire. Housing developments stretch along both banks of the River Mole, south towards Strood Green and north towards the A25, where large playing fields owned by the National Trust dominate. This protection of green spaces has meant the village, only 25 miles away from central London, has retained an idyllic countryside feel that other nearby villages have been unable to replicate. Road speed limits are capped to 30mph on nearby lanes as it is within the Dorking Box zone, a rural area between the A24, A25, A264 and A217 where the speed limits have been lowered to discourage the minor roads being used as a short-cut to the main A roads.

Westcott lies on the A25, approximately 1.5 miles west of Dorking town centre and on the Pippbrook, a tributary of the River Mole that drains from the Greensand Hills. It has a population of around 2,300 which has grown rapidly with more recent, yet compact housing developments. The village has a small green and was mentioned in the Domesday book of 1086 as being a place for traders to sell local produce. The green belt status of the area has meant the urban sprawl of Dorking has not spread to consume Westcott into a suburb of the town. Today the village is used as a starting point for many mountain bike riders heading off into the relatively sparsely populated forested hills that surround the village, and the National Cycle Network Route 22 passes through.

North Holmwood is a village to the south characterised by a large housing estate built in the former clay pit for the Dorking Brickworks. It is well connected to Dorking through the regular 93 bus service and has easy access to the A24 Dorking bypass. Arguably it is now just a suburb of Dorking as growth of housing estates at the neighbouring Goodwyns and Chart Downs has meant there is now no 'green' undeveloped gap.

Westhumble is the smallest of the villages immediately surrounding Dorking, with a population of just under 1000. Located approximately 1.3 miles north of Dorking town centre it has a long history being on the Pilgrim's Way traveller route, although most houses were built after WW2. It is the best connected of the Dorking satellite villages, with 3 trains per hour from Box Hill & Westhumble station and easy access to the A24 dual carriageway and a half-hourly bus service. There is also a high quality bike track, forming part of the National Cycle Network route 22 that follows the A24 through the Mole Gap.

Figure 3: Diagram showing the complex geology in Dorking. The layers of rock strata that have created the Surrey Hills AONB create topographic barriers to easy active travel.

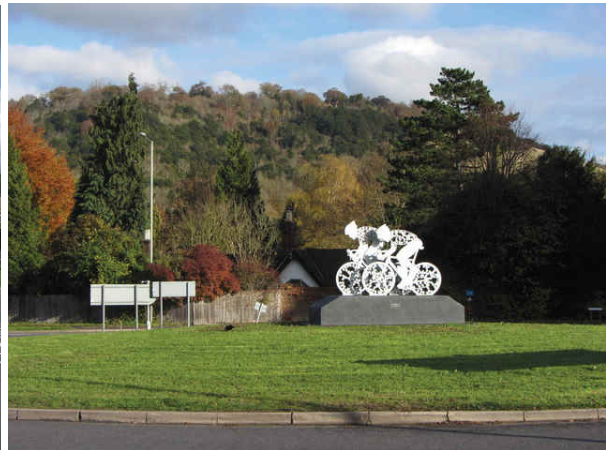


The villages of Westcott, Brockham, North Holmwood and Westhumble all lie at a similar distance from Dorking. Yet small population sizes mean the public transport offering is limited as it would not make economic sense to have higher frequency services over a longer period of the day. (see **Figure 31**:, pg 34) The bicycle is a humble machine that has been around for over 150 years; it can carry 10 times its own weight, is cheap and simple to maintain and ideal for short journeys such as between a village and the town. So this investigation will identify what the main challenges and opportunities are for cycling within the Dorking area. Dorking has been chosen as a location to investigate the barriers to cycling because many people from the villages still commute into town by car despite cycling being a strong part of the area's identity.

Figures 5a & 5b : The Dorking Cockerel roundabout at the A24 / A25 junction to the east of the town centre and the Cyclist roundabout on the A24 / B2038 / Denbies Vineyard junction



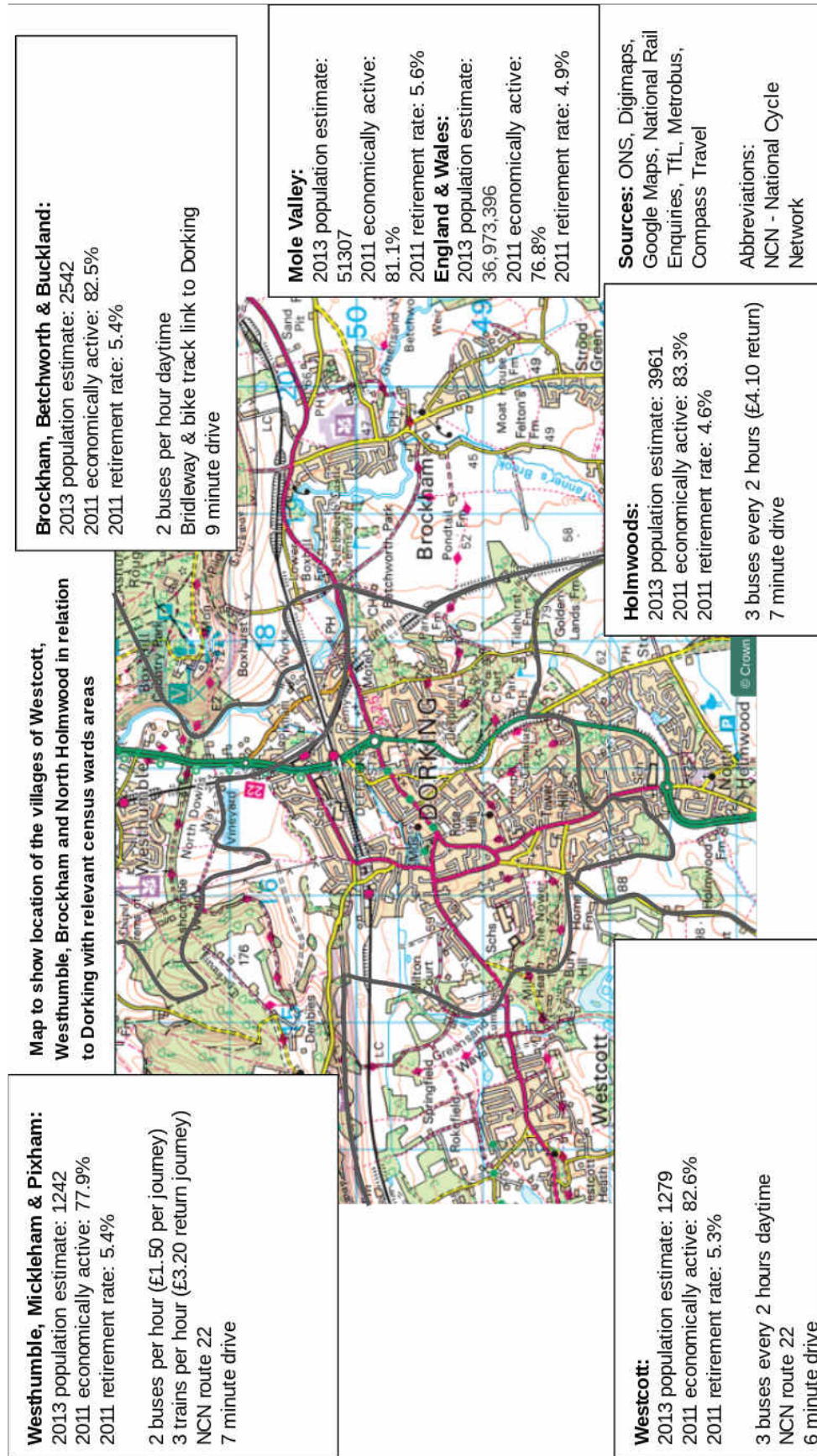
5a



5b



Figure 6: Map of the Surrey Hills Area of Outstanding Natural Beauty



Literature Review

This investigation will focus on the town of Dorking, and despite UK government attempts to increase the percentage of people who actively travel, what barriers remain to more sustainable transport from the satellite villages to Dorking town centre. The proportion of government spending worldwide on cycle infrastructure compared to roads is miniscule and according to the UN Environment Programme, even though the benefits of investing in pedestrians and cyclists can “save lives, help protect the environment and support poverty reduction”, the mobility needs of people who walk and cycle, mostly urban dwellers, “continue to be overlooked”. [12]

Although Dorking has adopted cycling as part of it's identity after the success of cycling events through the town since the London 2012 Olympics, it is notable that the old, narrow one-way system on the western side of the town regularly becomes congested (**Figure 13:**) as there simply are too many road vehicles using the system, because people from the satellite villages primarily use a car to access services within the town.

Sustrans (an amalgamation of sustainable transport) is a UK walking and cycling charity and the custodian of the National Cycle Network; a 16,575 mile long UK wide network of walking and cycling paths (See **Figure 14:**) that pass within a mile of 57% of the UK population. They estimate the network carries

Figure 7: Infographic showing the economic benefits of cycling

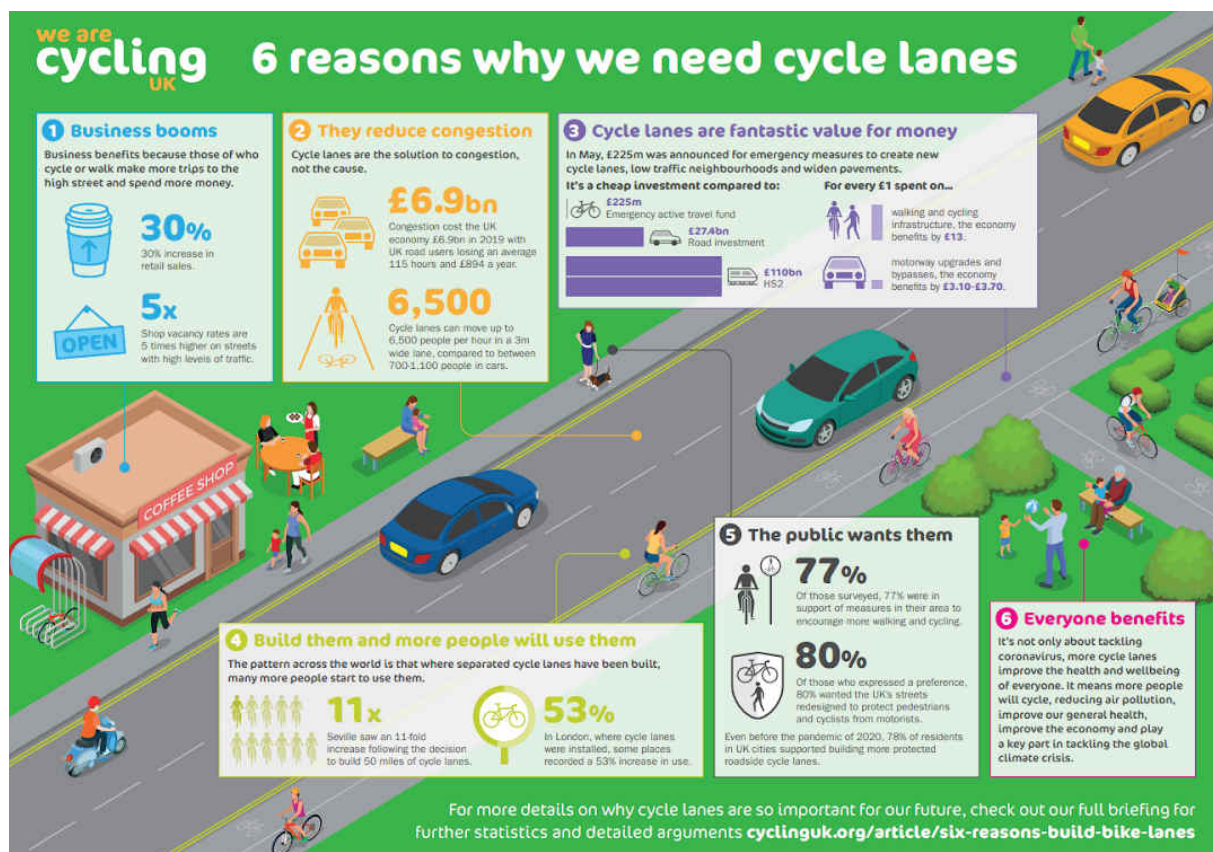
Source: DfT Cycle Infrastructure Design

approximately 4.4 million people on 786 million journeys (2018) which has brought an estimated economic boost of £1.3bn to local businesses through health, congestion relief and environmental benefits. A further £2.5bn is injected into the economy through leisure and tourism on the network, whilst saving £88m through reduced road congestion. [13] The charity's 2018 Paths For Everyone report highlights that it is currently an extensive network, but of varying quality and not accessible for many people, resulting in Sustrans reclassifying or removing parts of the network as they do not meet their own standards due to high motor traffic speeds and volumes [14] . An estimated £2.8bn over the 22 years to 2040 is needed to improve and enhance the network, which



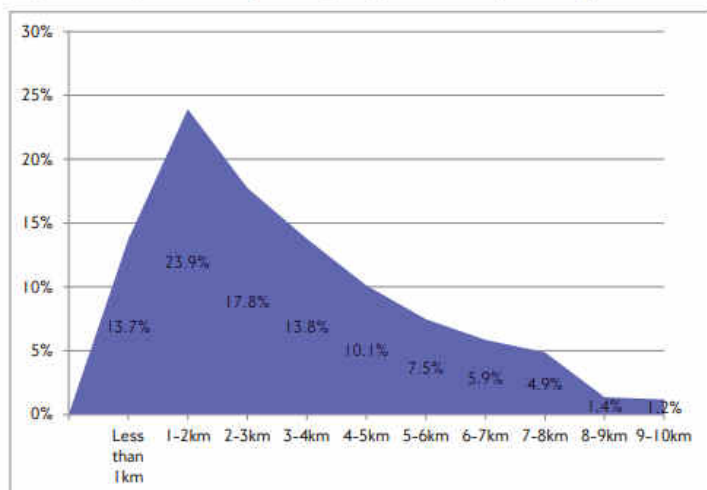
would increase trips from 786 million to 1.6 billion, taking the overall value of the economic contribution (See **Figure 7:**) and wider benefits of the Network to more than £7 billion.[13] Other organisations, such as Cycling UK, have long argued for continued investment into cycling infrastructure due to its large benefits even in normal times (See **Figure 8:**), but the calls for investment have often fallen on deaf ears in the government. The government method of calculating the ‘active travel’ budget disproportionately favours large urban conurbations because greater value for money is achieved. This means that annual spending on walking / cycling routes is £9 per capita in urban areas compared to just £4 per capita for more rural areas. [13]

Figure 8: Cycling UK infographic showing why cycle lanes are needed



Local cycle routes that are not part of the National Cycle Network are often not much more than a fading line of paint to separate a bike lane from the traffic flow, and end abruptly, which discourages many people from cycling as there is no continuous safe route to their destination. Whilst, for those who do ride a bike, signage of routes is regularly confusing, missing or pointing in the wrong direction (see **Figure 10:**). Fears about traffic levels, air pollution and the

associated health issues discourage more people. Nonetheless in 2014, 40% of car journeys were under 2 miles, which could have been as easily walked, and it is these short journeys that release the most air pollution as the ‘catalytic converters to capture pollutants do not work



effectively on trips under 5 miles.’ [16] Work by TfL shows that Londoners currently make 8.17m daily trips by other modes that are potentially cyclable, as over 50% of cyclable trips are under 3km.[17] (See **Figure 9**.)

Figure 9: potential cycle trips by distance (crow-fly), TfL

All these factors contribute to people who cycle 3 times a week in England averaging 5.5% of the population, which is significantly lower than many

of our European counterparts where the modal share of cycling for transport is up to 27% in the Netherlands. (See map in Appendix 9) [18] It must be noted that the climate and topography favours cycling more on the continent than in the UK, but the main reason is a lack of a coherent planning system where the bicycle is given equal priority in road space allocation to the motor vehicle. A report by Transport for New Homes shows how cars have dominated planning of new so-called ‘garden village’ developments, forcing residents into a car dependent lifestyle as it is simply not practical to walk or cycle to services. [19] The political ideologies of the Conservative government are a key factor, and data shows that it is more likely that cycle infrastructure will be built in non-Conservative voting constituencies as there is less opposition protecting the motorist.



Figure 10: Confusing cycle route signage at the A24 Denbies, facing north. Many signs here have been moved so now point in the wrong direction

Despite the challenging conditions of making cycling accessible for all both before and during the pandemic, cycle sales rocketed up 60% in April in the midst of a nationwide ‘lockdown’ [20] as many found the joys of cycling along the unusually quiet roads. Emergency funding of £250m announced by Transport Secretary

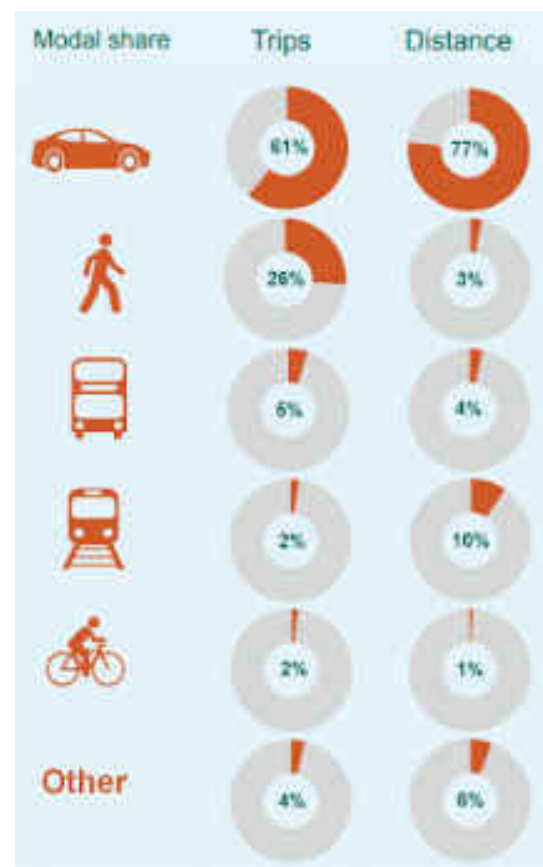
Grant Shapps [21] as part of the government response to Covid-19 gave local councils money to introduce temporary 'pop-up' cycle lanes to help people maintain a social distance and avoid public transport. It remains to be seen if the additional funding announced will be enough to realise the 'golden era' of cycling promised by Boris Johnson [22], although the Gear Change report by the DfT in July 2020 holds lots of hope for active travel to become an integral part of transportation in England, with 12 local authorities to benefit from intensive investment in 'mini Holland schemes.' [23] However, the Guardian newspaper identified at least 6 councils where funded cycle routes were cancelled due to opposition from politicians [24]. Most locally, Reigate MP Crispin Blunt successfully lobbied for a temporary cycle lane on Reigate High Street to be removed just 72 hours into a 3-week trial, citing it would damage already struggling businesses. Work by Sustrans has shown that there are many common misconceptions around investment in cycle infrastructure, but ultimately an increase in cycling helps the local economy and traffic flow more than most people think.[25]

Government schemes, such as Eat Out To Help Out, have succeeded in increasing footfall in town centres to reboot the struggling economy, even where local lockdown and temporary bike infrastructure has been implemented. But the worrying truth in the age of climate change is that car usage has recovered much faster than public transport, which has just touched 20% (July 2020) of pre-pandemic levels, as people see cars as their form of PPE whilst on the move.

The Treasury is not going to give DfT a second bail-out in the eventuality of a second major lockdown caused by a spike in Covid-19 infections, and so large cuts to the public transport network are inevitable as it is not economically sustainable to keep running empty buses and trains. [26] If this happens it seems inevitable that the UK will fail to meet its climate change targets, as more people are effectively forced into higher carbon footprint forms of travel.

Figure 11: Infographic from the 2020 National Travel Survey showing how English people travelled.

Cycling is to be prescribed on the NHS as a way of tackling obesity (a factor in increased mortality rates from Covid-19)

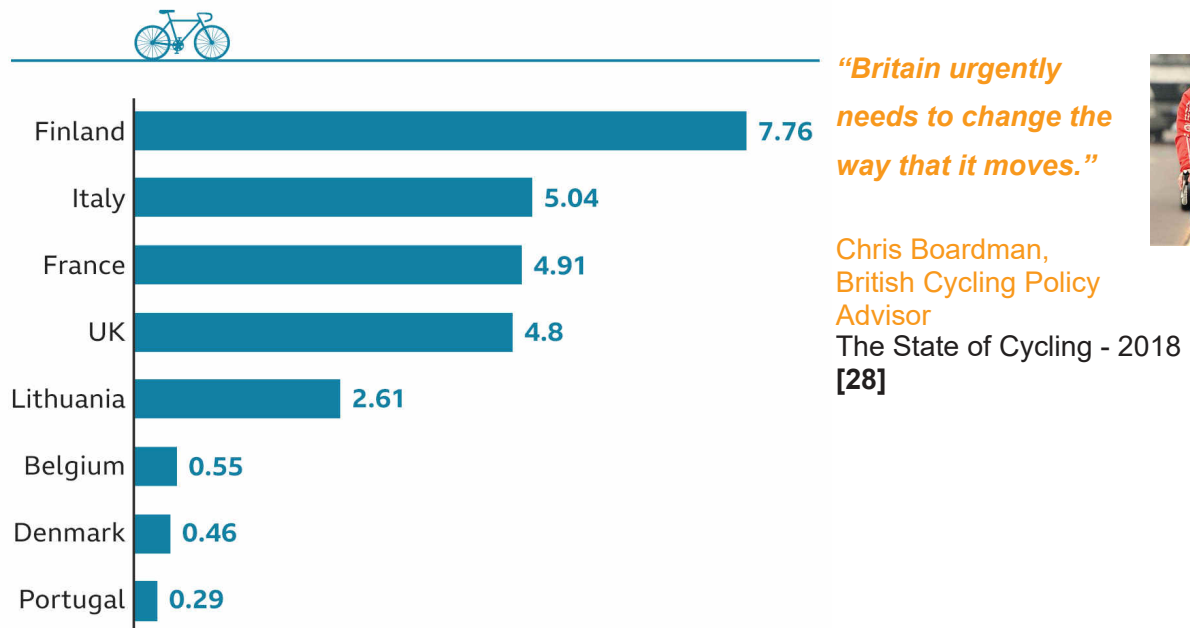


and Government funded vouchers of £50 to make a bike rideable [27] are being released in waves (See **Figure 12:**), which the Government hopes will keep cycling volumes up. Currently the average UK citizen makes just 2% of total journeys by bicycle a year, compared to 61% by car (See **Figure 11:**). However, unless there is continued major investment in the coming years for those on 2 wheels, it is hard to see how getting the public to continue moving in a cheap healthy way throughout a more extreme UK climate will happen as the current patchy infrastructure does not make cycling easy for unconfident cyclists.

Figure 12: Bar chart showing additional cycle funding per person in Euros for select European countries
Source: BBC

Additional cycling funding

Euros per person



Source: European Cyclists Federation

BBC



Figure 13: Image showing traffic congestion on the Dorking one-way system, taken in the after school rush around 15:30



-
- [12] UN <https://news.un.org/en/story/2019/06/1039721>
 - [13] Sustrans Paths for Everyone report
https://www.sustrans.org.uk/media/2804/paths_for_everyone_ncn_review_report_2018.pdf
 - [14]
<https://www.sustrans.org.uk/about-us/paths-for-everyone/reclassification-of-the-national-cycle-network-faqs/>
 - [15] DfT data (from BBC Countryfile 7/6/2020)
 - [16] <https://www.ons.gov.uk/economy/environmentalaccounts/articles/fivefactsaboutcars/2016-09-22>
 - [17]
<http://content.tfl.gov.uk/analysis-of-cycling-potential-2016.pdf>
 - [18] Cycling UK data <https://www.cyclinguk.org/statistics>
 - [19]
<https://www.transportfornewhomes.org.uk/wp-content/uploads/2020/06/garden-village-visions.pdf>
 - [20] Guardian newspaper 27/6/2020
 - [21] <https://www.bbc.co.uk/news/uk-52600708>
 - [22]
<https://www.theguardian.com/politics/2020/jul/27/cycling-ambitions-for-england-move-up-a-gear-with-no-10-plans>
 - [23]
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/904146/gear-change-a-bold-vision-for-cycling-and-walking.pdf
 - [24] Guardian newspaper 16/7/2020
 - [25] Sustrans common misconceptions of cycle investment
<https://www.sustrans.org.uk/media/5224/common-misconceptions-of-active-travel-investment.pdf>
 - [26] RAIL 911, pg 46 12/08/2020
 - [27] <https://www.bbc.co.uk/news/business-53558629>
 - [28] https://www.britishcycling.org.uk/zuvvi/media/bc_files/road/2019/nationalroadseries/State_of_Cycling_report_Digital_pages.pdf



Figure 14: Map of the National Cycle Network across the UK.

Notes:

Blue lines indicate on-road parts of the network, yellow lines indicate traffic free routes. Dashed lines indicate routes that are not part of the network. Though some were previously part of the network they have since been reclassified as they do not meet Sustrans' high standards.

Some routes have been excluded entirely from the map for this reason

"I want bicycles to be part of an effusion of green transport, of electric cars, buses and trains, because clean air will be to the 21st century what clean water was to the 19th."



PM Boris Johnson

Gear Change: A bold vision for cycling and walking - DfT, July 2020

Methodology:

Blue text highlights additional considerations due to the Covid-19 pandemic

Method	How will this data be collected? What is the sampling strategy?	Equipment	Justification of method - how will this help the investigation?	Limitations	Risk Assessment & Moral Dimension	Possible extensions
Bike stand survey	Belt transect through Dorking town centre & specific visits to other presumed destinations (eg station, park)	Camera Clipboard Survey sheet (see appendix)	Belt transect and specific destination visits provided data on bike stand provision within the town's CBD & along transport corridors (Burgess Model) where most people travel to/from	CCTV coverage is not always obvious on a location visit Bikes can be securely locked to most street furniture: such as railings	Care was taken whilst crossing highways / car parks to avoid being hit by moving vehicles Appropriate clothing worn for the weather & water drunk as work was completed in high summer temperatures Ensured that nobody was included in photographs taken Kept a safe distance from other members of the public at all times	
Car park survey	Using secondary data from MFLC website	N/A	This will show how car-centred the town currently is, and how much infrastructure is approximately needed to make cycling more viable. Car parking capacity indicating potential number of switchable trips	This is only official pay & display spaces. People can park on residential roads further out for free & walk into town	N/A	
Cycle flows	This naturalistic observation will show the flows of cyclists from the satellite villages into the town where secondary data sources do not show these small flows	Clipboard Survey sheet (see appendix)	A tally score of bikes for a specific time throughout the day on each route, repeated on weekdays to calculate an average and see patterns through the day. Weather conditions will also be noted as this is likely to influence the data recorded	Not all cyclists travelling along route will have the end point of the route studied as their final destination, and may be using route as a section of a longer journey Cycle traffic flows may be lower more people continue to work from home due to Covid-19	Ensure that the cycle route or road carriageway is not blocked whilst collecting this data. Allow enough room for social distancing when others pass by	Repeat survey at different time of year
Traffic flows	A tally score of vehicle direction for a specific time period and day on each route repeated on weekdays to calculate an average	Clipboard Survey sheet (see appendix)	There are no secondary data sources providing road traffic levels for smaller roads between Dorking & surrounding areas. Any secondary sources are only estimations	Not all vehicles travelling will use the route to the end point of this investigation. Higher scores on a busier section of road may affect average route data Traffic flows may be lower as more people continue to work from home due to Covid-19	Ensure that the adjacent path or road carriageway is not blocked whilst collecting this data. Allow enough room for social distancing when others pass by	Repeat survey at different time of year

Method	How will this data be collected? What is the sampling strategy?	Equipment	Justification of method - how will this help the investigation?	Limitations	Risk Assessment & Moral Dimension	Possible extensions
Route Air Quality	Using a handheld air pollution monitor Anemometer will be used to record wind speed as wind helps disperse any air pollution	Survey sheet Air quality monitor	People are concerned about the health impacts of air pollution. Air pollution levels along the route may have an impact on cyclists using the route	The handheld air pollution monitor has precision limitations Air pollution is affected by the weather conditions	Care was taken whilst crossing highways / car parks to avoid being hit by moving vehicles Appropriate clothing worn for the weather & water drunk as work was completed in high summer temperatures. Wear high vis clothing so that you are clearly visible to moving traffic Allow enough room for social distancing when others pass by.	Repeat air pollution recording again to achieve greater accuracy by taking an average
Route Quality (surface)	Survey cycle route by cycling it	Bike Helmet Hi-vis Survey sheet (Appendix)	Route 'smoothness' will impact the ability for any cycle route to become an inclusive transport option	Subject to opinion bias	Follow the Highway Code whilst on roads Be considerate to other cycle path users Wear appropriate clothing -be visible to other users Wear a helmet	Use phone to record seismic data of route
Route Quality (traffic segregation)	Survey cycle route by cycling it	Bike Helmet Hi-vis Survey sheet (Appendix)	Traffic segregation will impact the ability for any cycle route to become an inclusive transport option. Compare route segments to criteria for traffic free cycle route	Each route segment will have quality variance that is obscured by taking an average	Follow the Highway Code whilst on roads Be considerate to other cycle path users Wear appropriate clothing -be visible to other users Wear a helmet	Use phone to record seismic data of route
Route Quality (route width)	Survey cycle route by cycling it	Bike Helmet Hi-vis Survey sheet (Appendix)	Route width will impact the ability for any cycle route to become an inclusive transport option. Compare route segments to width rankings	Not always possible to accurately measure cycle route width due to safety reasons	Follow the Highway Code whilst on roads Be considerate to other cycle path users Wear appropriate clothing -be visible to other users Wear a helmet	

Method	How will this data be collected? What is the sampling strategy?	Equipment	Justification of method - how will this help the investigation?	Limitations	Risk Assessment & Moral Dimension	Possible extensions
Route Quality (intersections safety)	Survey cycle route by cycling it	Bike Helmet Hi-vis Survey sheet (Appendix)	Intersections are where most potential collisions would occur, so safety of intersections may impact use of cycle route	Subject to opinion bias	Follow the Highway Code whilst on roads Be considerate to other cycle path users Wear appropriate clothing -be visible to other users Wear a helmet	
Route Quality (line of sight)	Survey cycle route by cycling it	Bike Helmet Hi-vis Survey sheet (Appendix)	Line of sight impacts the speed cyclists can traverse the route, therefore impacting the viability of bicycle for the journey if it is time competitive	Subject to opinion bias and travel speed that feels safe	Follow the Highway Code whilst on roads Be considerate to other cycle path users Wear appropriate clothing -be visible to other users Wear a helmet	
Route Quality (line of sight)	Survey cycle route by cycling it	Bike Helmet Hi-vis Survey sheet (Appendix)	Route speed will determine viability of 'switchability' of route journeys to cycling	Subject to opinion bias and travel speed that feels safe	Follow the Highway Code whilst on roads Be considerate to other cycle path users Wear appropriate clothing -be visible to other users Wear a helmet	Compare to Sustrans Network Development Scoring
Route Quality (cleanliness)	Survey cycle route by cycling it	Bike Helmet Hi-vis Survey sheet (Appendix)	Route cleanliness will impact viability of using route as an alternative to public transport / car to arrive at destination in smart clothing	Subject to opinion bias and adverse weather lowering route cleanliness (will be worse after storms) or occasional council cleaning	Follow the Highway Code whilst on roads Be considerate to other cycle path users Wear appropriate clothing -be visible to other users Wear a helmet	
Route Quality (signage)	Survey cycle route by cycling it	Bike Helmet Hi-vis Survey sheet (Appendix)	Signage will enable those travelling through area to navigate without map, although less of an issue for local journeys	Some signs may be missed due to vegetation growth / poor maintenance	Follow the Highway Code whilst on roads Be considerate to other cycle path users Wear appropriate clothing -be visible to other users Wear a helmet	

Method	How will this data be collected? What is the sampling strategy?	Equipment	Justification of method - how will this help the investigation?	Limitations	Risk Assessment & Moral Dimension	Possible extensions
Village Travel Surveys	Random cluster sample. Survey distributed through local community groups or hubs (eg churches) QR codes links to survey's randomly deposited through doors to boost response rate where necessary	Computer	Surveying target population will identify perceived barriers to cycling from the villages into Dorking Mix of qualitative and quantitative questions	Surveys only distributed to those on community group email list Not an equal proportion of village populations reached Survey is random, does not fairly represent survey target	Personal data protected as Google Forms surveys are anonymous. Surveys completed online via Google Forms online surveys to keep people safe during pandemic by avoiding in person questionnaires.	
Photos	Site visits	Camera	Shows location issues described	Image can distort reality due to lighting, perspective	Ensure that photos do not reveal identity of member of public. Allow enough room for social distancing when others pass by	Use historical photos to compare change over a time period

SUB QUESTION:

1) What is the extent of existing cycle infrastructure, and does this limit further modal shift?

Cycle Stands

Access to a car parking space concerns many people as it will impact their visit to an amenity centre (like Dorking town centre), so the provision of cycle stands within Dorking town centre was compared to car parking spaces to see if an inadequate provision of cycle stands is currently preventing modal shift to cycling (See **Figures: 17 & 18**) the short relatively flat distances between the satellite villages and Dorking town centre.

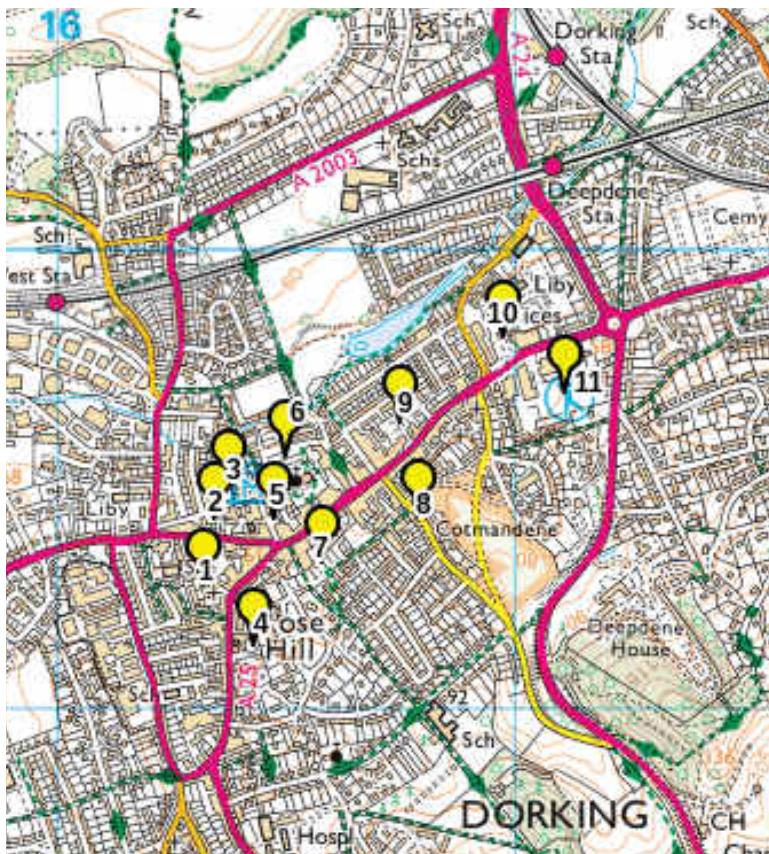


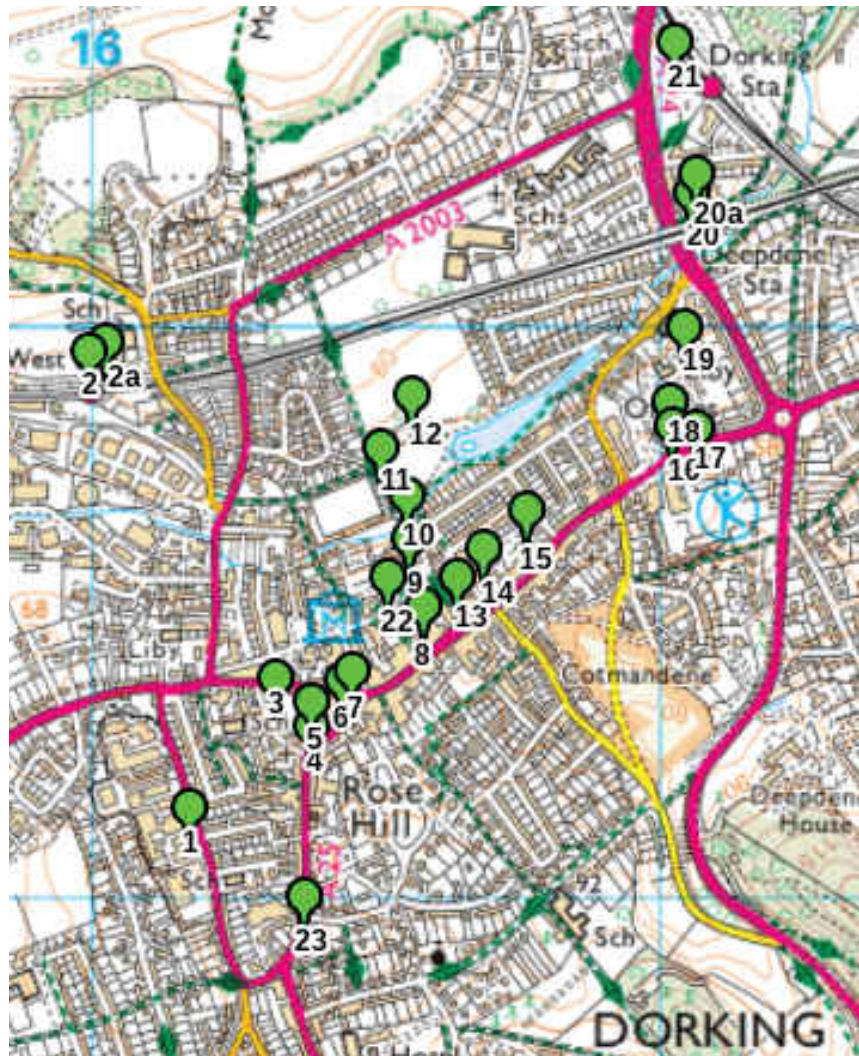
Figure 15:

Map showing Mole Valley District Council owned car parks within Dorking town centre (July 2020)

1. Junction Road
2. West Street
3. Church Street
4. South Street
5. North Street
6. St Martin's Walk
7. Southside
8. Dene Street
9. Wathen Road
10. Pippbrook (Saturday only)
11. Reigate Road

Figure 16:
Bike Stands in Dorking for Public Use (July 2020):

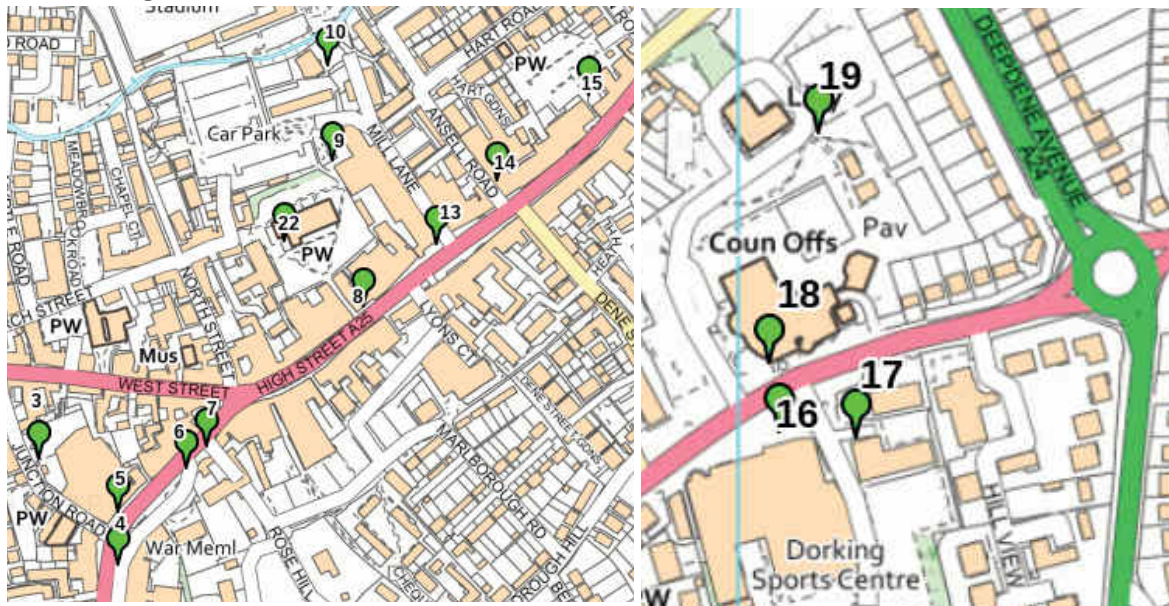
1. Lidl
2. Dorking West station southern forecourt
 - a. Dorking West station eastbound platform
3. Junction Road
4. South Street
5. Waitrose
6. Butter Hill
7. Dorking Domestic Appliances
8. Barclays
9. St Martin's Walk
10. Malthouse Youth Centre
11. Meadowbank Stadium
12. Meadowbank Park
13. Vodafone
14. Post Office, Ansell Road
15. Wathen Road car park / Halifax bank
16. Dorking Sports Centre
17. Medwyn Surgery
18. Pippbrook Council Offices
19. Bowls Green / Tennis Courts
20. Dorking Deepdene station westbound platform entrance
 - a. Dorking Deepdene station eastbound platform entrance
21. Dorking (Main) station
22. St Martin's Church
23. Topps Tiles / Majestic Wines



See Insets

Most of the car parks are located along an east-west transect following the High Street through the town. Key larger car parks are easily accessible and clearly signed from the road to direct those unfamiliar with the area. With over 1000 spaces available everyday just a short walk from the amenities on the High Street, it is hassle free to use a car to travel from a satellite village into town to access services. Dorking has a large sphere of influence due to the relative rurality of the surrounding areas. Traffic issues plague the town, but Dorking's population size and traffic congestion are not enough to make a bus park and ride scheme viable. A weakness of this secondary data collection is it does not include any additional private car parking capacity people use (such as in Waitrose) or spaces on residential roads that avoid a charge, although traffic flows to the edge of town will not cause congestion at the pinch points on the one-way system in the same way. In recent years more parking permit zones have been set up near the town centre, primarily to prevent London commuters using spaces in residential roads.

Insets to Figure 16:



The majority of the bike stands are on the pavements along the shopping areas of the High Street and South Street, with a few outliers at other primary destinations such as the park and stations. The bike stands located at all 3 stations in the town are officially dedicated to rail users only, but there is nothing to stop you utilising the facilities. When the number of bike stands is represented as proportional circles instead of a dot map, it becomes clear that there is significantly less cycle parking available within the town. (see Figure 17:)

Figure 17: Bike Stands in Dorking for Public Use shown as proportional circles (July 2020)

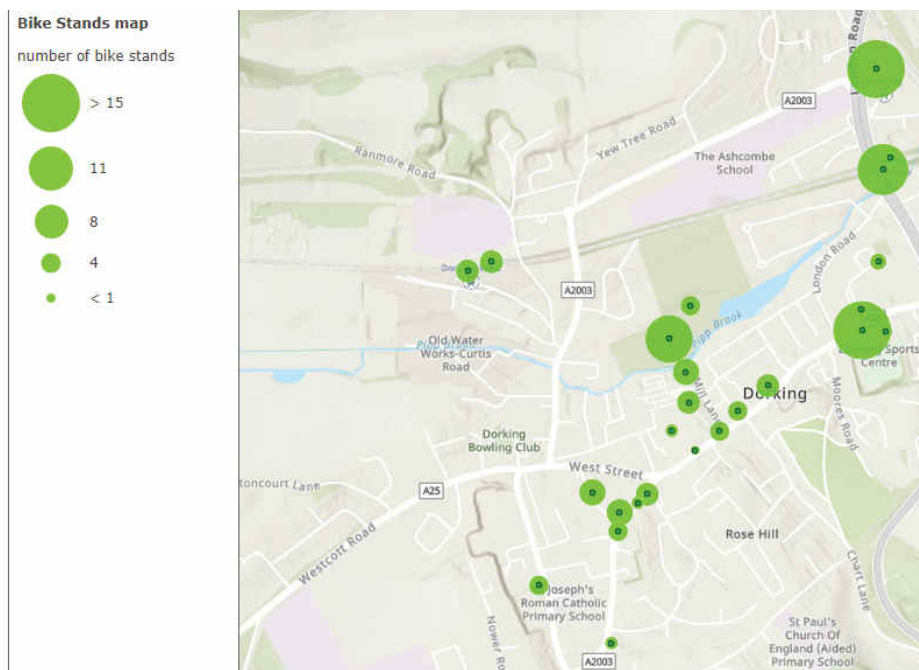
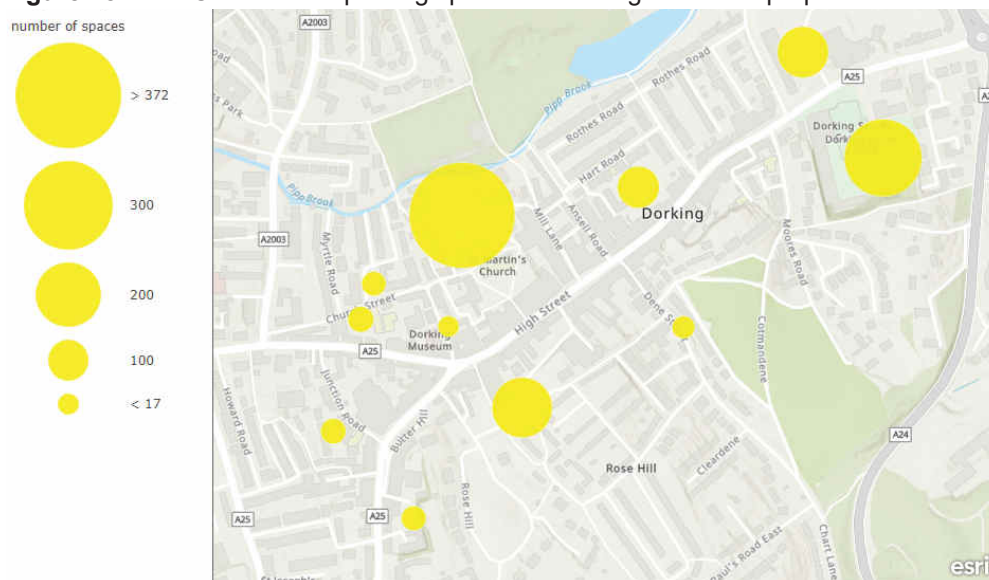


Figure 18: MVDC owned car parking spaces in Dorking shown as proportional circles (July 2020)



Decades of car dominance on Britain's roads has influenced spending for cycle infrastructure. This explains the low usage of the bike stands within town when I visited, as people are only likely to use them if the supporting additional cycle infrastructure is installed, such as segregated bike lanes. Other bike stands seem to have been strategically located at presumed destinations, such as the leisure centre. However, as seen with the stands at LIDL on Vincent Lane, they will not be used if the supporting cycle infrastructure is not present to make people feel confident and safe travelling by bicycle. Since the data was collected in July 2020, Surrey

County Council (SCC) have installed additional bike stands in Dorking (see **Figure 19:**) as part of the campaign to increase active travel during the pandemic.

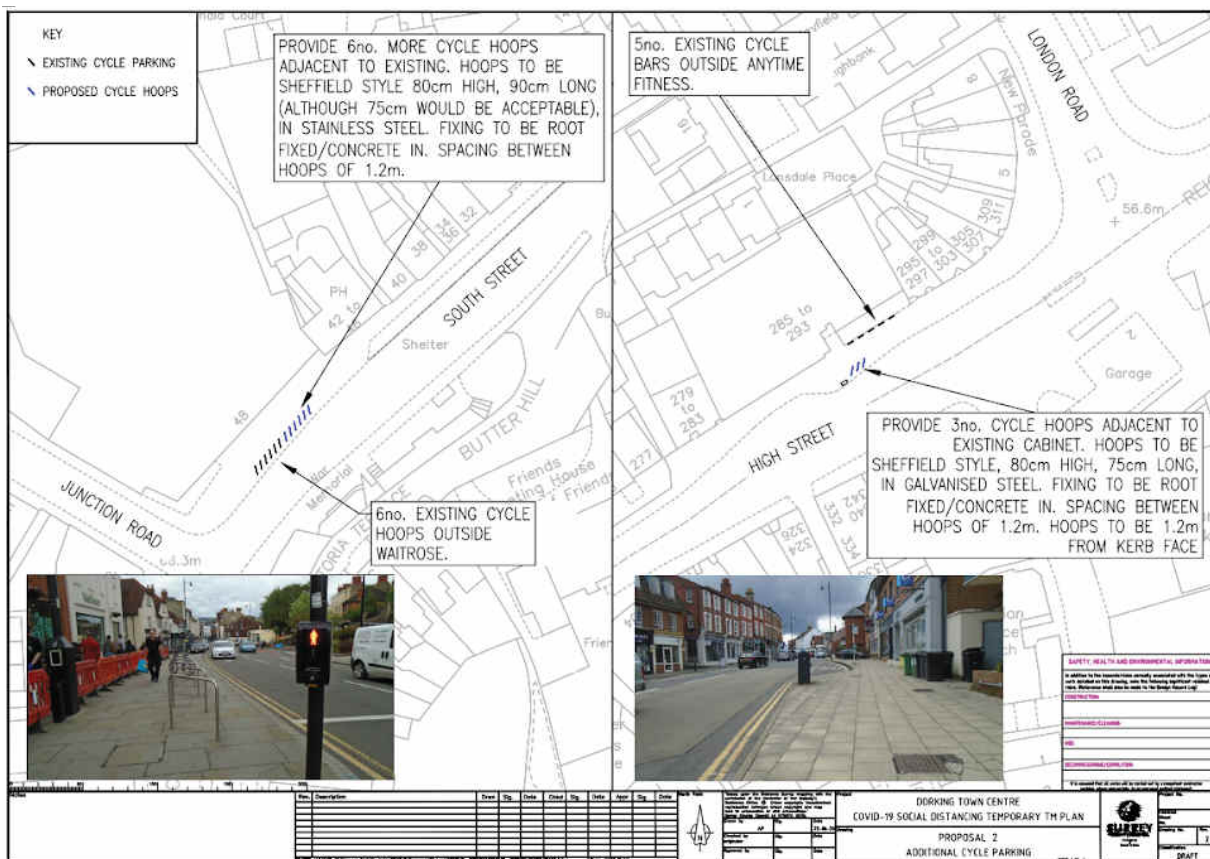
A major weakness of this data is that when surveyed, identifying CCTV for bicycle security purposes was not always obvious. In addition to this, similar to parking on residential roads, bicycles can be securely stored to other street furniture such as lamp posts and railings and therefore not included in survey.

Currently the provision of secure bike stands in Dorking is ample, simply because the flow of cyclists into the town for services is too small. Further stands may be required if the supporting cycle network is improved to encourage more people to cycle into town. The ability to carry shopping or transport children was highlighted in the online surveys as much more of a barrier than provision of cycle stands.

Figure 19: Temporary additional cycle stands in Dorking town centre to help with Covid-19 social distancing and active travel.

Note: may become permanent dependent upon Surrey CC survey. Installed during the week of 14/09/2020

Source: Surrey CC



Cycle Lanes & Tracks

Quality of bike tracks and lanes is seen to be a major factor in making cyclists feel safe, and therefore how well the infrastructure is utilised, as seen in the Netherlands, where continued investment in cycling infrastructure since the 1960s has led to 60% of inner city journeys in Amsterdam being cycled. [29]

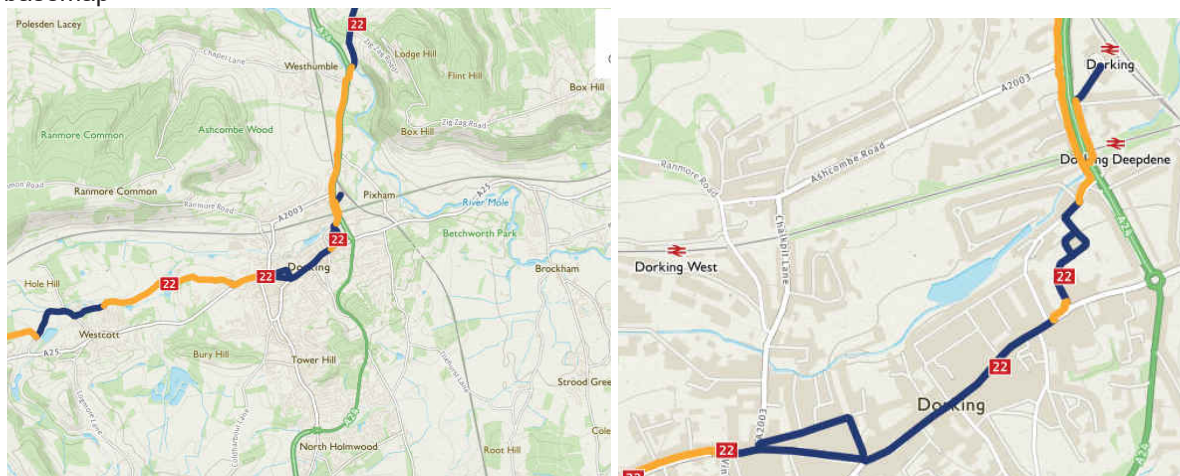
Work by TfL shows that short journeys in the capital of up to 3km, like those between Dorking and the satellite villages, provide over 50% of the potential to switch to bicycles. This work is based on the urbanised layout of Greater London, although it would seem reasonable to assume that a similar proportion of journeys could also be switched to cycling in the Dorking area. [30] (See **Figure 9:**).

Dorking has a range of cycle routes, that vary in quality from the many bridleways into the Surrey Hills (usually only suitable in drier summer conditions) to the high quality bike track parallel to the A24 north-bound. The National Cycle Network route 22 (See **Figure 20:**) passes through the town, although most infrastructure has been installed by Surrey County Council (See **Figures 24 & 24a:**). The signposted Surrey Cycleway which uses many of the county's quiet lanes also passes nearby. It must be noted that all these cycle routes from the villages into Dorking town centre are rideable all year round for a determined cyclist. However, they are not viable for those who would like to use a bike as a means of transportation, turn up to their destination in a presentable state or with others who are less confident cycling among a traffic flow. Much improvement is needed to usher in the 'golden era' of cycling that PM Boris Johnson has promised, as the UK tackles climate change in a post-pandemic world.[31]

Organisations such as Cycling UK and Sustrans make clear the investment in cycle lanes has huge benefits, even without the additional advantages of active transport during a pandemic.

Figure 8: summarises the 6 main reasons.

Figure 20: Map of the National Cycle Network Route 22 through Dorking on an Ordnance Survey basemap

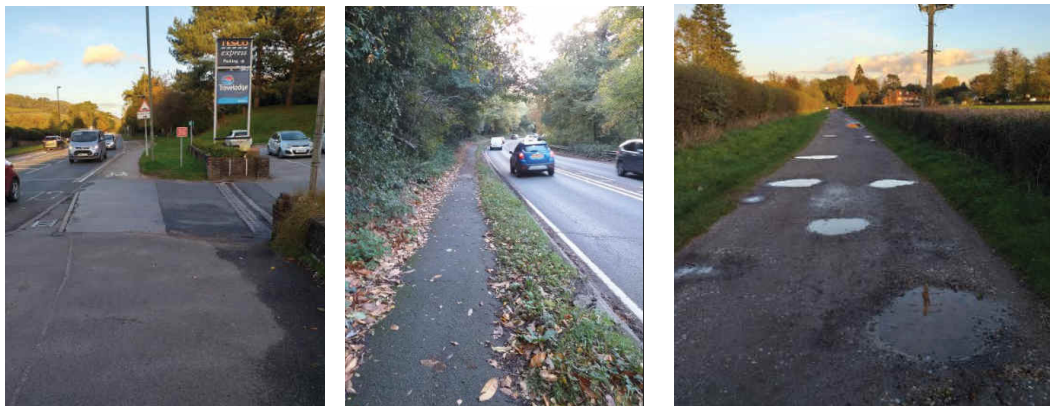


Once complete Route 22 will link Banstead to Brockenhurst via Dorking, Guildford, Farnham, Petersfield, Havant, Portsmouth and the Isle of Wight.

The radial cycle routes from Dorking to the satellite villages were surveyed on 8 factors (route surface, width, signage, traffic segregation, intersection safety, line of sight, route speeds, cleanliness) to create an overall score for each section of the routes. (See **Figure 25 & Appendix 7:**). Each route segment uses the locations for air pollution data to break up the route.

1) Westhumble

The route is almost entirely flat and segregated from the traffic flow on an all-weather tarmac bike track parallel to the A24. Section A of the route follows NCN Route 22 along the High Street before turning left towards the old Pippbrook library. Although the road carriageway is wider here, it received a lower score due to the volume of traffic essentially forcing cyclists to ride in the gutter. Line of sight and route smoothness was scored as average as it has been built to road standards, whilst signposting received an average score because despite being present it is not necessarily easily visible. Sections B & C are part of the high quality bike track (that also forms part of NCN route 22) that was built parallel to the A24 when the road was dualled in the 1960s, but the overall score for section B was lowered due to dangerous intersections, growth from hedgerows narrowing the path and confusing signage. (See **Figure 10:**) Despite being on-road, section D was still ranked as good due to clear signposting from the village and a low volume of low speed traffic.



Figures 21a, 21b, 21c: Images showing sections C & E of the route to Brockham

2) Brockham

The alternative section A route from the town centre to the A24 goes via Meadowbank park, which although generally a high quality off-road route is scored lower as high pedestrian footfall results in slow route speeds. Also in places there is a poor line of vision. Section B of the route is an official traffic-free Surrey CC cycle route, however route signage is dubious and there are some dangerous intersections as cars pull out from driveways directly into the cycle route. The most dangerous intersections are found in section C of this route east to Brockham, notably those for the Travelodge / Tesco Metro car park and Punchbowl Lane (See **Figure 21a:**), as the cycle route is not obvious to drivers. Section C is not much more than a narrow pavement along

the A25 (See **Figure 21b**;) with a few painted cycle symbols, but it provides an alternative to cycling in the traffic flow. Sections D & E are wide and traffic-free but have a poor quality surface that is prone to becoming very muddy in wet weather, leading to further erosion and route widening as users seek to avoid the worst of the mud.(See **Figure 21c**;)

3) North Holmwood

There is no cycle route between North Holmwood and Dorking, meaning that cyclists have no choice but to ride along the A2003 over Flint Hill into town. Although a risk to cars too, potholes and poor road surface quality along the road present a major hazard to cyclists. Like in the High Street, road width was ranked lowly as the volume of traffic forces cyclists towards the gutter. Line of sight is generally very good along this route, as it is suitable for cars travelling at up to 30mph, but at the top of the hill (by Ridgeway Road) tall trees mean it is dingy in most weathers, making cyclists almost invisible to traffic. (See **Figure 22**;) The indicative cycle infrastructure map produced by Surrey CC suggests that a bike track will be built up Flint Hill (although not over the top into town along Horsham Road), but this will be of little benefit to North Holmwood residents as it stops short of town and the alternative is a circuitous route via the A24/25 Deepdene Roundabout. (See **Figure 24a**;)

The Government had pledged to spend £2.5bn filling in thousands of potholes [32] in the Budget in March 2020. It remains to be seen if this pledge will be carried through after the pandemic, as the £27bn road building plan faces increasing scrutiny for its large environmental footprint [10] after Grant Shapps ignored guidance calling for a review on the project's impact. [33]



"Aspiring to achieve a truly greener future and reach net-zero is not possible alongside a spending commitment to the greatest road-building programme ever which will drive up demand for car use and carbon emissions – largely negating any carbon benefits from a switch to electric vehicles."

Xavier Brice, Sustrans CEO

Response to the Spending Review 2020



Figure 22: Poor visibility at the top of Flint Hill, making cyclists nearly invisible, as identified by circle

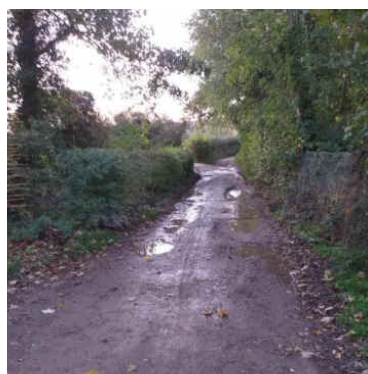


Figure 23: Muddy section of NCN route 22 towards Westcott near Unum



Figure 23a: Abrupt end to the cycle path along NCN route 22 into Dorking. Cyclists are forced into traffic flow through the one-way system.

4) Westcott

Following the route to Westcott the majority of the traffic free route is a gravel surface. Some areas are prone to becoming muddy in wetter weather (See **Figure 23:**) , whilst cyclists heading east are still forced to join the traffic flow through the narrow one-way system in Dorking when the route suddenly ends (See **Figure 23a:**). When surveyed, parts of the route had only recently

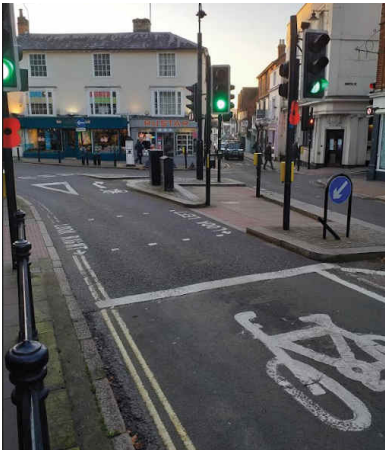


Figure 23b: Confusing, dangerous and poorly signed bike only turn right junction (NCN way-marking sticker is obscured by poppy). Additional advanced direction signpost is present outside Dorking Butchery, but is several metres up the lamppost on a raised pavement.

received repairs to severe damage caused by winter storms in February 2020. For those whose journey by bike follows NCN route 22 west, they face both the unusual & poorly signed bike-only right-hand turn into North Street and the busy junction of the A2003/A25 at West Street. This busy (and often congested) narrow stretch of road is likely to deter many less confident cyclists, as shown by the lower numbers recorded using this route. (See **Figures 23b & 4:**) This small missing section of bike track lets down a route that has potential to become very

popular. However, since the survey was carried out, a significant improvement of the previously poor muddy section by Unum (See **Figure 23c:**) has resurfaced concrete. This improves the overall score for section C to good.

One-way System: (North Holmwood sections A & D)

It was decided to analyse the one-way system as a section, because it has more potential barriers to cycling than most of the other routes. The bizarre and confusing road layout that filters between one and two lanes of flowing traffic creates several pinch points for road users, creating many different opinions on the correct use of the road space. This has the potential to create conflict between the different road users, whilst regular congestion means it is physically impossible to access the filter lane for the Advanced Stop Line. Congestion can further encourage dangerous cycling (eg. weaving between the traffic) or simply deters people from making their journey by bicycle at all.

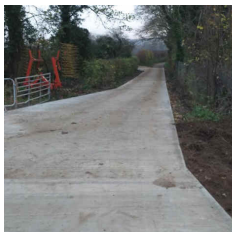


Figure 23c: New concrete shared cycle path and farm track near Unum, removing a previously muddy section, installed during the week of 16/11/2020.

Figure 24: Surrey County Council Cycle Infrastructure map (existing)

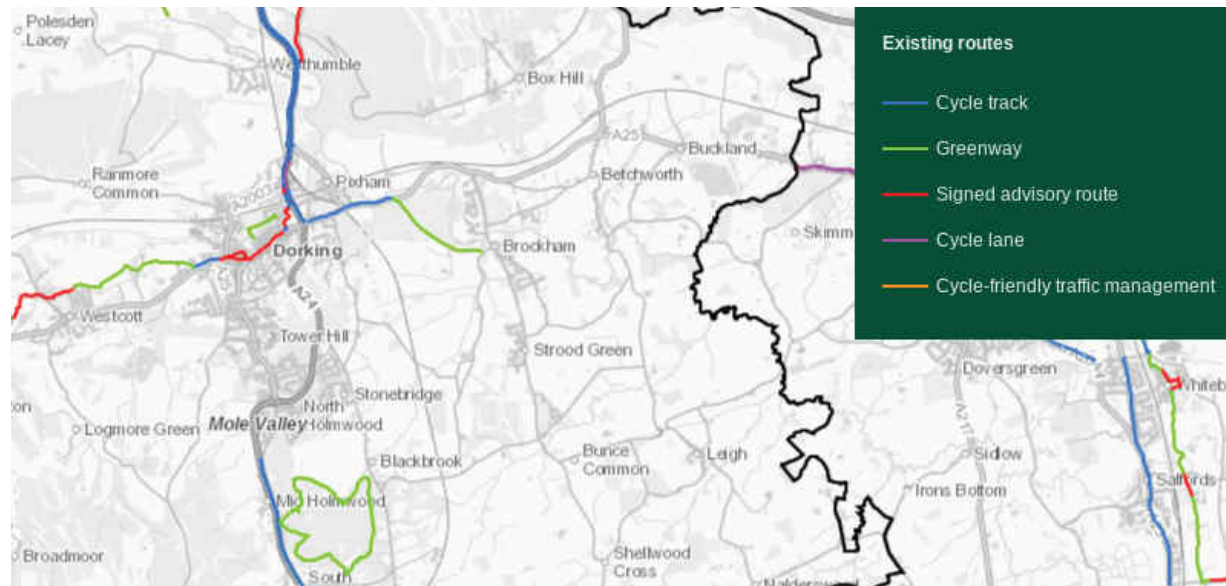


Figure 24a: Surrey County Council Cycle Infrastructure Map (existing & suggested future routes)

Note: Same key used

No suggested routes are currently funded and only indicate new potential routes

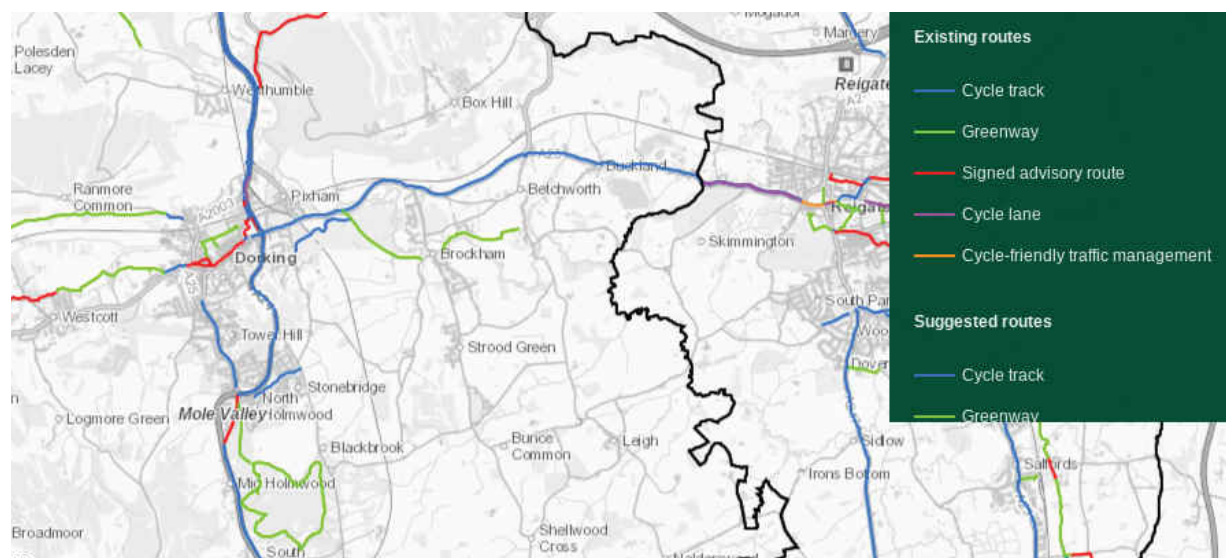
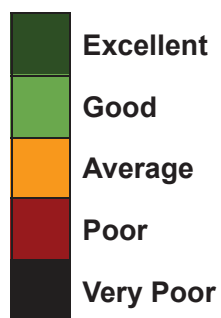


Figure 25: Map showing segmented bike route quality for Dorking radial routes (based on 8 factors; route surface, width, signage, traffic segregation, intersection safety, line of sight, route speeds, cleanliness). See Appendix 7

Key:



Note: Westcott section C has since received surface upgrades, raising this segment to 'good.'



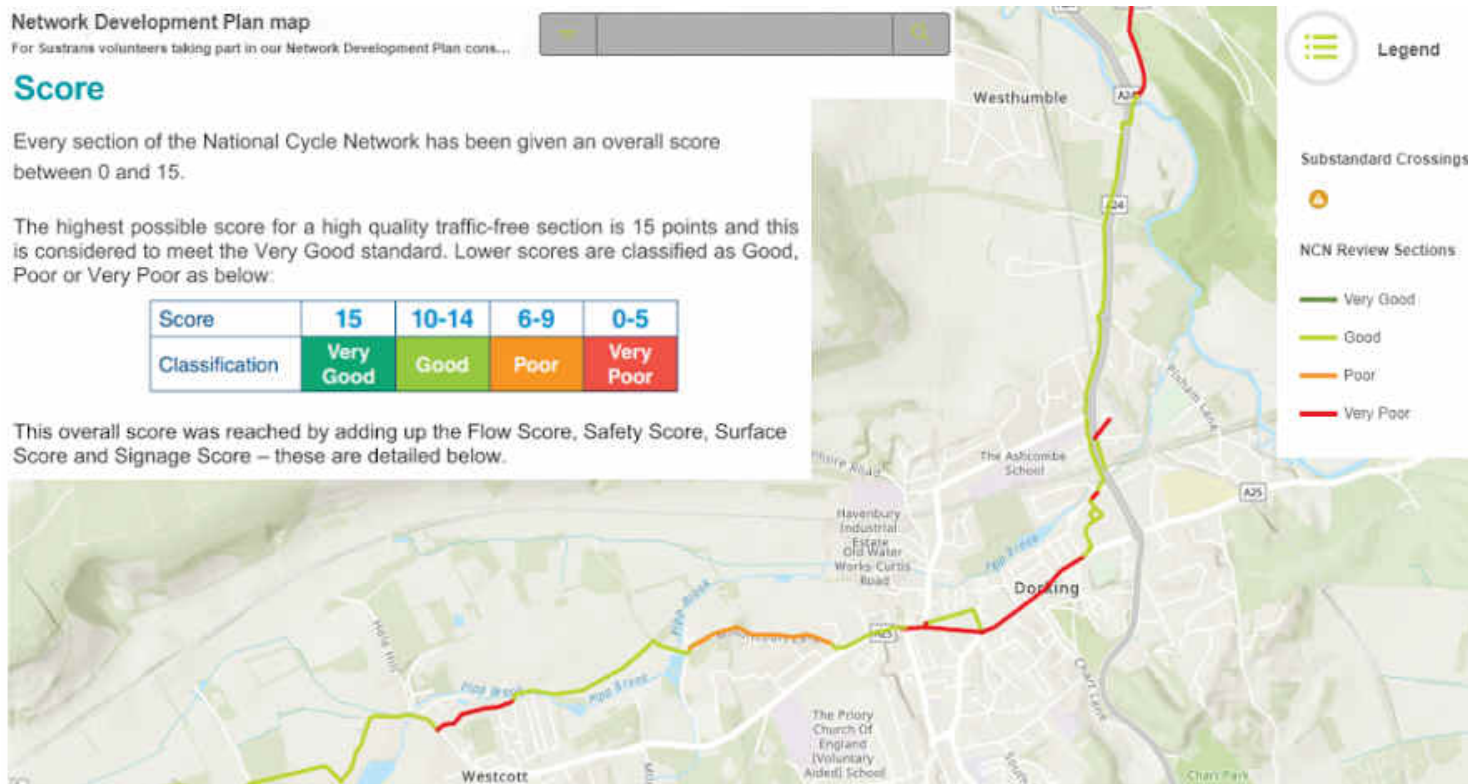


Figure 26: map showing the section scores for the National Cycle Network as defined using Sustrans audit data and some additional traffic data.

This map shows how Sustrans scored NCN route 22 through Dorking when they completed their audit of the entire network as part of their 2018 Paths for Everyone report. The audit recorded key characteristics including surface type, width, lighting, barriers and signage, as well as road classification for on-road sections. This survey mirrored results from Sustrans for the overall route quality to Westcott and Westhumble, which follow NCN route 22.

Advanced Stop Lines

Advanced Stop Lines (ASLs), or bike boxes, are common at UK traffic lights and are put into place to give cyclists a safe place to stop at busy crossings. It allows cyclists to be positioned ahead of other traffic so they have more time to pull off as the lights change. By law in Rule 178 of the Highway Code motorists should not pass the first white line and enter the ASL if the lights are amber or red or they could face a £100 fine and 3 penalty points.

However there are many problems with ASLs. There is much confusion over Rule 178 as there are several exceptions that make it hard to police, such as allowing cars to stop within the ASL in order to avoid forced hard braking. The filter lane to allow cyclists to access the ASL can encourage cyclists to weave through traffic when it is not safe. It also can create a greater

danger for cyclists as whilst using the filter lane cyclists are temporarily in all vehicles' blind spots.

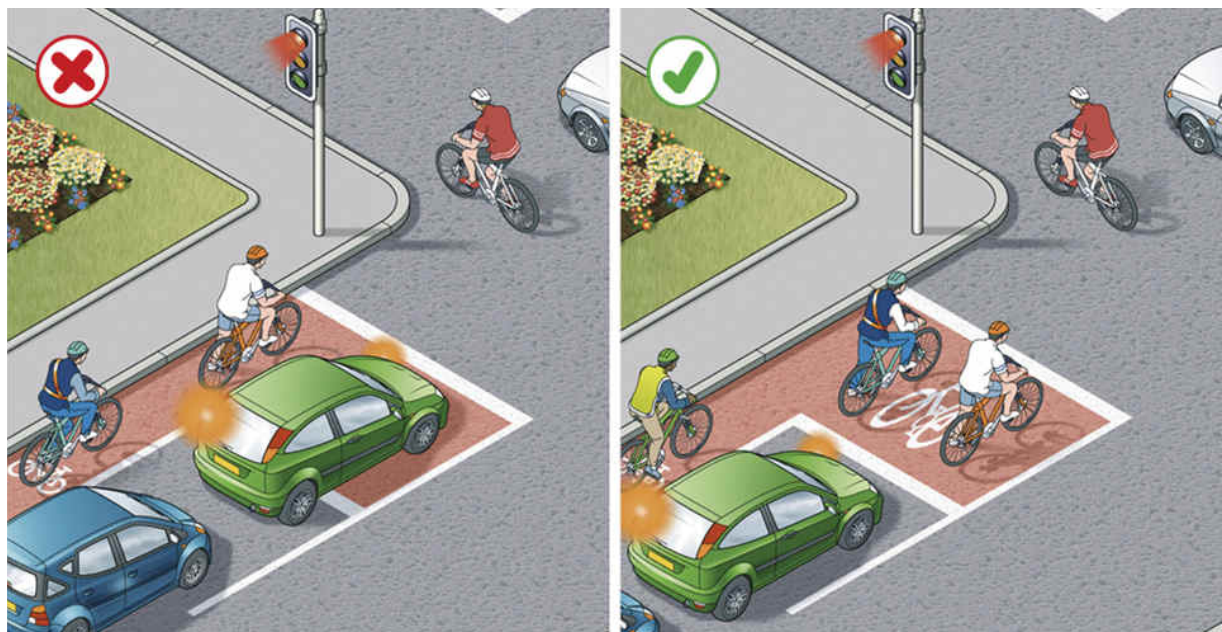
There are some ASLs in Dorking's cycling infrastructure. They are located at:

- Vincent Lane / A25 / A2003 junction
- A25 / London Road junction
- Pump Corner (where the one-way system starts on the High Street)

The Highway Code states motorists should 'allow cyclists time and space to move off when the green signal shows.'

Figure 27: Diagram showing correct use of an ASL

Sourced from <https://www.gov.uk/guidance/the-highway-code>



[29] <https://dutchcycling.nl/en/news/126-10-exciting-cycle-facts-about-amsterdam>

[30] <https://www.bbc.co.uk/news/business-51823408>

[31]

<https://www.theguardian.com/uk-news/2021/feb/11/27bn-roads-plan-doubt-shapps-overrode-official-advice>

SUB QUESTION:

2) Why isn't the current alternative public transport offering not used by more people?

What is the existing public transport service?

Rail:

Dorking is well served by the railways, with both the east-west North Downs line and a north-south route between London and Horsham, which links onwards towards the coast. (See **Figure 30:**) Before the pandemic there were electric trains every 30 minutes to London Waterloo via Wimbledon and London Victoria via Sutton (London Bridge via West Croydon route in peak hours too). Trains run hourly to Horsham, where connections for the south coast can be made, but not on Sundays. At the time of writing, the commuting market has almost vanished due to Coronavirus restrictions, meaning that an emergency timetable is in operation with a reduced hourly service to London Waterloo.

Despite having large carbon emissions, diesel trains are still far more sustainable than private car journeys. North Downs line services run twice an hour and long held aspirations to increase that to 3 trains per hour are becoming a reality as the service is restored during the pandemic recovery. This connects passengers with key interchanges at Redhill, Gatwick Airport, Guildford and Reading.

Currently rail services are run through the franchise system to private owners (although rail is expected to return to national ownership as a result of lower patronage on the railways making services less profitable) and the fares charged are set and regulated by the Government. Many railcards are available, offering discounted fares for just £30 per year.

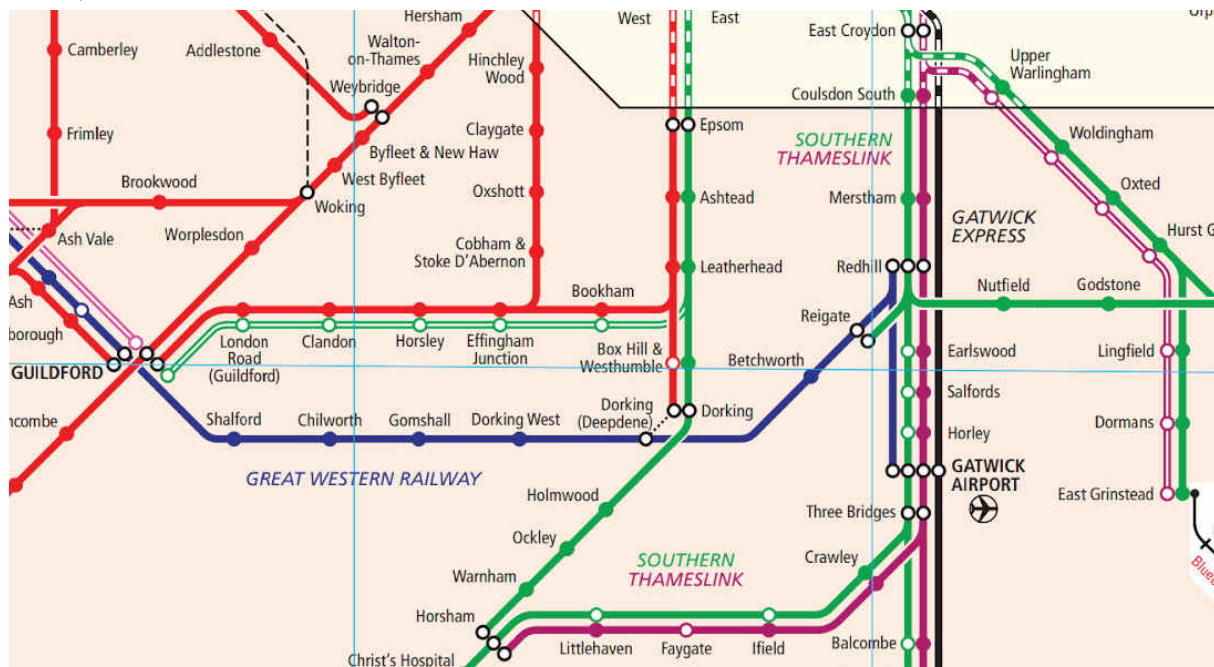


Figure 28: 465 bus calling at South Street



Figure 29: Dorking (Main) station

Note: Holmwood station is actually located in the village of Beare Green 4 miles south of Dorking town centre, but is named after the wider Holmwood area



‘The expensive disaster of bus privatisation’ in 1986 has led to deregulated fares and freedom to cut unprofitable routes. [32] Bus privatisation has led to the current fragmentation of public transport, as there was no incentive to coordinate timetables with other modes of transport for seamless connections, so journeys became much slower where an interchange is required. Today bus operators are owned by 4 main companies, some of which are owned by foreign governments, so the profits essentially subsidise overseas public transport networks. Previously the council-run bus routes in high population density areas cross-subsidised the more rural and less profitable routes, but now a vicious cycle of lack of funding, patronage and deregulation causes further decline in use [33]. Unlike London, where routes and fares are regulated by the Mayor, 3000 routes have been reduced or cut across England & Wales [34], leading to a decline of 90 million passenger journeys between 2017-18.[35]

of their cars. This explains the large volume of cars recorded during my primary data collection. (See **Figure 34**.)

The exception to this pattern is the 465 bus route linking Dorking to Kingston every 30 minutes between 6am & 11pm. As this service is run by TfL (Transport for London), route frequencies and a flat-fare of £1.50 are dictated by the London Mayor, resulting in good patronage of these buses throughout the day by a mix of people.

[32] <https://www.theguardian.com/uk-news/2018/jul/16/the-expensive-disaster-that-is-bus-privatisation>

[33] <https://www.theguardian.com/commentisfree/2018/jul/11/buses-trains-londoners>

[34] <https://www.bbc.co.uk/news/uk-england-44681974>

[35] <https://www.bbc.co.uk/news/uk-england-47045872>

Figure 31: Dorking-centred topological rail and bus flow map based on usual weekday services.

Notes:

- North Downs rail line omitted for clarity
- Only primary bus routes shown, very irregular bus services omitted for clarity but are included in **Figure 32**:
- Most public transport timetables are still on a reduced and amended Covid-19 timetable. This flow map was created using timetables in operation on 27/10/2020
- Only rail services serving Box Hill & Westhumble station are shown. There are additional Dorking to London rail services that do not stop at Box Hill & Westhumble.

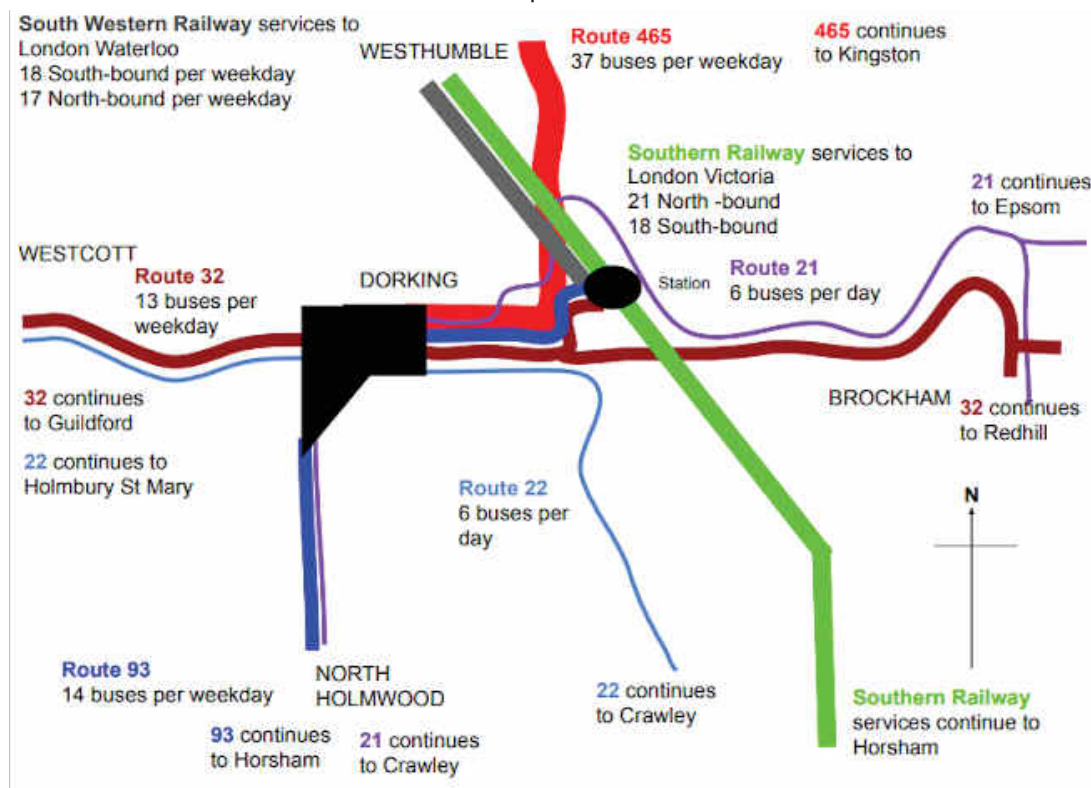
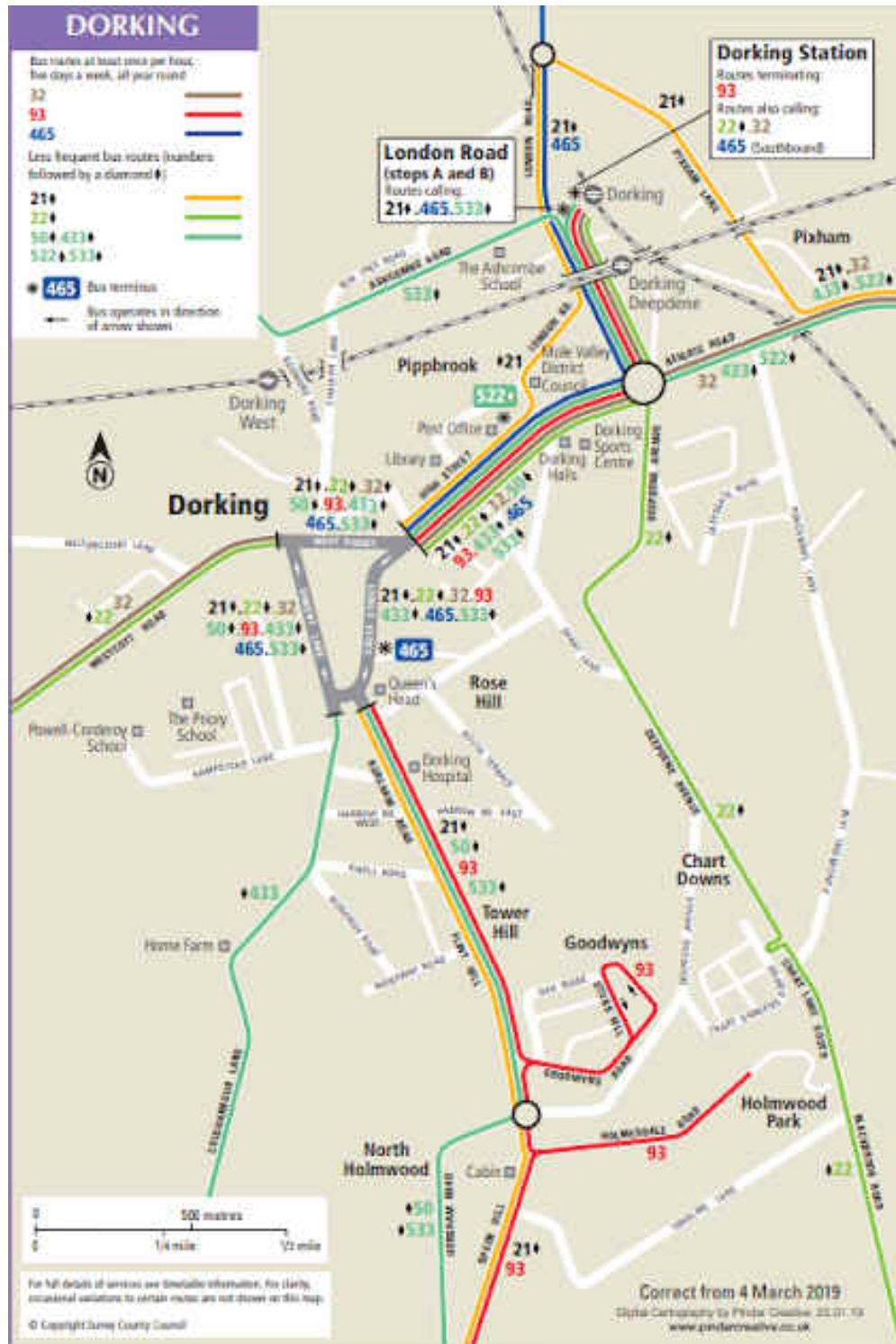


Figure 32: Map showing bus routes and usual frequencies within Dorking

Source: https://www.surreycc.gov.uk/_data/assets/pdf_file/0017/10736/Dorking_Map_WEB.pdf



Why do few people use public transport today?

Although Dorking and its rail services are well used to travel quickly to other places, it is of limited use to those in the satellite villages studied. Only Box Hill & Westhumble station could be used to travel from this satellite village into town, but Dorking station is situated on the north-eastern edge of town; around a 20 minute walk from the CBD. With the convenience of an approximate 7 minute door-to-door journey, it is hardly surprising that most people use the car to travel to Dorking.

There are few incentives for people to travel by bus. Expensive fares, fixed routes, slow journey times & limited timetables (See **Figure 31:**) do not make the current bus provision attractive to many people, hence the high proportion of car ownership. This is a pattern reflected across the UK, not just in the Dorking area; the only place with household car ownership lower than 50% is London, where the regular and reliable service gives people the freedom to travel. The lack of comprehensive public transport forces many people into the ideology that being able to drive a car gives freedom and independence.

Conclusion

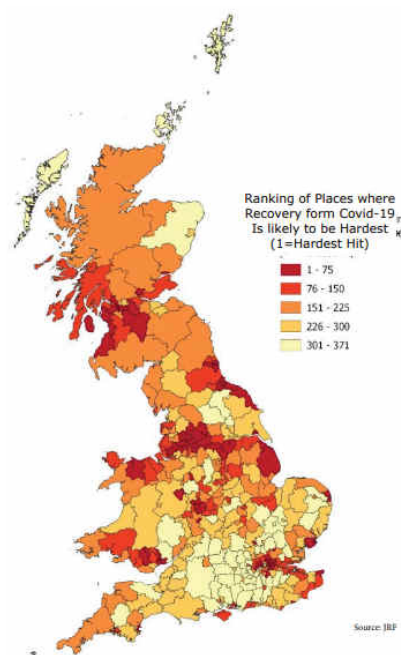
The Go Big Go Local report by the UK2070 Commission calls for major investment in public transport to reduce inequality across Britain. Currently poor public transport connectivity costs £20 billion per year in lost productivity. [36] Included in a connectivity revolution for the nation, the report recommends:

- The 'reallocation of road space to support a planned expansion of walking and cycling for short-distance travel in local neighbour-hoods.'
- 'A nationwide scheduled public transport network which is user-friendly, electrically powered, reliable and accessible by walking and cycling'
- 'Equal connectivity to well-off / high accessibility places and less well-off / peripheral places by a national public transport system which ties together various public transport services.'
- 'An integrated national fares and public transport information system for ease of use, and to support concessionary fares systems for those in most need.'

The report also advocates metro systems for all cities with a population of 175,000+, new estuary/river crossings to expand catchment areas and economic strength of deprived coastal areas, a comprehensive high speed rail network & rural rail reinstatements connected with high quality inter-urban express bus services to connect areas with the worst social mobility. The report holds hope and excitement for better quality public transport in the future, but at the moment this just remains a report.

Britain's rail network was at an all time high in terms of patronage and investment, but now passenger numbers have hit a 170 year low [37]. Under state control, the future of continued growth looks uncertain as the government continues to advise against 'unnecessary use' and it seems plausible the government will be keen to reduce spending in the post-pandemic debt.

The existing public transport services connecting places to Dorking varies dramatically in cost and frequency, leading to a huge variation in use too. However the factors of fixed routes, costs and frequencies continue to be a major barrier to stopping modal shift towards more sustainable public transport. It seems unless the UK adopts a nationwide comprehensive and coherent public transport network that is easily accessible to all, potentially with 1 smartcard to pay for all systems (such as the Dutch OV-chipkaart, and suggested by the UK2070 Commission) then a major modal shift away from the reliance on personal vehicles is unlikely, locking in inequality for generations to come.



"COVID-19 may have challenged the path to delivery of levelling up, but not its urgency or importance. The temptation of the Government will be to rein in its ambitions and spending. This would be a serious error"

Lord Kerslake, UK2070 Commission Chairman
Go Big Go Local - 2020 [36]



Figure 33: Map of the UK showing parliamentary constituencies that are likely to be hardest hit by the effects of the Covid-19 pandemic

Source: Go Big. Go Local: UK2070 report [36]

[36] <http://uk2070.org.uk/wp-content/uploads/2020/09/Go-Big-Go-Local.pdf>

[37] RAIL 916

SUB QUESTION:

3) What are the perceived barriers to cycling from the satellite villages to Dorking?

Many of the factors that create barriers to people cycling are common across the UK. Do these factors play a role in the current car dependency of the satellite villages around Dorking and how does this compare to the national average? The current dominance of the car as the primary mode of transport is shown through traffic and cycle flow data collected throughout the week at different times of day.(see **Figures 34 & 35:**)

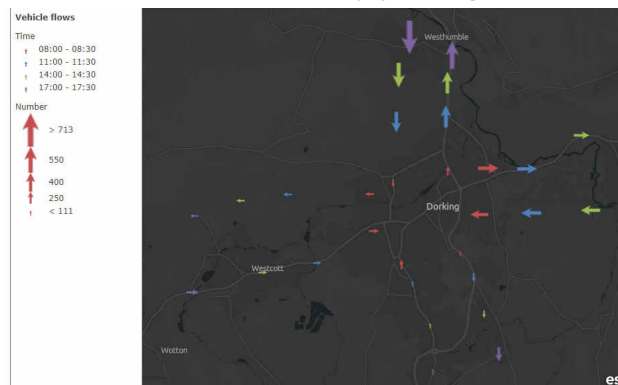


Figure 34: Traffic flows from each of the satellite villages into Dorking recorded throughout the day



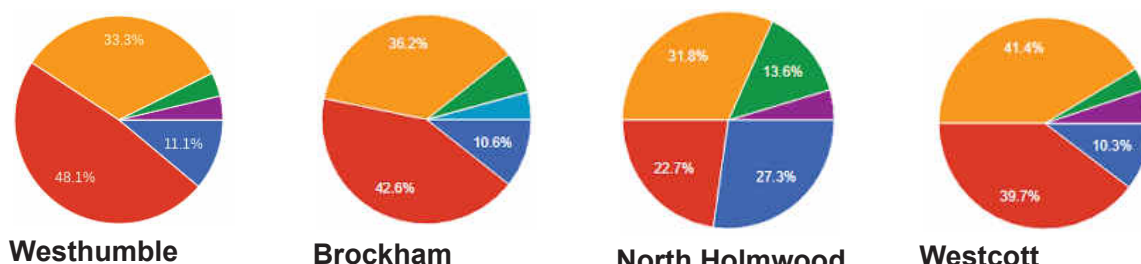
Figure 35: Total cycle flows from each satellite village into Dorking throughout the day



Figure 36: Cycle flow heat map using data from the Strava Global Heatmap

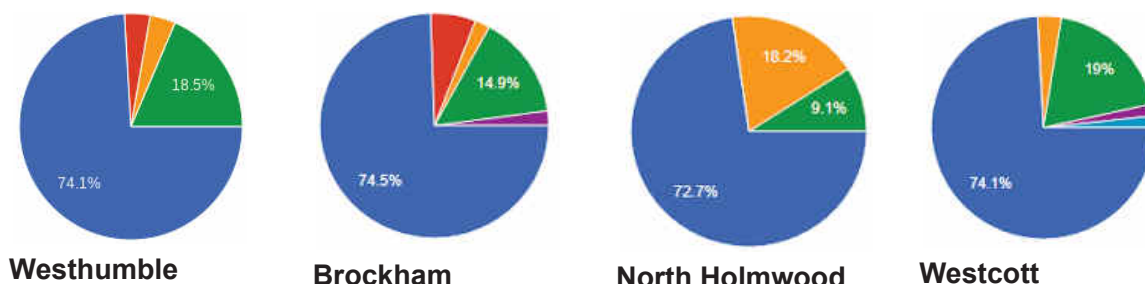
An online survey (to keep people safe during the pandemic) was conducted to assess the perceived and actual barriers to more sustainable transport of village residents. In addition to cycle flows, this data allows for barriers unique to each village to be identified.

How often do you travel into Dorking for any services? (eg medical, education, transport, shopping)



This data clearly shows that over 75% of survey respondents travel into Dorking at least once a week, proving that all the village populations rely heavily on Dorking for most services. This is due to the town's disproportionate sphere of influence because the surrounding areas are comparatively rural. North Holmwood has the highest proportion of daily journeys into town, perhaps due to minimal service provision compared to the other satellite villages. Conversely it may be because the village has become a suburb of the town.

What is your main mode of transport when travelling to Dorking?



This shows the current high level of car dependency for the short journeys from the satellite villages into Dorking. As mentioned previously, it is these short car journeys that are most polluting because the catalytic converters designed to reduce pollution are least effective. [16] The limitations of public transport are reflected in the low percentage of respondents.

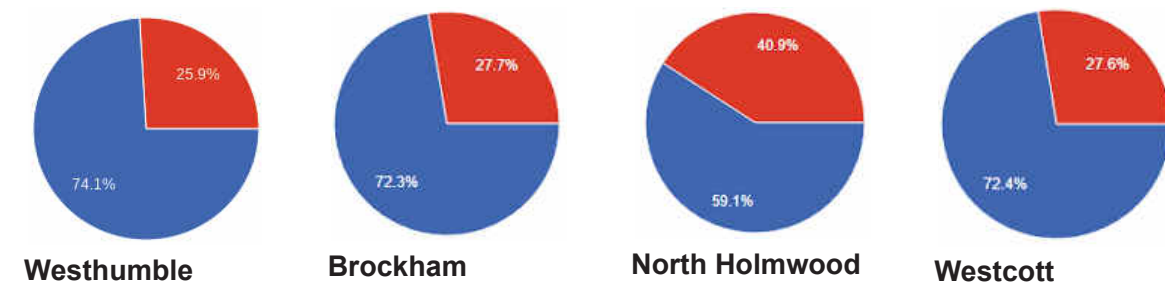
Conversely this could be used as a justification to *increase* public transport provision as a large market remains to be exploited if the offering were made more attractive. There is an interestingly high proportion of people walking from North Holmwood. This may be linked to the fact that the wards in that area have a higher level of

deprivation, meaning that active transport is more popular due to its low cost. In addition, as North Holmwood is a village that has since become part of Dorking due to urbanisation, it is the only village studied where it is possible to walk the route along street-lit footpaths, usable all year round.

In the pie charts pale blue represents electric cars, which although will not be as polluting compared to petrol and diesel vehicles, still add to road congestion and particulate matter from tyre wear in the area.

Purple represents changing modes of transport, with no predominant transport mode for these people. These people would fall into the 'near market' as suggested by Sustrans (see interview, pg 64) as it would only take incremental changes to make the overall journey more pleasant for a permanent modal shift by these people to be achieved.

Do you own a bicycle?



In England 42% of the population aged 5+ have access to a bicycle. [38] Cycle ownership in Mole Valley seems to be much higher using this data, but it has not correlated with a huge increase in journeys completed by bicycle. This may be down to the demographics of survey respondents, as older people may not have the physical ability to actively travel for their intended visit to Dorking (survey highlighted the ability to carry shopping and travelling with young children as a major reason behind car dependency). Bike ownership in North Holmwood is significantly lower than the other villages, which may explain why more people walk into Dorking. Also the lack of a decent cycle route from the village to town could deter people from committing money to buying a bike if a bike only has limited use due to safety concerns on busy roads

Traffic

Many people are likely to be deterred from cycling if they do not feel safe on their journey, with the 2020 National Travel Survey for England revealing that 66% of adults aged 18+ in England agreed that "it is too dangerous for me to cycle on the roads". [39] In England the average person cycles 54 miles in the year, whilst those who classified themselves as cyclists (people who recorded the use of a bicycle in their NTS travel diary at least once) cycle 1064 miles per year, which is up 55% from 2002. The flow of traffic was a factor considered in both the Sustrans quality audit of the National Cycle Network and the radial routes to the villages. Currently Surrey CC offers cycle training to primary-aged children, teaching them how to ride safely on busier roads, but investment in safe cycle infrastructure would increase people's

confidence further. This would increase the proportion of people using bicycles as a healthy and sustainable mode of transportation as seen in the Netherlands.



“Cycle training is helpful but essentially a small sticking plaster on a gaping wound. You can train someone to cycle more safely in a dangerous environment, but if the environment was safe you would need little training.”

Sustrans interview (See Appendix 8)

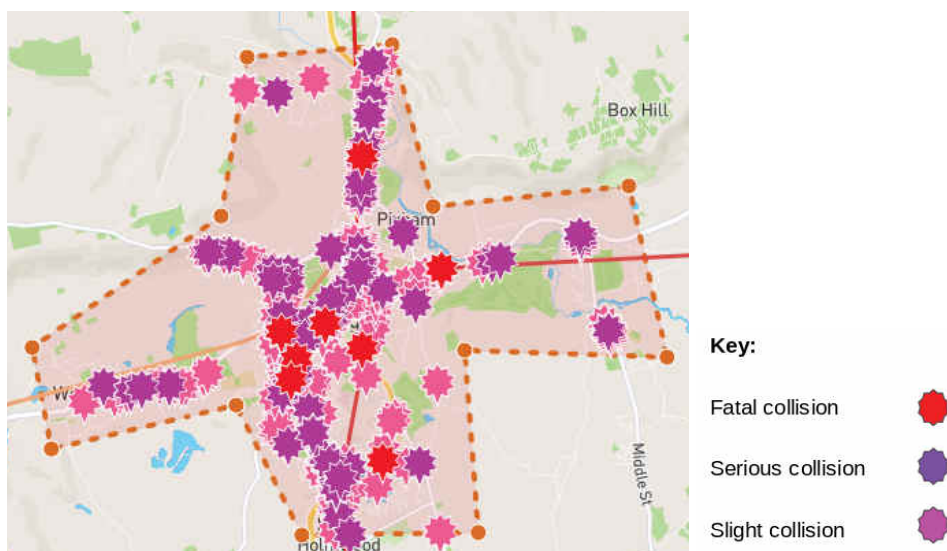
An average of 65% of all survey respondents from all villages thought safety from traffic was ‘necessary.’ 29% viewed traffic on busy roads as ‘very likely’ in preventing them cycling into Dorking. This feeling of being in danger when cycling on roads can be completely justified when looking at the collisions between cyclists / pedestrians and vehicles from the last 15 years. (See **Figure 37:**) Although cycling is not an inherently unsafe activity, collisions are more frequent than they should be due to lack of cycle infrastructure.

Figure 37:

Map highlighting collisions between cyclists / pedestrians and vehicles in the study areas using DfT & Police traffic incident data from 2005 - 2019.

Note: Not all collisions are shown due to the volume of collisions, darkness of lines indicates traffic flows along selected routes

Source: bikedata.cyclestreets.net



Age:

Data from the National Travel Survey shows that there is a significant variation in the age and gender of people who cycle. Survey respondents' age does not fairly represent the demographics of each village, making comparisons between them and national trends less accurate. The majority of survey respondents were older, perhaps explaining the low numbers of cyclists given the sample size.

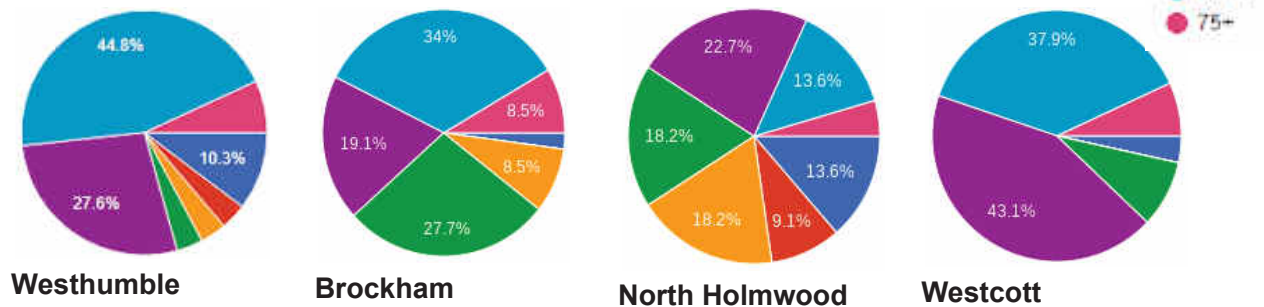


Chart 4: Cycling trips per person per year, by age and gender, England, 2019 [NTS0601]

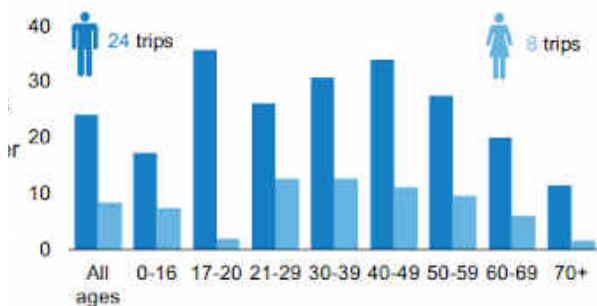


Figure 38: Cycle trips by age.

Source: National Travel Survey 2019

Air Pollution:

Air pollution is a serious health risk that continues to regularly make the news as scientists make the link between air pollution from the burning of fossil fuels and poor health, and how this major public health issue is being tackled by cities across the UK. Even though roads make up just 1% of the country, the effects are far more extensive; 94% of the land has pollutants above the background level. [40] Therefore it seems reasonable to assume that this will be a factor in preventing some people from cycling given the regular congestion on the dorking one-way system.

Air pollution is defined as a mix of particles and gases that can reach harmful concentrations both outside and indoors. Industry, transportation, coal power plants and household solid fuel usage are major contributors to air pollution. Air pollution continues to rise at an alarming rate, and affects economies and people's quality of life, including causing 7 million premature deaths a year globally. [41] There is also strong evidence that existing respiratory issues are a factor in increased mortality rates from Covid-19. The most harmful air pollution is particulate matter that is spewed out by internal combustion engines through a vehicle exhaust. Particulate matter is

classified into two categories; PM10 (where the particle diameter is smaller than 10 micrometer) & PM2.5 (smaller than 2.5 micrometers). Particulate matter can cause serious damage to the respiratory system, although the WHO has concluded it might impact all organs within the body [42].

To evaluate the varying levels of air pollution along the routes that cyclists would use to access Dorking from the satellite villages, air pollution data was recorded at 800m intervals along each route transect. The data shows an interesting pattern where the air pollution concentrations are highest where vehicles accelerate. This pattern is expected for particulate matter air pollution as more energy is required to increase the velocity of vehicles, meaning greater rates of fuel consumption.

However there are many flaws with this primary data which need to be considered:

- Wind dispersal : particulate matter can be easily blown around by the wind, so this will affect the readings. When this data was collected there was a moderate breeze, but wind flows at low levels where the air pollution data was collected are easily affected by topography and land use. (See **Appendix 5:** for Met Office wind direction & speeds)
- Air Pollution monitor precision : the sensor used to collect the air pollution data has limitations to its precision. The sensor can only detect particulate matter, not identify the type of particulate matter, so it is possible that dust or pollen, which would exist naturally, was included in the results.
- External factors : the sensor was easily affected by external factors such as passing cars, which makes taking an average reading very tricky. The data collected will only be representative of the vehicle flow past each location at a specific time.

This data was collected on a Sunday, when traffic flows are traditionally lower. This is reflected in the anomalous low air pollution readings for busy or often congested locations, such as the one-way system by LIDL.

[38] <https://www.cyclinguk.org/statistics>

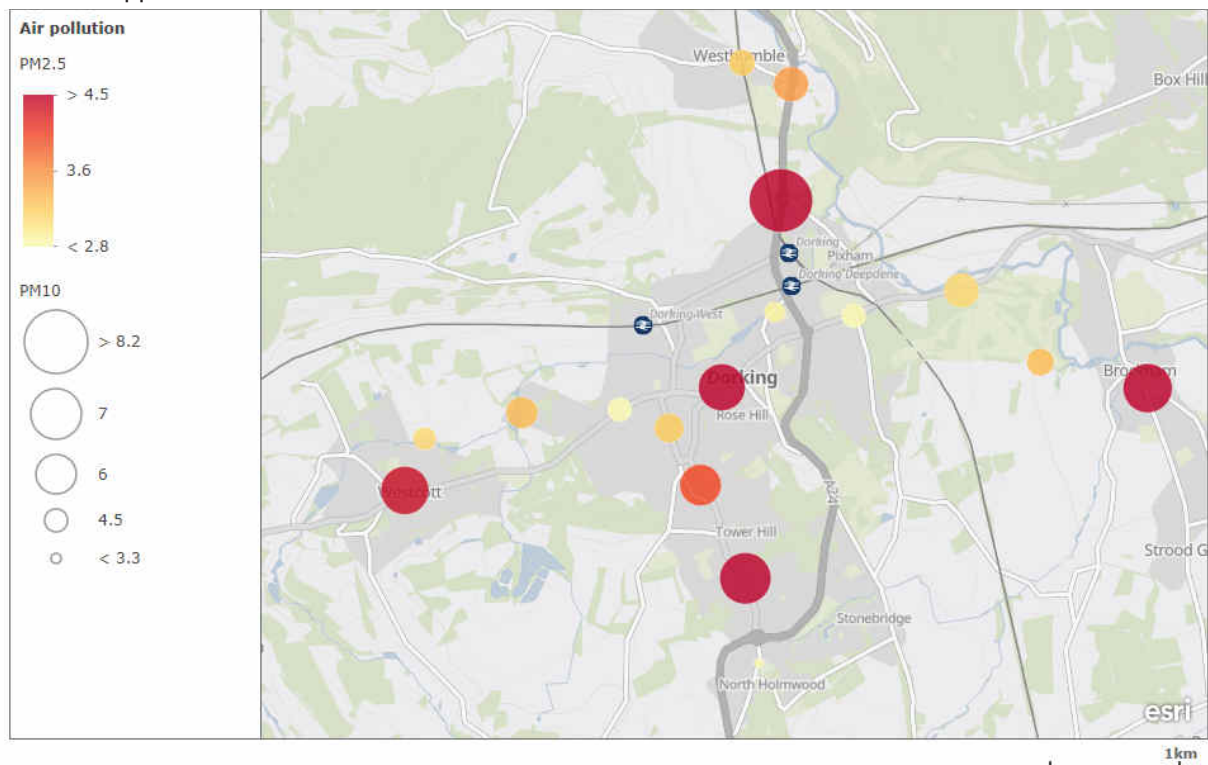
[39] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/906698/walking-and-cycling-statistics-england-2019.pdf

[40] <https://www.theguardian.com/environment/2021/mar/12/road-pollution-affects-94-of-britain-study-finds>

[41] <https://www.theguardian.com/environment/2020/oct/03/dramatic-plunge-in-london-air-pollution-since-2016-report-finds>

[42] <https://www.who.int/westernpacific/health-topics/air-pollutio>

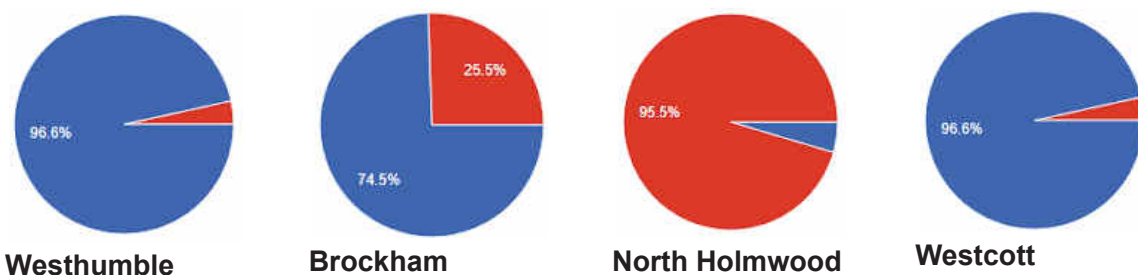
Figure 39: Map showing the concentration of different air pollution along the cycle routes. Data can be viewed in Appendix 5:



Route Knowledge

Knowledge of the cycle routes between the villages and Dorking (where routes exist) is impressively high when compared to knowledge of the National Cycle Network. Nationally 26% of the adult population have heard of the National Cycle Network when prompted. [12] This indicates that education of the cycle routes is not a factor in preventing modal shift.

Are you aware of the bike route from your village into Dorking?



This also shows that knowledge of the bike route is linked with the overall quality of the route. People are more aware of the better quality routes to Westhumble and Westcott, which in turn have higher patronage.

Estimation of potentially cyclable journeys

Data from the village travel surveys about current travel patterns will help identify the potential for short trips (work by TfL shows that short journeys have the most potential to be switched to bicycles [17]) between the villages and Dorking town centre. The villages already have varying levels of car dependency, which impacts the potential number of trips that could be readily switched. Extrapolating the survey data to predict travel patterns for the entire population allows for a more accurate estimation of switchable trips.

“In The Netherlands, 27% of journeys are made by bike, followed by Denmark at 19%. Even Germany manages 10%, with Austria, Switzerland, Belgium, Sweden, Italy and France all lying between 5% and 9%. Britain however languishes towards the lower end of the European league table, with less than 2%.” There is a fast growing passion for cycling in the UK, ignited after the 2012 Olympics and the Tour De France starting in Yorkshire in 2014, but *“too many people in the UK feel they have no choice but to travel in ways that are dangerous, unhealthy, polluting and costly, not just to their own wallets but also to the public purse.”* The All Party Parliamentary Cycling Group’s “Get Britain Cycling” report released in 2013 highlighted that cycling currently makes up a tiny proportion of journeys in the UK. The report recommends that there should be a period of sustained £10-£20 investment in cycling infrastructure per head to achieve the vision of a dramatic increase (in both number and diversity) of people using bicycles for their journeys. In order to capitalise on the huge health, social and economic benefits as a result of increased cycling levels, it suggests that the modal share of the bikes for all journeys should increase to 25% by 2050. [43]

These calculations assume that 75% of respondents who own a bike currently do not cycle due to habit and or the perceived barriers to cycling. This is a conservative estimate based on the fact that in all village samples, bike modal share was under 25% whilst bicycle ownership averages 70%. Although this indicates that on average 35% of bicycle owners cycled their journey, more residents who may ride have not necessarily been captured in the surveys. In addition, this assumes that cycling increases to 25% of all journeys by 2050, it is possible to estimate the number of trips per month based on the current travel patterns of respondents that could be switched. This assumes that bicycle ownership is normally distributed between the different travel patterns. There will however still be some journeys that are not doable by bicycle due to the need to transport large goods etc, as highlighted in the survey results.

[43]https://www.cyclinguk.org/sites/default/files/document/migrated/news/get_britain_cycling.pdf

jpm - journeys per month into Dorking

Current travel patterns (all modes)	Westhumble	Brockham	North Holmwood	Westcott
Daily (30jpm)	$3 \times 30 = 90$	$5 \times 30 = 150$	$6 \times 30 = 180$	$6 \times 30 = 180$
3x/week (12jpm)	$14 \times 12 = 168$	$20 \times 12 = 240$	$5 \times 12 = 60$	$23 \times 12 = 276$
1x/week (4jpm)	$10 \times 4 = 40$	$17 \times 4 = 68$	$7 \times 4 = 28$	$24 \times 4 = 96$
Fortnightly (jpm)	$1 \times 2 = 2$	$3 \times 2 = 6$	$3 \times 2 = 6$	$2 \times 2 = 4$
Monthly (1jpm)	$1 \times 1 = 1$	$2 \times 1 = 2$	$1 \times 1 = 1$	$4 \times 1 = 4$
Total (jpm)	301	466	275	560
Bicycle ownership	69%	72%	59%	73%

Potential journeys by bike = bicycle ownership x journey frequency

Potential journeys by bike	Westhumble	Brockham	North Holmwood	Westcott
Daily (30jpm)	$69\% \times 3 \times 30 = 62.1$	$72\% \times 5 \times 30 = 108$	$59\% \times 6 \times 30 = 106.2$	$73\% \times 6 \times 30 = 131.4$
3x/week (12jpm)	$69\% \times 14 \times 12 = 115.9$	$72\% \times 20 \times 12 = 172.8$	$59\% \times 5 \times 12 = 35.4$	$73\% \times 23 \times 12 = 201.5$
1x/week (4jpm)	$69\% \times 10 \times 4 = 27.6$	$72\% \times 17 \times 4 = 49$	$59\% \times 7 \times 4 = 16.5$	$73\% \times 24 \times 4 = 70.1$
Fortnightly (jpm)	$69\% \times 1 \times 2 = 1.38$	$72\% \times 3 \times 2 = 4.3$	$59\% \times 3 \times 2 = 3.5$	$73\% \times 2 \times 2 = 2.92$
Monthly (1jpm)	$69\% \times 1 \times 1 = 1.38$	$72\% \times 2 \times 1 = 1.4$	$59\% \times 1 \times 1 = 0.59$	$73\% \times 4 \times 1 = 2.92$
Total per month	208.4	335.5	162.2	408.8

Potential Additional Cycle Journeys (per month)	Westhumble	Brockham	North Holmwood	Westcott
75% of Potential Cycle Journeys currently not cycled	156.3	266.6	121.7	306.6
75% Rounded Total	156	267	122	307
Additional journeys by 2050 if modal shift to 25% is achieved	39	67	31	77
Estimate for entire village (rounded)	$(39/301) \times 1242 = 161$	$(67/466) \times 2542 = 365$	$(41/275) \times 3961 = 591$	$(77/560) \times 1279 = 176$
Total distance (miles) for return journey*	$161 \times 2 \times 2.4 = 773$	$365 \times 2 \times 2.6 = 1898$	$591 \times 2 \times 1.8 = 2128$	$176 \times 2 \times 1.6 = 563$

*Distances calculated using Google Maps

CO2 savings

Short car journeys release CO2 into the atmosphere, which accelerates climate change. The current volume of these car journeys across the UK is not sustainable if the nation is to meet any of its climate change targets. Using the carbon footprint calculator on the Great Western Railway (GWR) it is possible to estimate the overall quantity of CO2 emissions saved [44] if all potential new cycle journeys into Dorking switch to bicycles. For the 1 mile journey between Dorking and Box Hill & Westhumble stations by train, GWR calculated that an average car with average passenger loadings would release 0.17kg CO2 into the atmosphere.

This means that for the approximate 5362 miles each month that could be cycled, a huge 912 kg of CO2 emissions would be saved. Given the small size of Dorking, 10 tonnes of carbon emission reductions per year is a significant saving for a relatively small proportion of journeys switching to bicycles. If this level of modal shift was replicated and achieved across the UK, the carbon footprint savings would soon snowball to astronomical levels as the ONS states there are 112 major towns and cities with populations greater than 75,000 in England and Wales. [45]

Conclusion:

These online surveys revealed that many people do not currently cycle because they do not believe it is a viable or safe mode of transport, which reflects the national opinion. [39] Many respondents highlighted their need to transport large equipment for work, transporting children and carrying children or shopping as a major cause behind the current car dependency. Weather has been discounted from this analysis as nothing can be done to change weather patterns. Ease of movement and time considerations were other factors raised in limiting current cycling levels. However, investment into high quality cycle routes would enable children to cycle safely, journey times over these shorter routes to be comparable to cars, and the routes be usable at all times. Habits take time to change and will only change if the alternative is a more enjoyable experience, so the key in achieving modal shift is to make the bicycle perceived as an easy, quick, cheap and crucially a safe mode of transport. Our European neighbours have shown this is possible (even in colder climates!), but a huge change in attitude is needed, which can only be achieved by improving the experience of the journey for cyclists. The health, social and economic benefits are large (cycle infrastructure investment is estimated on average to have a cost : benefit ratio of 1:13 [46], far greater than that of other large scale government projects such as HS2 [47]) and are ready to use as one way to catapult the UK out of the largest peacetime recession. [48]

“The future of our towns and cities depends on our ability to move around sustainably and on solutions that have a better impact on public health, congestion and urban space.”



Xavier Brice, Sustrans CEO

Response to DfT Future of Mobility : Urban Strategy report - 2019

[44] <https://www.gwr.com/about-us/sustainability/carbon-calculator>

[45]

<https://ons.maps.arcgis.com/apps/MapJournal/index.html?appid=fb85539cdc4d4b7d9d34f9560092bb95>

[46] <https://www.cyclinguk.org/campaigning/views-and-briefings/cycling-and-economy>

[47] <https://www.instituteforgovernment.org.uk/explainers/high-speed-2-costs>

[48]

<https://www.theguardian.com/business/live/2020/nov/20/uk-national-debt-october-borrowing-covid-19-retail-sales-ftse-business-live#>

SUB QUESTION:

4) Mole Valley Cycle Forum : 20 years of progress?

The Mole Valley Cycling Forum is a group of local residents who formed in 1996 as a cycling and pedestrian campaigning group as part of Local Agenda 21 in Mole Valley. The forum aims to encourage cycling in Mole Valley by :

- Promoting sustainable transport by encouraging cycling and walking to reduce reliance on our cars.
- Producing proposals for traffic management measures, cycle routes, and cycle facilities (e.g. cycle parking) for those travelling to work, school, shops and stations on bike or on foot.
- Encouraging and supporting community groups to produce ideas for their local area.
- Working with the Local Authority to produce solutions to traffic issues.



In 2000 the Mole Valley Cycle Forum completed a review of cycling and pedestrian facilities and safety in and around Dorking. The review was prepared on behalf of the Mole Valley Cycle Forum by a group of, predominantly, resident Dorking cyclists, with the aim of highlighting features which deter cycling within and around the town centre. The report made suggestions and identified some small projects they felt would assist in improving safety and accessibility for cyclists in Dorking without reducing safety of pedestrians. 20 years on, some issues have not changed...

'Although there has been some investment in cycle facilities in recent years, increased traffic density and speeds has now compromised the effectiveness of such measures. The safety needs for cyclists and pedestrians within this changed environment is now such that existing provision is inadequate. If people are to be encouraged to cycle and walk for the shorter journeys into Dorking, increased commitment of resources into the design and provision of more effective facilities should now be a key priority.'

MVCF Dorking report, 2000

What progress has been made since 2000 to cycle infrastructure in Dorking?

- A2003 Ashcombe Road / A24 junction
Mole Valley Cycling Forum 2000 report recommendations

5. The junction of Ashcombe Road and the A24 poses problems for both north- and south-bound cyclists on the cycle path on the west side of the A24.

Northbound cyclists (and pedestrians) are at risk from cars turning left into Ashcombe Road, giving way only to traffic on Ashcombe Road, not to cyclists.

Southbound cyclists are faced with a blind junction on a narrow pavement shared with pedestrians.



fig 6:: Crossing point at Ashcombe Road traffic lights.

Suggestion: Phased signals controlling the left turn into Ashcombe Road plus signals for cyclists and pedestrians



A signalled shared use crossing has since been installed to allow for the cycle path to cross the north-bound slip road onto the A2003 Ashcombe Road westbound. This has massively increased the safety for cyclists and pedestrians crossing the road as a hedge makes it a blind corner and cars often approach the slip road at quite high speeds, despite having to give way.

- Deepdene Roundabout

3. Deepdene Roundabout

8. Deepdene Roundabout is chaotic. At peak times this feature is difficult to traverse for most cyclists and nearly impossible for pedestrians. Westbound and north/south traffic queues at peak times also pose major environmental problems for local residents.

Note: Deepdene residents have recently submitted a petition for traffic calming in this area.

Suggestion: Deepdene roundabout may be helped by signalled pedestrian/cyclist crossings on the eastern (Reigate), northern and southern exits. Crossing requirement at western exit may be satisfied by crossing further towards the town centre at, say, Pippbrook.



Fig 10 Aerial view of Deepdene Roundabout.

Mole Valley Cycling Forum 2000 report recommendations

Since the report, signalled crossings have been installed on the eastern (Reigate) and northern (Leatherhead) exits of the roundabout, making it easier and safer to cross the road. Islands for crossing the

western and southern exits of the roundabout exist, but large volumes of traffic make crossing more dangerous. Although there have been major improvements to road crossings allowing people to access the cycle routes, there remains a narrow pinch point and blind corner on the NE side, which slows down journey times for those using active travel as a mode of transportation, creating a further disincentive to the bicycle. The blind corner could also create some tension between pedestrians and cyclists in the event of near misses.

- Dene Street

Mole Valley Cycling Forum 2000 report recommendations



12. Dene Street. Width of lower end of Dene Street and poor field of view means that if, as is frequently the case, vehicles travelling in opposite directions have to pass each other most motorists drive on the already narrow pavement, forcing pedestrians into doorways.

Suggestion: One-way (southbound) vehicle access, with weight limit, plus counter-flow cycle lane could be provided. (One-way scheme proposal in Dorking plan but access for commercial vehicles to Dene Street and behind High Street needs to be revised).



fig 14 Traffic (on both sides) passing using the pavement in Dene Street

SCC has since changed the road layout to make the lower northern end of Dene Street one-way (northbound). This has stopped vehicles mounting the narrow pavement to pass each other, but no contra-flow cycle lane has been installed. A regular problem however is that vehicles leaving Dene Street 'creep' out into the High Street in order to gain visibility around parked cars outside Nationwide bank.

- Pump Corner

Mole Valley Cycling Forum 2000 report recommendations

16. Pedestrian crossing at Pump corner. Traffic turning right from West Street into South Street is forced to the RHS by parked cars and tends to squeeze cyclists. It is particularly difficult for westbound cyclists to merge into the right-hand lane in South Street. Pedestrians attempting to cross from corner of South/West Street have a particularly difficult time crossing between the South and North sides of the High Street.

Suggestion: Crossing 'Stop Lights' repositioned to stop eastbound vehicles in both West Street and North Street. Cyclists advanced stop line on both east and westbound carriageways. Westbound lights timed to allow cyclists (and westbound vehicles) to move before traffic exiting West Street. Ideally Pump corner should be a raised table traffic-calming feature.



fig 17 View through Pump Corner, looking south



fig 18 Pump Corner exit, traffic squeezing left to pass parked cars on RHS

The road layout has been modernised at Pump Corner in recent years to improve the pedestrian road crossing, whilst incorporating the filter lane and cycle traffic lights to allow westbound cyclists to turn right and head down North Street. Advanced Stop Lines (ASLs) have also been installed. This new infrastructure is better for pedestrians and traffic flow as

the new crossing has an island which means the lights change at different times for vehicles heading in both directions, and ensures slower less mobile pedestrians who take longer to cross the road do not become stranded if the 'man turns red.' The pedestrian island is separated from the road carriageway by a raised curb.

However the filter lane for cyclists allowing NCN Route 22 west, and avoiding the notoriously congested one-way system, has many flaws. As per the Highway Code, the filter lane to the ASL is on the left-hand side of the road, but the turning for Route 22 to head right into North Street is on the right hand side of the lane immediately after the traffic lights. This layout creates a potential conflict between different road users as cyclists following the routes have to swerve in front of the traffic flow in order to access the cyclist traffic lights to continue into North Street (which is a southbound only road for all other vehicles). (see **Figure 41:**)

Signage for Route 22 does exist, but is not in the most suitable location for cyclists trying to navigate whilst being fully aware of other road users.



Figure 40: NCN signposting several metres up a lamppost on the raised footpath

- South Street

Mole Valley Cycling Forum 2000 report recommendations

20. Beyond Junction Road carriageway narrows rapidly and cyclists can get squeezed. Continuing in the direction of Ranmore and Westcott (and all points west!) cyclists have to circumnavigate the entire one way system.

Suggestion: Provide a short section of counter-flow cycle lane on south side of West Street, between Junction Road and Station Road. Westcott/Ranmore bound cyclists diverted via Junction Road and cycle lane.

21. Remainder of South Street is narrow and potholed with many parked cars and cars manoeuvring in and out of parking bays and side roads.

Suggestion: Ensure remedial repairs completed.




fig.22 Road narrows from, effectively, four lane widths to one in short distance.

After Waitrose was redeveloped into the larger store in 2013, the adjacent road layout has changed so that the northern end of Junction road could become bi-directional road to allow for access to the supermarket car park. This changed the uncontrolled Belisha beacon pedestrian crossing with an island in the middle of the 2 lanes of South Street into a traffic light controlled junction. Additional cycle parking was installed on the wider pavement outside Waitrose.

However, none of the suggested changes by the Mole Valley Cycle Forum were implemented. The road narrows quickly, with a risk of cyclists being squeezed still a hazard. For any bicycle journeys west, cyclists must navigate the entire one-way system or use NCN Route 22 via the filter lane at Pump Corner, North Street and Church Street.

Figure 41: Short filter lane at Pump Corner after ASL allowing westbound cyclists following NCN route 22 to access North Street from the High Street

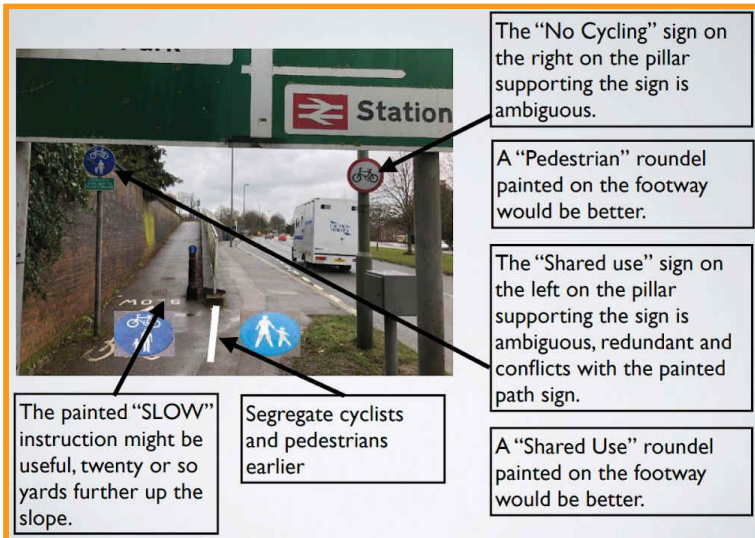


- A24 London Road bus stop
NCN Route 22 has had a minor route change in recent years to improve the safety of cyclists and pedestrians using the bus stop on the northbound carriageway of the A24. Previously the route went right in front of the bus stop (cyclists were unable to see waiting bus passengers due to the advertising screen) where the surface is narrow and of poor quality. The route now deviates

up the ramp into Croft Road to avoid the bus stop MVCF suggested these changes in 2018, and many have already been adopted.



Mole Valley Cycling Forum 2018 report recommendations



Painted symbols on the path to indicate the difference between cycle route and the footpath have been installed, whilst additional slow signs have been painted in a bid to increase safety for pedestrians. For cyclists heading south there is now a painted arrow to direct onto Croft Road

Conclusion:

There remains many barriers to more sustainable transportation both in the Dorking area and the UK. Ultimately, the perception that walking or cycling short distances from the villages is just unsuitable for everyday life has become ingrained in society because of minimalist consideration by transport planners for active travel.

Dorking may be able to achieve sustainable transport much quicker and easier than other places across the country as cycling now forms such a strong part of the town's identity. In addition the local cycle network is relatively well developed and used, though expansions to more remote villages will prove tricky due to the topography and protected status of much of the area. No blanket approach can be taken to enable modal shift for the UK, but the aims of increasing modal shift to make transportation more sustainable are universal.

The current extent of cycle parking in Dorking is sufficient for the low volumes of active travel between Dorking and the surrounding areas. But, the quality and patchy nature of the cycle paths is a significant barrier in preventing further modal shift. There is no guarantee that new infrastructure put in place rapidly to aid social distancing during the pandemic will stay, whilst future investment is a microcosm of that pledged for improving roads. Cycling these short journeys today is not an accessible option for all, due to multiple safety hazards and poor quality surfaces. Decades of investment into roads has created a car-centric minded society, yet cycling offers large health and economic benefits (averaging a huge £13 returned to the economy for every pound spent). [49] Busy roads further discourage people to adopt cycling, resulting in two-thirds of adults today no longer feeling safe to cycle on the road, [39] making it all the more important that cycle infrastructure is fully segregated from the traffic to achieve more sustainable transport.

Dorking is well served by public transport, though local bus services continue to be limited in the quality of service provision. The evidence from the travel surveys indicate that local buses are not suitable for the residents' needs, whether that be expensive fares or limited timetables, resulting in public transport usage being lower than the pitifully low 7% nationally. Campaigners have long argued that major long term sustained investment into public transport is a way of reducing national inequalities and reducing emissions from this major sector (responsible for 20% nationally [50] but 46% in Surrey [51]). It is uncertain if users will continue to enjoy the benefits of regular services as the pandemic has decimated the fare income that supported them. A public transport revolution needs to work in tandem with increased cycling levels to achieve more sustainable transportation. Buses, trains and light rail systems across the country should connect easily with each other, offer simple cheap ticketing (perhaps through the use of a contactless payment system, such as London's Oyster) and run at regular intervals. Public transport already has the credentials of being the 'greenest', but there is great opportunity to

decarbonise further through electrification of these systems to lower emissions further, creating a truly sustainable method of movement.

Perceived barriers to cycling are broadly similar to national opinions. Safety from traffic trumps all other concerns such as adequacy of cycle parking and signage, though these are contributing factors that if modal shift is to be successful are needed to make the experience better and change habits. It is clear that bicycle ownership and cycle route knowledge are not preventative factors, as in Dorking both are remarkably high. Obviously, active travel is not necessarily the best option for everyone, and motor vehicles will still have a place in society, but the aim should be to make this cheap and healthy mode of transport the normal for all short journeys. Road reallocation to create networks of segregated, fully accessible walking and cycling paths so users of all abilities can feel safe wherever they are travelling, that head directly to prime destinations is often the quickest and cheapest way of creating modal shift. The key to breaking habits to enable modal shift is making sustainable transport more appealing than the alternatives in every way. It will take time to shift public perception to accept the bicycle as an integral part of transportation, but a quick look to our European neighbours (even where it is colder for cycling) reveals that this is entirely possible if there is adequate amounts of ambition and investment for those on two wheels.

“The UK needs a complete culture shift to be able to establish proper cycle provision and flexibility and convenient public transport.”

Travel Survey Respondent

The work of the Mole Valley Cycle Forum over the past 20 years has helped cycle infrastructure in the town head in the right direction for changing how people move. However, the effect felt has been minimal because a growth in vehicle traffic has compromised any improvements. These are small scale suggestions for a council with a stretched budget for such works, but have nonetheless been effective. Much remains on a wish list, but will be required regardless to achieve a significant modal shift to more sustainable modes. Future capacity will need to grow to meet the rise in demand. This requires large scale investment now, which will have the additional benefits of making new jobs whilst securing many more jobs in supply chains, the very reason why other major government projects, such as HS2, press on despite criticism for their poor cost : benefit ratio. [46]

Transportation has a large potential to help the UK decarbonise, so neglecting this currently inefficient and polluting sector would throw the legally binding climate change targets into jeopardy. Many European cities have shown the success of new cycling infrastructure and now plan to accelerate delivery of expanded networks to build back better after the pandemic. [52] There is no reason why this cannot be replicated here yet progress remains limited.

If the Prime Minister is serious about reducing regional inequalities, and making Britain a global leader in the green economy, then sustainable transport will have to form a central part of this transformation. There is a huge potential for most journeys in the country to switch to more sustainable modes of transport, simply because today the UK has a disappointingly low

proportion of journeys made actively, but a lack of ambition and investment stunts the growth. A gear change is needed now to revitalise communities in the wake of the pandemic. This can be fuelled by investment and job creation in sustainable transport now, as part of a long term strategy to get Britons cycling, which will reap the vast untapped benefits in years to come.

[49]<https://www.cyclinguk.org/campaigning/views-and-briefings/cycling-and-economy>

[50]<https://www.ons.gov.uk/economy/environmentalaccounts/articles/roadtransportandairemissions/2019-09-16>

[51]<https://news.surreycc.gov.uk/2020/05/26/wide-pavements-and-new-cycle-paths-could-help-unlock-surrey/>

[52]<https://www.theguardian.com/lifeandstyle/2021/mar/12/europe-cycling-post-covid-recovery-plans>

Evaluation:

This investigation into the barriers to more sustainable transport within the Dorking area was conducted in a unique time, when all transportation modes suffered a severe drop in use due to the restrictions put in place to control the pandemic. Despite the challenging socio-economic circumstances, it seems that active and sustainable travel flourished as people found the joys of walking and cycling in the sunniest spring on record.

The investigation allowed for smaller micro-flows of people moving between Dorking and the surrounding villages to be measured that would not normally be picked up in larger travel surveys. However, there is no way of knowing how many of these journeys were entirely within the study area and how demand for travel will change in the aftermath of the pandemic. The limited geospatial scope however did mean that it was easy to get to each data collection point every day to create an average, although a larger data set to average would be preferable.

Furthermore there is a high risk of human error during the counting process for the cycle and traffic flows, but given the high volume of vehicles, the percentage error would be small.

Several limitations were apparent when collecting data. Travel surveys had the potential for ingrained bias due to the sampling method and closed survey questions. As a cyclist myself, these questions were likely to be biased towards cycling from the villages and did not necessarily understand all the barriers to achieving modal shift. The inability to complete any surveys in person due to Covid-19 safety concerns meant that respondents had little opportunity to express their views on sustainable transport issues that were not included in the surveys. The travel surveys succeed in indicating the views of some village residents on the barriers to more sustainable travel as part of the pandemic recovery, but are not a fair representation of the wider populations.

Air quality sensors only have limited accuracy, and air pollution is easily affected by external conditions. Air quality contributors were likely reduced and limited due to the Covid-19 restrictions and to understand the impact of the pandemic additional data collections would be required throughout the year.

Cycle infrastructure data was only collected once throughout summer 2020, meaning that data does not fairly represent the normal travel patterns or opinions towards active travel due to the impact of the pandemic. Further data collections would make the data more reliable by removing anomalies and could identify seasonal variances, but already the large volume of both primary and secondary data made it difficult to properly analyse in depth.

Public transport analysis has also been difficult to summarise as due to demand, economics and pandemic restrictions, timetables have been cut and altered drastically many times throughout the investigation whereas in normal circumstances minor changes would occur every 6-12 months. In addition to public messaging to minimise travel, lower numbers of people recorded using public transport from the villages may be due to the inability to rely on services that change times and frequency at short notice.

The work of the MVCF is old, meaning that today's issues were not identified in their report and had action taken, whilst many of the projects have become compromised in the last 20 years as traffic increased. However, an updated Cycle Route Priorities is expected imminently, with hopes that some schemes are now more likely to gain funding due to government investment in active travel. Communication with both Sustrans and MVCF helped this investigation with information from active travel experts, who have for many years sought to remove barriers to sustainable travel on both national and local levels. Larger surveys undertaken by active travel organisations and the government have allowed for localised data to be compared with credible national averages.

To further extend this investigation, similar data collections could be completed in one of the Cycle Demonstration City & Towns, such as Brighton, to compare to Dorking and see how increased investment into sustainable transport changes the way people travel. This could show how relatively small scale investment has removed some barriers to sustainable travel, having transformative effects, thus allowing affordable suggestions for local infrastructure improvements to be made.

Appendices:

Appendix 1:

Location Number	Car Park	Number of Spaces (includes 30 minutes free spaces)	30 minutes free spaces
1	Junction Road	35	0
2	West Street	37	3
3	Church Street	31	0
4	South Street	32	2
5	North Street	17	0
6	St Martin's Walk	372	3
7	Southside	181	7
8	Dene Street	24	0
9	Wathen Road	104	5
10	Pippbrook (Saturday only)	(143)	0
11	Reigate Road	254	4
Total	--	1087 / 1230 on Saturdays	24

Appendix 2: Table showing flows of cyclists on the routes from the villages to Dorking during 4 data collection visits on consecutive days at different times (see **Appendix 3:**)

Location (route)	Direction	Tally	Type of bike					
			Road	Mountain	Hybrid	Electric	Kids	Other
Denbies roundabout	Dorking	48	24	15	9	0	0	0
(Westhumble)	Westhumble	76	49	9	15	0	2	1
	Route Total (%):	124 (47.7%)	73	24	24	0	2	1
Garden Centre	Dorking	28	16	5	7	0	0	0
(Brockham)	Brockham	30	16	8	3	0	2	1
	Route Total (%):	58 (22.3%)	32	13	10	0	2	1
Barrington Road	Dorking	13	4	6	1	0	1	1
(North Holmwood)	North Holmwood	15	2	7	5	1	0	0
	Route Total (%):	28 (10.7%)	6	13	6	1	1	1
Milton Court Lane	Dorking	36	14	16	4	0	2	0
(Westcott)	Westcott	14	3	4	3	2	2	0
	Route Total (%):	50 (19.2%)	17	20	7	2	4	0
	Cumulative Total (%):	260 (100%)	128 (49.2%)	70 (26.9%)	47 (18.1%)	3 (1.2%)	9 (3.5%)	3 (1.2%)

Appendix 3: Table showing method for collecting cycle and traffic flows

Time / Date	Mon 31/8/20	Tu 1/9/20	Wed 2/9/20	Thu 3/9/20
08:00 - 08:30	Westhumble	Westcott	North Holmwood	Brockham
11:00 - 11:30	Brockham	Westhumble	Westcott	North Holmwood
14:00 - 14:30	North Holmwood	Brockham	Westhumble	Westcott
17:00 - 17:30	Westcott	North Holmwood	Brockham	Westhumble

Appendix 4: Table showing flows of vehicles on the roads adjacent to bike routes from the villages to Dorking during 4 data collection visits on consecutive days at different times (see Appendix 3:)

Location (route)	Direction	Direction totals	Time of Day			
			08:00 - 08:30	11:00 - 11:30	14:00 - 14:30	17:00 - 17:30
Denbies roundabout	Dorking	1871	153	480	525	713
(Westhumble)	Westhumble	1694	193	459	460	582
	Route Total :	3565	346	939	985	1295
Garden Centre	Dorking	1592	442	423	329	398
(Brockham)	Brockham	1823	386	427	408	602
	Route Total :	3415	828	850	737	1000
Barrington Road	Dorking	563	196	126	112	129
(North Holmwood)	North Holmwood	744	111	176	157	300
	Route Total :	1307	307	302	269	429
Milton Court Lane	Dorking	817	209	171	184	253
(Westcott)	Westcott	709	184	184	173	168
	Route Total:	1526	393	355	357	421
	Cumulative Total (%):	9813	1874 (20.0%)	2446 (24.9%)	2348 (23.9%)	3145 (32.0%)

Appendix 5: Air Pollution data, collected on Sunday 30/08/2020

Notes:

*Sourced from Met Office

Data results an average of readings recorded, which fluctuated with passing vehicles

Location	Grid Reference	PM2.5 (µg/m³)	PM10 (µg/m³)	CO2 (ppm)	Mean Wind Speed (gusts) & Direction *	Route
High Street	51.2321, -0.3316	4.7	6.7	399	9 (17) N	All
London Road	51.23711, -0.32572	2.9	4.3	399	9 (19) N	Brockham / Westhumble
Denbies roundabout	51.24464, -0.32478	4.9	8.2	505	9 (17) N	Westhumble
A24	51.25249, -0.32341	3.5	5.6	405	9 (17) N	Westhumble
Box Hill & Westhumble station	51.254018, -0.328623	3.2	4.8	399	9 (17) N	Westhumble
Punchbowl Lane	51.23674, -0.31723	2.8	4.6	399	9 (19) N	Brockham
Golf Club / garden centre	51.23828, -0.30557	3.1	5.6	399	9 (19) N	Brockham
Coach Road	51.23331, -0.29726	3.3	4.9	399	9 (19) N	Brockham
Brockham Green	51.231380, -0.285771	5.3	6.9	398	9 (19) N	Brockham

Location	Grid Reference	PM2.5 (µg/m³)	PM10 (µg/m³)	CO2 (ppm)	Mean Wind Speed (gusts) & Direction *	Route
High Street	51.2321, -0.3316	4.7	6.7	399	9 (17) N	All
Horsham Road	51.22552, -0.33414	4.0	6.2	399	9 (17) N	North Holmwood
Flint Hill	51.21914, -0.32954	4.8	7.1	399	9 (17) N	North Holmwood
Lidl	51.22942, -0.33738	3.2	5.1	399	9 (17) N	North Holmwood
North Holmwood Post Office	51.213372, -0.328297	2.2	3.3	399	9 (17) N	North Holmwood
A25	51.23074, -0.34266	2.7	4.6	399	9 (17) N	Westcott
Milton Court (Unum)	51.23068, -0.35319	3.3	5.3	430	9 (17) N	Westcott
Bike track nr Springfield Rd	51.22908, -0.36373	3.1	4.5	402	9 (17) N	Westcott
Westcott Bakery	51.225604, -0.365975	4.4	6.8	399	9 (17) N	Westcott

Appendix 6: Bike stand survey data

- Represents undetected CCTV coverage

Location	Location Number	Number of Stands	CCTV	Sheltered	Notes
LIDL	1	4	Yes	No	Seems to be used as a trolley park
Dorking West station	2	5	Yes	Yes	Located on S station forecourt-area does not feel safe when dark
Dorking West station	2a	5	Yes	Yes	Located on platform. Signs indicates it is for rail users only
Junction Road	3	6	-	No	
South Street	4	4	-	No	
Waitrose	5	6	-	No	
Butter Hill	6	2	-	No	On slope, makes it hard to lock up without rolling away
Dorking Domestic Appliances	7	5	-	No	No segregation from road traffic
Barclays	8	1	-	No	Hidden behind tourist information board
St Martin's Walk	9	5	-	No	These are useless as only support wheel with nothing to lock frame to
Malthouse	10	6	Yes	No	
Meadowbank Stadium	11	12	Yes	Yes - 2 No - 10	14 stands originally, 2 covered stands now damaged and now not suitable for securing bicycles to 4 sheltered stands have since been removed (November 2020)

Meadowbank Park	12	4	No	No	There is active general park CCTV
Vodafone	13	4	-	No	
Post Office, Ansell Road	14	4	-	No	
Wathen Road car park / Halifax bank	15	4	-	No	Down alleyway from High St to Wathen Rd car park
Dorking Sports Centre	16	19	Yes	No	
Medwyn Surgery	17	2	-	No	There is another type of stand for 2 bikes but it would not be easy to lock bikes to
Pippbrook Council Offices	18	3	Yes	No	
Bowls Green / Tennis Courts	19	3	Yes	No	
Dorking Deepdene station	20	13	Yes	Yes - 5 No - 8	Mainly for the use of rail customers. S of bridge
Dorking Deepdene station	20a	5	Yes	Yes	Mainly for the use of rail customers. N of bridge
Dorking (Main) station	21	249	Yes	Yes	Smartcard required to access CycleHub building which contains 240 stands Mainly for the use of rail customers
St Martin's Church	22	2	-	No	
Topps Tiles / Majestic Wines	23	2	-	Yes	Probably designated for shop users but not specific
Totals	--	375	324 stands	271 stands	

Appendix 7: Factors used to survey the overall quality of the bike routes into Dorking

Bike Route Quality & Appearance:

Route:

Section:

	Bike Route Quality	Score Ranking (on a scale of 1 to 5)	Score
A	Route surface	1= smooth all weather tarmac 5= bumpy unsurfaced track	
B	Segregation from traffic	1= completely segregated from traffic flow 2= bike track but no barriers from the road 3= segregated bike lane (bollards or raised curbs) 4=painted bike lane 5= no segregation from the road, cyclists forced to ride in traffic flow	
C	Route width	1= greater than 4m, very easy to pass others 2= greater than 3m, easy to pass others 3= greater than 2m, can pass others 4= greater than 1m, not easy to pass others 5= less than 1m, narrow route for cycling	
D	Intersection safety	1= safe intersections, cars are aware of bike route 5= dangerous intersections, cars unaware of bike route	
E	Line of sight for cyclists	1= good line of vision whilst cycling 5= poor line of vision, blind corners, summits etc	
F	Route speeds	1= minimal slowing down required for cyclists 5= lots of slowing down on route to check for traffic lights, vehicles on side roads etc	
	Bike Route Appearance		
G	Route Cleanliness	1= well maintained route, clear of leaf mulch etc 5= poorly maintained route, leaf / tree debris present	
H	Signage	1= good signage, easy to navigate 5= no sign posting	
	Total Score (8-40)	8-15 = excellent 16-20 = good 21-25 = average 26-30 = poor 31-40 = very poor	Average:

Appendix 8: Sustrans Interview:

What is the extent of existing cycle infrastructure in the UK, and do you think this limits further modal shift?

"The current extent of cycle infrastructure is insufficient is the short answer and the second is that infrastructure is vital to enabling modal shift.

The kind of underpinning is that is based on the kind of any sort of polls or surveys of people that ask why don't you why or wouldn't you cycle? It is sort of relevant but it's less interesting asking those who cycle already as they would than cycle in regardless of the conditions on the road in theory and these people are the small end of the bell curve that would adopt something early so that kind of near what is called the near market. The kind of people who might cycle these if things were a bit if it's easier for them to do that and consistently the top of that list is fear and lack of safety. People make points about the weather or where to store your bike or looking smart for work and things like that are all factors, but consistently 'I don't feel safe', 'I wouldn't let my family, my child, my my partner go out and cycle or do it myself.' So if you are thinking about what the barriers are to it, if safety is the top barrier, then how can you deal with that? You give people who want to cycle proper space on the road and the barrier is overcome. Any country or any area that has increased cycling levels, in the comparable countries in Western Europe for example, it has all been down to an explicit policy change to providing more space for cycling."



What do you think are the perceived barriers to cycling in the UK?

"Yeah it's consistently road danger consistently at the top of that list. Others such as lack of a dedicated route, road safety, poor route planning are all the same issue. Shower and changing facilities at work etc, but they are lower on the list. Things like cycle training are lower again, but cycle training is helpful but essentially a small sticking plaster on a gaping wound. You can train someone to cycle more safely in a dangerous environment, but if the environment was safe you would need little training. I think it's somewhere between 2 and 4% of all journeys nationally are done by bike so it is still really marginal in terms of utility trips. But much more will cycle for leisure on the weekend, once a week or once a month or you know. It's not necessarily lycra, but parents pottering around with their kids."

Will the pandemic have a lasting legacy on the surge of cycling seen during lockdown?

"I hope so is the first part of the answer. I think it will to a certain extent. I think the way that it might have a lasting effect is if a lot of people get a taste for it and try it out. Then realise that they do enjoy riding and realise that it can be nice and especially if that earlier in the lockdown when the roads were quite quiet and people realised it's quite nice to ride on quiet roads. I don't exactly know but it might just change people's priorities or perceptions a bit and then they might try it a bit more. I still think that without continued efforts to change the infrastructure then people won't make a significant modal shift. It has the potential to, and I believe it could, people could just revert their everyday journeys on the back of the pandemic would probably return to their cars so just may remain like leisure activity on a nice spring day."

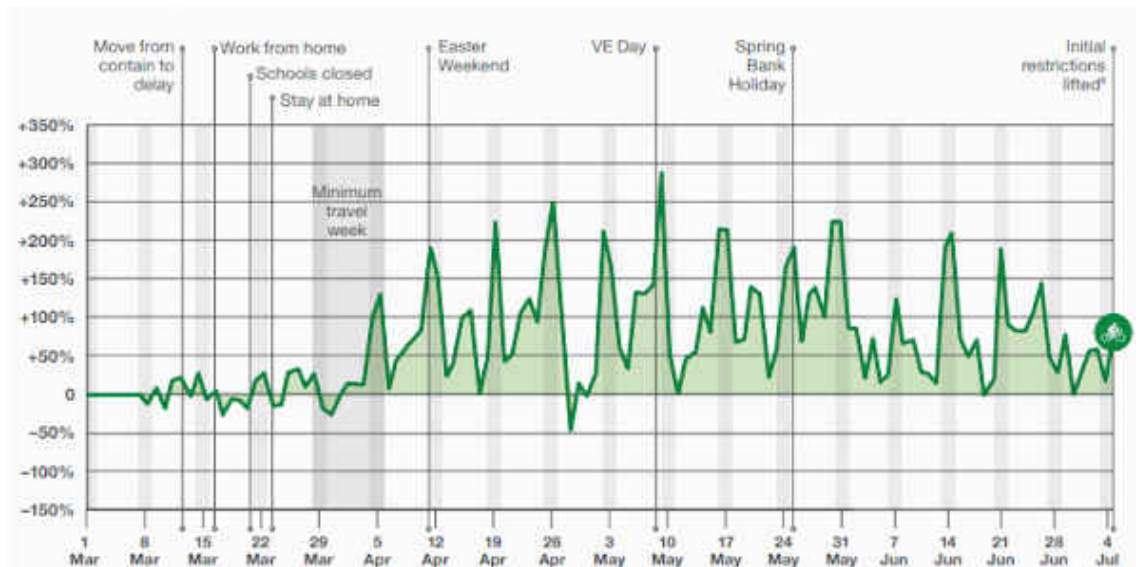


Figure 42: Percentage change in estimated cycling trips from 1 March 2020 to 4 July 2020 when initial restrictions lifted [25]

Do you think sustainable transport and active travel will become more important and popular as a result of the pandemic?

"The kind of benefits that active travel offers, in terms of climate benefits, local air quality benefits, public health, personal health benefits. So you know the benefits of exercise to people's health and reduced obesity, that has a direct link to Covid outcomes and people being less susceptible to getting severely ill with a respiratory illness. Yeah certainly in the medium term for having to travel more by private means as public transport is less viable, especially at crowded times, then needing to find alternatives to the private car is important just to avoid gridlock. So There is lots of reasons why active travel is kind of important during the pandemic. I think the transition to afterwards, like I said before really, it [active travel] has the potential to and I think it should I think whether people just revert to go back and their cars or maybe getting back on the train if we live in few years down the line is there is mass vaccination and everything's basically back to normal remains to be seen. I think there needs to still be quite explicit efforts by local authorities to reallocate road space in favour of walking and cycling. To

seize the opportunity of people considering walking and cycling a bit more and then provide them with the facilities that make you feel safe to do that safer to do that yeah and then kind of work off the back of that.”

What is the long term vision of Sustrans?

“Our mission is to create a society where the way we travel creates healthier places and happier lives for everyone. So that’s kind of our wording for it in an abstract sense. Our mission is to make it easier for people to walk and cycle. Then within that there are two kinds of strategies that we have to do: one is Paths for Everyone and the other is Liveable Towns & Cities. There is a lot of that sort of focusses on the National Cycle Network, so in terms of the quality of routes and where it connects to and that’s the report. There is a thing called explicit target there to identify and upgrade the poor or very poor sections by 2040. The liveable towns & cities are still in development and we will probably produce a document in the same way as Paths for Everyone. But basically it’s the idea that you know where people live, towns and cities need to be kind of liveable so it is easy to walk around and cycle around. Be good for people’s health and social interaction and to have community built into them is what we’re going to be working towards. We are kind of working internally and and with local authorities to identify a series of exemplar areas that we will sort of work intensively in to make kind of like demonstrators for how our liveable town or city could look. The timescale is not fully defined but it can give you an idea of what we are working towards. Focusing our efforts in certain areas to raise the standard of cycle infrastructure and the level of ambition.”

How is the development of the national cycle network funded, and does this create problems?

“It started about 40 years ago in Bristol with the development of the Bristol Bath railway path, which has lots of community action to build it. As that is where it all started, it remains close to Sustrans heart and is a well used route. In the early days there was a lot of converting disused railway paths in the early years, and the development of greenways and rural routes came out of that. In the Millenium, Sustrans won a big grant from the National Lottery to develop the National Cycle Network in terms of its branding and there was a real push for miles of the NCN then. I think through the early 2000s [47] a lot of the funding was direct grants from the government or the lottery to do that work. We have always done a lot with schools to get children into cycling and active travel. At the moment it is a bit of a mix between the two, with some funding from the central government, which fluctuates year from year. But a lot of the work we get is from local funding, a direct approach to local authorities, developers or larger engineering firms that are subcontracted out by these authorities. As we are a charity, some money comes directly from our supporters and that provides an unrestricted income to do wider policy work. There is a potential that funding will become more generous due to the DfT Gear Change report released in July. This is a vision from the Department of Transport on how walking and cycling should be in England, which advocated cycling lots.

[47]<https://www.sustrans.org.uk/about-us/paths-for-everyone/our-role-as-custodian-of-the-national-cycle-network/>

Sustrans view this a significant step up in ambition, with cycle design infrastructure guidance updated to much higher quality levels. The NCN is mentioned within this report and Sustrans is currently negotiating with the DfT for funding, but it is yet to be confirmed as the government has lots of other funding commitments during the pandemic. This is separate from the emergency funding for pop-up cycle infrastructure. Essentially Sustrans has to evolve where it seeks funding from as active travel policies change.”

Do you think the money pledged by the government to bring the so-called ‘golden era’ of cycling is enough to achieve this ambition?

“Achieving government aims is not necessarily the target. I don’t know whether they are ambitious enough. There is a kind of slightly finger in the air way of assessing funding and priority for walking cycling at the national level and that is the pounds spent by the government per head of population. The government has pledged £2bn for cycling over the next 5 years. It is definitely moving in the right direction, but is not yet at the level of flagship countries for cycle infrastructure, such as Denmark and Holland. The real challenge is getting the public to accept these relatively radical changes to changing road spaces and to understand the benefits of cycling rather than the negatives of less easy driving or parking. A lot of the time these changes can feel like a penalty, and understandably not see how a lifestyle change will benefit them.”

What is the relationship between Sustrans and local authorities for development of local routes?

“That generally comes about if a local authority has their own plans and we support them or work with them to help realise those. We do quite a bit of work that isn’t necessarily just about the NCN. Generally if a route is being constructed and it’s not NCN it tends not to be us doing that, it tends to be the local authority or maybe a route that is associated with a new housing development for example that the planning authority has vetted. These local authorities tend to have the most power in influencing local routes as all highways and rights of way are ultimately controlled by them. Sustrans has a slightly odd situation in being the custodian rather than owning the NCN, meaning we look after it, although there are small parts such as the old railway lines which we do own.”

Riding around the country there is quite a variance in the quality of the NCN. Is there a standard for the quality of signage, route surface and so on?

"In the Paths for Everyone Report and the audit process that led to that was really an attempt to look at the quality of the NCN and a recognition that actually it's not good enough in large sections of the network. You've got to know what you're dealing with before you can start to improve it and so that the Audit process identifies things that are good and bad against the criteria set. Now we have the quite high level criteria for what a good path should look like, and I know for myself the signage can sometimes be quite wayward. In the last year there has been a recognition that we need to improve, which is now the focus for Sustrans. Our plan is to now tackle these poor areas of the network by 2040 by creating detailed plans on how to improve each section, subject to funding being implemented over the next 20 years. The aim is to improve what we already have rather than extending significantly, so people consistently have a better experience when using the network."

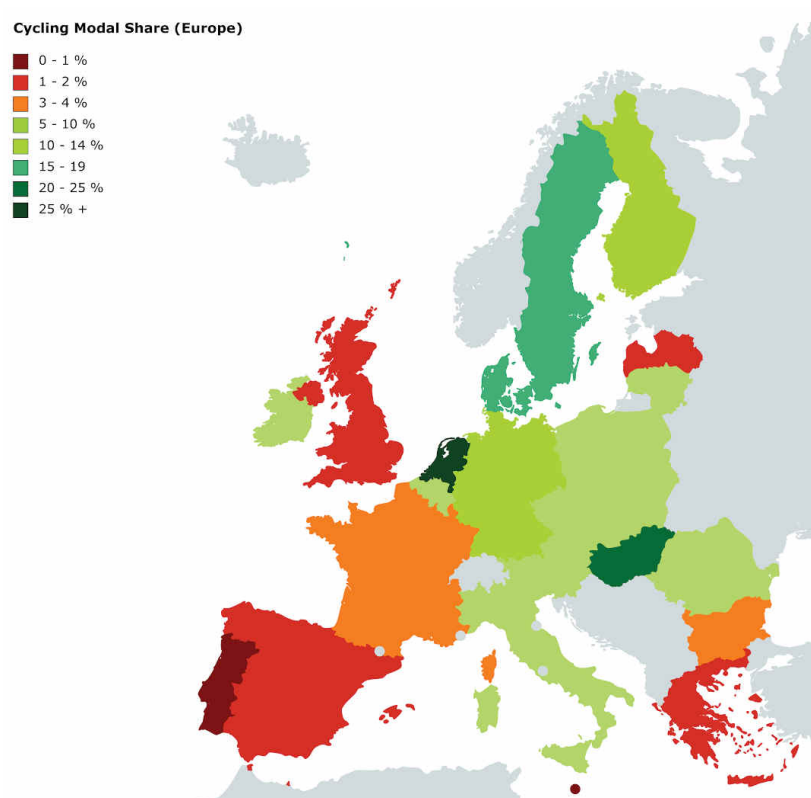
Do you think the network will see extensions beyond 2040?

"I think there will be some extensions to the network where there are identified significant gaps or a local opportunity to do that. I do not think we are not going to do any expansion but our focus is to improve the quality of what we have. The reality of this happening completely by 2040 is unlikely just knowing how things pan out. The world we live in might change so plans may supersede it. Plans like Paths for Everyone are useful to provide direction, although they are not always necessarily fully implemented due to the long timescales."

Do you think removed and reclassified routes as a result of Paths for Everyone will be reinstated?

"The removal process is part of the Paths for Everyone process where the routes were classified as good and bad. The plan is not to have another round of removal and reclassification, like the one announced in the summer, that was just to identify the worst sections where we also think it would be very difficult to make upgrades easily. Certainly if an opportunity arose in the future to re-route a route then that is certainly possible. Removal and reclassification was necessary to publicly admit that sections of the network are not good enough currently but it is also unsatisfactory because in quite a few places it leaves a large gap in the network. Inevitably people will continue to use these routes de facto in the meantime. I think it is the intention to improve those very poor sections if possible but I think part of the removal process for some routes is an acceptance of those just on suitable and won't be suitable without a serious rerouting or some serious kind of infrastructure changes so probably some of those will never come NCN again."

Appendix 9: Map showing varying levels of cycling as modal share for select European countries. **Source:** <https://www.cyclinguk.org/statistics>



Bibliography:

- <https://www.bbc.co.uk/news>
- <https://www.metoffice.gov.uk/>
- <https://www.nomisweb.co.uk/>
- <https://www.gov.uk/>
- <https://www.sustrans.org.uk/>
- <https://www.cyclinguk.org/>
- <https://www.theguardian.com/uk>
- BBC Countryfile
- <https://news.un.org/en/>
- <https://commute.datashine.org.uk/>
- <https://www.transportfornewhomes.org.uk/>
- <https://www.surreycc.gov.uk/>
- <https://www.molevalley.gov.uk/>
- <https://www.ceca.co.uk/>
- <https://mvcf.org.uk/>
- <http://uk2070.org.uk/>
- <https://bettertransport.org.uk/>
- <https://www.railmagazine.com/>
- <https://www.keymodernrailways.com/>
- <https://www.gov.uk/government/organisations/department-for-transport>
- https://www.westsussex.gov.uk/media/13164/cycling_design_guide.pdf
- <https://tfl.gov.uk/>
- <https://www.who.int/>
- <https://allpartycycling.org/>
- <https://www.ons.gov.uk/>
- <https://sdgs.un.org/>
- <https://www.britishcycling.org.uk/>