



Wokingham Borough Council

NCN 422 MONITORING AND EVALUATION





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NCN 422 MONITORING AND EVALUATION

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QUALITY CONTROL

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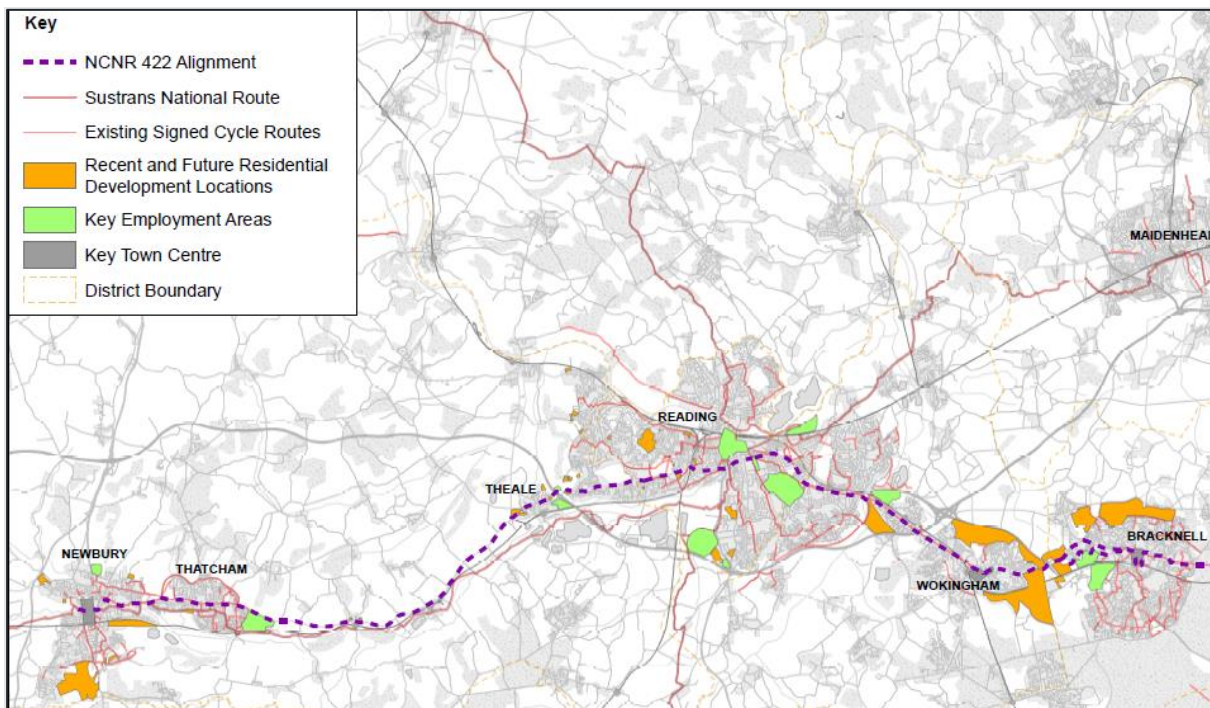
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1 INTRODUCTION

- 1.1.1 The National Cycle Network 422 (NCN422) is a cycle route that follows the A4/A329 corridor between Newbury and Bracknell. It runs through four Berkshire authorities (West Berkshire, Reading, Wokingham, and Bracknell Forest) in the South East of England. It was originally planned to extend to Windsor but now terminates in Ascot. Wokingham Borough Council (WBC) are the lead authority for the scheme, but each borough was responsible for the sections within their own boroughs.
- 1.1.2 The cycle route follows the A4 / A329 corridor, a key commuter route due to its alignment through major areas of employment as shown below.

Figure 1-1 - NCN 422 route



- 1.1.3 Construction of the scheme started in April 2016, and the scheme was completed in December 2020 when the London Road section within Wokingham Borough was completed.



1.2 MONITORING AND EVALUATION PLAN

- 1.2.1 As part of the NCN422 Business Case and the LEP funding agreement, a one-year after scheme opening Monitoring and Evaluation Plan (MEP) is required by the LEP. This MEP compares base (before) data to one-year after opening data. The aim of the Monitoring and Evaluation process is to demonstrate that the NCN 422 scheme has been implemented in a way that supports the delivery of the package objectives and the benefits set out in the business case.
- 1.2.2 Data has been gathered from the four Berkshire authorities (West Berkshire, Reading, Wokingham, and Bracknell Forest) which the NCN422 runs through, for both pre-scheme and post-scheme, with data spanning from 2013 to 2022.
- 1.2.3 As there was already a significant proportion of the infrastructure in place, the Thames Valley Berkshire Local Enterprise Partnership (TVB LEP) funding was used to connect the existing infrastructure and provide a coherent and direct route between the authorities. Some updates in WBC were funded by Local Sustainable Transport Funds (LSTF) and Section 106. Hence some sections were under construction from 2014, such as the Wokingham Road section. Hence some of the monitoring “pre-scheme” looks at 2013.
- 1.2.4 The following measures were identified to be used to assess the scheme:
- Delivered Scheme;
 - Costs;
 - Construction Programme;
 - Travel Demand – both vehicular and non-motorised;
 - Travel times;
 - Collisions; and
 - Economic assessment

1.3 SCHEME OBJECTIVES

- 1.3.1 The National Cycle Network is a UK-wide network of signed paths and routes for walking, cycling, wheeling and exploring outdoors. The scheme objectives were to provide a National Cycle Network Route (NCNR) between Newbury and Windsor that:
- Provides a full, coherent east-west cycle link between Newbury and Windsor for commuters;
 - Supports commuters by linking residential developments (existing and proposed) to key employment areas and town centres on the A4/A329 corridor;
 - Connects existing local and national cycle infrastructure, enhancing cycling connectivity locally and more strategically;
 - Improves journey times, reliability, and journey quality for cyclists;
 - Improves safety for cyclists and pedestrians;
 - Encourages a modal shift towards cycling and reduce car dependency for journeys on the corridor; and
 - Supports each local authority in achieving its sustainable/active travel aspirations.

2 SCHEME DELIVERY

2.1 INTRODUCTION

2.1.1 This section outlines the assessment of the constructed scheme in terms of cost, programme and risk. It also compares whether the completed scheme differs from the scheme as originally designed.

2.2 PROPOSED VERSUS DELIVERED SCHEME

2.2.1 As outlined in the business case, the proposed NCN422 scheme was to bisect five local authorities in the Thames Valley: West Berkshire, Reading, Wokingham, Bracknell Forest and the Royal Borough of Windsor and Maidenhead. The route would directly serve the major town centres of Newbury, Reading, Wokingham and Bracknell and could be used to access Windsor town centre via other existing NCN routes.

2.2.2 The delivered scheme bisected just four local authorities (West Berkshire, Reading, Wokingham, and Bracknell Forest), since the eastern terminus of the route changed from Windsor to Ascot High Street at the Racecourse entrance. Each Borough has provided a brief description of what was delivered below, and any variations. Since the route did not end up going into Windsor, no data has been provided by the Royal Borough of Windsor and Maidenhead.

2.2.3 Photos of sections of locations pre and post scheme in each borough are presented in Appendix A. Appendix B contains the drawings of the general arrangement of the scheme.

West Berkshire

2.2.4 West Berkshire Borough Council (WBBC) delivered high quality cycling infrastructure on the A4 – in areas where appropriate according to Sustrans guidelines – but did not deliver the continuous, completed route. Improvements included:

- On-carriageway cycle lanes in urban areas through Thatcham.
- Off-carriageway traffic-free bi-directional cycle track in Newbury.
- Off-carriageway traffic-free cycle route between Theale and Calcot.

2.2.5 As a result of the NCN project, 4.4km of new cycleways have been delivered. This includes:

- 450m kerb segregated cycle lane from Faraday Road to Tesco London Road;
- 470m advisory cycle lane,
- A parallel shared path from Lower Way junction to the Garden Centre Roundabout;
- 440m mandatory cycle lanes plus light segregation from the Garden Centre Roundabout to Henwick Lane;
- 530m mandatory cycle lanes plus light segregation from Henwick Lane to Northfield Crossroads;
- 350m from east side of Northfield Crossroads to eastern access to St Johns Road;
- 130m from Surgery to Park Lane junction;
- 140m from east of Park Lane junction to top of Broadway;
- 110m in Chapel Street from top of Broadway to The Moors;
- 280m from The Moors to Harts Hill Road;

- 280m from Dominoes to east of Thatcham Cemetery;
- 260m A4 between Floral Way and Pipers Way roundabouts;
- 960m from Gables Way to top of Pipers Wat, Thatcham.
- Additionally, priority across B&Q Newbury access road, widening and resurfacing of existing footway, removing street clutter such as redundant road signs, creating wider pedestrian islands to improve crossing points for all users.

2.2.6 There is a short section of approximately 10 metres length opposite Martingale Chase where there is a land issue that was unable to be resolved, this remains at Executive Director level for discussion and instruction on any next steps is awaited.

2.2.7 The project experienced delays and variation due to the following:

- Planning – Sections of the new segregated cycleway were dependent on nearby redevelopments. Delays were experienced as we waited for the outcome of planning applications to secure funding / land / S278 agreements for continuation of the route.
- Scheduling works to coincide with resurfacing and developer funded S106 works – in order to achieve best value for money, and to minimise disruption, WBBC waited to co-ordinate the cycling improvements with other resurfacing and traffic signal upgrade schemes.
- Land negotiation – some works required additional land to be dedicated for highway purposes to make space for cycling. This process was complicated and took longer than expected.
- Cycle design standards – the brief identified the provision of on-carriageway cycle lanes to establish a new Sustrans cycle route between Newbury and Calcot. Sustrans since reviewed their standards and existing routes and emphasised the type of cycle infrastructure that should be part of their network. The scope therefore changed to provide high quality infrastructure in areas where surveys indicated it was likely to have most effect rather than one continuous, sub-standard on-carriageway route. During the project Sustrans published their “Paths for Everyone” review of the NCN (Nov 2018). The latest cycle design guidance specifies infrastructure segregated from traffic and pedestrians. Newbury to Calcot is 15 miles so the funding secured could not deliver a high level of service for cyclists appropriate for this category of road for the entire distance. Therefore, WBBC met with Sustrans, local cycling groups and the Cycle Forum and instead collected data on where the spending would make most difference to shorter journeys, and by targeting the areas where the propensity to cycle was high, they focused on providing high quality segregated infrastructure which meets the latest design standards.

Reading

2.2.8 The NCN422 in Reading Borough runs between the A4 Bath Road in the west of the borough, where it joins the scheme in West Berkshire, to the A329 Wokingham Road in the east, joining the scheme in Wokingham.

2.2.9 The scheme consists of the following elements (west to east):

- A4 Bath Road, between the Borough boundary and Berkley Avenue – provision of off-carriageway shared cycle facilities, with works consisting of the widening and resurfacing of footways, decluttering, the installation of signing and the construction of raised tables at side roads. Traffic signal upgrades have also been completed at Southcote Road and Liebenrood Road junctions.

- Berkley Avenue to A329 Wokingham Road – provision of a mixture of on and off-carriageway facilities linking Bath Road to east Reading via the town centre. Existing cycle lanes on Berkeley Avenue have been widened and complemented by an off-carriageway shared-use path. The route continues to Temple Place where it joins local cycle route R1 and NCN4 at Lower Brook Street before travelling along Fobney Street and Bridge Street. At this point, cyclists have the option of continuing along the existing NCN4 route through the Oracle or riding along Mill Lane to London Street. From here the route travels along the River Kennet to Watlington Street and joins the existing shared facility on A4 London Road running to A329 Wokingham Road at Cemetery Junction.
- A329 Wokingham Road, between Cemetery Junction and the Borough boundary – provision of a mixture of on and off-carriageway facilities running from the off-carriageway cycle facilities at Cemetery Junction / A4 London Road along the A329 Wokingham Road to the Borough boundary at the junction with Wilderness Road, including through the Wokingham Road local centre. The route links to existing local cycle routes and facilities, including the R20 and R3.

2.2.10 Overall, the scheme provides an enhanced east-west cycle facility through Reading, linking to existing cycle routes to the north and south of the borough, directly serving schools and other local facilities/services, alongside forming part of the wider NCN 422 route in Berkshire between Newbury and Ascot.

2.2.11 There were no major variations from the original plan apart for Wokingham Road Local centre where they were limited changes due to not being able to carry out the original design.

Wokingham

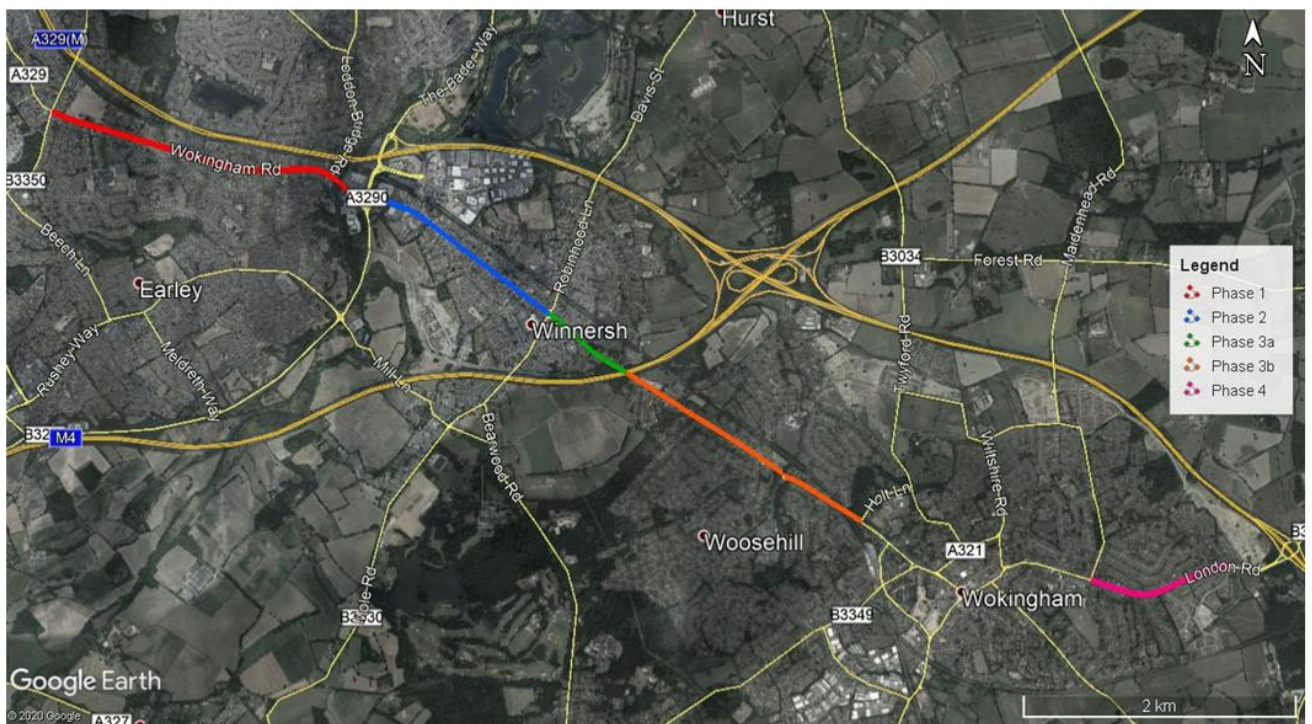
2.2.12 The scheme was completed in four Phases as shown in Figure 2-1:

- Phase 1: Wokingham Road between the B3350 and A3290; and Phase 2: Reading Road between the A3290 and Robin Hood Lane – mandatory cycleway delivered as part of surfacing which allowed reorganisation of the carriageway to make better use of the space available. Some pedestrian islands removed and replaced by new signalised pedestrian crossings. Traffic signals replaced at the Three Tuns, Loddon Bridge Road junction, Showcase cinema roundabout, Winnersh Crossroads and Woodward Close. Bus stops have been improved and new shelters installed. Footpaths resurfaced. This was completed between 2014 and 2016.
- Phase 3a: Reading Road between Robin Hood Lane and Woosehill – The road between Winnersh Crossroads and Woodward Close was completely reconstructed during this phase. This section only extends from Winnersh Crossroads to Woodward Close, rather than Woosehill as intended. This is due to other highways work planned in the area relating to Winnersh Relief Road and the Old Forest Road section of the North-West Distributor Road. Rather than do works that would be dug up as part of these new schemes, it was considered appropriate to miss this section and continue with the NCN422 onwards to Bracknell, returning here once all other works in this area were completed. It is hoped to complete this in the medium term.
- Phase 3b: Reading Road between Woodlands Avenue and Holt Lane – this was timed to fit around a number of highway projects in Wokingham Borough including the Peach Street works associated with the town centre regeneration. It was also timed around school holidays with Emmbrook school and the Holt school accesses on the section. The carriageway was resurfaced

(overnight), but traffic islands could be kept due to the already wide carriageway. This was completed in 2017.

- Phase 4: London Road between Binfield Road and A329(M) – this links the eastern side of Wokingham to Bracknell, via London Road. Coppid Beech roundabout has long been a barrier for cyclists and pedestrians, but it is now signalised to manage traffic flow and allow pedestrians and cyclists to cross safely. There is a new dedicated shared cycle/footway through the junction up to the boundary with Bracknell Forest. This new section links Coppid Beech roundabout / A329M interchange and Wokingham town centre. This was completed in October 2020.

Figure 2-1 - NCN 422 construction phases along the A329 in Wokingham



Bracknell Forest

2.2.13 Much of the Bracknell section of the NCN422 route was already in existence, but the funding went towards five specific gaps totalling 2.8km in length:

- B3408 London Road (A329 Coppid Beach junction to Popeswood), 1.6km shared use;
- The Ring (Town Centre, otherwise known as 'The Canyon'), 0.5km shared use;
- Bracknell rail station network connection improvement;
- A329 new crossing points at Martins Heron junction, 0.32km shared use;
- A329 improvements to cycleway outside LVS school, 0.4km shared use.

- 2.2.14 The terminus of the route is Ascot High Street, at the entrance to the racecourse, within the Royal Borough of Windsor and Maidenhead. Although no works were undertaken in the Royal Borough of Windsor and Maidenhead as this section was already in existence. It was intended to undertake works to extend the route to Windsor, but there were too many challenges identified in a feasibility study to overcome in creating a safe, direct route through Windsor Great Park.
- 2.2.15 The NCN route serves significant new development sites at Amen Corner towards the western side of Bracknell.

2.3 SCHEME COST

- 2.3.1 The TVB LEP contribution requested was £4.2 million and £0.3 million of Council funding. There was also £2.75 million from S106, CIL and other developer contributions. As there was already a significant proportion of the infrastructure in place, the funding was used to connect the existing infrastructure and provide a coherent and direct route between the authorities.
- 2.3.2 In Bracknell Forest there was a slight overspend (£50,000) in the Town centre section, but this was picked up by developer contributions therefore added to the “S106, CIL and other developer contributions – funding” section of Table 2-1. In Wokingham there was also an overspend (£261,212) but again this was picked up by developer contributions therefore added to the same section in the Table. In Wokingham there was some left over LSTF funding which was used for this project and meant that works could start on Phase 1 in Wokingham Borough in 2013/2014.
- 2.3.3 In West Berkshire there is an underspend of 12%.
- 2.3.4 Overall, there is a small overspend of 2%, £161,482.

Table 2-1 – Anticipated and Actual costs

West Berkshire	Reading	Wokingham	Bracknell Forest	Total
Payment by TVB LEP – funding (£)				
1,100,000	1,200,000	1,050,000	850,000	4,200,000
Council capital programmes – funding (£)				
100,000	100,000		100,000	300,000
S106, CIL and other developer contributions - funding				
		3,011,212	50,000	3,061,212
Grand total - proposed funding (£)				
1,200,000	1,300,000	3,800,000	1,000,000	7,261,212
Actual spend (£)				
1,061,482	1,300,000	4,061,212	1,000,000	7,422,694



West Berkshire	Reading	Wokingham	Bracknell Forest	Total
Absolute Difference = proposed funding minus spend (£)				
138,518	0	0	0	-161,482
Difference (%)				
12%	0%	0%	0%	-2%

2.4 CONSTRUCTION PROGRAMME

2.4.1 The business case outlined the overall programme key milestones in delivering the NCN422 scheme. The actual dates have been added for comparison to enable a high-level assessment of scheme delivery against these key milestones to provide an indication of whether the scheme was delivered in accordance with the programme. These are shown in Table 2-2.

Table 2-2 – Programme Key Milestones

Key Milestones	Anticipated Programme Date	Actual Date
Conditional approval sought from Thames Valley Berkshire Local Enterprise Partnership (LEP)	November 2015	
Construction work begins on site	April 2016	Some work preceded this due to the LSTF funding for Wokingham Borough Council. This was as early as 2014.
Completion of highway works date	March 2019	The final completion was 20 months overdue in December 2020 – the London Road section in Wokingham Borough Council. Note that the section between Woodward Close and Woosehill (WBC) is still to be completed due to other works in the area, this is expected in the medium term. In Bracknell Forest the section from Coppid Beach to Popeswood was complete in mid-2020 but this was part of Section 106 funding.
Monitoring of works	Still to be negotiated	Prior existing data was used, some of which was purposely set up by boroughs for this scheme. Post data was mainly collated from regularly monitored sites as well as some specially commissioned surveys in June 2022.

2.4.2 Construction dates per Berkshire authority are presented in Table 2-3.

Table 2-3 – Construction dates per Borough



Borough	Construction Start Date	Construction End date
West Berkshire	June 2018	March 2019
Reading	January 2018	March 2018
Wokingham	Due to prior LSTF funding, construction started in 2014.	Phase 1: December 2014 Phase 2: October 2015 Phase 3a: March 2016 Phase 3b: March 2018 Phase 4: December 2020
Bracknell Forest	2016	'The Ring' otherwise known as the Canyon: late 2016 The improvement next to the railway station / spiral: early 2017 The crossings and sections either side at Martins Heron junction A329 / Long Hill Road: late 2018 London Road between Priory and Fernbank Road (outside LVS school): July 2017 Coppid Beech Amen Corner section of the B3408 (S106): late 2017 Coppid Beech to Popeswood (S106): mid 2020

2.5 RISK

2.5.1 A Risk Management Plan was developed throughout the project. Once funding was confirmed risks were allocated for ownership to manage them. The Risk Management Plan set out the risk management process and responsibilities in delivering the NCN 422 scheme. There was a continuous risk and opportunity management process to ensure the scheme was cost-effective and operationally successful. Additionally, there was further risk identification through workshops, reviews, meetings and day to day operation. Whenever a risk was identified, it was added to the Risk Register. The Risk Register contains all risks, provided a forecast probability of each risk occurring and defined a range of probable costs which could have been incurred in that instance.

3 TRAFFIC FLOWS

3.1 INTRODUCTION

3.1.1 To assess the traffic impact of the scheme, traffic counts were collected from a number of locations on the roads which the NCN422 follows (A4, A329, B3408).

3.2 LINK COUNTS

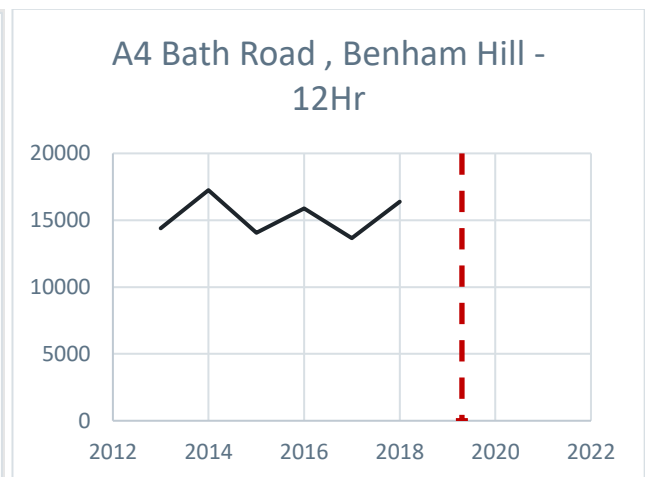
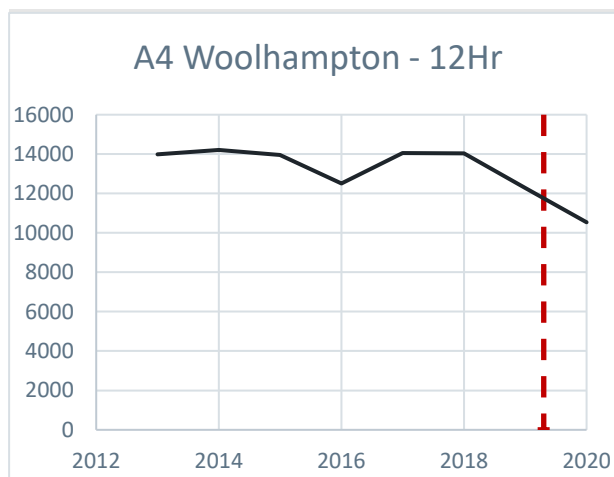
3.2.1 Where possible, baseline and 1 year post opening link count data has been collected in each Berkshire authority, described in turn below. The locations of these are presented in Appendix C.

West Berkshire

3.2.2 Permanent Automatic Traffic Count (ATC) data is available at five appropriate sites from 2013-2020, data is a yearly summary which gives averages for the AM peak (0800-0900), PM peak (1700-1800), 12-hour (0700-1900) and 24-hour. Due to the pandemic and peak spreading, it is thought that 12-hour data is the most appropriate to present. Data is bi-directional. The sites are:

- Site No. 26 A4 Woolhampton;
- Site No.69 A4 Bath Rd Benham Hill, Thatcham (2020 missing);
- Site No.183 A4 Bath Road, Thatcham (2015, 2016, 2018 missing);
- Site No.256 A4 Bath Road, Calcot (2013, 2014 missing); and
- Site No.260 A4 Theale.

3.2.3 Construction in West Berkshire was between June 2018 and March 2019 and so before and after data is covered. The scheme completion line is shown in March 2019 by the dotted red line.



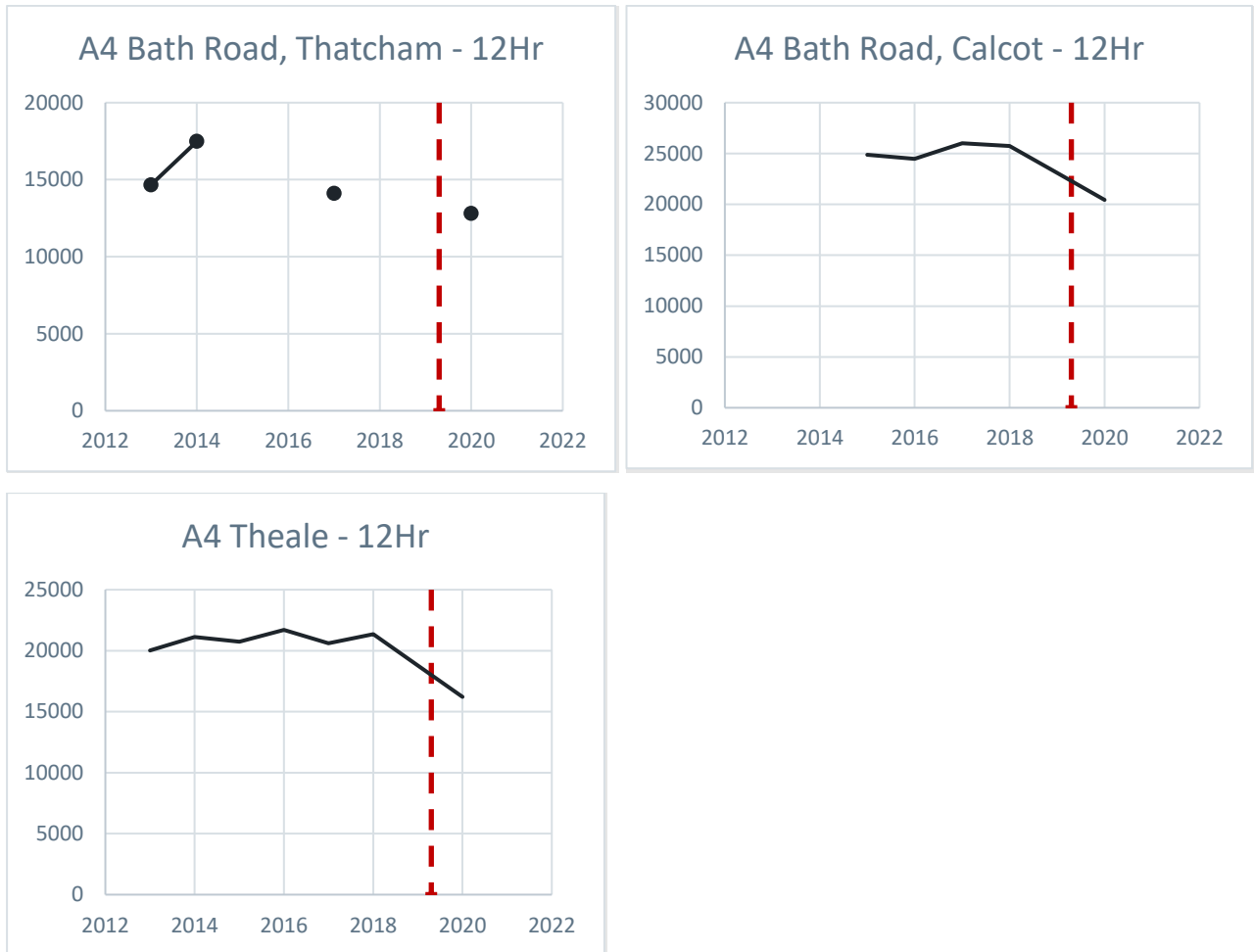


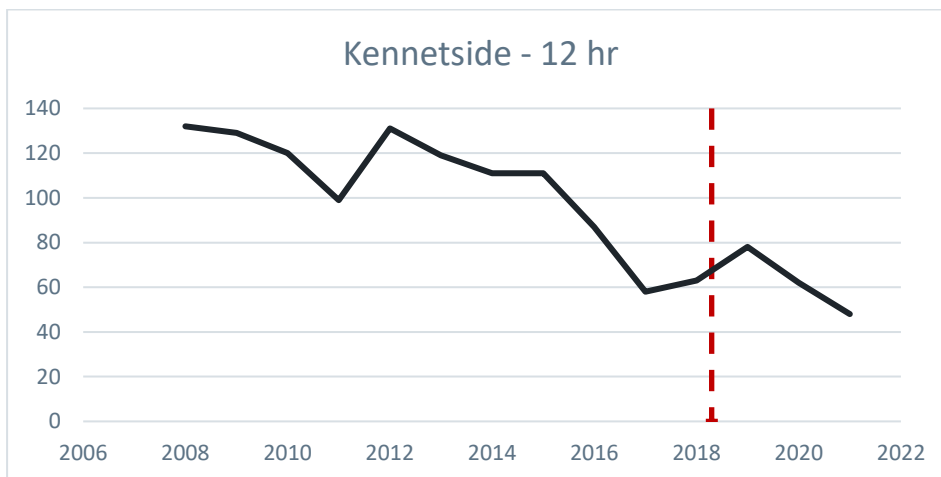
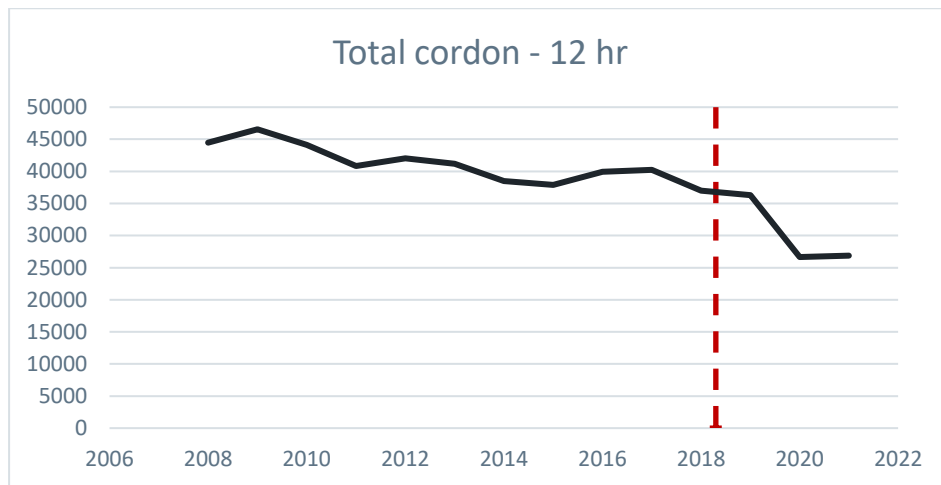
Figure 3-1 - Traffic flows at locations in West Berkshire for 0700-1900

3.2.4 Due to variability in travel behaviour in 2020 and 2021 as a result of the COVID-19 pandemic and there being more post-scheme data, the 5-year post-scheme report will give a better idea of how the scheme may have affected traffic flow. However, from the graphs, in general there is a decrease in traffic flow in 2020, post-scheme some of which could potentially be attributed to increased cycling levels, in part.



Reading

- 3.2.5 Counts around a cordon of Reading town centre were collected for the month of May for the AM peak (0800-0900), PM peak (1700-1800) and 12-hour (0700-1900). Due to the pandemic and peak spreading, it is thought that 12-hour data is the most appropriate to present. Data covers from 2008-2021 and construction of the NCN422 in Reading was between January and March 2018 (dotted red line on the graphs below) and hence before and after data is covered.
- 3.2.6 Data has been analysed for the total cordon, but also at Kennetside which is the most relevant site and lies on the route of the NCN422. King's Road and Sidmouth Street have also been assessed since they are on parallel roads to the NCN422.



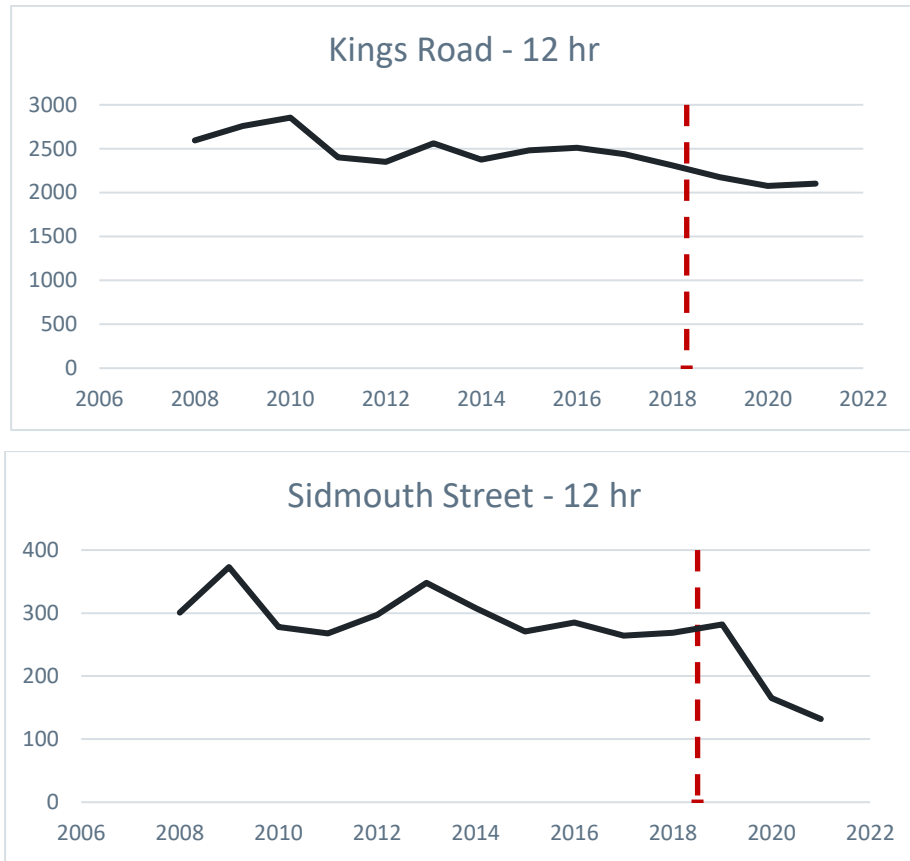


Figure 3-2 - Traffic flows at locations in Reading for 0700-1900

- 3.2.7 When looking at the total cordon, one can see that the general trend since 2008 has been a reduction in vehicular flow. This is more severe between 2019 and 2020, this is probably due to the COVID-19 pandemic rather than the scheme, but 5-year post-scheme data should help visualise this.
- 3.2.8 At Kennetside, although the scheme was built in 2018, there was an increase in vehicular flow in 2019, before decreases in 2020 and 2021. This pattern applies at Sidmouth Street as well. Whereas at Kings Road, there is not an increase in 2019, but a steady reduction in flow to 2020 and then a levelling out in 2021. This will mainly be due to the pandemic and changing patterns since, but some potentially could be attributed to a mode shift to cycling as a result of the scheme.



Wokingham

- 3.2.9 Traffic count data is available at seven relevant sites between 2014 and 2021, although this varies between sites. Data is for the month of May for the AM peak (0800-0900), PM peak (1700-1800) and 12-hour (0700-1900), bidirectionally. Due to the pandemic and peak spreading, it is thought that 12-hour data is the most appropriate to present.
- 3.2.10 Construction in Wokingham was finished in phases presented in Figure 2-1 in Section 2.2.12, these were completed at different times: Phase 1 in December 2014, Phase 2 in October 2015, Phase 3a in March 2016, Phase 3b in March 2018, and Phase 4 in December 2020. Although the phases together, as with the other Berkshire authorities, would contribute to cycle network density and so benefits may be seen beyond a site's phase completion date if other phases were completed after. The sites available and respective associated phases are listed below:
- Site BT77 A329 Wokingham Road, Phase 1;
 - Site BT3006 A329 Reading Road, Phase 2 and 3a;
 - Site BT75 A329 Reading Road, Phase 2 and 3a;
 - Site 098 A329 Reading Road, Phase 2 and 3a;
 - Site 097 A329 Rectory Road, Phase 3b and 4;
 - Site BT3015 A329 London Road, Phase 4; and
 - Site BT201 A329 London Road, Phase 4.



Figure 3-3 – Traffic flows at locations in Wokingham for 0700-1900

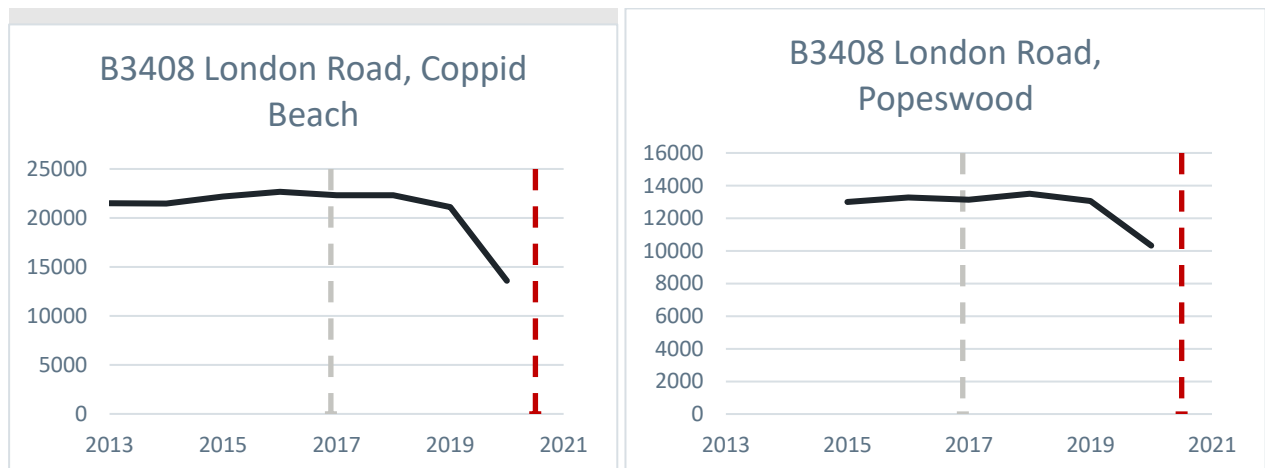
3.2.11 Data availability is a little patchy over the years and locations. At Wokingham Road unfortunately there isn't any data prior to Phase 1 being built, but flows are relatively steady with a slight increase in 2016 and decrease in 2017. At Reading Road there has been a slight decrease in vehicular flow since the completion of Phases 2 and 3a (Sites BT3006 and BT75), which could be attributed to the scheme. While site 098 shows a sharp decrease in vehicular flow as a result of the pandemic. At Rectory Road there was a large decrease in vehicular flow in 2018 probably due to the construction of phases 3b and 4 in 2018, which then recovers in 2019. At London Road there is not any post scheme data yet but vehicular flow decreased slightly between 2014 and 2017.

Bracknell Forest

3.2.12 Traffic count data is available in Annual Average Daily Flow (AADT 24-hour) at 5 relevant sites between 2013 and 2020:

- Site 29 - B3408 London Road, Coppid Beech;
- Site 18 - B3408 London Road, Popeswood (2013 and 2014 missing);
- Site 15 - B3408 London Road, Preistwood (2013 and 2014 missing);
- Site 86 A329 East of Met Office; and
- Site 3 A329 London Road Martins Heron.

3.2.13 Construction in Bracknell forest was in phases between 2016 and 2020, since this is spread out a grey construction start line has been added as well as a scheme completion line.



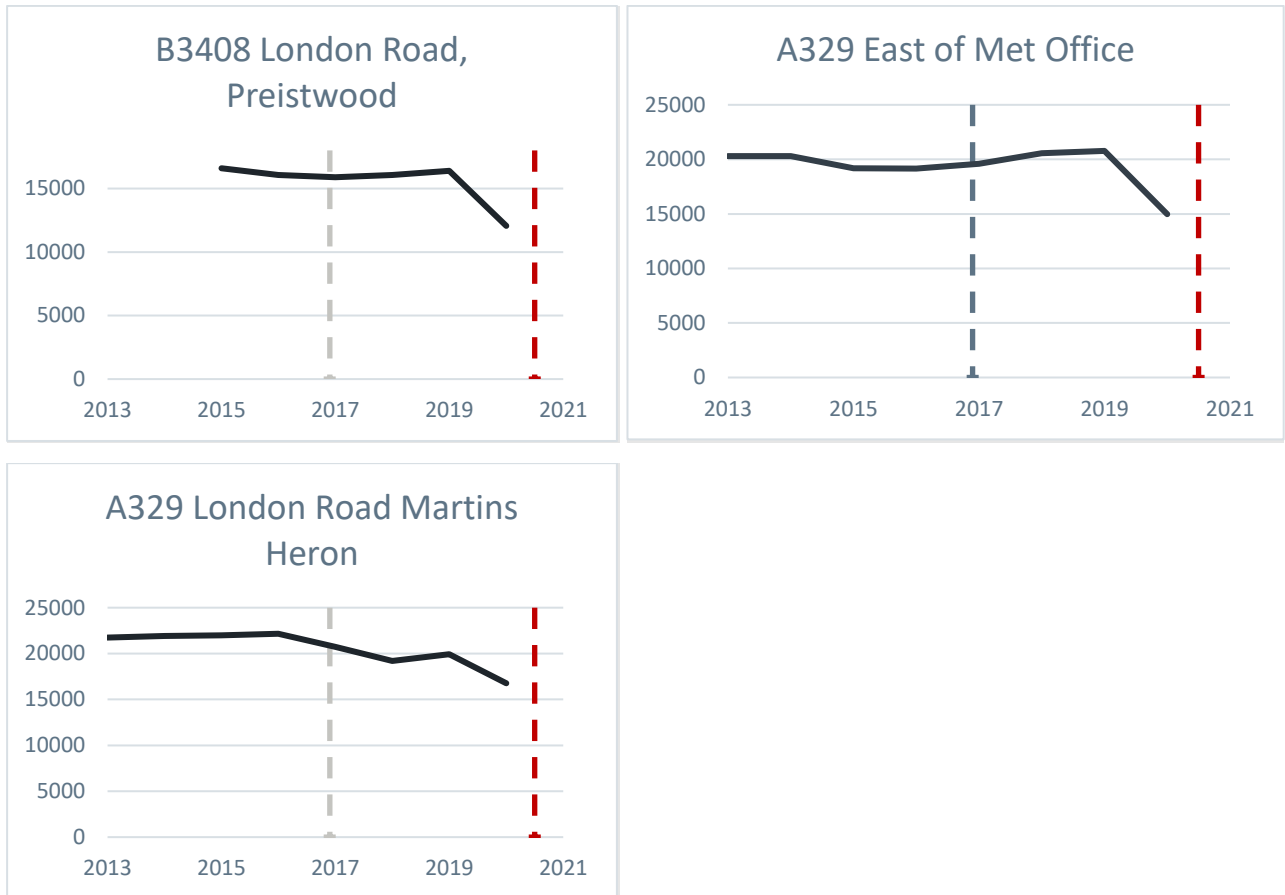


Figure 3-4 - Traffic flows at locations in Bracknell Forest (AADT 24 hr)

- 3.2.14 At each site, in general flows have been fairly consistent between 2013 and 2019 before dropping away in 2020. B3408 London Road, Coppid Beech and B3408 London Road, Popeswood have a slight decrease in flow between 2018 and 2019 ahead of the steep decrease in 2020. While A329 London Road Martins Heron has a fairly steady reduction in flow between 2016 and 2018, levelling out to 2019 before dropping again in 2020.
- 3.2.15 The large reduction in flow in 2020 will be attributed to the COVID-19 pandemic rather than the scheme. Hopefully the 5-year post-scheme data will help see any patterns as a result of the scheme.

4 CYCLE FLOWS

4.1 INTRODUCTION

4.1.1 To assess the impact of the scheme, cycle counts were collected from a number of locations across the four authorities along the NCN422. The locations of these are presented in Appendix C.

West Berkshire

4.1.2 There are four relevant sites for which cycle data is available from 2013-2021 for February, June and October for the AM 0800-0900 only. These sites are:

- Site 5 - A4 West of Lower Way;
- Site 7 - Bath Road/Green Lane, Thatcham;
- Site 8 - Theale High Street/Waterside Drive; and
- Site 10 - A4 Bath Road/Langley Hill, Calcot.

4.1.3 Construction of the NCN422 in West Berkshire was between June 2018 and March 2019 and hence baseline and post-scheme data is available. The scheme completion line is in March 2019 (shown by the dotted red line in the graphs below). Only June data has been presented since the trend is easier to see without the effect of seasonality.

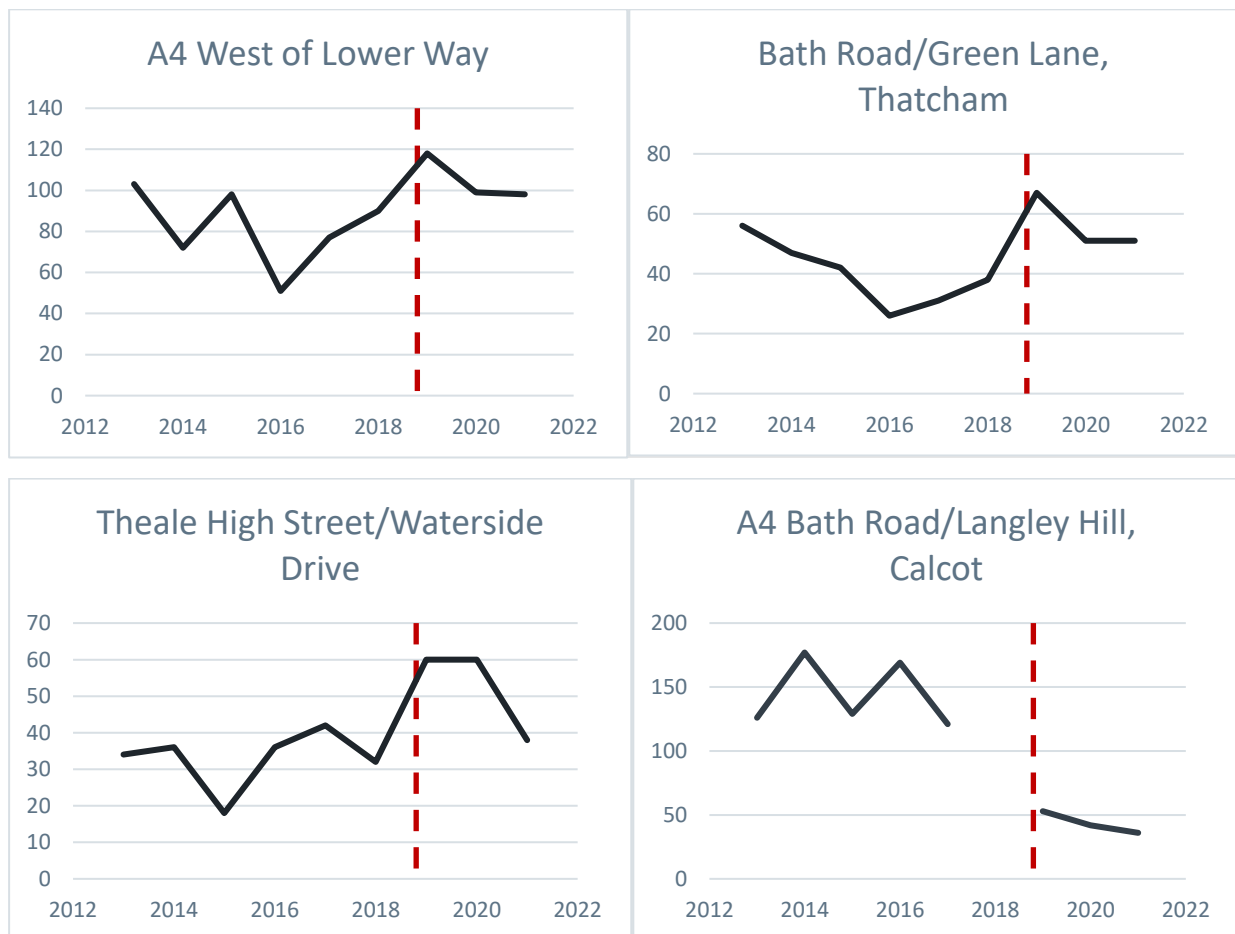


Figure 4-1 - Cycle flows at locations in West Berkshire (June AM 0800-0900)

4.1.4 Following the scheme opening, there is a 2019 peak at A4 West of Lower Way; Bath Road/Green Lane, Thatcham; and Theale High Street/Waterside Drive. However, in 2020 and 2021 this drops away and levels out, due to the COVID-19 pandemic. Additionally, at A4 Bath Road/Langley Hill, Calcot 2019-2021 cycling flows are much lower in 2019-2021 than 2013-2017. Hopefully the 5-year post-scheme data will provide a more useful dataset.

Reading

4.1.5 Two sets of cycle count data are available. Firstly, as for vehicular counts, cycle counts around a cordon of Reading town centre are collected for the month of May for the AM peak (0800-0900), PM peak (1700-1800) and 12-hour (0700-1900). Data covers from 2008-2021 and construction of the NCN422 in Reading was between January and March 2018 and hence before and after data is covered.

4.1.6 Data has been analysed for the total cordon, but also at Kennetside which is the most relevant site and lies on the route of the NCN422. King’s Road and Sidmouth Street have also been assessed since they are on parallel roads to the NCN422. 12 hour 0700-1900 data has been presented with the scheme opening designated by the dotted red line.

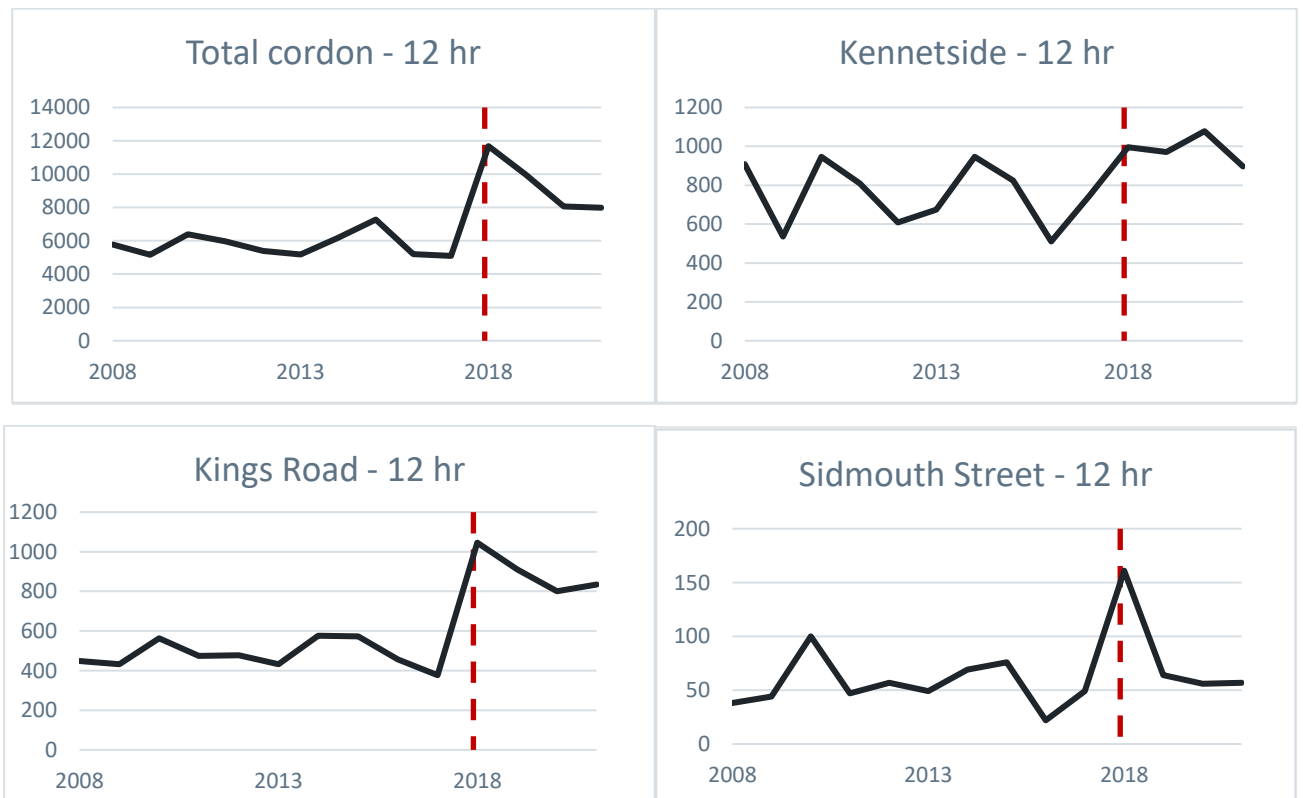


Figure 4-2 - Cycle survey counts for cordon survey locations in Reading (12 hour - 0700-1900)

- 4.1.7 When looking at the total cordon for Reading, there is a large increase in cycling in 2018 when the scheme is complete, before dropping in 2019, 2020 and 2021, but these are still higher than pre-2017 levels. This potentially shows that the scheme has had a positive impact on cycling in the area. In comparison to vehicles in Section 3.2.6, vehicle numbers were steadily dropping until a sharp decrease to 2020 and 2021 which are at the lowest levels.
- 4.1.8 Kings Road has a very similar pattern to the total cordon. Similarly, in comparison to vehicle flows in Section 3.2.6 which have fluctuated slightly but recently decreased, whilst the cycling numbers have decreased slightly in recent years, since 2018 and scheme opening levels are much higher than before.
- 4.1.9 Sidmouth Street’s pattern is similar, although 2019-2021 cycling levels are similar to 2008-2017. Kennetside has a similar pattern, but without the sudden increase in 2018, 2019-2021 levels are on the higher end compared to other years, but not hugely.
- 4.1.10 Two further cycle survey sites have been identified as giving appropriate pre-scheme data, this is available for 2015 to 2017 monthly for AM 0800-0900, PM 1700-1800, 12-hour 0700-1900 and 24-hour. “One-year” post-scheme data was commissioned for June 2022 at the same sites. The sites are Temple Place and London Road.

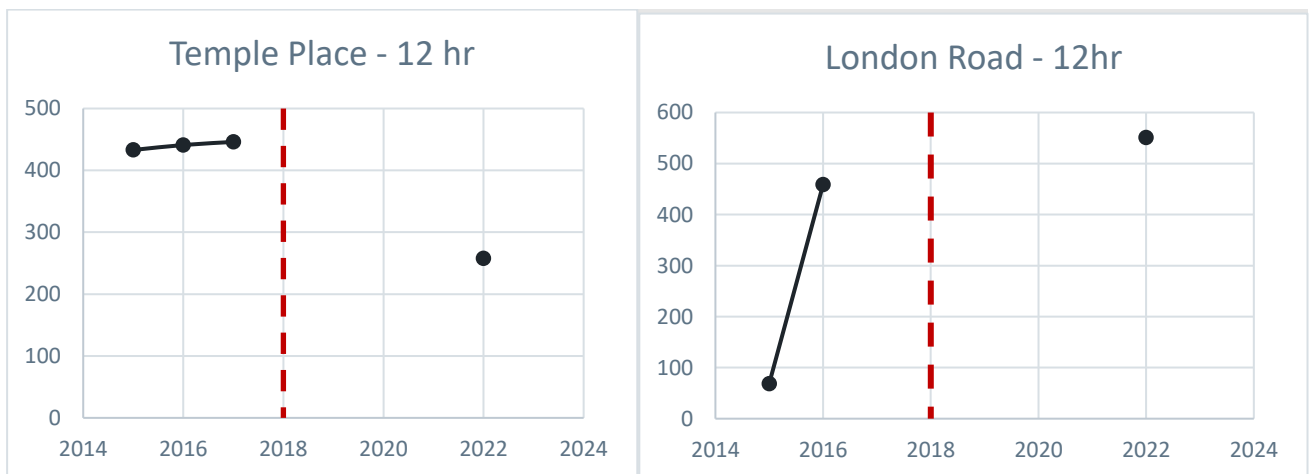


Figure 4-3 - Additional cycle survey counts in locations in Reading (12 hour - 0700-1900)



4.1.11 When looking at Temple Place and London Road in Reading, the sites tell two different stories. Temple Place is fairly level pre scheme and then drops down post scheme, this is probably due to changing behaviours as a result of the COVID 19 pandemic. At London Road there was a large increase in cyclists between 2015 and 2016, post scheme there has been an increase in cyclists too but at a lower rate.

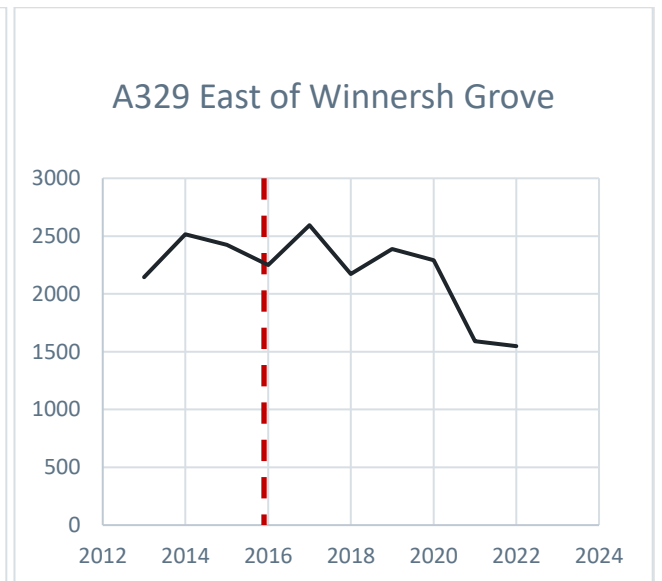
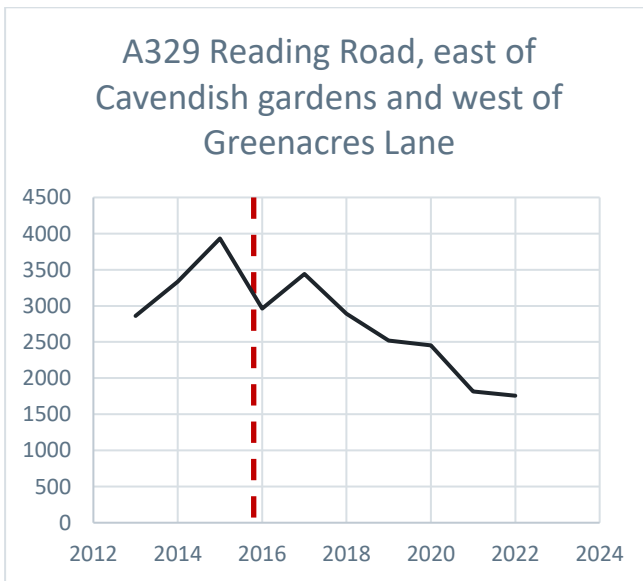
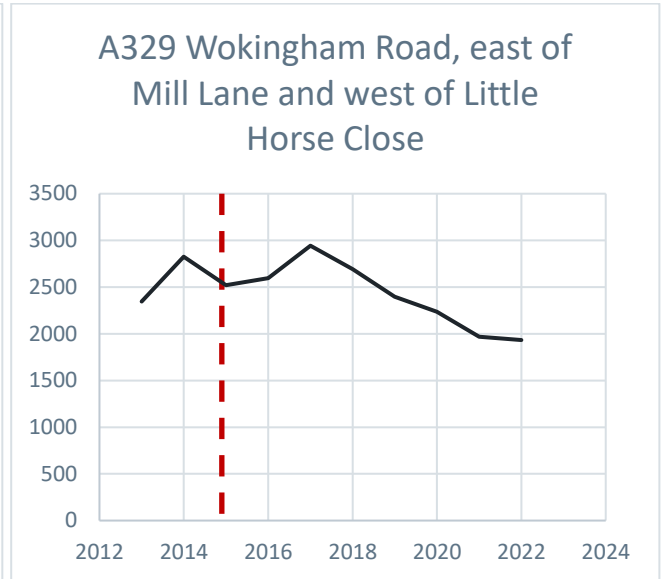
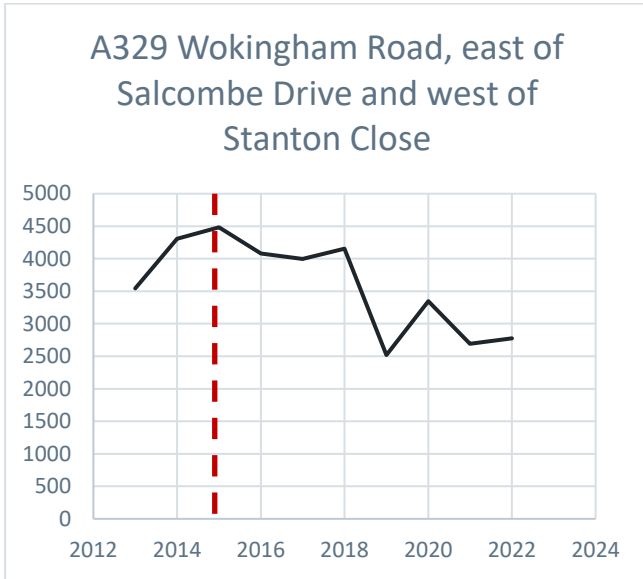
Wokingham

4.1.12 Cycle count data is available from 2013-2021. It is collected annually between 0700-1900 for a week, mostly in June but due to the COVID-19 pandemic 2020 and 2021 were collected in September. It is collected at eight sites on the A329. Sites 1, 2, 3, 4, 5 and 7 are in locations where the NCN422 scheme was located:

- Site 1 A329 Wokingham Road, east of Salcombe Drive and west of Stanton Close – on Phase 1 completed December 2014;
- Site 2 A329 Wokingham Road, east of Mill Lane and west of Little Horse Close – on Phase 1 completed December 2014;
- Site 3 A329 Reading Road, east of Cavendish gardens and west of Greenacres Lane – on Phase 2 completed October 2015;
- Site 4 A329 East of Winnersh Grove – on Phase 3a completed March 2016;
- Site 5 A329 Reading Road, east of Emmbrook Road and West of Woosehill – on Phase 3b completed March 2018; and
- Site 7 A329 London Road east of café layby and west of dual carriageway – on Phase 4 completed December 2020.



4.1.13 Since it is clear which site relates to which phase completion date, phase completion lines vary per graph.



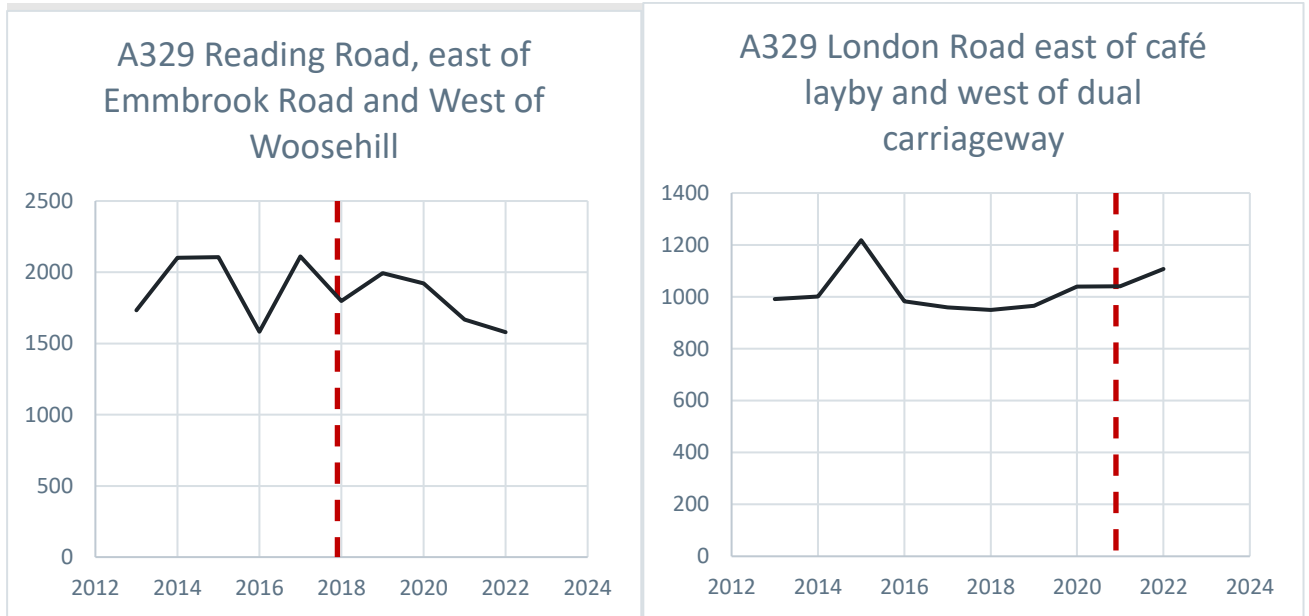


Figure 4-4 - Cycle flows at survey locations in Wokingham (12 hour 0700-1900)

4.1.14 In general, the patterns in cycle flows fluctuate a little year on year, with decreases in 2020, 2021 and 2022 due to the COVID-19 pandemic and changing behaviours since. Initially following scheme completion there are slight increases in cycle flow at every site, apart from A329 Wokingham Road, east of Salcombe Drive and west of Stanton Close.

Bracknell Forest

4.1.15 Two sets of cycle data are available. Firstly, Department for Transport (DfT) cycle AADT 24-hour data is available between 2013 and 2020 at three relevant sites:

- B3408 Wokingham Road 800189 (only 2018 & 2019 available);
- A329 East of Met office 56922; and
- A329 London Road near Ascot 73101.

4.1.16 Since the construction of different elements of the scheme stretch over a few years, a construction start line has been added in late 2016 and a scheme completion line has been added to mid-2020.

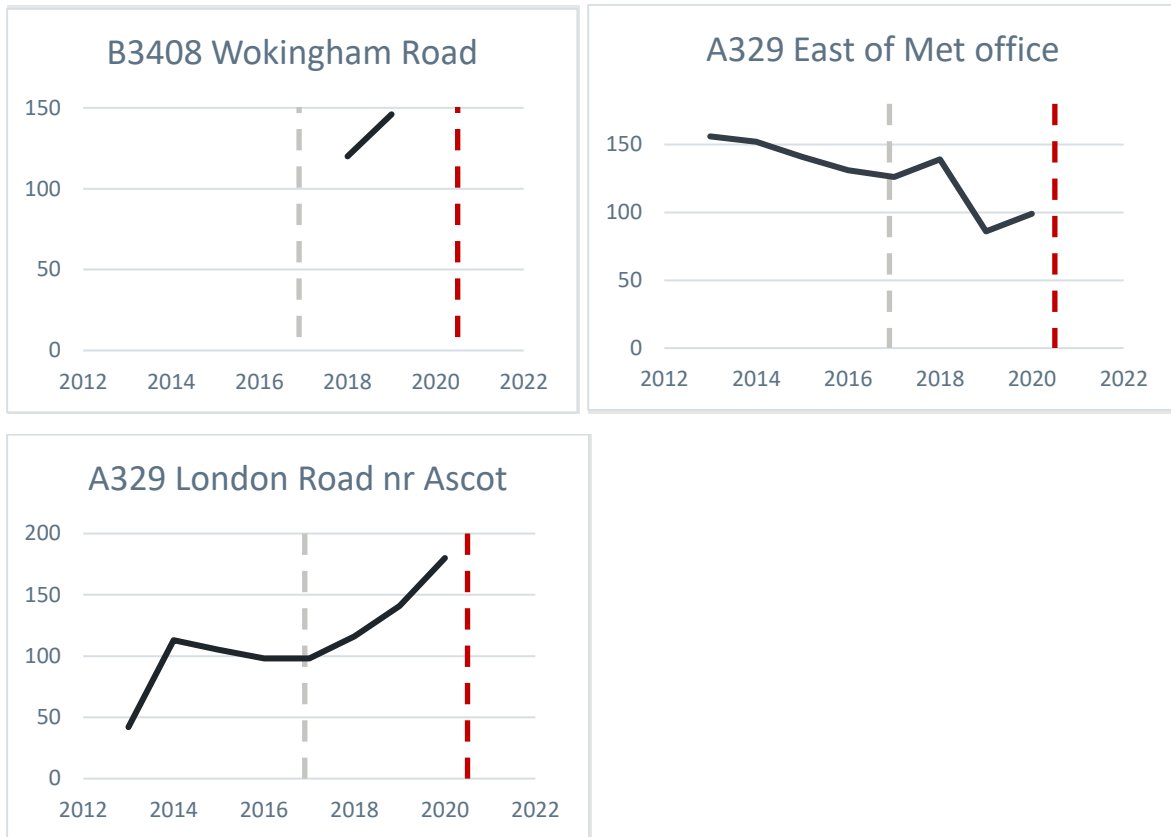


Figure 4-5 - Cycle flows from the DfT for survey locations in Bracknell Forest (AADT 24-hour)

4.1.17 The DfT data shows that in general cycle flows have been fairly level since 2015 and then have increased since 2017, apart from A329 East of Met office site which saw a decrease between 2018 and 2019. Since the scheme was only complete in mid-2020 and 2021 data is not yet available, 5-year post scheme data will be more informative. However, the A329 London Road near Ascot site shows an increase in cycle flows since the scheme began construction.

4.1.18 Additionally, “Travel in Bracknell” cycle data is available from 2013 to 2021, which is collected every month in April/May, although due to the COVID-19 pandemic 2021 was collected in September. This is 12-hour 0700-1900 data. The relevant sites are:

- Site 3 Wokingham Road;
- Site 5 Met Office Roundabout;
- Site 6 Millennium Way;
- Site 7 Town Centre from Western Roundabout; and
- Site 13 London Road Martins Heron.

4.1.19 Construction in Bracknell Forest Council was in phases between 2016 and 2020 (see the dotted lines on the graphs below), so baseline and post-scheme data is available. Since the construction of different elements of the scheme stretch over a few years, a construction start line has been added in late 2016 and a scheme completion line has been added to mid-2020.

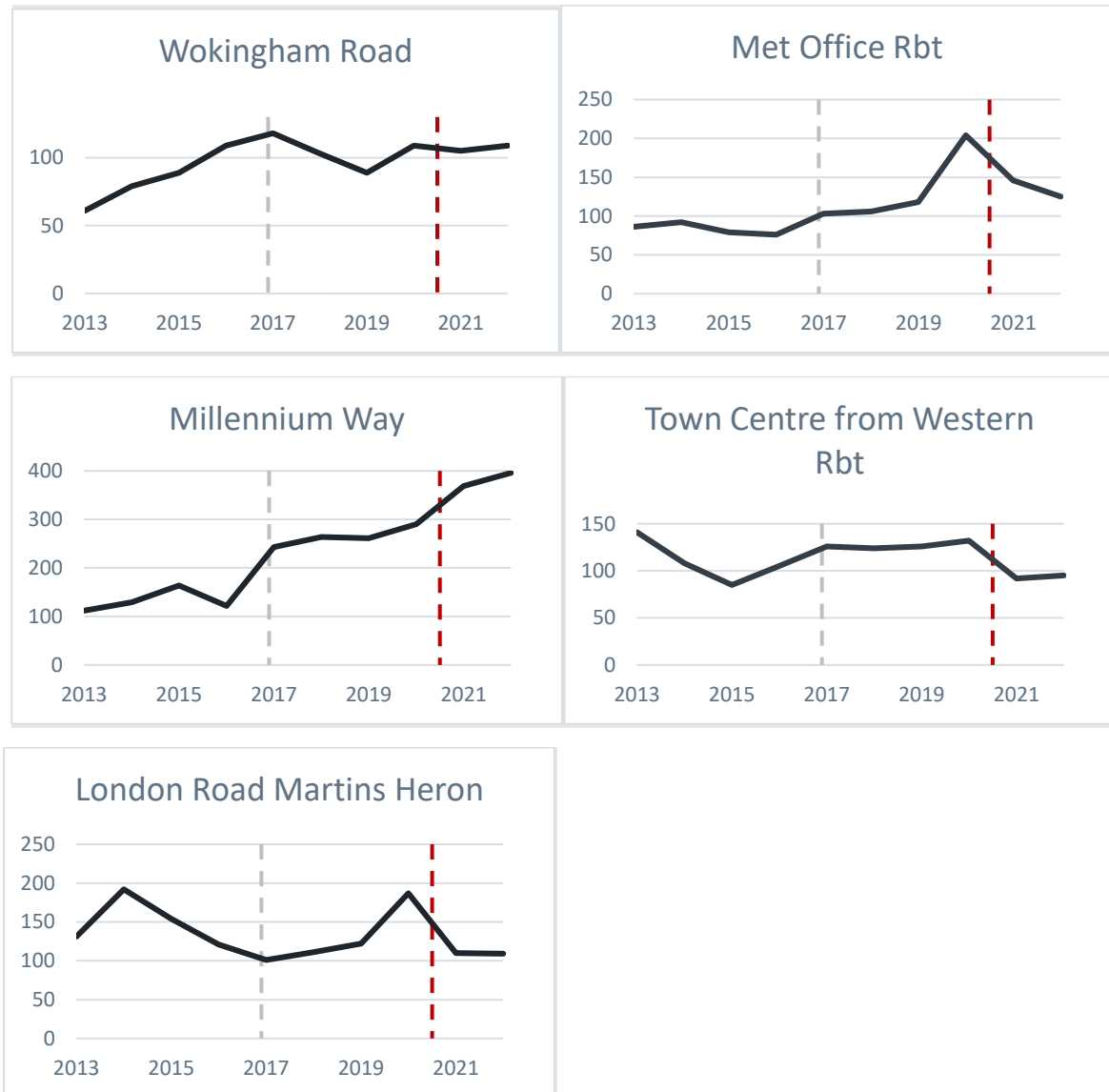


Figure 4-6 - Cycle flows for survey locations in Bracknell Forest from the Travel in Bracknell (TiB) data collection (0700-1900)

4.1.20 The travel in Bracknell data is quite varied by site:

- Site 3 Wokingham Road – cycle flows increased between 2013 and 2017, before decreasing to 2019 and then increasing and levelling in 2020 to 2022.
- Site 5 Met Office Roundabout – cycle flows were fairly level, with a slight increase to 2019, followed by a sudden increase in 2020 and a decrease to 2022, although still above 2019 levels.
- Site 6 Millennium Way – since 2013 cycle flows have been steadily increasing apart from in 2016. 2017 and 2021 both saw the steepest increase on the year before.



- Site 7 Town Centre from Western Roundabout – cycle flows have been fairly level since 2013 with drops in 2015 and 2021/22 and higher levels in 2013.
- Site 13 London Road Martins Heron - cycle flows have been fairly level since 2013 with peaks in 2014 and 2020.

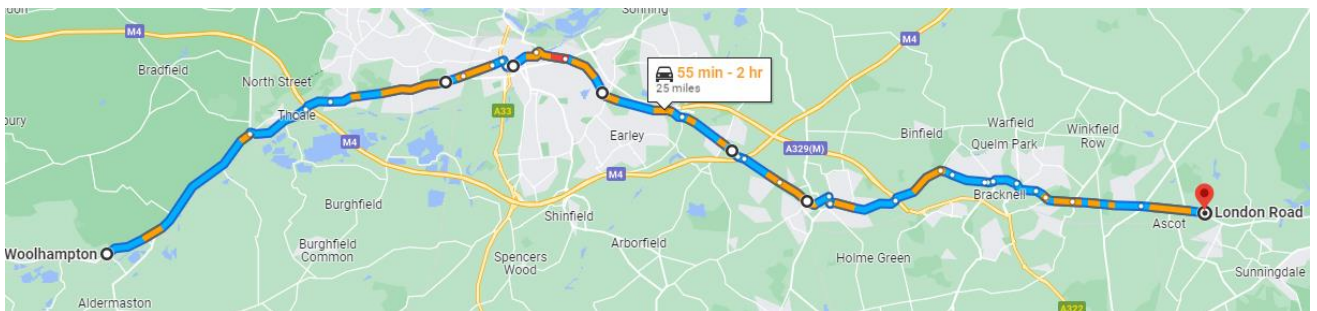
5 JOURNEY TIMES

5.1 INTRODUCTION

5.2 VEHICLE JOURNEY TIMES

5.2.1 Baseline data was not collected. However, one-year post scheme, using Google shows that to drive the NCN422 route, eastbound takes 55 minutes – 2 hours in the AM and PM (Figure 5-1 and Figure 5-2), and westbound 55 minutes – 1 hour 50 minutes in the AM or PM (Figure 5-3 and Figure 5-4). This will be compared with the five-year post scheme opening data when available. TrafficMaster data was not available.

Figure 5-1 - Whole NCN422 route eastbound vehicular journey time (AM)



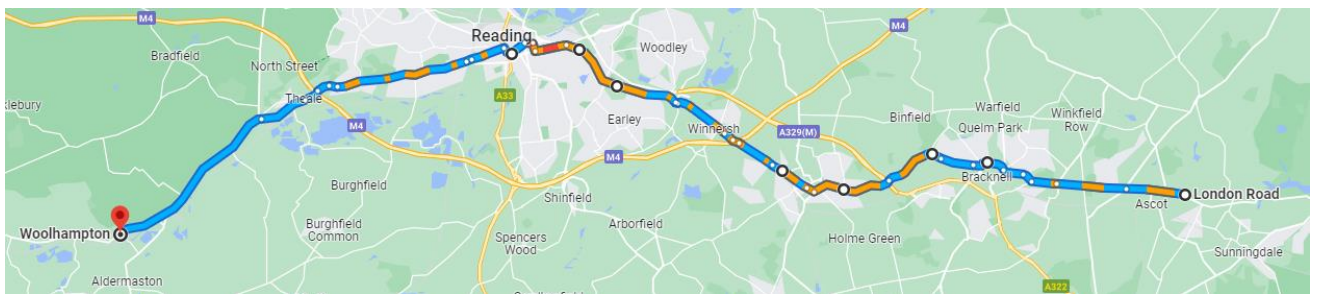
Source: Google Maps 2022

Figure 5-2 - Whole NCN422 route eastbound vehicular journey time (PM)



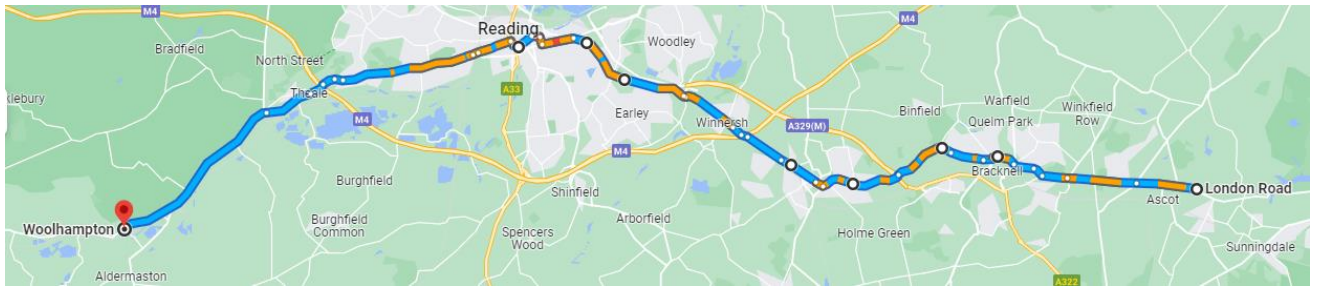
Source: Google Maps 2022

Figure 5-3 - Whole NCN422 route westbound vehicular journey time (AM)



Source: Google Maps 2022

Figure 5-4 - Whole NCN422 route westbound vehicular journey time (PM)

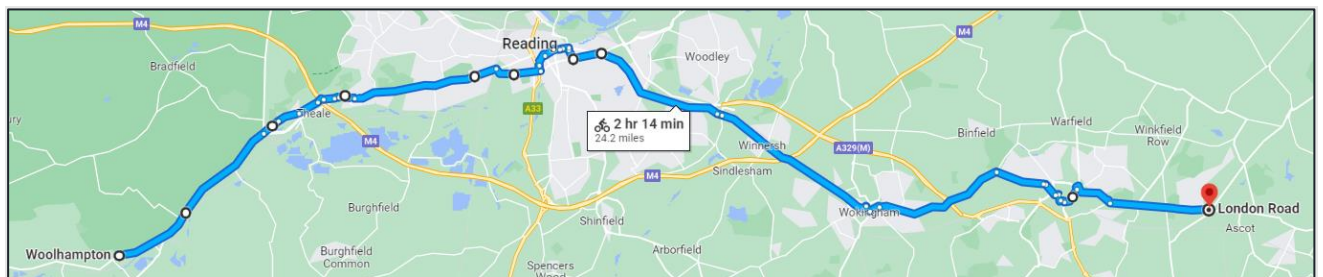


Source: Google Maps 2022

5.3 CYCLE JOURNEY TIMES

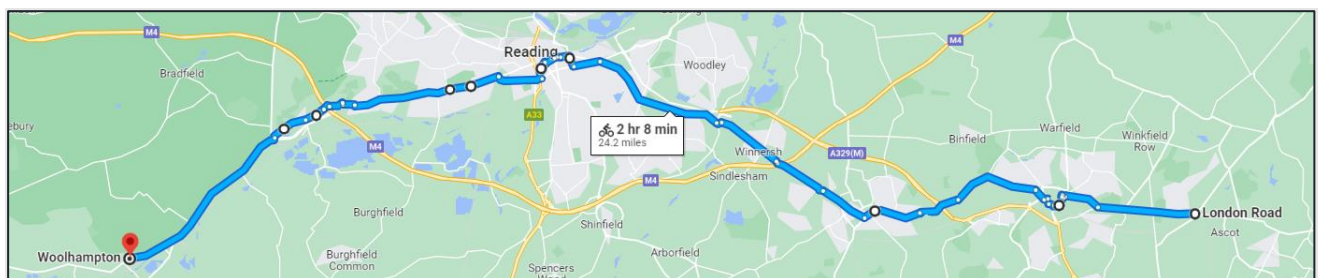
5.3.1 Baseline data was not collected. However, one-year post scheme, using Google, Figure 5-5 and Figure 5-6 show that to cycle the whole improved NCN422 24.2 mile route, eastbound takes 2 hours 14 minutes, and westbound 2 hours 8 minutes. In reality, users are more likely to only traverse smaller sections for utility (short distance trips for shopping, education, social etc) or commuting trips. This will be compared with the five-year post scheme opening data when available.

Figure 5-5 - Whole NCN422 route eastbound cycle journey time



Source: Google Maps 2022

Figure 5-6 - Whole NCN422 route westbound cycle journey time



Source: Google Maps 2022

6 COLLISIONS

6.1 INTRODUCTION

- 6.1.1 Personal Injury Accident (PIA) data contains information about any accidents recorded in a particular area. To assess the effectiveness of the scheme in achieving the scheme objective of improving safety for pedestrians and cyclists, collision data for study area (NCN 422 route) was obtained between 2013 and 2021 per Berkshire authority.
- 6.1.2 It is hoped that 5-year data will give a better idea of trends as a result of the scheme since it will be less affected by the COVID-19 pandemic and there will be more years to compare since construction. Additionally, collision data should typically be reviewed in 3–5-year periods, however this may mean that one year after scheme data is not representative, the 5-year after report will provide better judgement on the scheme impact.

West Berkshire

- 6.1.3 Collision data in West Berkshire has been analysed between January 2016 and July 2021, note that 2021 is an incomplete year and so data should be treated with caution. Within West Berkshire Borough, the scheme was constructed between 2018 and 2019. Figure 6-1 presents the number of collisions per severity type (fatal, serious, slight), while Figure 6-2 presents the number of casualties per severity type (fatal, serious, slight). Additionally, Figure 6-3 presents the number of collisions involving cyclists.

Figure 6-1 - Number of Collisions in West Berkshire Borough in the scheme area between 2016 and 2021

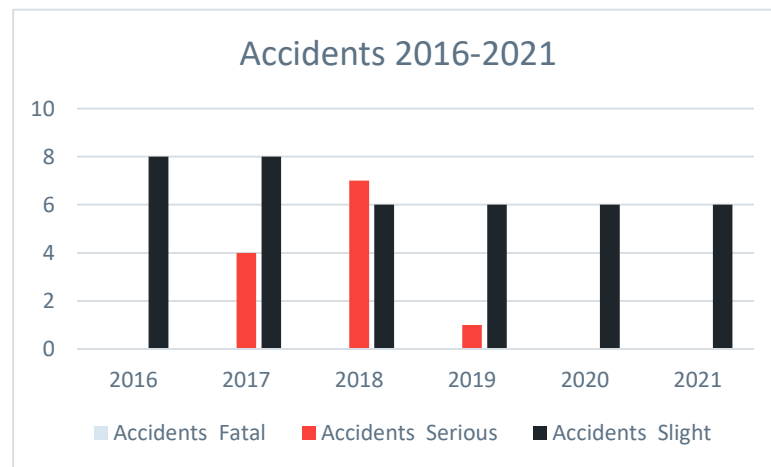


Figure 6-2 – Number of Casualties in West Berkshire Borough in the scheme area between 2016 and 2021

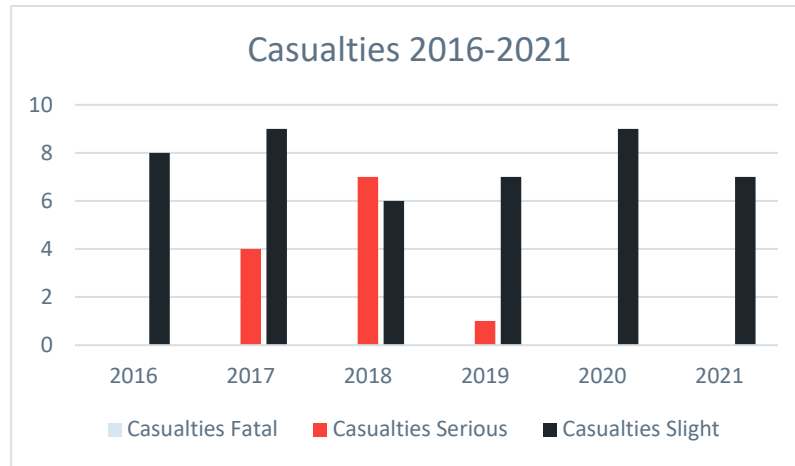
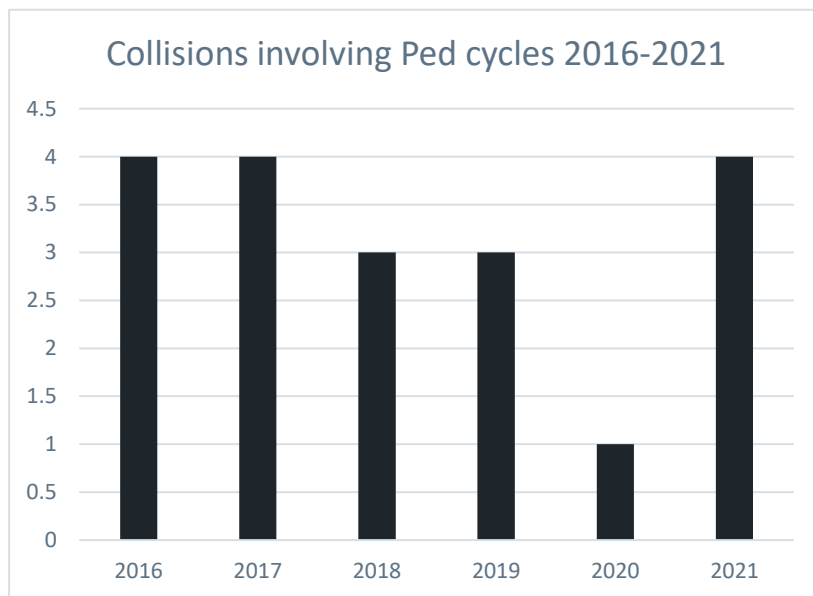


Figure 6-3 - Number of Collisions involving cyclists in West Berkshire Borough in the scheme area



6.1.4 Construction of the NCN422 in West Berkshire was between June 2018 and March 2019. Between 2019 and 2020 there is the same total amount of accidents, however there is an increase in casualties. This is concerning as there was also a reduction in traffic flow as shown in Section 3.2. There is a decrease in accidents involving cyclists between 2019 and 2020, but also a decrease in cycle flow as shown in Section 4. Worryingly, there is an increase in accidents involving cyclists in 2021, despite this being only 7 months of data instead of a year.

Reading

6.1.5 Collision data in Reading has been analysed between January 2013 and November 2021, note that 2021 is an incomplete year and so data should be treated with caution. Within Reading Borough, the scheme was constructed and completed in 2018. Figure 6-4 presents the number of collisions per severity type (fatal, serious, slight), while Figure 6-5 presents the number of casualties per severity type (fatal, serious, slight). Additionally, Figure 6-6 presents the number of collisions involving cyclists.

Figure 6-4 - Number of Collisions in Reading Borough in the scheme area between 2013 and 2021

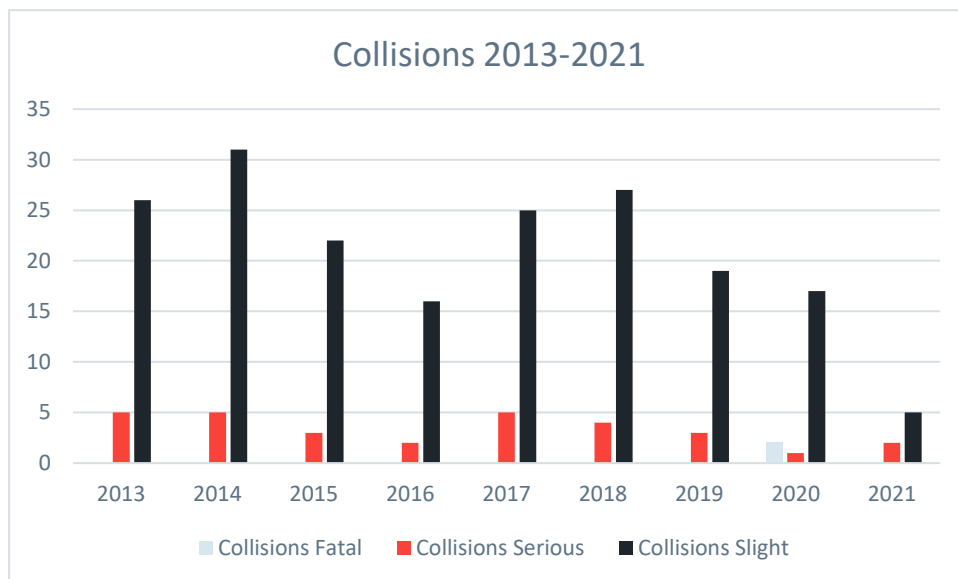


Figure 6-5 - Number of Casualties in Reading Borough in the scheme area between 2013 and 2021

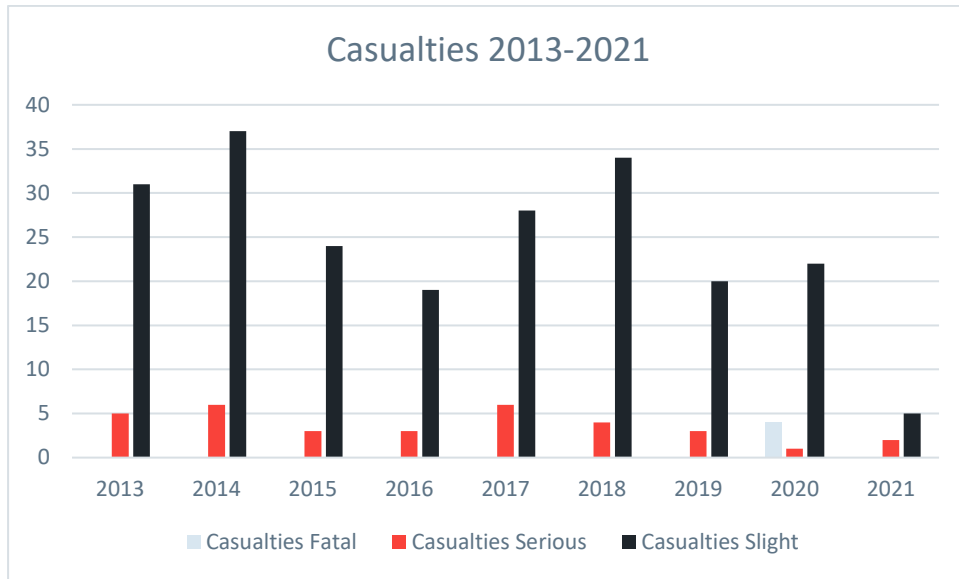
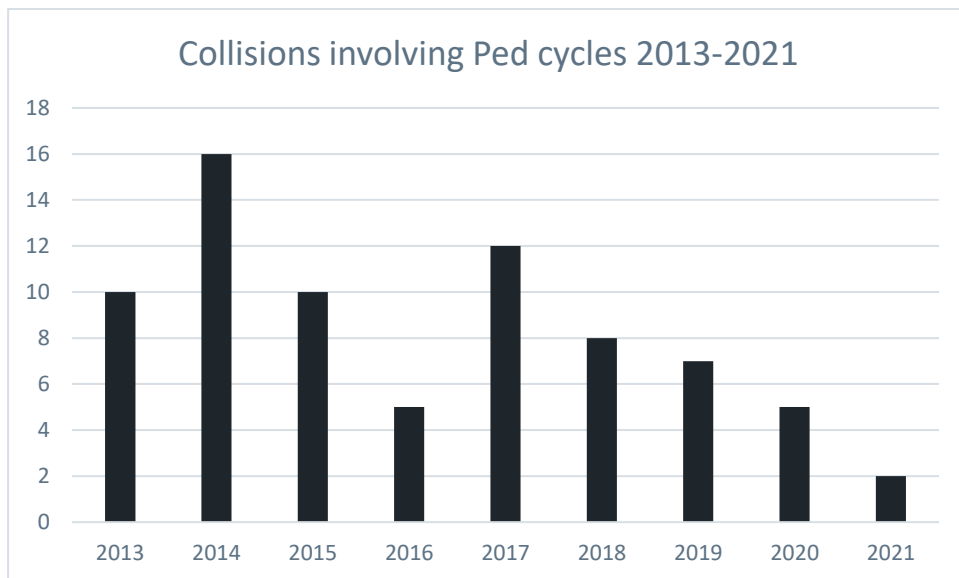


Figure 6-6 - Number of Collisions involving cyclists in Reading Borough in the scheme area



6.1.6 The number of collisions and the number of casualties follow a similar pattern with fewer in 2019 and 2020 than in 2018 when the scheme was constructed. Similarly, the number of collisions involving cyclists has decreased since 2018. However, vehicular flow and cycle flows have also decreased in the area so such patterns may not be attributable to the scheme.

Wokingham

6.1.7 Collision data in Wokingham has been analysed between January 2013 and June 2021, note that 2021 is an incomplete year and so data should be treated with caution. Within Wokingham Borough, the scheme was constructed in various phases from 2014 with Phase 1 and completed in 2020 with Phase 4. Figure 6-7 presents the number of collisions per severity type (fatal, serious, slight), while Figure 6-8 presents the number of casualties per severity type (fatal, serious, slight). Additionally, Figure 6-9 presents the number of collisions involving cyclists.

Figure 6-7 - Number of Collisions in Wokingham Borough in the scheme area between 2013 and 2021

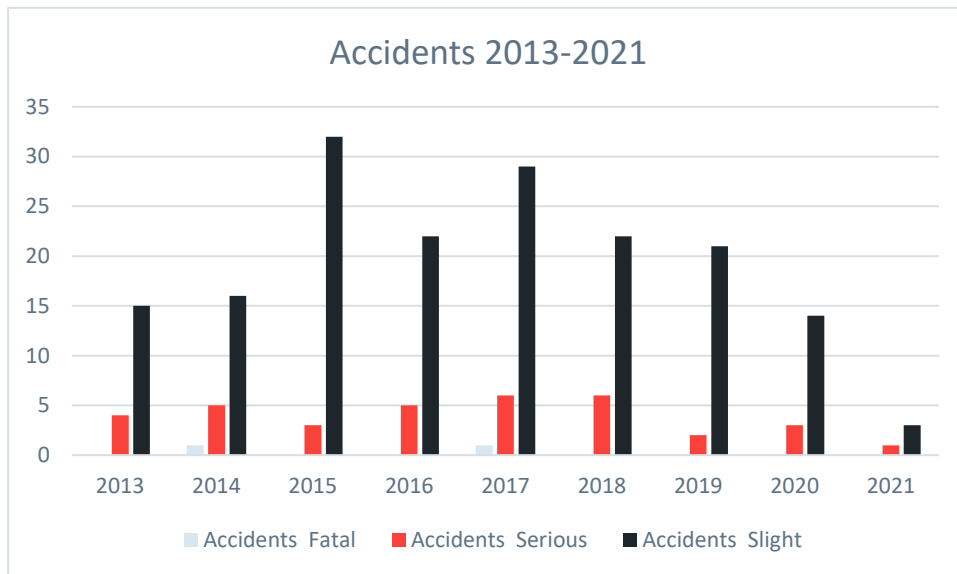


Figure 6-8 - Number of Casualties in Wokingham Borough in the scheme area between 2013 and 2021

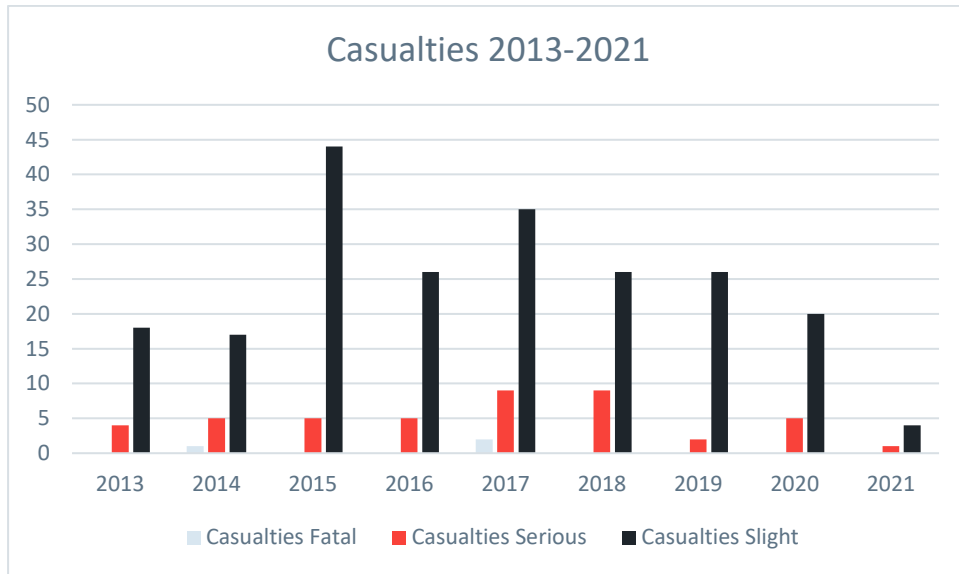
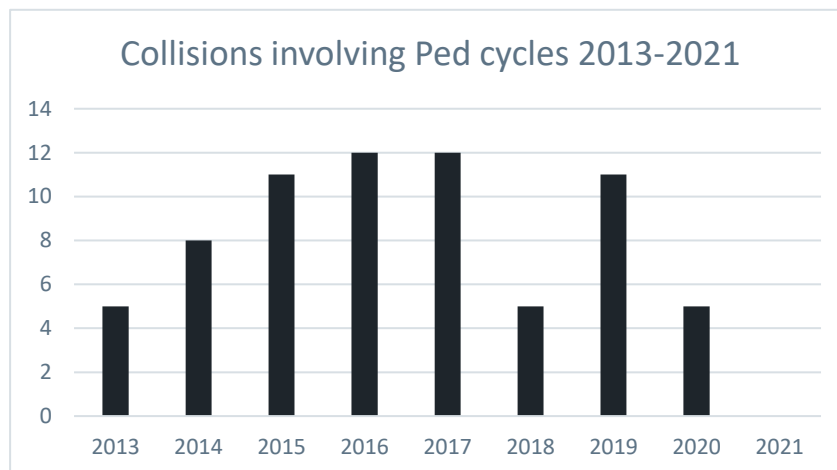


Figure 6-9 - Number of Collisions involving cyclists in Wokingham Borough in the scheme area





6.1.8 The number of collisions and the number of casualties follow a similar pattern with reducing numbers since 2017. Since the different Phases of the scheme were complete in different years between 2014 and 2020, it is difficult to attribute any changes to the scheme. However, 2020 has much fewer accidents involving cyclists than the other years, apart from 2013 and 2018, although 2020 was impacted by the COVID-19 pandemic where there were lower flows.

Bracknell Forest

6.1.9 Collision data in Bracknell Forest has been analysed between January 2013 and June 2021, note that 2021 is an incomplete year and so data should be treated with caution. Within Bracknell Forest Borough, the scheme was constructed in various phases between 2016 and completed in 2020. Figure 6-10 presents the number of collisions per severity type (fatal, serious, slight), while Figure 6-11 presents the number of casualties per severity type (fatal, serious, slight). Additionally, Figure 6-12 presents the number of collisions involving cyclists.

Figure 6-10 - Number of Collisions in Bracknell Forest Borough in the scheme area between 2013 and 2021

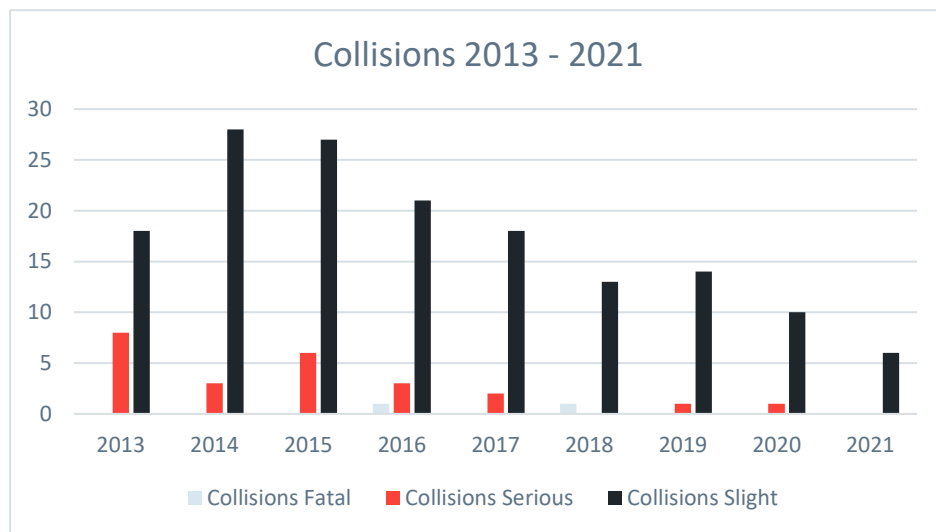


Figure 6-11 - Number of Casualties in Bracknell Forest Borough in the scheme area between 2013 and 2021

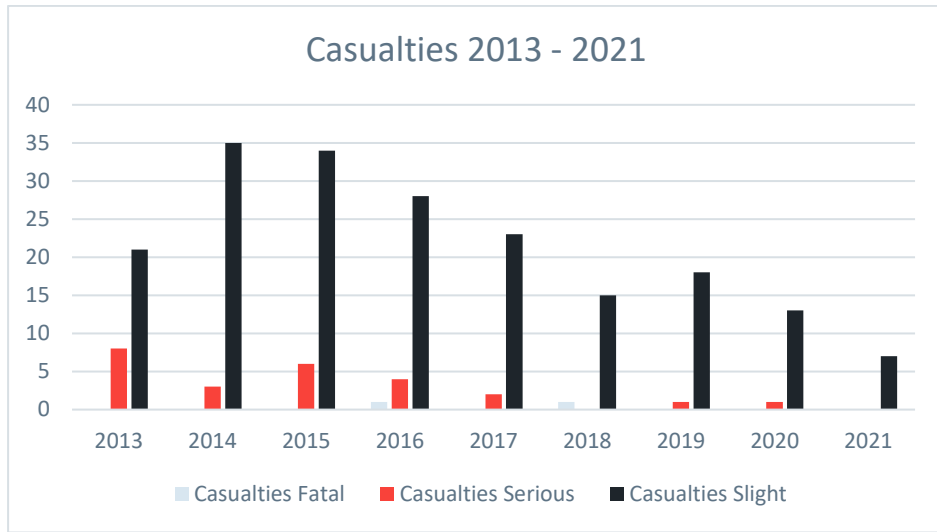
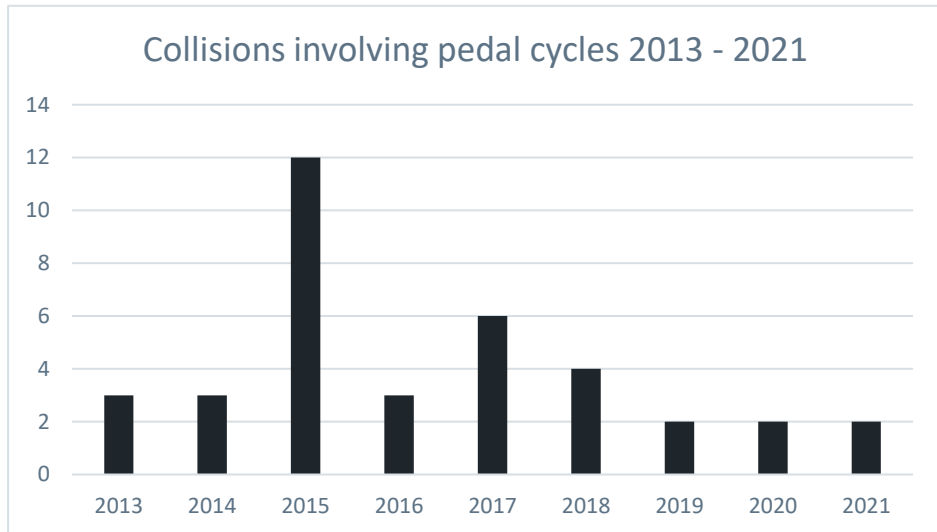


Figure 6-12 - Number of Collisions involving cyclists in Bracknell Forest Borough in the scheme area





6.1.10 The number of collisions and the number of casualties follow a similar pattern with a decreasing trend since 2014. Since the different phases of the scheme were complete in different years between 2016 and 2020, it is difficult to attribute any changes to the scheme. However, since 2016 there have been reductions in the number of accidents and casualties. The collisions involving cyclists are much higher in 2015. They also rose in 2017 and 2018, before dropping in 2019 and 2020. This can be linked with a decrease in vehicular flows in the area between 2019 and 2020 (Section 3.2), conversely there are increase in cycle flows in this period (Section 4) and hence benefits of the scheme can be seen.

6.2 SUMMARY

- 6.2.1 To summarise, in general, across the four Berkshire authorities there has been some decreases in accidents and casualties. However, there have also been decreases in flow. This means that the scheme is not necessarily safer due to the proportional reduction. However, if the scheme is causing the reduction in flow and not just the pandemic, which is resulting in reduced accidents and casualties, this can only be seen as a positive.
- 6.2.2 There have been some decreases in accidents involving cycles although possibly not attributed to the scheme due to decreases in cycle flows. However, in Bracknell Forest accidents involving cycles remain constant despite cycle flow increases.



7 ECONOMIC ASSESSMENT

7.1 LINKS TO WIDER GROWTH AND NETWORK ACTIVITY

- 7.1.1 The NCN 422 ties into wider growth and network activity in each of the four Berkshire authorities. It supports commuters by linking residential developments (existing and proposed) to key employment areas and town centres on the A4/A329 corridor: Newbury, Thatcham, Theale, Reading, Winnersh, Wokingham, Bracknell and Ascot. It connects existing local and national cycle infrastructure, enhancing connectivity locally and more strategically.
- 7.1.2 The route can be accessed by almost 600,000 residents within a 20-minute cycle, and 250,000 residents within a five-minute cycle.
- 7.1.3 More than 40,000 new homes are due to be delivered across West Berkshire, Reading, Wokingham and Bracknell Forest within each local authority's respective plan period. The projected growth in housing across the Thames Valley will require greater investment in walking and cycling infrastructure to limit the increasing pressure on the local network. The NCN 422 helps to serve them and reduce their impact on the highway network by encouraging new residents to switch to cycling for appropriate journeys.
- 7.1.4 The growth of the TVB LEP employment area is reliant upon transport and communications and the TVB Strategic Economic Plan states that the "biggest single risk to the future economic contribution of TVB concerns our transport and communications infrastructure". The NCN 422 will provide improved access to key employment centres and town centres by cycle, which will also help reduce the number of motor vehicles on the existing highway network. This will have economic benefits for the Thames Valley in terms of reduced congestion, improved employee productivity and improved health.

7.2 VALUE FOR MONEY

- 7.2.1 As found in section 2.2 there was an overspend of 2%, this will mean a minimal worsening in the Present Value of Cost and associate BCR. Since it is only slight, an updated value is not necessary.

8 CARBON IMPACTS

- 8.1.1 Within the business case in the economic case, greenhouse gases were not assessed since the scheme concerns cycling and there would be no impact on greenhouse gases.
- 8.1.2 The impact of the NCN 422 on air quality and vehicle emissions was assessed. It was assumed that the households within a 200m radius of the scheme would be affected by changes in air quality. This suggests that 25,123 households along the route will directly benefit from improved air quality as a result of reduced traffic and congestion on the local highway network. This results in a slightly beneficial impact of the scheme on air quality.
- 8.1.3 Looking at Sections 3 and 4 to compare vehicle and cycle flows:
- In West Berkshire both vehicle numbers and cycles flows have dropped but it is likely due to being as a result of the COVID 19 pandemic.
 - In Reading, in general vehicle flows have been steadily decreasing. Cycle flows have increased when the scheme was complete in 2018 and have since decreased but are still above pre-scheme levels.
 - In Wokingham, initially post scheme completion most cycle flows increased briefly, before dropping away and then decreasing more during the pandemic.
 - In Bracknell Forest, vehicle flows have been steadily decreasing . Since the final part of the scheme was completed in mid-2020 which was during the pandemic there is little post scheme data, and what exists shows mixed results in cycle flows as a result of the pandemic and changing behaviours since. The 5-year after report may give better results.
- 8.1.4 As a result of vehicle numbers decreasing there will have likely been an improvement in air quality as a result of reduced vehicle emissions and less congestion.
- 8.1.5 On the Wokingham Phase 4 section along London Road, plastic kerbs were used as a trial. 1.321 km of plastic kerbing was installed. This led to a carbon saving of 40 Tonnes compared to concrete kerbing. This also had Health and Safety/manual handling benefits as the kerbs are lighter than traditional concrete kerbs, requiring no lifting equipment and fewer workers to install it. It is estimated to be up to 4 times faster to lay plastic kerbs rather than concrete kerbs. For more information see Appendix D.

9 CONCLUSION

- 9.1.1 From looking at the scheme objectives, the scheme has delivered a full, coherent east-west cycle link between Newbury and Ascot for commuters. Although it did not continue to Windsor for deliverability reasons. It has supported commuters by linking residential developments (existing and proposed) to key employment areas and town centres on the A4/A329 corridor. It has connected existing local and national cycle infrastructure, enhancing cycling connectivity locally and more strategically.
- 9.1.2 We do not have data on cycle journey times and reliability. But there is no doubt that by delivering cycle infrastructure and connecting what was in place that journey quality has improved the situation for cyclists.
- 9.1.3 In terms of safety, in general, across the four Berkshire authorities there has been some decreases in accidents and casualties. However, there have also been decreases in traffic flow. This means that the scheme is not necessarily safer due to the proportional reduction. However, if the scheme is causing the reduction in flow (not just the pandemic), which is resulting in reduced accidents and casualties, this can only be seen as a positive.
- 9.1.4 There have been some decreases in accidents involving cycles although possibly not attributed to the scheme due to decreased cycle flows. However, in Bracknell Forest accidents involving cycles remain constant despite cycle flow increases which is a positive.
- 9.1.5 Looking at Sections 3 and 4 to compare vehicle and cycle flows:
- In West Berkshire both vehicle numbers and cycles flows have dropped but it is likely due to being as a result of the COVID 19 pandemic.
 - In Reading, in general vehicle flows have been steadily decreasing. Cycle flows have increased when the scheme was complete in 2018 and have since decreased but are still above pre-scheme levels.
 - In Wokingham, initially post scheme completion most cycle flows increased briefly, before dropping away and then decreasing more during the pandemic.
 - In Bracknell Forest, vehicle flows have been steadily decreasing. Since the final part of the scheme was completed in mid-2020 which was during the pandemic there is little post scheme data, and what exists shows mixed results in cycle flows as a result of the pandemic and changing behaviours since. The 5-year after report may give better results.



- 9.1.6 As a result of vehicle numbers decreasing there will have been an improvement in air quality as a result of reduced vehicle emissions and less congestion, helping the four Berkshire authorities to meet net zero targets and sustainability aspirations.
- 9.1.7 The trial of using 1.321 km of plastic kerbing on the Wokingham Phase 4 section is hugely positive so far with a 40 Tonne carbon saving and large benefits to health and safety. The five year after opening report will give a better idea of durability.
- 9.1.8 Therefore, the objectives have been met and the scheme is considered a success at this one-year post opening stage.



Appendix A

PRE AND POST SCHEME PHOTOS



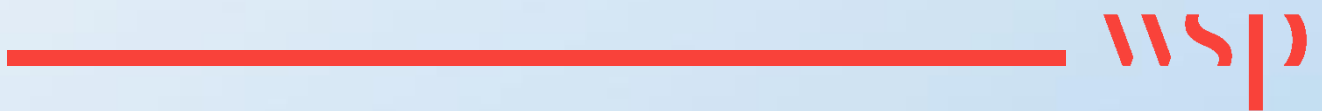
Appendix B

SCHEME DRAWINGS



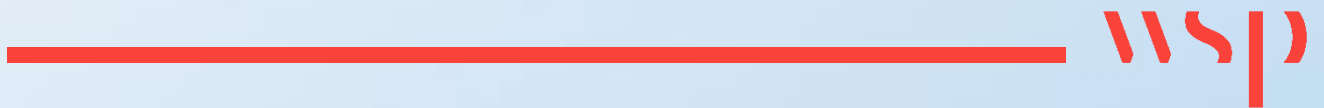
Appendix C

LINK AND CYCLE COUNT LOCATIONS



Appendix D

BENEFITS OF PLASTIC KERBING: OUTCOME OF THE LONDON ROAD, WOKINGHAM TRIAL





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