Kenilworth: Propensity to Cycle Tool Case Study

Kenilworth is a town in Warwickshire, England, about 6 miles (10 km) south-west of the centre of Coventry, 5 miles (8 km) north of Warwick and 90 miles (140 km) north-west of London. The 2011 Census recorded a parish population of 22,413.

This case study examines current and potential levels of cycling to work and to school in the Kenilworth area, using the Propensity to Cycle Tool. It considers how cycling would change, if commuters and children were as likely to cycle those trips as the Dutch are, based on the distance and hilliness of the trips. It highlights routes that would have particularly large numbers of commuters or children cycling, as being potential priorities for new infrastructure. Finally, it looks at cycling potential in the Abbey Fields area, where a green route could connect up an existing cycle route currently with a gap in the middle.

Key messages

- Safe infrastructure away from busy motor traffic is key in encouraging more people to cycle, and particularly important for cycling with children.
- Kenilworth forms part of a high cycling potential belt between Coventry and Warwick, while the more rural area to the West has lower cycling potential.
- Under the PCT's 'Go Dutch' scenario, instead of 2-3% of commuters and schoolchildren travelling by bike in the area, we would see 20-25% of commuters and 40-50% of schoolchildren riding.
- A core network in the centre would have routes with several hundred or more cycle commuters. Key desire lines to Warwick and Coventry are also important.
- For travel to school, the network is more local and granular, with around Kenilworth School a hotspot, but some longer routes to the South also see significant amounts of cycling.
- While we cannot fully calculate the impact of opening a cycleway through Abbey Fields, under the Go Dutch scenario several hundred cycle commuters might benefit from being able to use a safe off-road path rather than the surrounding roads, which have seen serious injuries.

About the Propensity to Cycle Tool

The Propensity to Cycle Tool uses Census and School Travel Census data to examine current cycling levels, and to estimate what proportion of trips might be cycled under different scenarios. These are largely based on trip characteristics, being distance and hilliness. For instance, the Go Dutch scenario used here re-allocates trips to cycling based on how likely a Dutch person would be to cycle a trip of that distance and hilliness. For commuting trips, it is a Dutch commuter and for travel to school, a Dutch school child (primary or secondary depending upon the school). The Go Dutch scenario thus represents an ambitious scenario, but one that is based on what real people do, and upon English distances and English topography. There are less ambitious, more incremental scenarios, and a more ambitious scenario that adds Go Dutch to an assumption that people also have access to e-bikes. In hilly parts of England, such as Cornwall, the e-bike scenario makes a big difference.

Because the PCT uses origin-destination data (i.e. we know the small area where people live and where they work/study) we can map cycling potential at a route level, as well as at an area level. One limitation of the PCT is that it uses data from 2011, when the last Census and School Travel Census took place. It needs to be supplemented with local knowledge, for instance around new developments or changes in school locations. Note also that the PCT only routes people along existing cyclable routes. In some cases, one might unlock potential by (for instance) building a bridge over a rail line, but the PCT is unable to calculate the change in cycling potential associated with this.

In this case study, we focus on Go Dutch. This has the advantage of enabling a mental step-change, i.e. to see what might be possible with a change in approach to transport planning; but based in evidence about the types of journeys local people currently make. It is a scenario that is available both for commuting and school travel, whereas some PCT scenarios are only available for commuting.

Current Cycling Levels

Travel to Work

Within Kenilworth, some journeys to work are very short, but are nonetheless still largely driven. Figure 1 illustrates the current (2011 Census) breakdown of commuters travelling from the Warwick 001 MSOA to the Warwick 002 MSOA, or vice versa, for work. This is 1km (crow-fly) but at present, 57% of those making the trip are driving a car, and only 6% are cycling. Note that the PCT investigates cycling potential for travel to work trips in their entirety, i.e. it is not able to cover the potential to shift part of a trip to cycling (e.g. cycling to a station, and then getting the train to London).

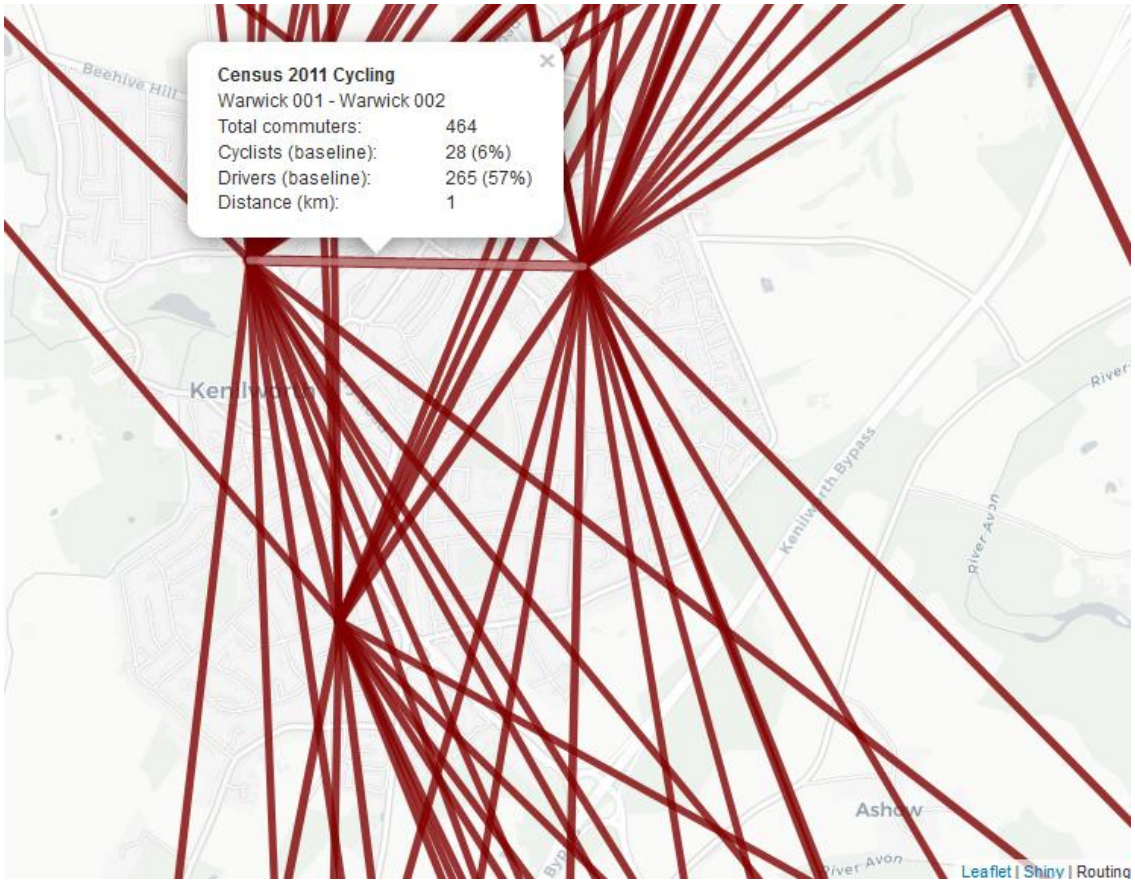

Figure 1: Journeys to work from Warwick 001 MSOA to Warwick 002 MSOA

From Warwick 001 MSOA to Coventry 031 is a longer distance, of 8km crow-fly. The PCT shows that 78% of those trips are car-driver journeys, against 4% that are cycled.

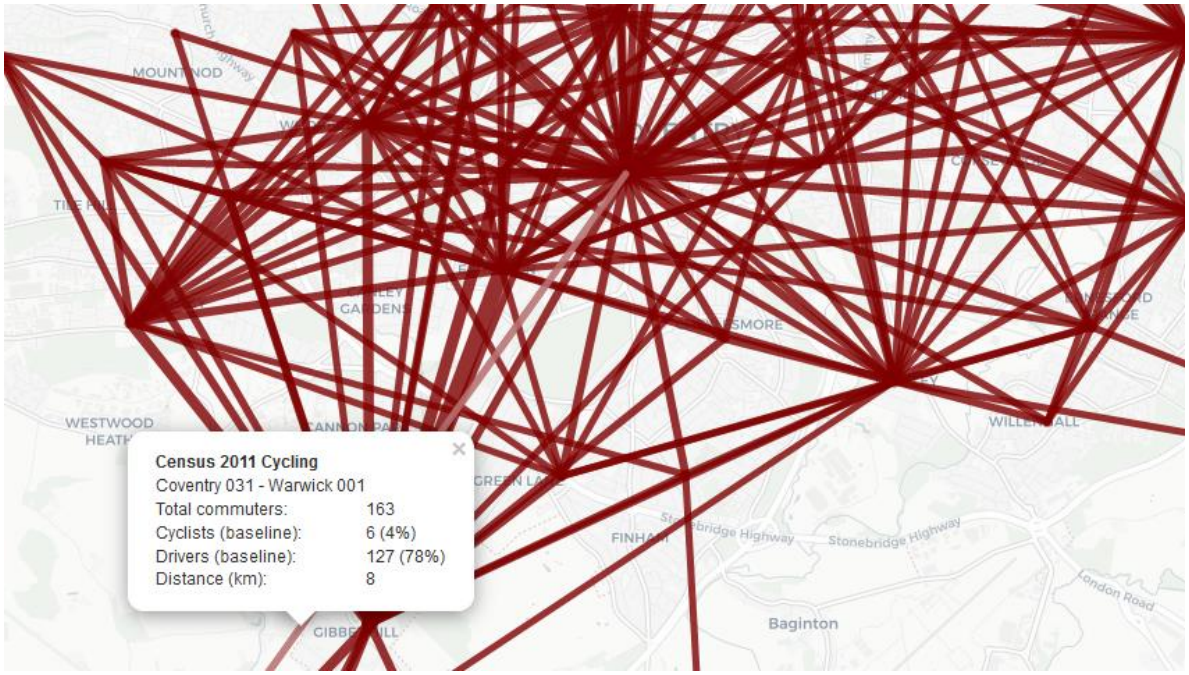

Figure 2: Journeys from Warwick 001 MSOA to Coventry 031 MSOA (or vice versa)

Using area-based data (what % of resident commuters cycle to work?) we can see that cycling levels across the area remain low. Figure 3 shows that 2-3% cycling to work is normal within Kenilworth:

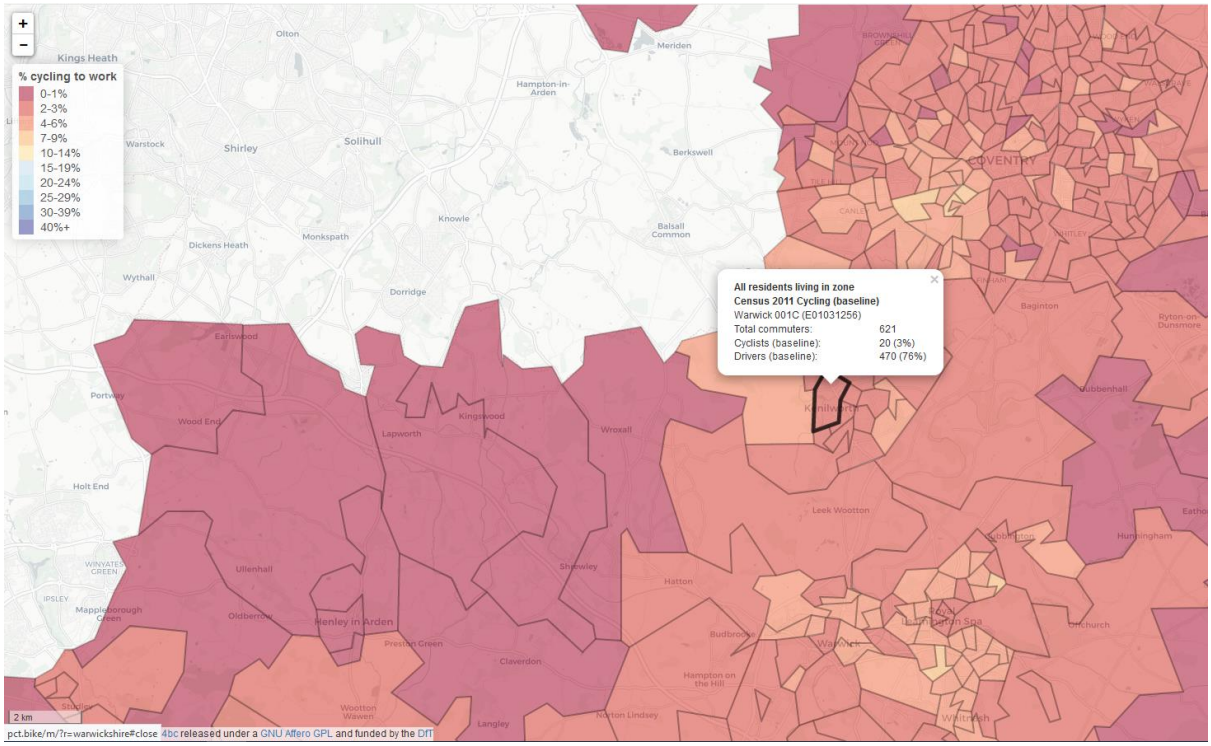

Figure 3: Area-based cycling levels, Kenilworth and surrounding area

Travel to School

For schools in the local area, the percentage driven to school ranges from 15% at Kenilworth School, to 81% at St. Augustine's; although the absolute numbers of children driven are not that different, because Kenilworth School is much larger than St. Augustine's. It is common for 5 or fewer children in a school to cycle, and no school has more than 8% of pupils arriving by bike (Thorns Community Infant School). Figure 4 highlights area-level cycling to school; generally in the Kenilworth area around 2-3%, like cycling to work.

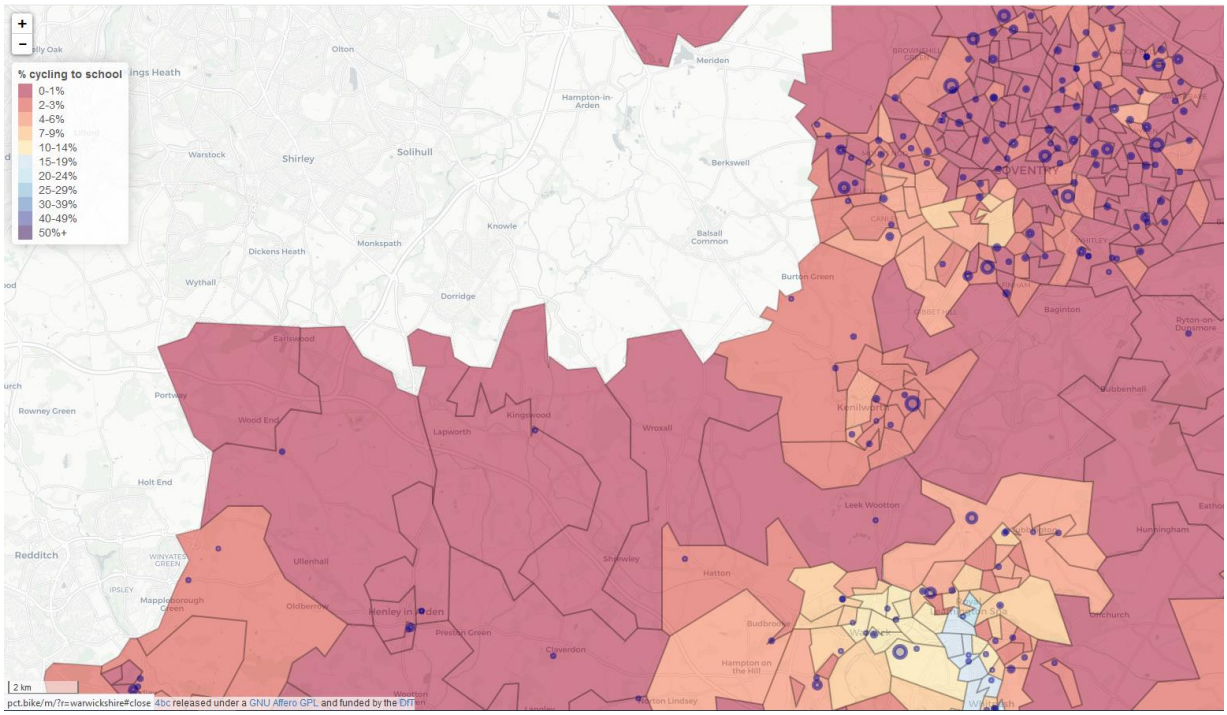

Figure 4: cycling to school, Kenilworth and surrounding area

‘Go Dutch’ cycling potential

However, what if Kenilworth was in the Netherlands? Assuming Dutch cycling infrastructure, policy, and culture, but keeping local trip patterns (and without assuming e-bike usage), what would cycling look like? This section gives some insight into what the potential for cycling locally.

Cycling to Work

Dutch cycling potential in Kenilworth is substantially higher than current cycling levels (Figure 5). Typical is around 15-20% of commutes made by bike (as noted above, this is excluding potential for cycling to stations, for instance). Kenilworth forms part of a high cycling potential belt between Coventry and Warwick, while the more rural area to the West has lower cycling potential. Note that using the e-bike scenario, cycling potential in Kenilworth rises to around 20-25%.

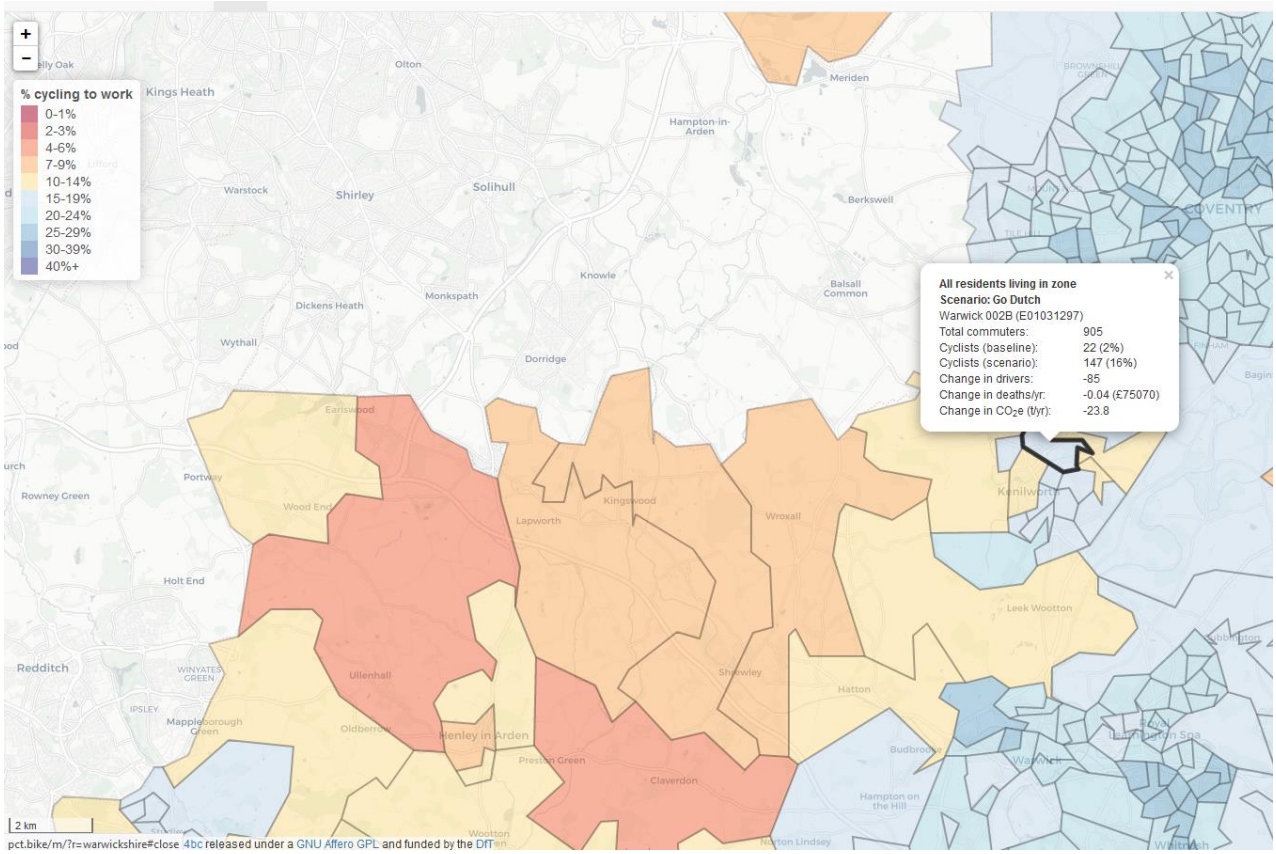

Figure 5: Go Dutch area-based cycling potential in Kenilworth and surrounding area

Figure 6 highlights the change that ‘Go Dutch’ makes. While currently most roads in Kenilworth see few commuter cyclists (many see under 10), the right-hand side of the figure shows the Go Dutch picture. Under the scenario, a core network in the centre would see several hundred cycle commuters or more on the network in the morning peak hour, while key desire lines towards Warwick and Coventry also become important for those riding to jobs there.

Figure 6: current (left side) and Go Dutch (right side) commuter cycling on the route network, Kenilworth and surrounding area

Cycling to School

Figure 7 below highlights cycling to school at present – there is very little.

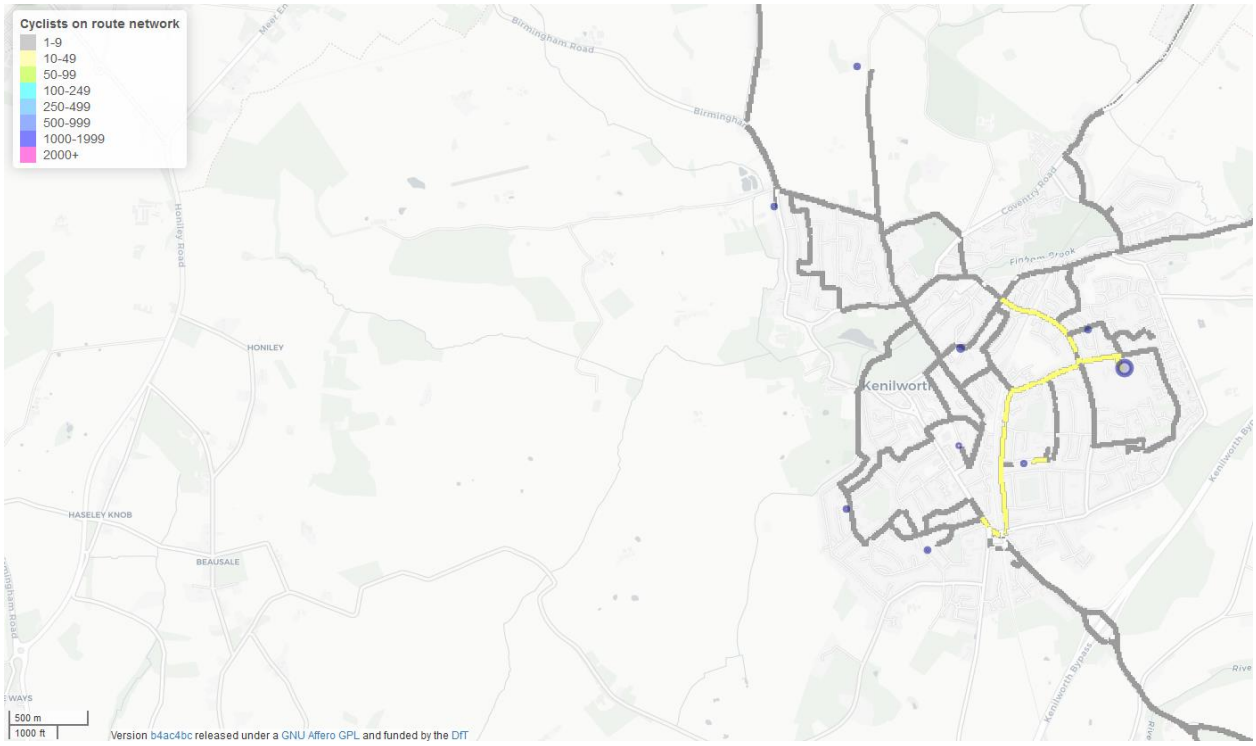

Figure 7: current cycling to school on the route network, Kenilworth

Under Go Dutch, the change shown in Figure 8 is substantial: some key routes near the largest school would have hundreds, maybe even more than a thousand, children cycling there (from under 50 at best now). Many roads would see 50 or more children cycling along in the morning peak, compared to it now being very unusual to see more than the occasional child or children on bikes.

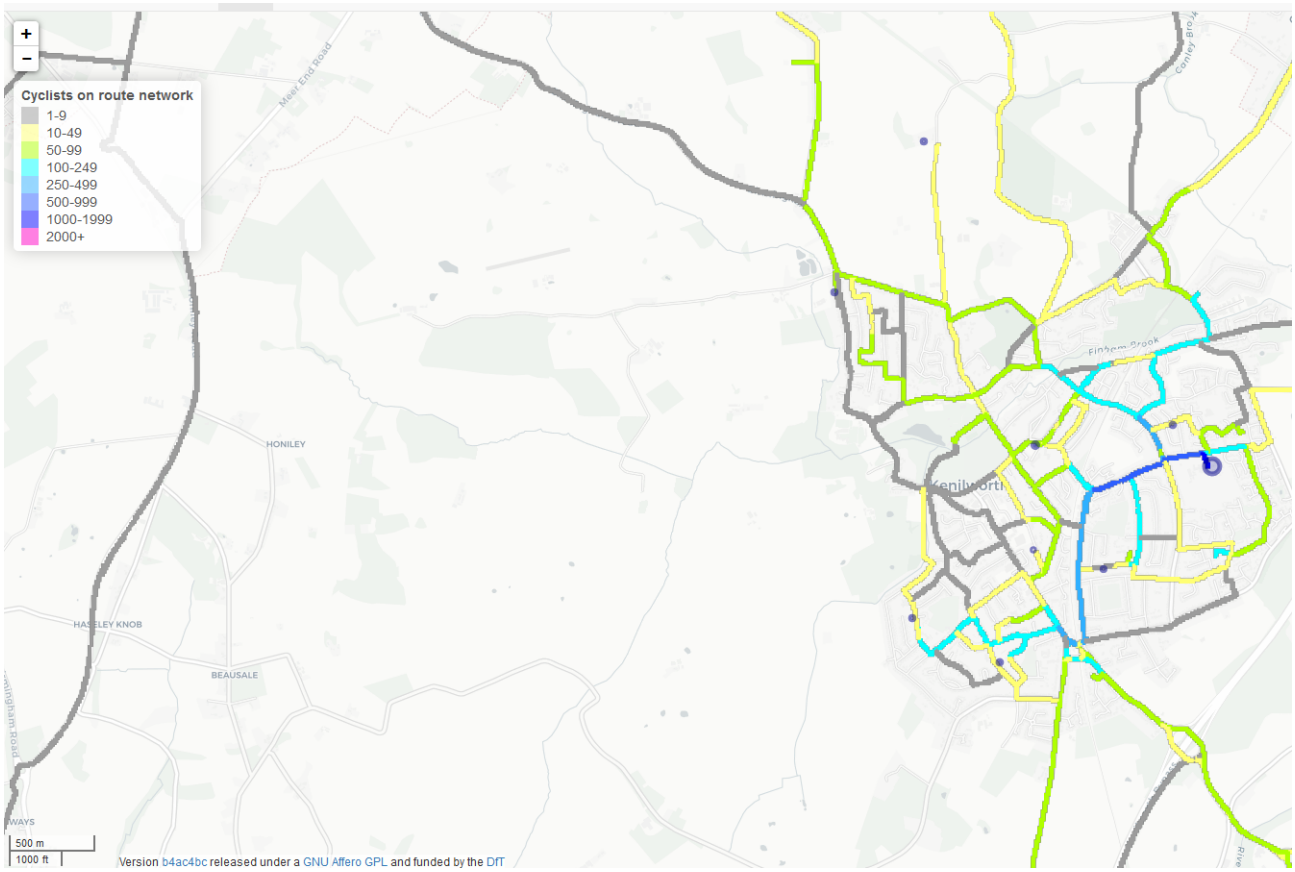

Figure 8: Go Dutch cycling to school, Kenilworth

At an area level, if Kenilworth children cycled to school at the same rates at the Dutch (based on trip distance and hilliness), cycling would become the dominant mode of school transport (Figure 9). In many areas more than 50% of children would ride to school, and more than half the pupils at Kenilworth School would arrive on their bikes. This would also remove several hundred cars from the peak hour roads.

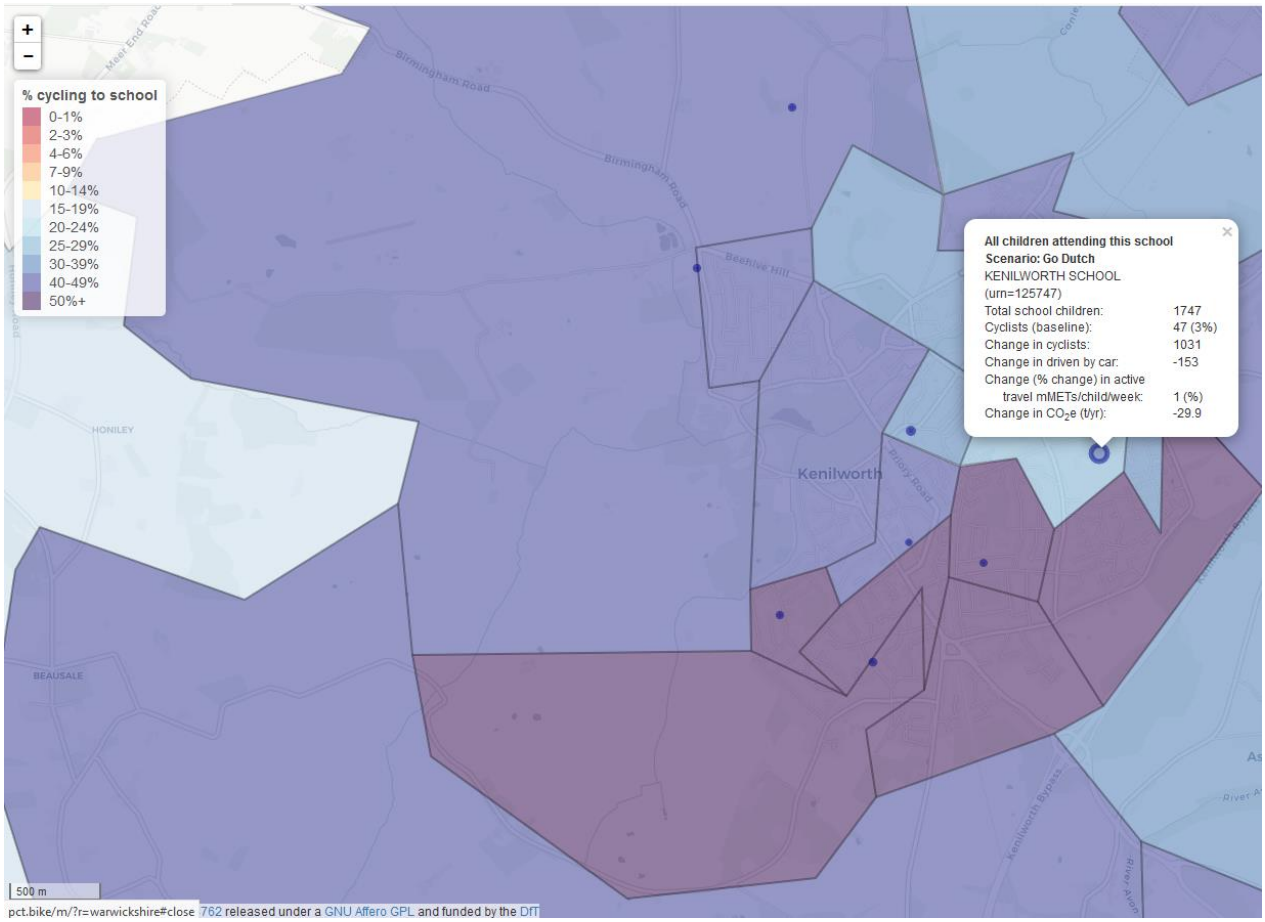

Figure 9: Go Dutch cycling to school, Kenilworth, by area

A possible priority network for travel to school and work

The PCT allows us to identify possible priority networks for travel to school and work, by overlaying parts of the two networks that have particularly high potential. Figure 10 below highlights such a network, based on routes where under the Go Dutch scenario there are at least 50 commuters or schoolchildren. Overlaps can clearly be seen but also differences, for instance, around schools. There are also some longer-distance commute routes that are less important for school cycling, although other routes out of Kenilworth to the North and South would also be useful for travel to school. (Of course, many commuters may also travel with their children before continuing to work, so the two networks often overlap in practice in terms of who uses them). The map only gives an indication of where one might first consider building; for instance, there may sometimes be alternative but close by alignments that can more easily accommodate infrastructure but be similarly useful.

Go Dutch levels of cycling are clearly ambitious, even if it is 'only' what we would see in the Netherlands with similar journeys. How do we achieve this? 'Stated preference' survey evidence shows that people have strong aversions to cycling with motor traffic. This is particularly strong for women, and particularly important where children are involved. Increasing evidence from studies such as iConnect, the Commuting and Health in Cambridge study, the Cycling Cities and Towns evaluation, and the People and Places survey (mini Hollands evaluation) shows that changes to route infrastructure do result in active travel (walking and cycling uptake). While this report does not discuss walking, it should be noted that 'mini-Holland' interventions in Outer London have led to a substantial increase in walking as well as more cycling.

The principal components of an all-ages cycling network are threefold[1]: protected routes on major roads (dedicated tracks), residential or local shopping streets with very low motor traffic speeds and volumes (often achieved by using bollards or planters to create quiet neighbourhoods), and routes through parks and in greenspace. All three can, unlike bus lanes and narrow shared footways, can accommodate a variety of people who cycle safely and comfortably, from children to commuters. In the map below, creating a Dutch-style network would require cycle tracks to be built on some roads, while others would better suit traffic reduction and calming to reduce rat running.

[1] https://www.cyclinguk.org/article/what-are-three-basic-types-infrastructure-cycling

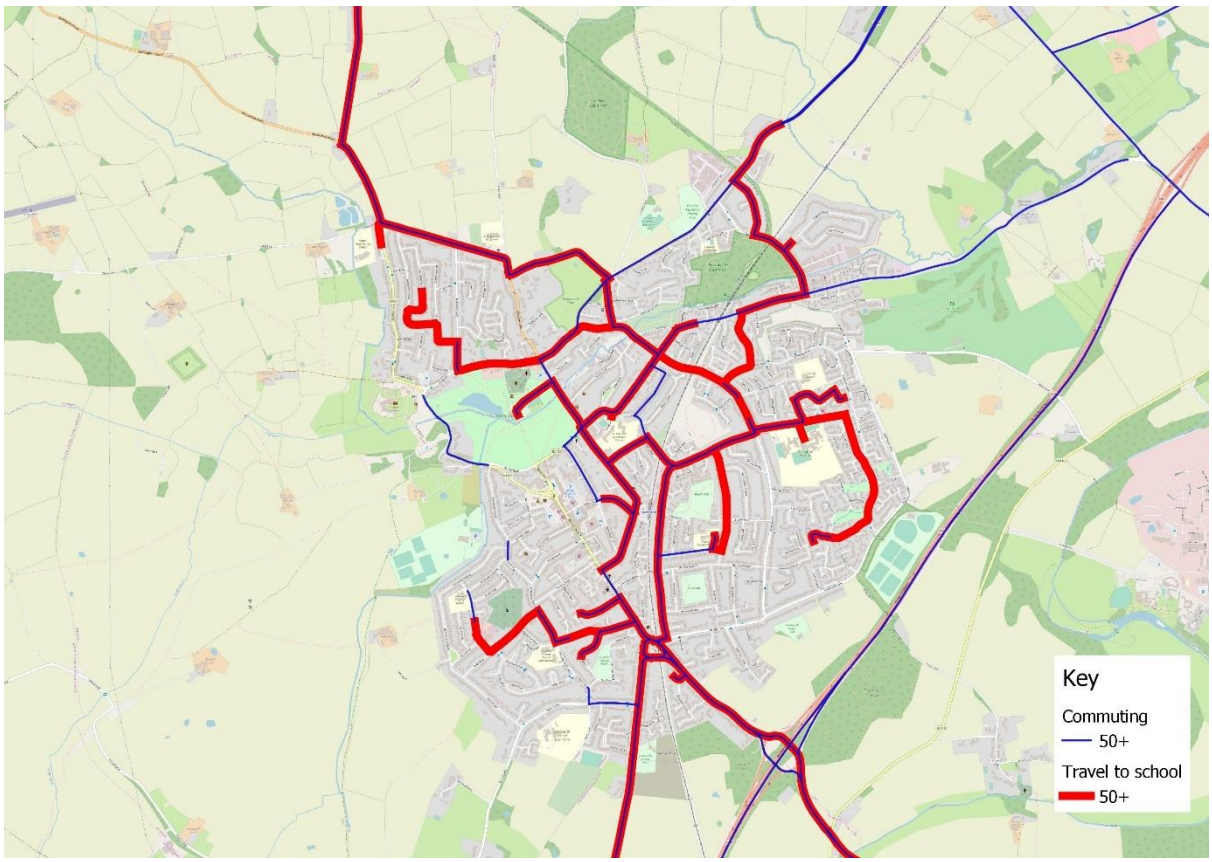

Figure 10: Possible priority cycle network, travel to work and school, based on routes with 50+ commuters or school cyclists under the PCT's Go Dutch scenario

What does the cycle route network currently look like? Google Maps (Figure 11) highlights shared paths and cycle tracks, bike lanes, greenways and 'bicycle-friendly roads'. Generally, what infrastructure there is lies outside Kenilworth itself, with a couple of routes to the North (the Kenilworth Greenway which has since 2016 been closed at the other end near Berkswell, and one major road toward Coventry where footway cycling is permitted, although the off-road route only starts outside Kenilworth and the footway is at times narrow) and one route (on-road, without separated infrastructure) to the South. Within Kenilworth, there is relatively little as yet in terms of cycle network infrastructure, which could both connect with these longer distance routes (some of which may need completion or improvement) and provide access to more local destinations in town, including schools and businesses.

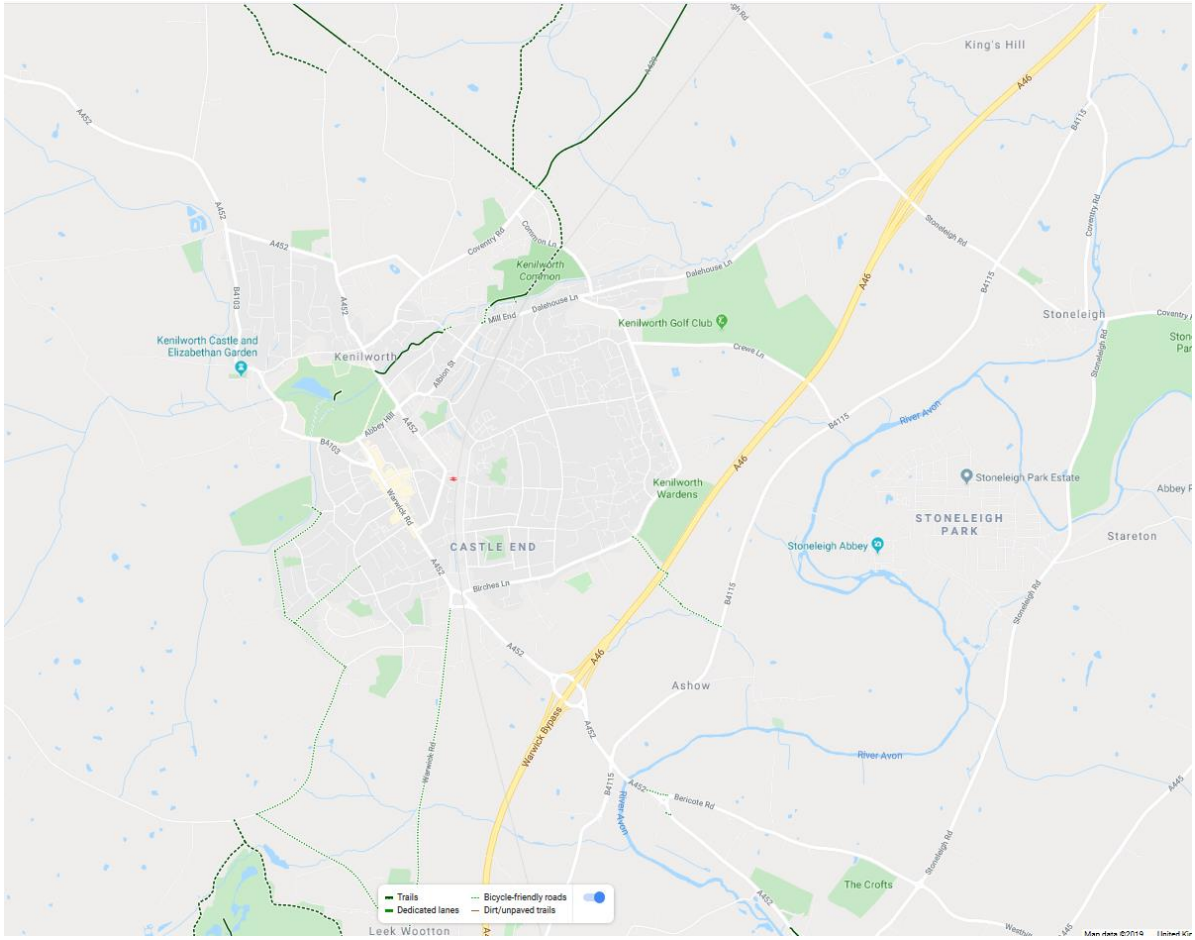

Figure 11: Google Maps image of cycleways in Kenilworth (in green)

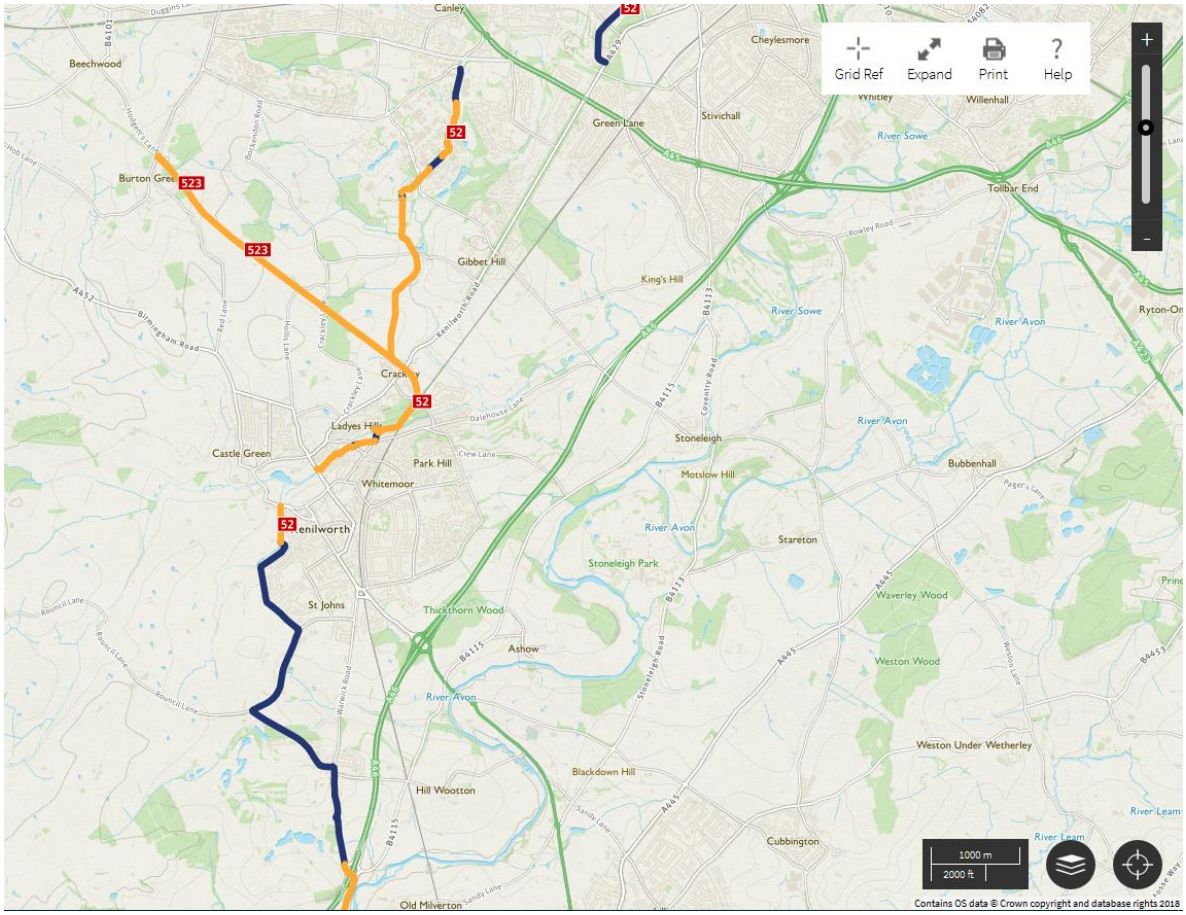

Figure 12: NCN route 52, Ordnance Survey

Much of the infrastructure shown in Figure 11 forms part of National Cycle Network 52, which runs through Kenilworth and is shown in Figure 12. It has some off-road (yellow) sections and some on-road (blue) sections, with a gap in the middle at Abbey Fields where cycling is not currently permitted. We cannot accurately estimate cycling potential across Abbey Fields, because cycling is currently being banned in most of the park. However, for commuting only[2] we can look at how many routes cross the park, and hence the benefit from restoring this link. (A proposal was made in 2016 to permit cycling through the park, following a feasibility study and report).

Figure 13 highlights the commuting routes that cross Abbey Park and which see use under the Go Dutch scenario. Currently, there are 51 commuters in total who cycle those routes and who (unless they cycle illegally through the park) must use the sometimes-busy surrounding roads to complete their journey. Under the scenario, an extra 185 cycle commuters might use a route through the park (i.e. 236 in total), with a reduction in 122 car driver trips (i.e. two-thirds of the new cyclists would be former drivers). Thus, a park route would form part of a core 'Go Dutch' network with potential for several hundred users daily.

[2] There is less data available for school cycling potential due to the restricted nature of the data.

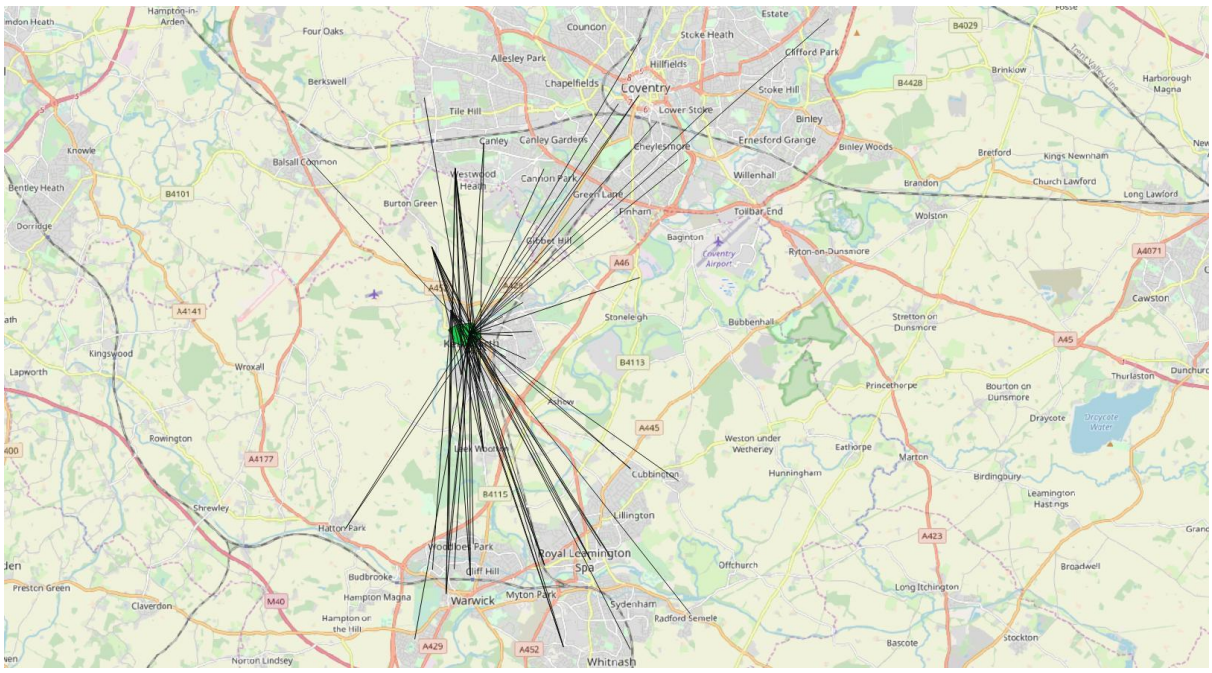

Figure 13: Routes crossing Abbey Fields

Conclusion

The Kenilworth case study highlights the scope for a step-change in cycling in Kenilworth, which currently has relatively little cycling infrastructure and a gap in the National Cycle Network. Commuter routes include roads within the town but would also link to important local employment centres like Coventry and Warwick University, while there is high potential for local routes to support children cycling to school. Instead of the occasional child on a bike, hundreds of children could be riding to Kenilworth's biggest schools. The report highlights the importance of not just closing the gap in the NCN (which under the Go Dutch scenario might attract several hundred commuters and would likely be important also for travel to school, although we cannot calculate this), but also of identifying roads to prioritise for interventions such as cycle tracks and motor traffic reduction, to support both child and adult cycling.