Central Bedfordshire

Ampthill & Flitwick Local Cycling & Walking Infrastructure Plan

Making walking, wheeling, and cycling the preferred choice for getting around Central Bedfordshire

2023

A great place to live and work.

Revision History

Version	Description	Date	Initials
V1	Ampthill & Flitwick LCWIP (Consultation Version)	30/10/2023	OW/LC/SL/TP

Contents

Introduction from Executive Member

Improving our cycling and walking links is key to increasing people's freedom to travel when they want, and how they want. Not only will better links allow people to get to where they want to go for free, so-called "active travel" should improve their health by cycling, wheeling, or walking, and also allowing them to reach their destination without adding to their carbon footprint.

I am pleased to present the Local Cycling and Walking Infrastructure Plan for Ampthill & Flitwick which sets out how we will grow the network of cycle paths, roads, and footpaths to become safe routes that people can use to travel to schools, leisure facilities, workplaces, friends and family, and shops. They could also be used to walk or cycle safely just for fun!

This plan is important for many reasons. As the UK Walking & Cycling Strategy "Gear Change" highlights, cycling and walking can help tackle some of the most challenging issues we face; improving air quality, combatting climate change, improving health and wellbeing, and tackling congestion on our roads.

Gear Change also highlights increased physical activity can help prevent and manage more than 20 chronic conditions and diseases, including some cancers, heart disease, type 2 diabetes, and depression.

Physical inactivity is responsible for one in six UK deaths (equal to smoking) and is estimated to cost the UK £7.4 billion annually (including £0.9 billion to the NHS alone).

We are also facing the unprecedented challenge of the climate crisis. In Central Bedfordshire, 40 per cent of Green House Emissions (GHG) are down to transport, a percentage that will rise as other sources of emissions are systematically tackled.

This LCWIP, and the network it details, is not just about encouraging people to take up more leisure cycling, it's to provide transport options so they don't have to rely on motor vehicles.

The plan will also benefit people who use pushchairs, mobility scooters, and walking aids, as well ensuring the routes themselves are safer in other ways, such as considering lighting at night.

Once built, the routes will give people another option in how they make their journey, and if the choice is walking and cycling, the benefits are clear.

Cllr Tracey Wye
Executive Member for Sustainability & Climate Resilience

Executive Summary

What is a Local Cycling & Walking Infrastructure Plan and what does it do?

This Local Cycling & Walking Infrastructure Plan (LCWIP) sets out the strategic approach to identifying cycling and walking infrastructure improvements required at the local level, supporting the government's target that by 2030 over half of all local journeys in larger towns and cities will be walked, wheeled, or cycled.

This will enable the Council to take a long-term approach to developing local cycling and walking networks, ideally over the next 10 years, and will form a vital part of the government's strategy to increase the number of trips made by walking, wheeling, and cycling.

This document is the LCWIP for Ampthill & Flitwick and provides a network blueprint for this area. This addresses the needs of both cyclists and pedestrians, reflecting the high standard of infrastructure required by Active Travel England, as specified in Local Transport Note (LTN) 1/20.

It's important to stress that the network and infrastructure improvements detailed in this plan considers and benefits not just cycling and walking, but also a host of mobility issues, such as pushchairs, mobility scooters, walking aids, as well as the need for lighting at night.

The LCWIP network sets out how cyclists and pedestrians (including those groups listed above) can safely and conveniently access important and popular local destinations. These 'trip attractors', include schools, supermarkets and shops, rail stations, leisure centres, sports pitches, playgrounds, and other places people want to regularly travel to.

The network has been shaped and refined through an extensive public engagement exercise with residents living in the area, and surrounding settlements. This engagement has been integral as it has allowed us to develop a network that reflects routes and journeys that our residents are telling us represent frequently visited local destinations, as well as shaping where the routes themselves should go.

The LCWIP will help the Council to identify cycling and walking infrastructure improvements for future investment in the short, medium, and long term. In addition, it will ensure that consideration is given to cycling and walking within both local planning and transport policies and strategies, and make the case for future funding for cycling and walking infrastructure.

Delivering the Local Cycling & Walking Infrastructure Plan

By focusing on those key journeys and the local destinations that residents want to go to, the LCWIP for Ampthill & Flitwick provides a network of preferred routes and core zones for further development. These are shown on Figures 9 to 11.

Each route is in turn broken down into a list of improvements or schemes that provides the Council with a pipeline of how the overall LCWIP will be delivered.

The LCWIP doesn't detail the design specifics of the myriad route sections it identifies, but it does detail the overarching design principles which embody the government's design standards for active travel, LTN1/20.

The national guidelines specify that these routes should embrace the following principles:

- Cycle infrastructure should be accessible to everyone from age 8 to 80, and beyond
- Cycles must be treated as vehicles and not as pedestrians
- Cyclists must be physically separated and protected from high volume motor traffic, both at junctions and on the stretches of road between them
- Cycle infrastructure should be designed for significant numbers of cyclists, and for non-standard cycles
- Cycle infrastructure must join together, or join other facilities together by taking a holistic, connected network approach
- Cyclists, pedestrians, and motorists alike must be in no doubt where the cycle route runs, where the pedestrian and vehicle space is, and where each different user is supposed to be
- Schemes must be clearly and comprehensively signposted and labelled
- As important as building a route itself is maintaining it properly afterwards.

1. Introduction

1.1 Local Cycling & Walking Infrastructure Plans (LCWIPs)

1.1.1 Six Local Cycling and Walking Infrastructure Plans (LCWIPs) are in development covering the entirety of Central Bedfordshire. These plans are:

- Ampthill & Flitwick (this plan)
- Biggleswade, Potton & Sandy
- Arlesey, Fairfield, Henlow & Stotfold
- Dunstable & Houghton Regis
- Leighton Linslade
- Rural routes, including other conurbations not referenced above

1.1.2 LCWIPs were first referenced in the 2017 statutory Cycling and Walking Investment Strategy (CWIS). This document set out the government's ambition to make cycling and walking the natural choice for shorter journeys, or as part of a 'stage' of a longer journey. The ambition was recommitted to by government in CWIS2, which set out the aim by 2025 to:

- Double the levels of cycling (from a starting level of 2013)
- Increase walking activity (to 300 stages per person per year)
- Increase the percentage of children aged 5 to 10 that walk to school from 49% (2014) to 55%.

1.1.3 A Local Cycling & Walking Infrastructure Plan is a working blueprint for delivering high-quality cycling and pedestrian infrastructure within a defined area. The plan provides the detail of how the network will be constructed, breaking routes down into sections that once in place, will make towns and villages more cycling, scooting, and pedestrian friendly.

1.1.4 At the heart of each plan is an interconnected web of routes and links, accommodating pedestrians and cyclists. Some routes will already exist whilst others will need to be created. The complete network will be constructed over the period covered by the Council's 'Local Transport Plan'.

1.1.5 Once adopted by the Council, LCWIPs shape how monies are invested. This includes the funding received annually in the form of a grant from central government known as the 'Integrated Transport Block'. The network plans are a key component of the evidence base for securing improvement works through new development. The plans also form the basis for bids for funding made available by bodies such as Active Travel England.

1.1.6 All routes within the network are digitally recorded and once the plans are approved, will be publicly accessible via the Council's online mapping system. Each LCWIP will be reviewed and where appropriate, revised within three years of adoption.

1.1.7 Schemes of work to deliver the plan will be subject to appropriate consultative processes at the time they are bought forward.

1.1.8 Promotional and other initiatives designed to drive behaviour change in favour of more sustainable and active travel are addressed in other strategy and policy documents. Listed at Appendix 1, these documents are part of the Council's Local Transport Plan.

1.2 Objectives

1.2.1 Objectives common across all LCWIPs are to:

- Upgrade current cycling and walking infrastructure, in this case within Ampthill and Flitwick, ensuring routes serving important local destinations are of a high quality, accessible and safe.
- Provide a comprehensive, interconnected network of routes serving the places people visit regularly. Known as 'trip attractors', these places include schools and nurseries, shops and service centres, places of work and recreation, leisure centres, playing fields and play spaces, train stations and public transport interchanges.
- Facilitate delivery of the government's Gear Change[1] document, released in 2020 and the Department for Transport's CWIS2[2] targets that envisage half of all local journeys in towns and cities being walked, cycled, or scooted by 2030.
- Provide a prioritised pipeline of interventions and improvement schemes to be brought forward through the 'Highways Integrated Schemes Programme', and to inform funding bids as these are announced.
- Provide guidance for planning decisions and for developers promoting development opportunities in Ampthill and Flitwick, ensuring new residents have options to travel sustainably.
- Provide routes to connect Ampthill and Flitwick to surrounding smaller settlements, extending sustainable accesses to local services and amenities. Such routes to be of a form that can accommodate micro mobility technologies as these are adopted, with mobility scooters, e-bikes and e-scooters being examples.
- Improve the health and wellbeing of residents by facilitating more active modes of travel for people of all ages.
- Reduce car dominance, carbon and particulate emissions and improve air quality within towns and neighbourhoods.
- As far as is practicable, eliminate injurious collisions involving vehicles and pedestrians and cyclists, helping to deliver wider Road Safety Strategy improvement plans and aspirations.

1.3 Ampthill & Flitwick LCWIP

1.3.1 The Ampthill and Flitwick LCWIP sets out how the Council proposes to deliver the improvements needed to upgrade and improve cycling and walking infrastructure to achieve the Government's ambition of half of all local journeys being walked, cycled, or scooted.

1.3.2 At the heart of the LCWIP is a set of route proposals and enhancement schemes that once implemented, will improve the local journey experience for all users, irrespective of how they choose to travel. The result will be greener, healthier, and more active streets.

[1] Gear Change: A bold vision for cycling and walking

[2] The second cycling and walking investment strategy (CWIS2)

1.4 Network Design Principles

1.4.1 The LCWIP for Ampthill and Flitwick has been produced in accordance with 'Local Transport Note (LTN) 1/20: Cycle Infrastructure Design'[3] guidance issued by the Department for Transport in 2020.

1.4.2 The LTN1/20 guidance sets out the standards all local authorities are required to meet when providing new or upgrading existing cycling infrastructure.

1.4.3 Whilst local authorities are responsible for setting design standards for their roads, these should reflect current best practice, standards, and legal requirements. In this regard, the guidance has inclusive design as a central underlying theme, ensuring the needs of people of all ages and abilities are considered[4].

1.4.4 The guidance recognises that cyclists and pedestrians are 'traffic', within the meaning of the Road Traffic Regulation Act 1984 and the Traffic Management Act 2004. Consequently, as a highways authority, the Council has a duty to manage its roads and streets to secure 'expeditious and safe movement for all traffic'. This duty applies to pedestrians and cyclists as well as motorised modes.

1.4.5 To achieve more people travelling by cycle or on foot, networks and routes should accord with five core principles set out in Table 1 and five key design principles set out in Table 2.

Table 1: Core Principles

Core Principle	Description
Coherent	Movement networks should be planned and designed to allow people to reach their day-to-day destinations easily, along routes that connect, are simple to navigate and are of a consistent high quality.
Direct	Routes should advantage people on foot or cycle over motorised modes, wherever feasible.
Safe	Infrastructure should be designed to be safe by eliminating hazards and conflicts wherever practical, and to be perceived as safe.
Comfortable	Footpath and cycle track surfaces should be of a good quality, smooth and well maintained with adequate width, minimal need to stop, and of acceptable gradients.
Attractive	Infrastructure should help deliver public spaces that are well designed.

[3] Local Transport Note 1/20: Cycle Infrastructure Design

[4] The Equality Act 2010 requires authorities to comply with the Public Sector Equality Duty in carrying out their functions. This includes making reasonable adjustments to the built environment to ensure the design of infrastructure is accessible to all.

Table 2: Design Principles

Design Principle	Description	Consideration
Traffic segregation	Cyclists must be treated as vehicles and wherever feasible, kept separate from pedestrians by being afforded their own physically protected space.	Where there is limited width within the highway the ability to provide cyclists with segregated facilities may not be feasible. Therefore, in some instances, designing space so it can be safely shared will be necessary.
Accessibility	Routes and networks should be accessible to everyone, aged from 8 to 80 and beyond. There should be no excluded areas.	Routes should avoid excessive gradients, be suitably surfaced and free of obstructions and hazards, including vegetation, barriers, standing water and parked vehicles.
Safe	Infrastructure should be safe and be perceived as safe.	Routes should be perceived to be safe for people of all ages and genders. Routes that are isolated and that lack lighting and are poorly surveilled should be avoided in urban and, where feasible, rural environments.
Comfortable	Footpath and cycle track surfaces should be of a good quality, smooth and well maintained with adequate width, minimal need to stop, and of acceptable gradients.	The network should be accessible to anyone riding a disability scooter and for children riding in a pushchair.
Attractive	Infrastructure should help deliver public spaces that are well designed.	Towns villages, neighbourhoods and streets should progressively become more people and less car-centric with regard to movement, supporting wider determinants of health and wellbeing.

1.5 Plan Development

1.5.1 The Department for Transport's (DfT) recommended process for the delivery of Local Cycling and Walking Infrastructure Plans was followed to produce this document.

1.5.2 The guidance[5] issued by DfT sets out the following key outputs from the LCWIP process:

- A network plan which identifies preferred/promoted routes for cycling and core zones for walking, to be prioritised for development.
- A prioritised programme of infrastructure improvements for future investment.
- A report which sets out the underlying analysis and provides a narrative that supports the identified network and associated improvements.

1.5.3 This document delivers the first and second of those outputs. The evidence used to develop this LCWIP is the third output and can be found in the 'LCWIP Engagement Reports', published separately to this plan.

1.5.4 Network plans will be regularly reviewed and made accessible online, in map form.

1.6 Links between LCWIPs, Green Wheels and Public Rights of Way

1.6.1 As a parallel initiative and working with partners, Central Bedfordshire Council is developing a suite of Green Wheel Masterplans for its larger settlements.

1.6.2 Masterplans have the aim of providing an accessible route around each conurbation, connecting and improving access to local green spaces. Linked paths create a circular 'rim' which is supported by 'spokes' of paths leading from the towns and villages out to the circular 'rim' and beyond. Wheels are 'green' due to their natural setting and because they promote trips using sustainable transport.

1.6.3 There is by design some overlap between LCWIP and Green Wheel routes, particularly routes that form 'spokes' connecting the centres of towns out to the 'rim' of the wheel.

1.6.4 In addition to improving public access, Green Wheels have the objective of protecting and enhancing biodiversity, landscape and heritage. Over time, the aim is to improve habitats, landscape, and the quality of green spaces around the urban fringe. The equivalent aim for LCWIPs is to improve and enhance the quality of the urban public realm.

1.6.5 The foundation of Green Wheels are public rights of way, footpaths and bridleways. As with LCWIPs, Green Wheel masterplans require the creation of new routes and rights to fill gaps in the network. For Green Wheels, the ideal is to have paths that walkers, cyclists and equestrians can safely share rather than to go separate ways.

1.6.6 Where the creation of routes requires new or amended 'public rights of way', as defined by the Council's 'Definitive Map and Statement', these will be recorded in the Council's 'Rights of Way Improvement Plan'. LCWIPs, Green Wheel Masterplans and the Rights of Way Improvement Plan (RoWIP) are all part of the suite of integrated plans that form the Council's Local Transport Plan.

1.6.7 The emerging Green Wheel Masterplan map for Ampthill and Flitwick is included at Appendix 2.

[5] Local Cycling &Walking Infrastructure Plans Technical Guidance

2. Background

2.1 Coverage

2.1.1 This LCWIP covers the Bedfordshire towns of Ampthill and Flitwick that combined have a population of 22,500 residents[6].

2.1.2 A key requirement of the LCWIP is to ensure the most frequented local destinations are accessible to residents travelling on foot or by bicycle. Such destinations include:

- Rail stations and transport interchanges
- Schools and pre-school nurseries
- Shops and supermarkets
- Parks, recreation grounds and play facilities
- Cinemas, theatres, clubs and other public venues / meeting rooms / conferencing facilities
- Leisure centres and sport grounds and facilities
- Public service buildings including libraries and registrars
- Health facilities
- Business and industrial parks and office complexes

2.1.3 Important local destinations, reflecting the above list, have been mapped for Ampthill and Flitwick.

2.1.4 The LCWIP also includes routes that extend to the boundary of nearby settlements so that residents therein can access local facilities by bike, e-bike or in future, e-scooter under the assumption that this form of transport will at some point be made legal.

2.1.5 These routes, local facilities, and links to adjacent settlements are shown spatially in Figures 16 to 18 in Section 5 of this report.

2.2 Previous Cycling and Walking Network Blueprints

2.2.1 In developing the Ampthill and Flitwick LCWIP, the Council did not start from scratch having mapped routes early in 2000 for the 'Mid Beds' part of the authority.

2.2.2 In 2009, the mapped blueprint was updated in conjunction with Sustrans, the Sustainable Transport charity, as part of works to extend the approach across the entirety of the Central Bedfordshire Council authority area. The work was also subject to a public consultation involving all town and parish councils.

2.2.3 The detailed route network maps produced by Sustrans for the towns of Ampthill and Flitwick, including links out to nearby local villages, are reproduced in Appendix 3.

[6] Office for National Statistics

2.2.4 In 2015, the Council commissioned a suite of route planning maps to be hosted on its Travel Choices[7] platform for the six major conurbations within the authority, including Ampthill and Flitwick. The Travel Choices maps were designed to be pragmatic and less aspirational. In this regard they were based on currently available walking and cycling routes within both towns, making use of existing infrastructure where this existed. A copy of the Travel Choices Map for Ampthill and Flitwick is included at Appendix 4.

2.2.5 The work undertaken in conjunction with Sustrans in 2009, and by the authority in 2015, served as a useful stepping stone towards the creation of LCWIPs. The work provided the framework for investment decisions managed through the implementation of Local Area Transport Plans[8], which were a core component of the Council's third Local Transport Plan.

2.3 Network Quality

2.3.1 In January 2022, the Council commissioned Tetra Tech to review the promoted mapped routes within the six urban areas covered by the 2015 Travel Choices maps. This review used the standards required by central government, set out in Local Transport Note 1/20: Cycling Infrastructure Design, as the basis for its assessments of route quality.

2.3.2 The result of the audit showed the promoted Ampthill and Flitwick 'Travel Choices' cycle route network fell a long way short of the standards of infrastructure now required by government. It found over half of the network to be of poor quality.

2.3.3 A summary of the route assessment classification from the Tetra Tech study for Ampthill and Flitwick is shown in Table 3. Some 80% of the promoted network requires cyclists to share road space with other traffic with almost no protection, a position that few cyclists enjoy or perceive as safe.

Table 3: Summary of route assessment from the Tetra Tech audit

Level of infrastructure provided for cyclists	Total Length (km)	Percentage of Network
None: On-Road (No physical segregation from general traffic, cycle lanes less than 1.8m wide)	40.5	78%
Some: On-Road (Cycle lanes greater than 1.8m wide and traffic speeds less than 30mph)	1.0	2%
Full: Full physical segregation from traffic (including use of kerbs and off-road routes)	10.4	20%
TOTAL	**51.9**	**100%**

[7] Central Bedfordshire Travel Choices
[8] Central Bedfordshire Local Area Transport Plans

2.3.4 The conclusion drawn from the Tetra Tech analysis was that previous blueprints were no longer fit-for-purpose; therefore, a new and more ambitious network design was needed.

2.3.5 To meet LTN 1/20 standards, the new network proposal would need to eliminate, as far as is reasonably practical, the requirement for cyclists to share the road with general traffic. The exception would be using quiet streets where vehicle speeds and flows are low, or very low.

2.3.6 This conclusion is supported by a review of the accident data within Ampthill and Flitwick, particularly where reported collisions involved vulnerable road users, specifically pedestrians or cyclists. The data shows that most collisions occur at busy junctions. The reasonable assumption is that with improved road safety engineering and better infrastructure, these collisions can in future be avoided. This issue is explored further in Section 2.5.

2.3.7 Whilst some high-quality sections of cycle route provision exist within both towns, this is the exception. The lack of a continuous routes has undermined efforts to increase levels of cycling for local journeys, such as those to schools and shops.

2.3.8 In response to the above, the Council's Sustainable Transport & Active Travel team undertook a major network re-planning exercise from autumn 2021 through to spring 2022. This work produced a new network blueprint, shown in Figures 9 to 11 in Section 3.

2.4 Network Planning Considerations and Constraints

2.4.1 Whilst Ampthill and Flitwick are very different towns, both experience high levels of traffic, particularly on the roads that connect the two town centres. As a result, anyone wishing to cycle the most direct route between the two centres, some 2.3 miles, has no option other than to 'mix-it' with heavy traffic, negotiate complex junctions and compete for space.

2.4.2 The A507 junction and various pinch points along the route, including junctions in the centre of both towns, present major barriers to cycle and pedestrian movements. These features disqualify the direct route between the towns – Ampthill Road – Flitwick Road - as being suitable for anyone other than the most confident and assertive cyclist.

2.4.3 Figure 1, a reproduction of a chart from LTN1/20, summarises the traffic conditions when 'protected space' for cycling is considered appropriate. Protected space ranges from fully kerbed cycle tracks, to stepped cycle tracks, to 'lightly segregated' cycle tracks that use bollards or similar to deter other vehicles from infringing the track, to marked cycle lanes. At the bottom of the hierarchy is signage and road markings such as cycle symbols and coloured road surface treatments.

Figure 1: LTN1/20 guidance on appropriate protection for cyclists based on traffic speeds and flows

2.4.4 In accord with the above guidance, cyclists on promoted routes should not mix with traffic on roads where the speeds are 40mph or above.

2.4.5 Roads with speeds of 20mph and 30mph are acceptable where traffic flows are low, typically below 3,000 movements a day. Above this threshold, most prospective cyclists would no longer be comfortable sharing the road space and hence deterred from traveling by bike.

2.4.6 In interpreting the guidance, this LCWIP has classed roads and streets as unsuited for promotion as cycle routes where:

- The speed limit is 40mph, or above and where traffic volumes are above the 3,000 movements a day threshold; and
- There is no reasonable prospect of reducing levels of traffic to below the threshold as might be achieved for example through applying filters or other restrictions; and
- There is insufficient width within the highway to provide cyclists with dedicated, suitably segregated facilities, for example by reallocating road space, and
- There are features along the road that create hazards for cyclists and that cannot be reasonably mitigated, such as pinch points.

2.4.7 Roads deemed as 'out-of-bounds' for cycle route planning purposes, applying the above criteria, are shown in Figure 2.

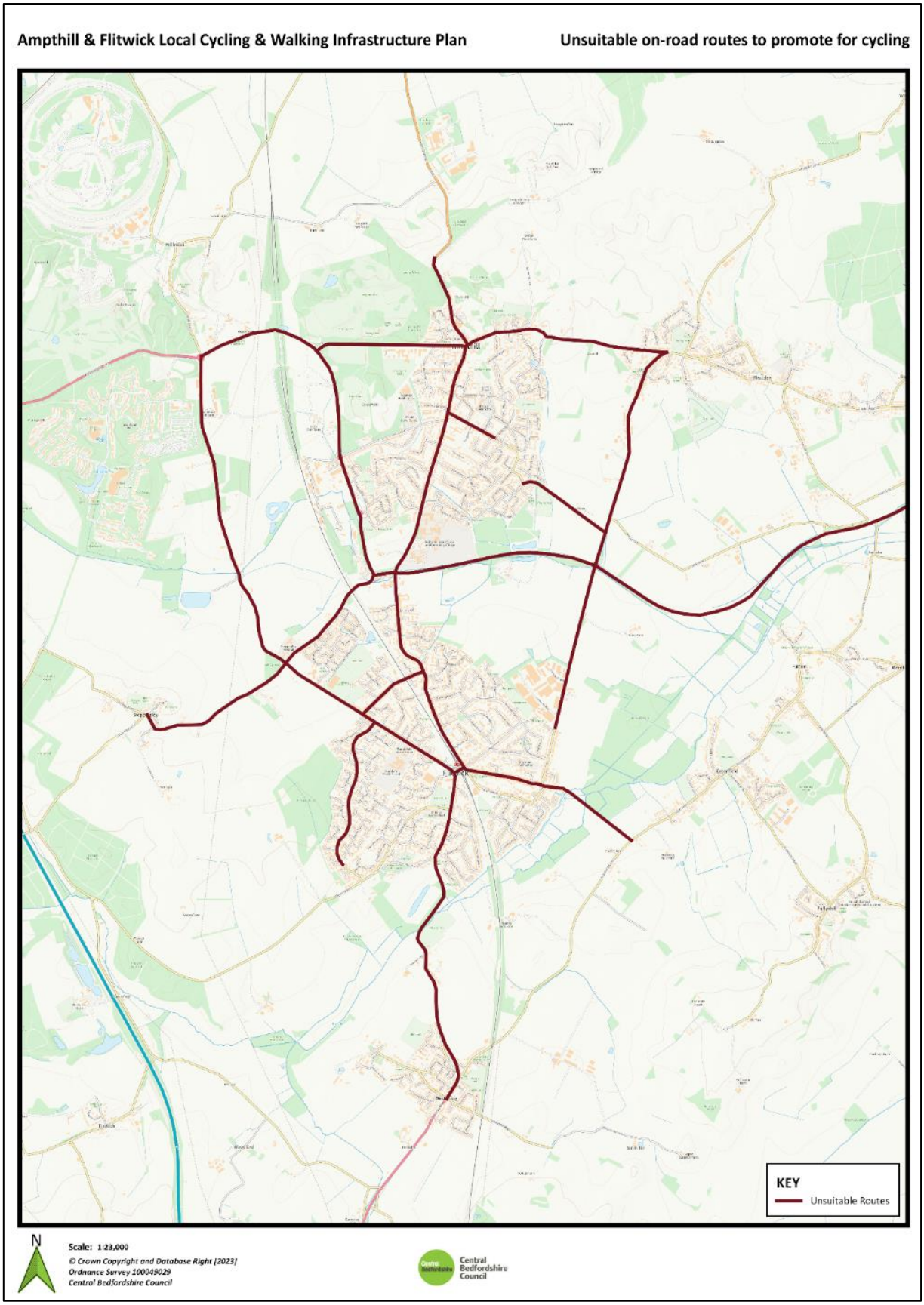

Figure 2: Roads assessed as unsuitable for cycling based on traffic speeds and flows

2.5 Road Safety Considerations

2.5.1 A further additional consideration for network planning and investment purposes is the safety record of a road, evidenced by the number and nature of recorded collisions. Such collisions are recorded by the police using the 'STATS19' accident report form which is used to capture detailed data about the circumstances of collisions and other incidents on roads resulting in casualties.

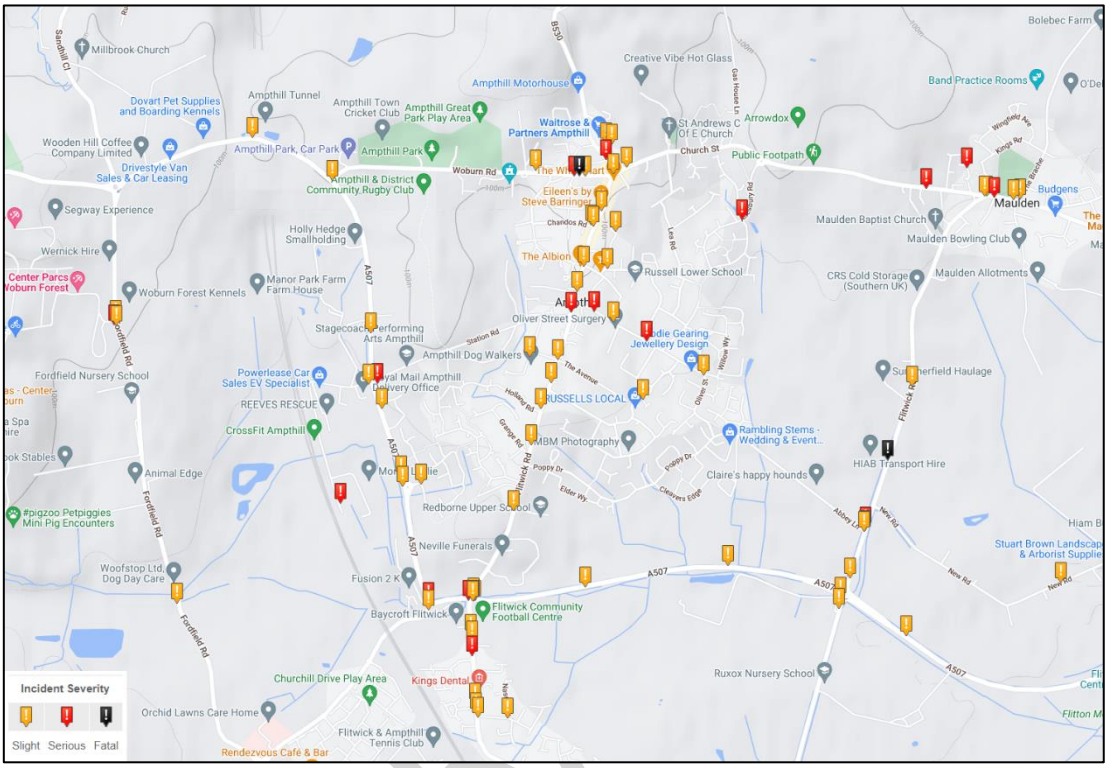

Figure 3: Collision reports on roads within Ampthill for all vehicle types (2017-2021)
Source: Google Maps / CrashMap Data

2.5.2 As is evident from the data presented in Figures 3 to 8, the majority of recorded collisions within Ampthill and Flitwick occur at junctions on the most heavily trafficked roads. The maps show the most recent 5-year period for which the data is available.

2.5.3 In Ampthill, there is a marked cluster of 'all vehicle' reported collisions, most involving minor injuries, on the approaches to the double mini roundabout that controls traffic flows where Bedford Street, Dunstable Street, Church Street and Woburn Street intersect. There is also a history of collisions at the various junctions along the length of Dunstable Street and Flitwick Road, with a further clustering of collisions where this road meets the A507 at the One-O-One roundabout.

2.5.4 The pattern is similar for Flitwick, reference Figure 4, with a cluster of all vehicle-type collisions of mostly low severity on the Steppingley Road roundabout and its approaches.

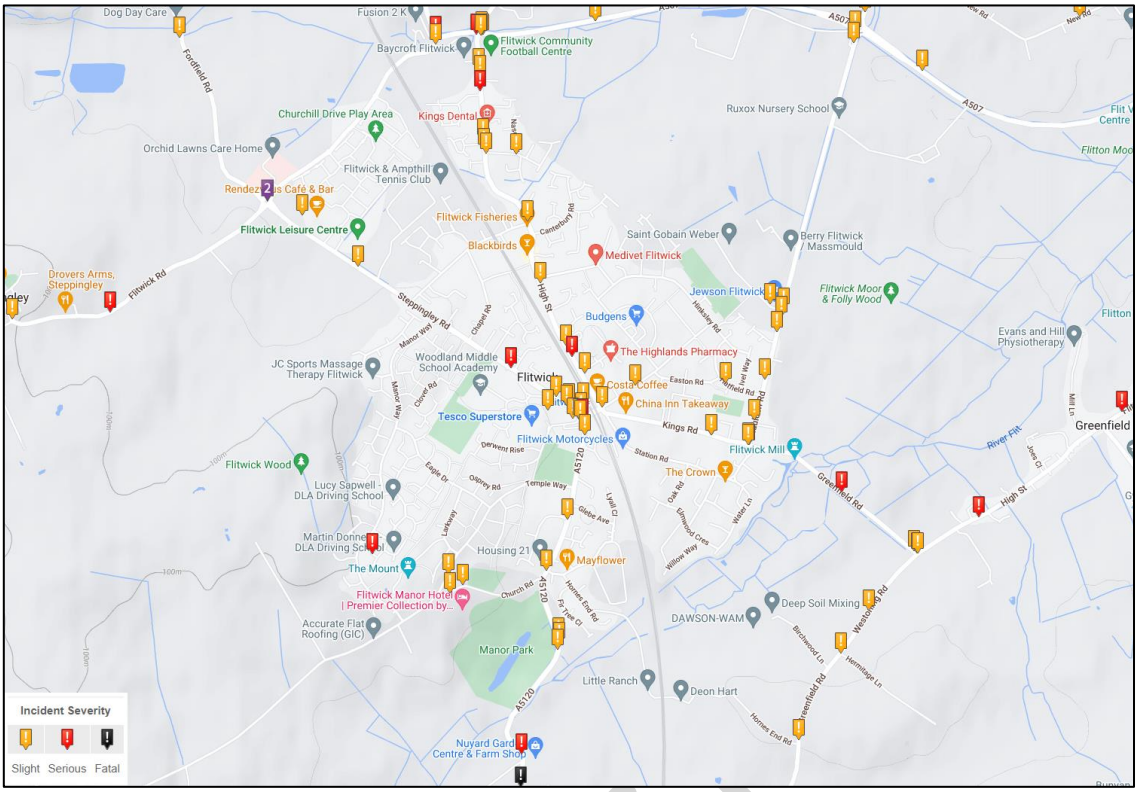

Figure 4: Collision reports on roads within Flitwick for all vehicle types (2017-2021)
Source: Google Maps / CrashMap Data

2.5.5 Whilst the police record substantially fewer collisions involving pedestrians or pedal cyclists, where these involve another vehicle the severity of the outcome for the individual is frequently high.

2.5.6 Maps showing the location for collisions that have occurred on roads within Ampthill and Flitwick, and involving a pedestrian or pedal cyclist, are provided in Figures 5 to 8.

2.5.7 Not all collisions are reported to the police, particularly if the injury is slight and no ambulance is called. Hence, the picture presented is partial. However, it does support the contention that vulnerable road users, notably those travelling on foot or by bike, are most at risk when negotiating busy junctions.

2.5.8 When considering each map, it is important to note that there is no attribution of causality for a collision. They show where collisions have occurred, but not why.

2.5.9 Wider efforts to reduce the number and severity of traffic collisions falls to the Council's Road Safety team, who have the facility to interrogate each collision report and the conclusions of the police as to contributing factors. These include carelessness, excessive speed, intoxication etc. Cluster analysis involves assessing in detail those locations that experience a high incidence of reported accidents in a given time period.

2.5.10 For cyclists, collisions are clustered at, or on, the approach to the One-o-One roundabout.

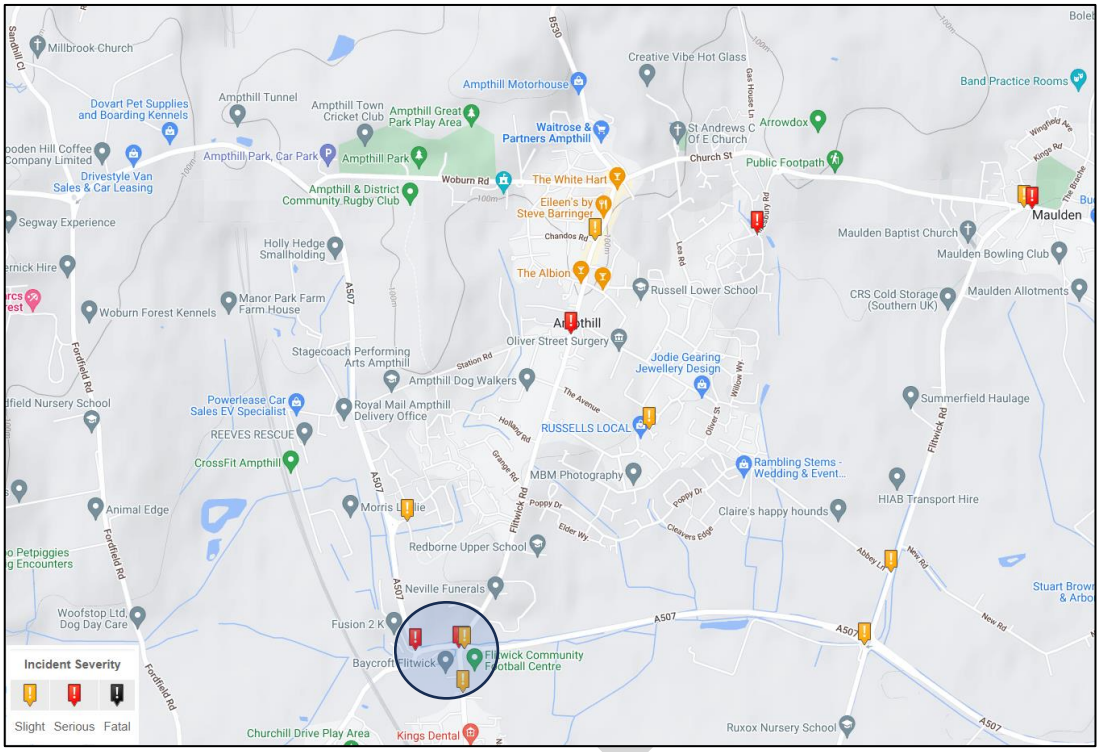

Figure 5: Collisions involving cyclists on roads within Ampthill (2017-2021)

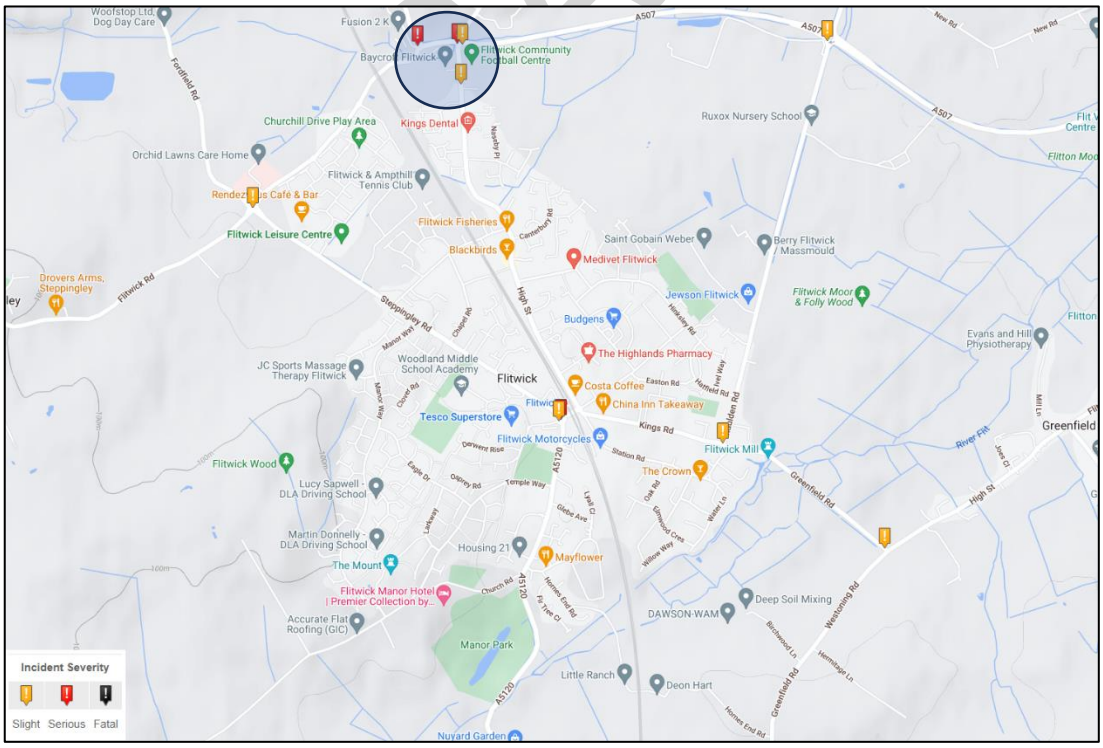

Figure 6: Collisions involving cyclists on roads within Flitwick (2017-2021)

2.5.11 For pedestrians, there is a significant cluster of injurious collisions in the centre of Ampthill, with Oliver Street also meriting consideration.

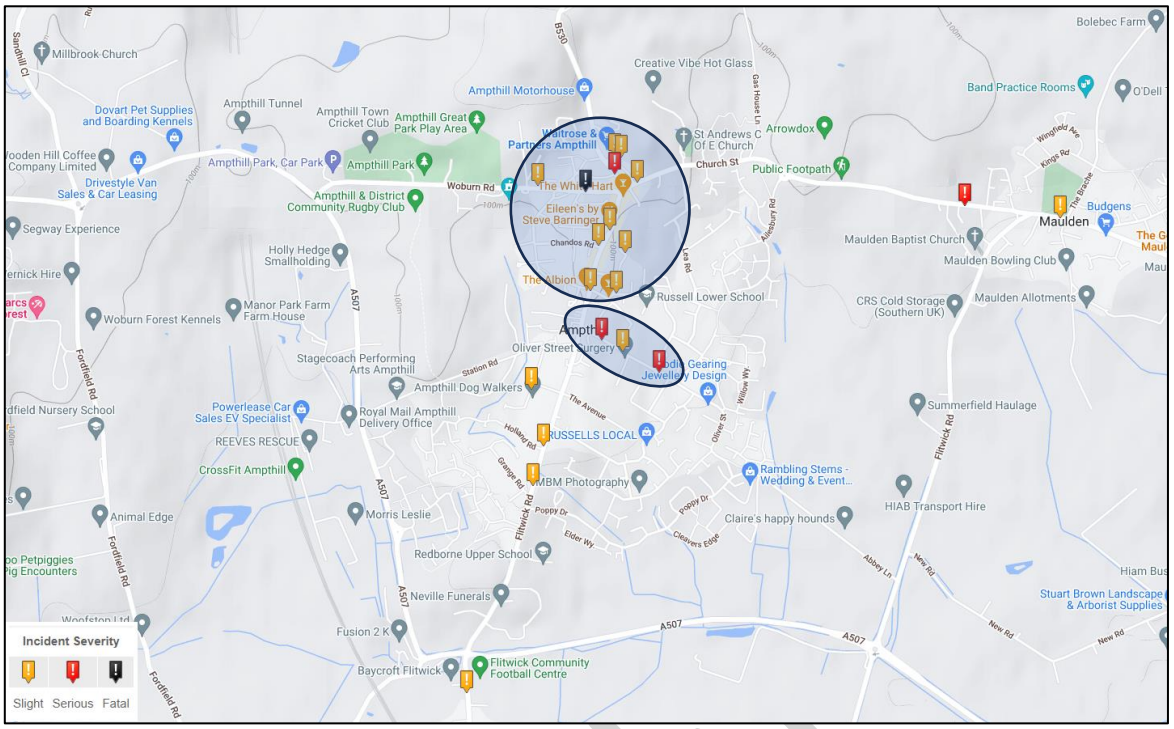

Figure 7: Collisions involving pedestrians on roads within Ampthill (2017-2021)

Figure 8: Collisions involving pedestrians on roads within Flitwick (2017-2021)

3. Route Network Maps

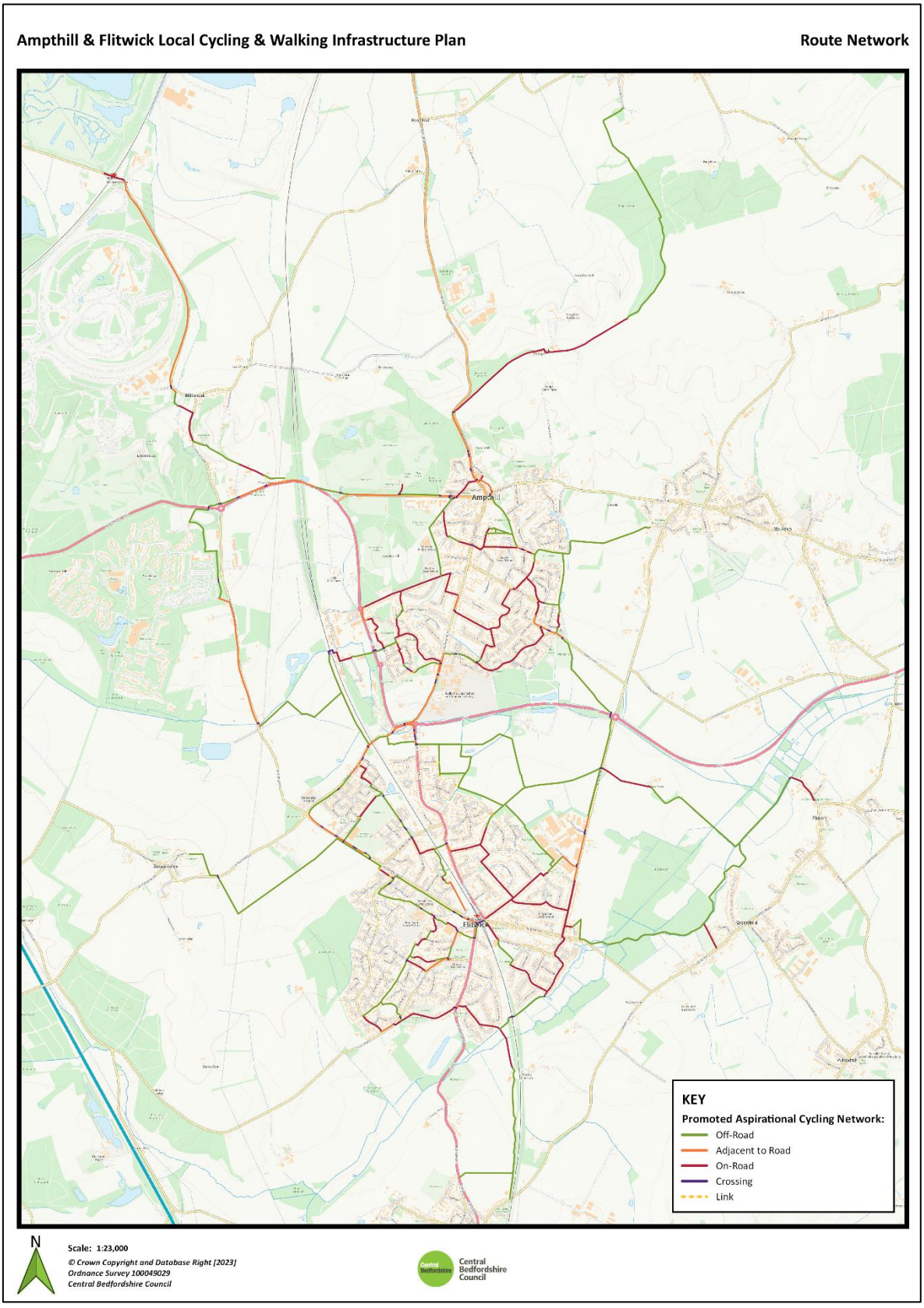

Figure 9: Promoted cycling route network for Ampthill & Flitwick

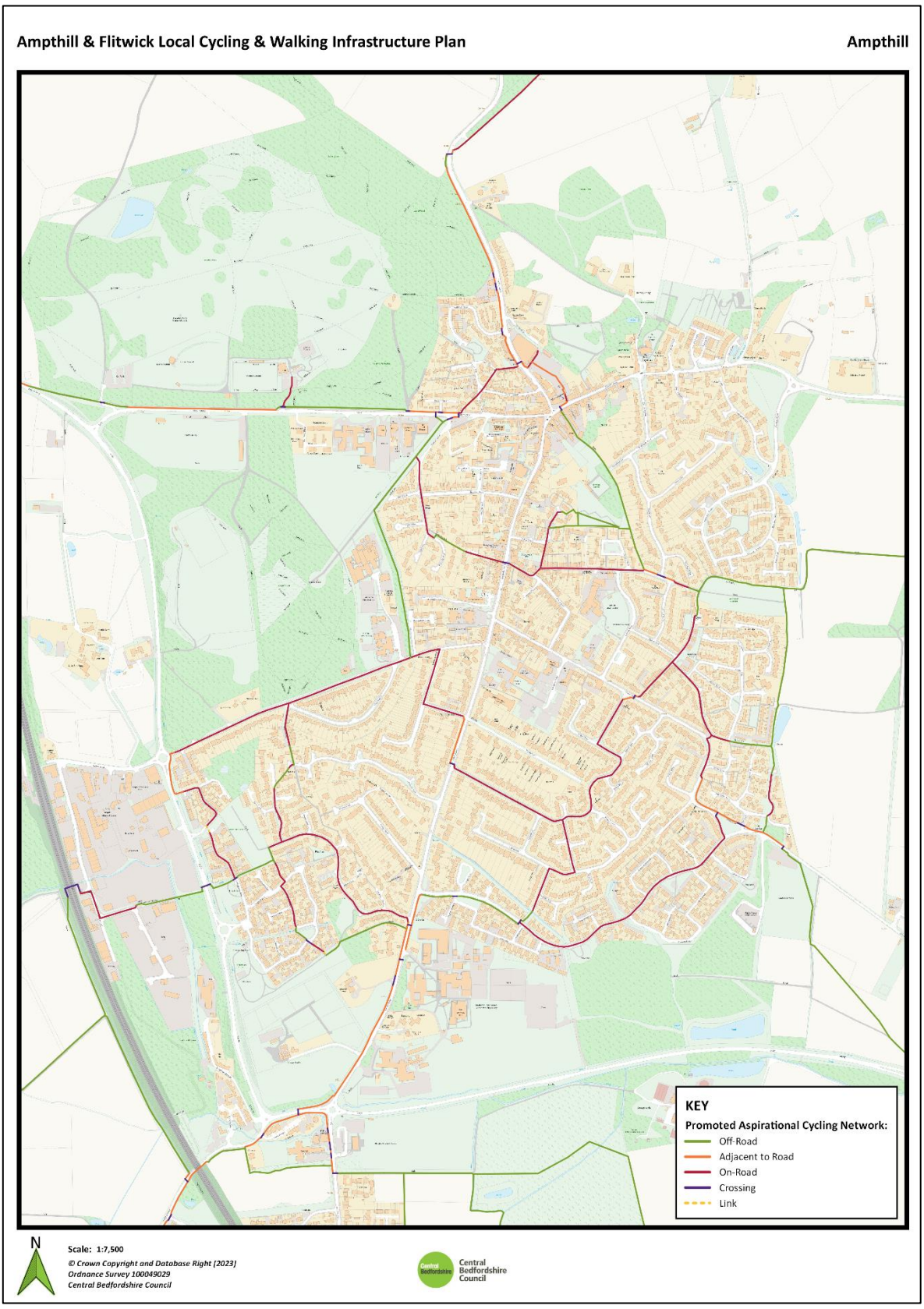

Figure 10: Promoted cycling route network for Ampthill

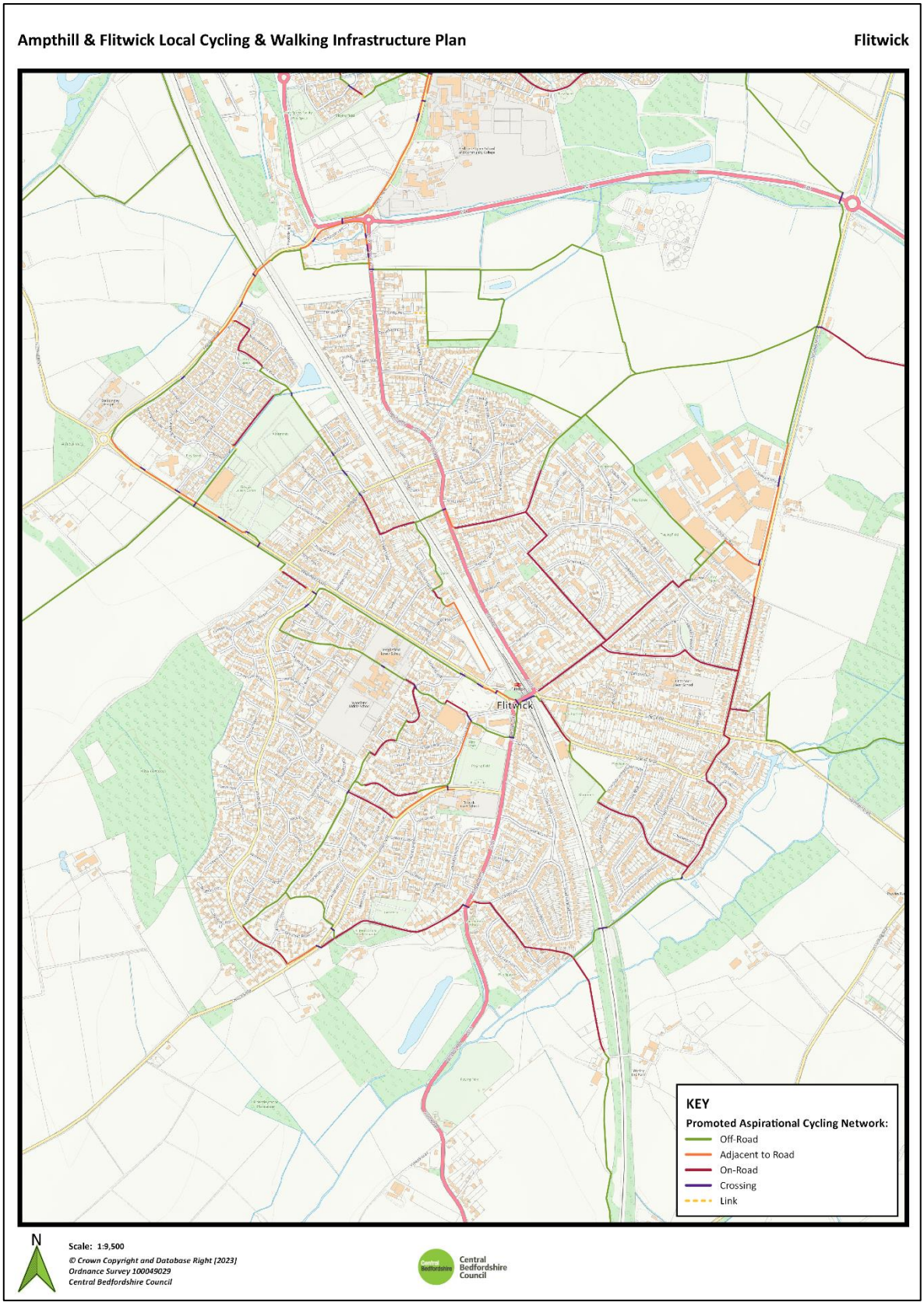

Figure 11: Promoted cycling route network for Flitwick

4. Network Analysis

4.1 Ampthill (East)

4.1.1 With the exception of the southern section, the main north-south route within Ampthill, comprising Flitwick Road, Dunstable Street and Bedford Street is deemed unsuitable for promotion as a cycle route as the highway corridor has insufficient width to accommodate segregated facilities.

4.1.2 A shared-use facility exists at the southern end of Flitwick Road, which it is proposed to utilise and improve. However, north of the junction with Oliver Street, where the road becomes Dunstable Street, the corridor narrows. In sections, the available width is also restricted by the provision of parking bays for adjacent Victorian and Edwardian properties. This narrowing becomes particularly acute as the road approaches to the town centre, there is also an air quality management issue caused by the tunnelling effect of buildings. For much of this length the footways are also substandard.

4.1.3 It additional to space constraints, there are also issues with the level of traffic using this corridor, combining to make the road unacceptable to most cyclists and unpleasant for pedestrians, given narrow footways and the very close proximity of heavy traffic.

4.1.4 The above constraints dictate the shape of the proposed cycle network, necessitating the use of parallel roads and more circuitous routing to afford cyclists with a reasonable alternative to the main spinal corridor.

4.1.5 As is shown in Figure 12, the network proposed to serve the east of Ampthill is predominately on-road, with cyclists required to use residential roads where traffic speeds and flows are considered, or can be engineered, to be sufficiently low.

4.1.6 Where off-road paths are available and can be appropriately upgraded to allow for safe shared use, these have been selected. Where there is sufficient width within the highway to allow for a cycle track to be created separately from the road, this has been promoted, particularly on roads where traffic flows and speeds are likely to exceed recommended thresholds.

4.1.7 The network also includes a handful of new connecting links where these are considered feasible and advantageous to both cyclists and pedestrians.

4.1.8 With specific regard to pedestrians, the east of Ampthill is characteristic of most similar towns where the convenience of people travelling on foot has, to a significant extent, been relegated below the needs of residents travelling by car and needing to use the public highway for parking their vehicles.

4.1.9 Where during the Commonplace engagement (see Section 5.2) respondents flagged issues regarding pedestrian infrastructure in this area of Ampthill, the location will be reviewed and where appropriate, improvements brought forward. These will be implemented on an area-by-area basis, in accord with the approach outlined in Section 6.10 of this report. Maps showing the locations where issues and opportunities for improvements were flagged are included at Appendix 5.

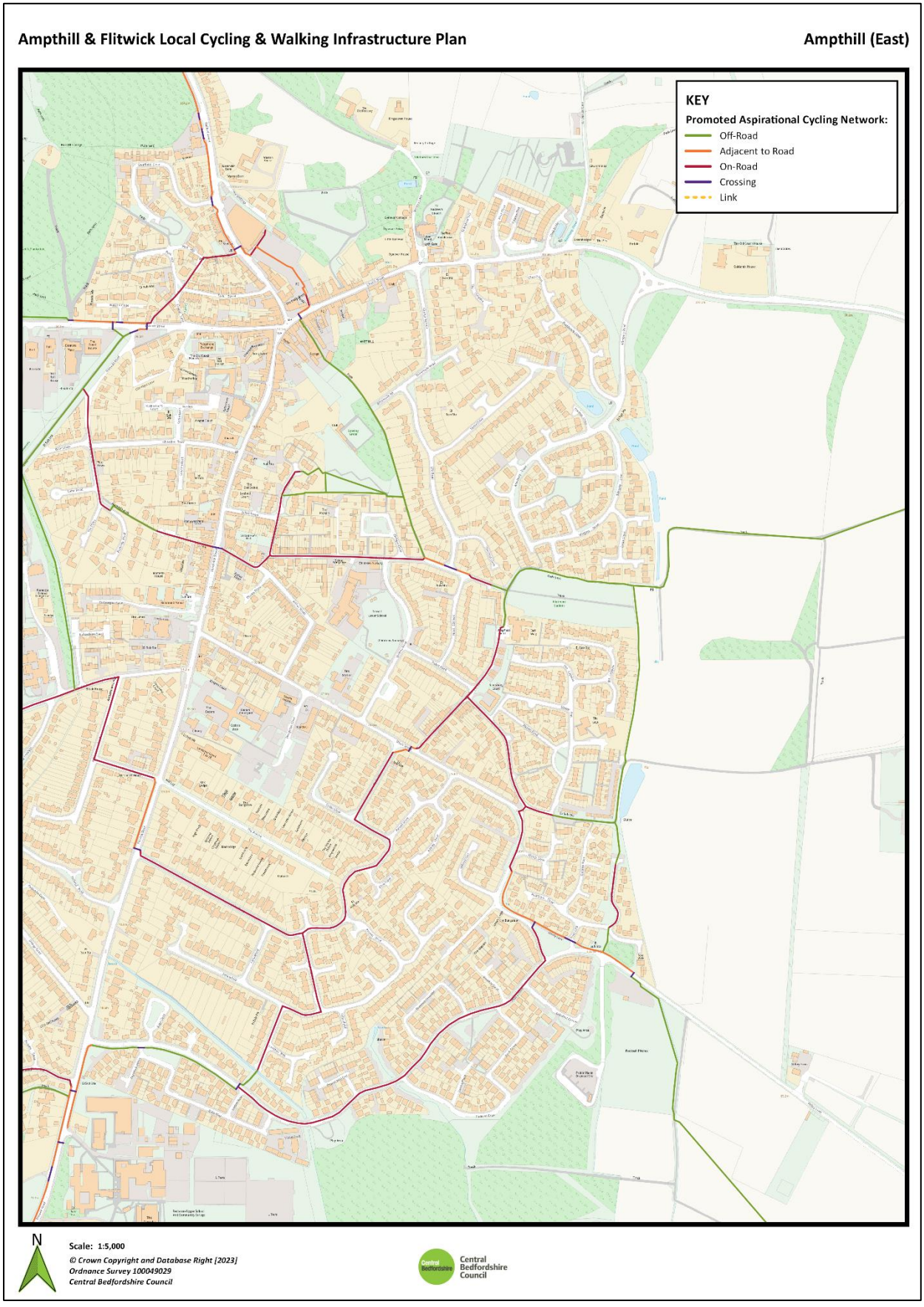

Figure 12: Promoted cycling route network for Ampthill (East) split by route type

4.2 Ampthill (West)

4.2.1 As is evident from Figure 13, the proposed network serving the area of Ampthill to the west of Flitwick Road/Dunstable Street/Bedford Street also relies heavily on on-road routes, given the paucity of off-road paths in this area. Those residential streets selected have low traffic speeds and flows or can be engineered to be safe for cycling.

4.2.2 Where suitable off-road rights of way exist, these have been utilised. This includes a mix of bridleways and public footpaths, use of the latter by cyclists requiring changes to legal or permissive rights. There are also two new links proposed, as shown in Figure 26 in Section 5.3 of this report.

4.2.3 On roads where mapping work identified width within the highway to allow for a cycle track or shared-use path to be created adjacent to the road, this has been promoted.

4.2.4 The network proposal includes new crossings of the A507. One provides access to the industrial area and the other serves the main connecting route between Ampthill and Flitwick being positioned between the One-O-One and Doolittle Mill roundabouts. This latter crossing also deals with a current issue as children emerging from Froghall Road and heading to Redborne School use the splitter island of the roundabout when crossing the A507. This is a far from ideal situation. A signal-controlled Toucan crossing of the A507 at this location has been designed and should be constructed and operational later in 2023.

4.2.5 The network proposal utilises the stepped bridge crossing of the Midland Mainline railway to provide a route out west towards Fordfield Road and Center Parcs. To accommodate cyclists and people on foot with limited mobility, this bridge requires upgrading with suitably ramped approaches.

4.2.6 The promotion of Park Hill as a route for cyclists has been flagged by respondents as problematic because of the gradient. However, to date it has not been possible to identify a suitable alternative alignment for a route that connects to Bedford Road and serves the shops and businesses thereon.

4.2.7 Where during the Commonplace engagement, respondents flagged issues regarding pedestrian infrastructure in this area of Ampthill (see Appendix 5), the location will be reviewed and where appropriate, improvements bought forward. These will be implemented on an area-by-area basis, in accord with the approach outlined in Section 6.10 of this report.

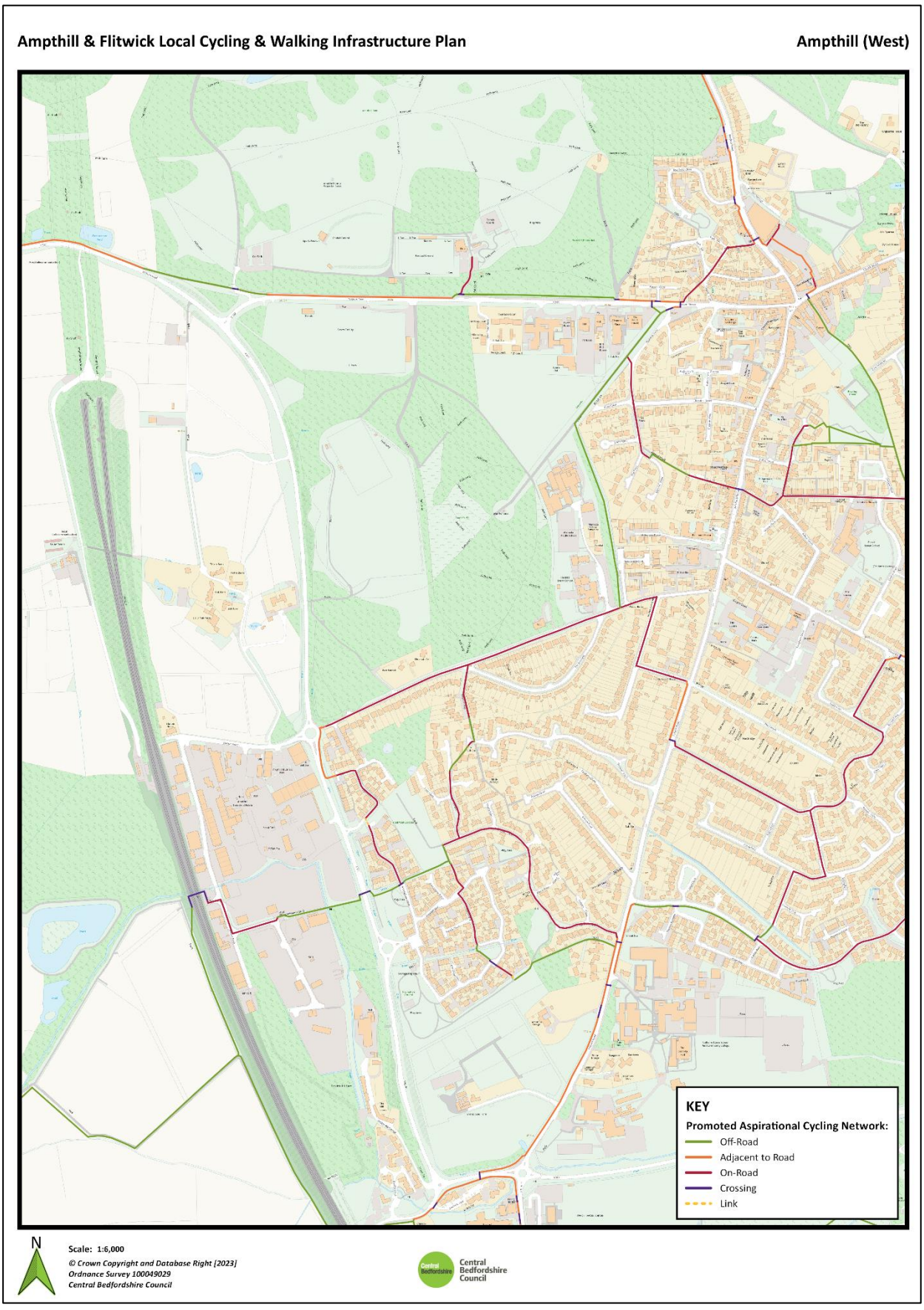

Figure 13: Promoted cycling route network for Ampthill (West) split by route type

4.3 Flitwick (East)

4.3.1 As shown in Figure 14, the proposed network serving the area of Flitwick to the east of Ampthill Road, the High Street and the A5120 uses a mix of off and on-road routes.

4.3.2 Residential streets selected as part of the promoted network have low traffic speeds and flows or can be engineered to be safe for cycling.

4.3.3 Towards the north-eastern end of Flitwick, the various developments accessed off Ampthill Road were built as cul-de-sacs, lacking any interconnectivity. The network proposal addresses this by providing routes that run immediately beyond the urban edge, with connecting links.

4.3.4 Where suitably aligned off-road rights of way exist, these have been utilised. Use of public footpaths by cyclists will require changes to legal or permissive rights as improvement schemes are bought forward.

4.3.5 As part of the network proposal for Flitwick-east, four new links are proposed. These are shown in Figure 26 and listed in Table 9, contained in Section 5.3 of this report.

4.3.6 On roads where mapping work identified there is width within the highway to allow for a cycle track or shared-use path to be created adjacent to the road, this option has been promoted.

4.3.7 The network proposal includes several new or upgraded crossings of Maulden Road.

4.3.8 Potentially the most complex element of the network is the bridge crossing of the Midland Mainline within the town centre as this may involve modifications to the structure and changes to the junction on either side.

4.3.9 Where during the Commonplace engagement respondents flagged issues regarding pedestrian infrastructure in this area of Flitwick (see Appendix 5), the location will be reviewed and where appropriate, improvements bought forward. These will be implemented on an area-by-area basis, in accord with the approach outlined in Section 6.10 of this report.

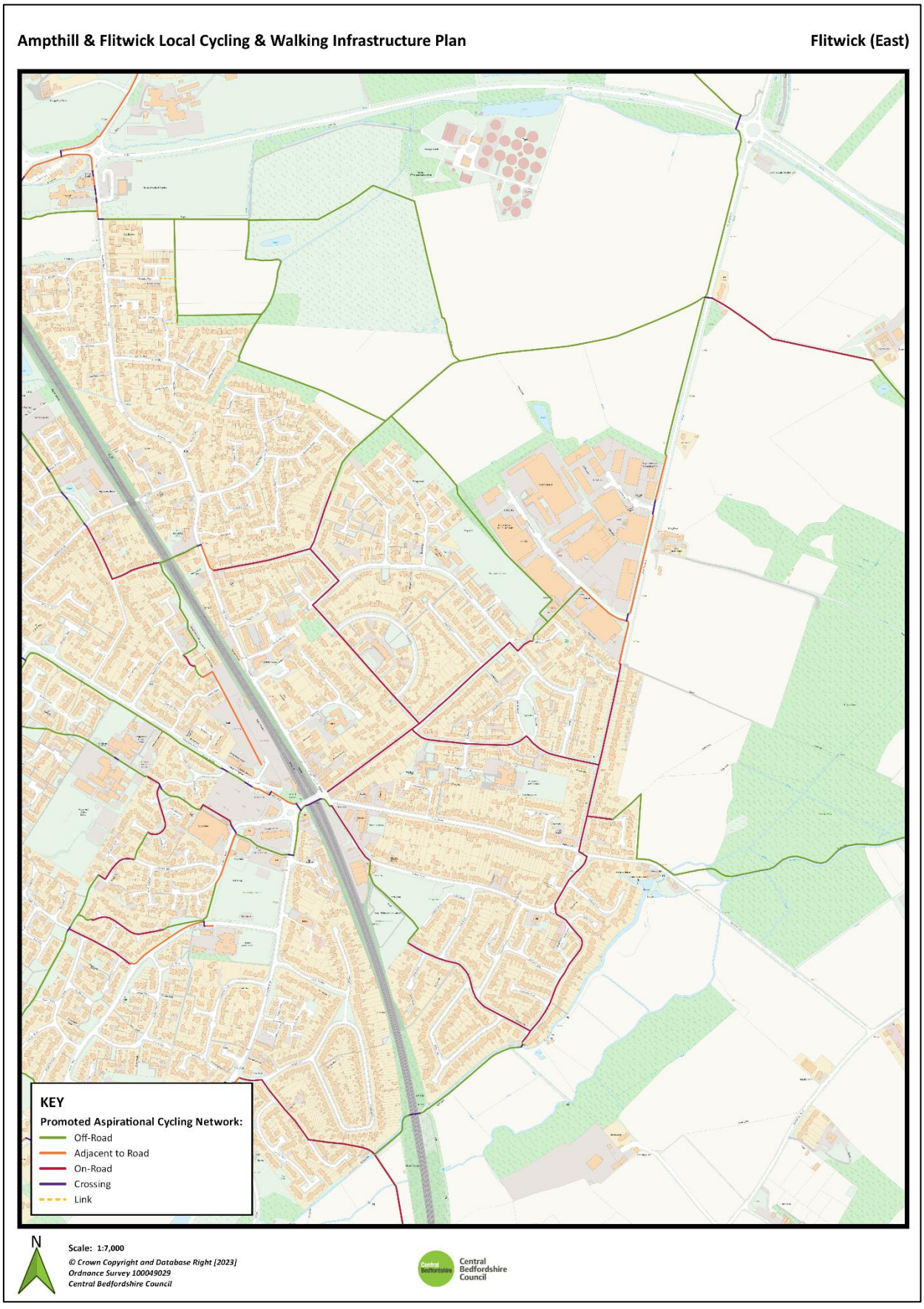

Figure 14: Promoted cycling route network for Flitwick (East) split by route type

4.4 Flitwick (West)

4.4.1 As shown in Figure 15, the proposed network serving the area of Flitwick to the west of Ampthill Road/High Street/A5120 is a mix of on and off-road routes.

4.4.2 Where residential streets form part of the network, these have been selected as having low traffic speeds and flows or can be engineered to be safe for cycling.

4.4.3 Where suitable, off-road rights of way exist, these have been utilised. This includes a mix of bridleways and public footpaths, use of the latter by cyclists requiring changes to legal or permissive rights.

4.4.4 The proposal involves routes that run through sites that are allocated for (re)development. In this situation, these sections will be subject to agreement, be referenced in planning conditions and delivered as part of the development. In some instances, alternative routes may need to be created to accommodate pedestrian and cycle movements whilst sites are built out.

4.4.5 On roads where mapping work identified width within the highway to allow for a cycle track or shared-use path to be created adjacent to the road, this has been promoted. An example in this area would be Steppingley Road.

4.4.6 Delivery of the network will require the provision of new sections of path. These include:

4.4.7 a continuation of provision along Froghall Road. There are also several new, short connecting links including one to the rear of Flitwick Leisure Centre.

4.4.8 All new links are listed in Table 9 and shown spatially in Figure 26, see Section 5.3 of this report. These include a longstanding proposal to provide a link into the railway station carpark from James Place.

4.4.9 Where during the Commonplace engagement, respondents flagged issues regarding pedestrian infrastructure in this area of Flitwick (see Appendix 5), the locations will be reviewed and where appropriate, improvements bought forward. These will be implemented on an area-by-area basis.

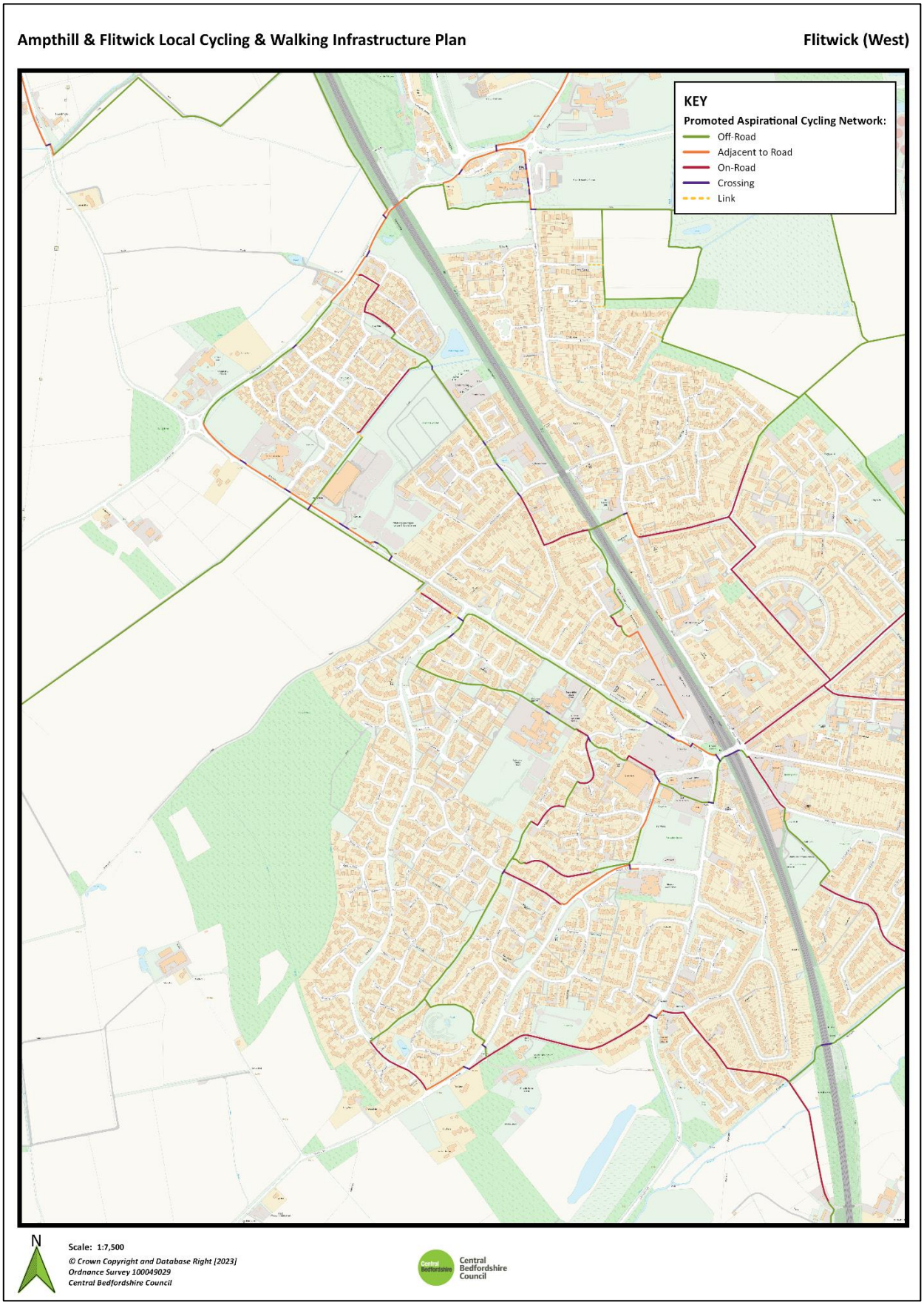

Figure 15: Promoted cycling route network for Flitwick (West) split by route type

5. Network Mapping

5.1 Network Blueprint

5.1.1 Figure 16 below shows the cycle network blueprint for Ampthill and Flitwick, with connections to the adjacent villages of Steppingley, Millbrook, Houghton Conquest, Maulden, Flitton, Greenfield and Westoning. Frequented local facilities are also shown.

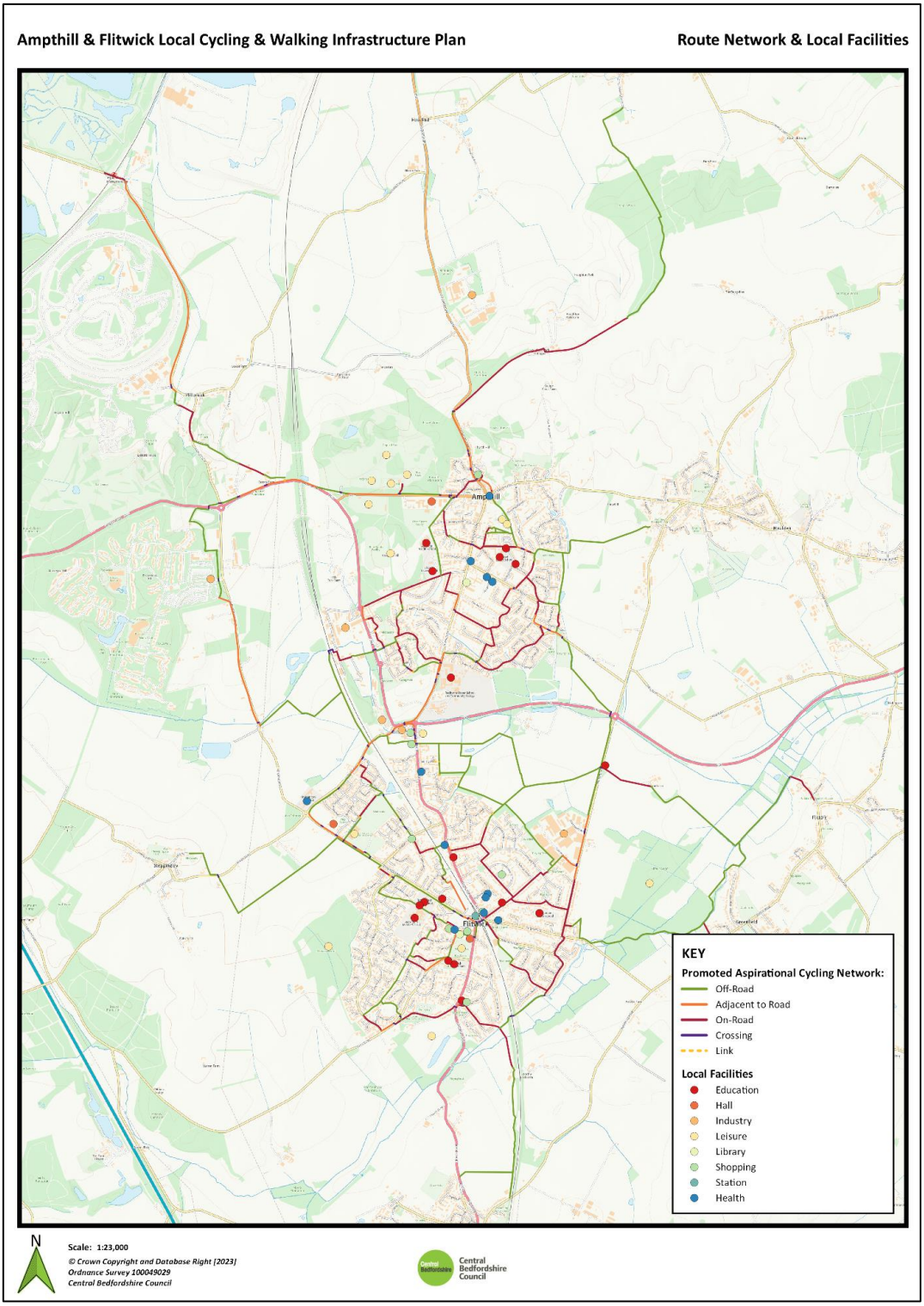

Figure 16: Proposed cycle network and location of key local facilities in Ampthill and Flitwick

5.1.2 The network for Ampthill is shown as Figure 17 below.

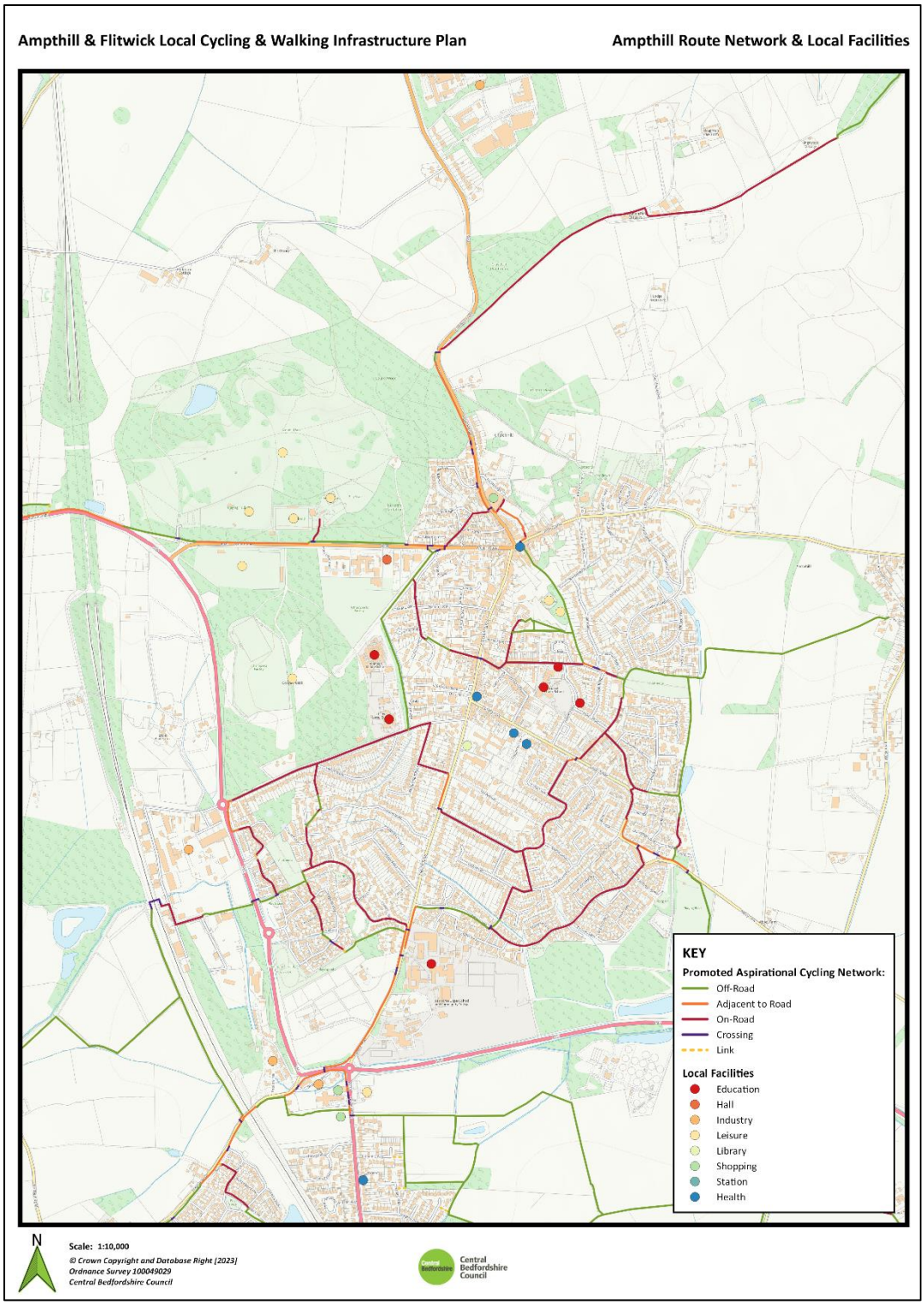

Figure 17: Proposed cycle network and location of key local facilities in Ampthill

5.1.3 The network for Flitwick is shown as Figure 18 below.

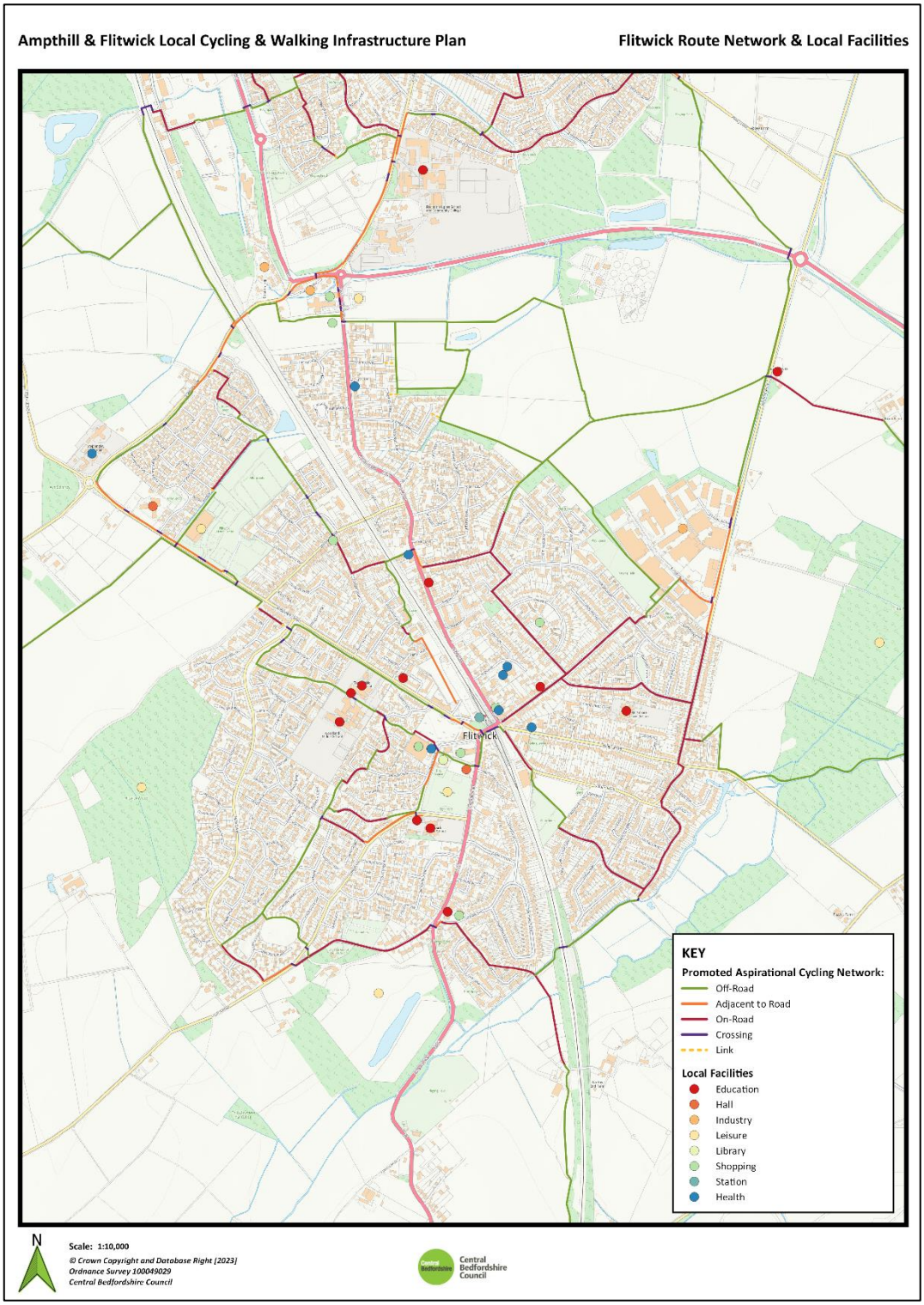

Figure 18: Proposed cycle network and location of key local facilities in Flitwick

5.1.4 In each of the previous maps, the coloured routes signify the following:

- Red: routes require cyclists to share the carriageway and mix with traffic
- Orange: routes are adjacent to a road
- Green: routes are wholly off-road utilising existing highways and estate paths
- Purple: crossing points
- Yellow (dashed): new links proposed to improve overall network permeability

5.2 Testing and Refining the Network Proposals - Commonplace Engagement

5.2.1 In May 2022, the Council's Sustainable Transport and Active Travel Team utilised the Commonplace platform to engage online and to secure feedback and comments from interested stakeholders on the proposed network blueprint.

5.2.2 Commonplace offered the facility for respondents to place a pin and to leave a comment on any element of the route network. When placing a pin, users were prompted to describe the issue they perceived with existing infrastructure, to propose a new link or route, or to propose an improvement to an existing route. In addition to 'pinning' comments, users had the facility to 'like' or 'agree' with the comments of other respondents.

5.2.3 The network blueprint was also tested through public engagement with residents during the summer of 2022 over the six-week period from 25th July to 5th September. Two in-person events were held at Flitwick and Ampthill libraries on 30th July and 20th August 2022 respectively. These helped reach a demographic who were less adept or comfortable responding online, ensuring an inclusive model of engagement. The events were attended by town council representatives and ward councillors, as well as local community groups.

5.2.4 Across both events, attendance was approximately 100 members of the public and local stakeholders with roughly a 75/25 percent split between Ampthill and Flitwick respectively. This disparity can be explained by the Ampthill event having taken place towards the end of the engagement following an extended campaign of publicity from the Council's Communications Team.

5.2.5 The six-week Commonplace-hosted engagement elicited 572 responses from the public. The distribution of comments, at a summary level, is shown in Figure 19. The interactive version of this map is accessible on the Ampthill and Flitwick Commonplace[9] webpage. Zooming in on this map shows the distribution of comments on a street-by-street basis and clicking on a coloured dot reveals the detailed response received. Figure 20 provides an illustration of the level of information available.

5.2.6 In response to the feedback received, the network route map was reviewed and, in several instances, revised.

5.2.7 The report detailing the results of engagement is available in the supporting documents section of the Ampthill & Flitwick page[10] on Commonplace.

9 Ampthill & Flitwick map on Commonplace

10 Ampthill & Flitwick information page on Commonplace

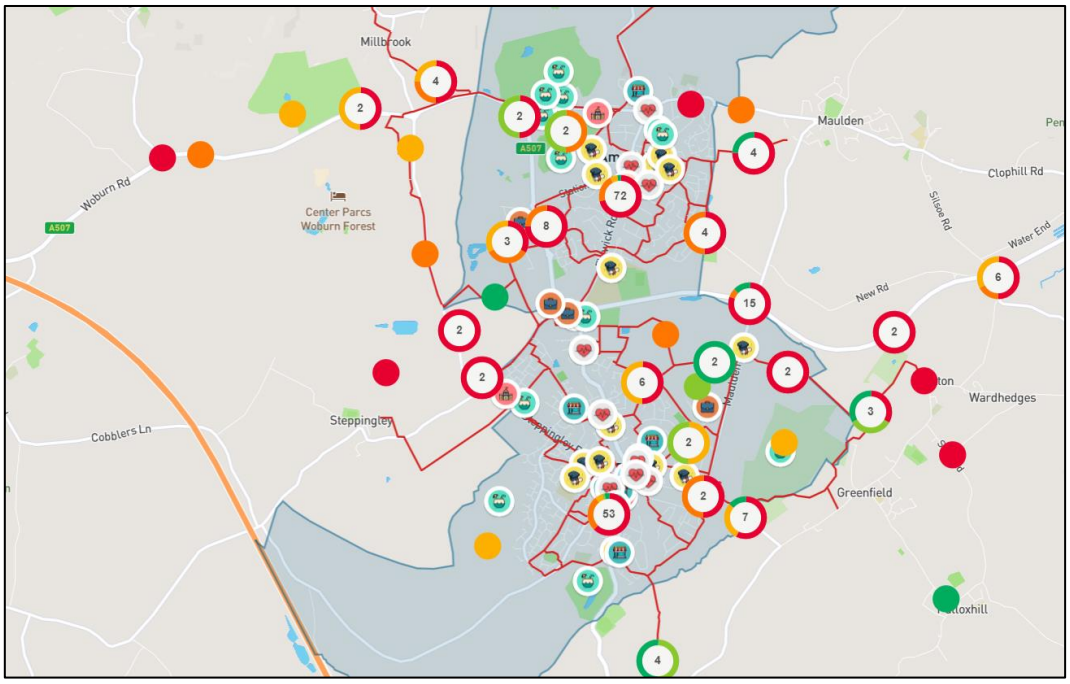

Figure 19: Commonplace platform showing routes, identified local facilities and responses received

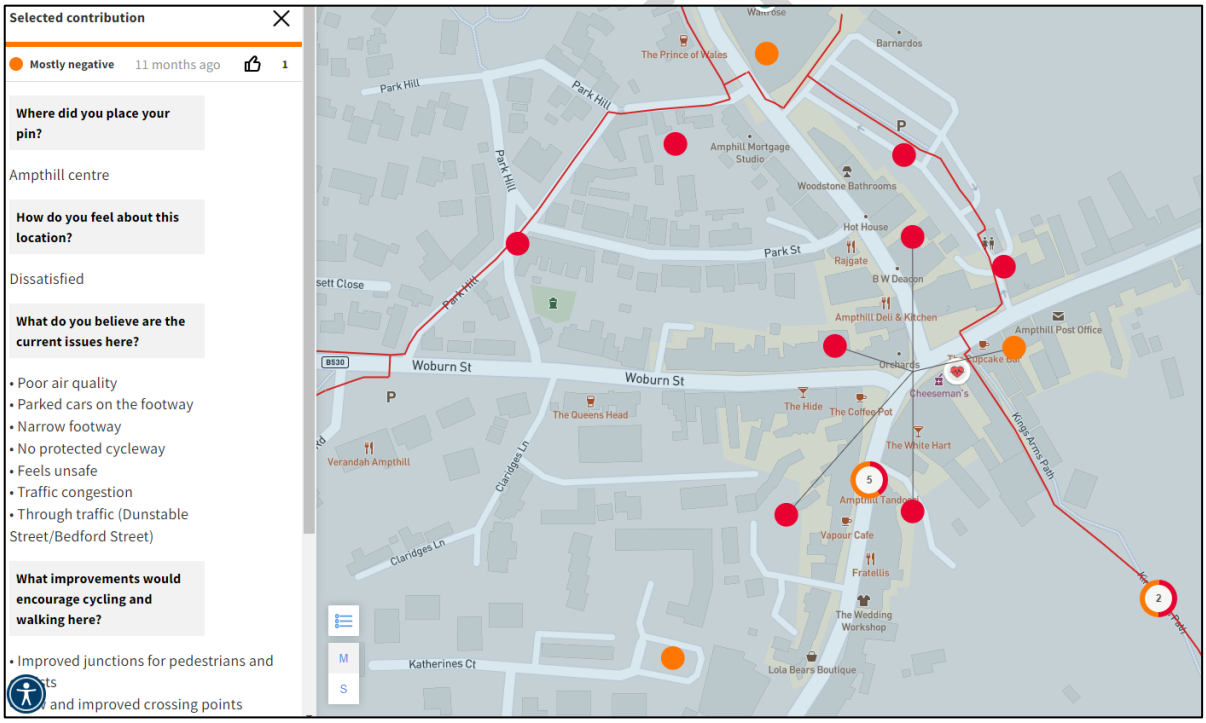

Figure 20: Extract from Commonplace map showing an example of pinned comments and feedback

5.3 Detailed Route Maps

5.3.1 Figures 21-26 and Tables 4-9 provide a detailed breakdown of the network, breaking down each route into sections that reflect the nature of provision and that are numbered for cross-referencing purposes.

On-Road Route Sections

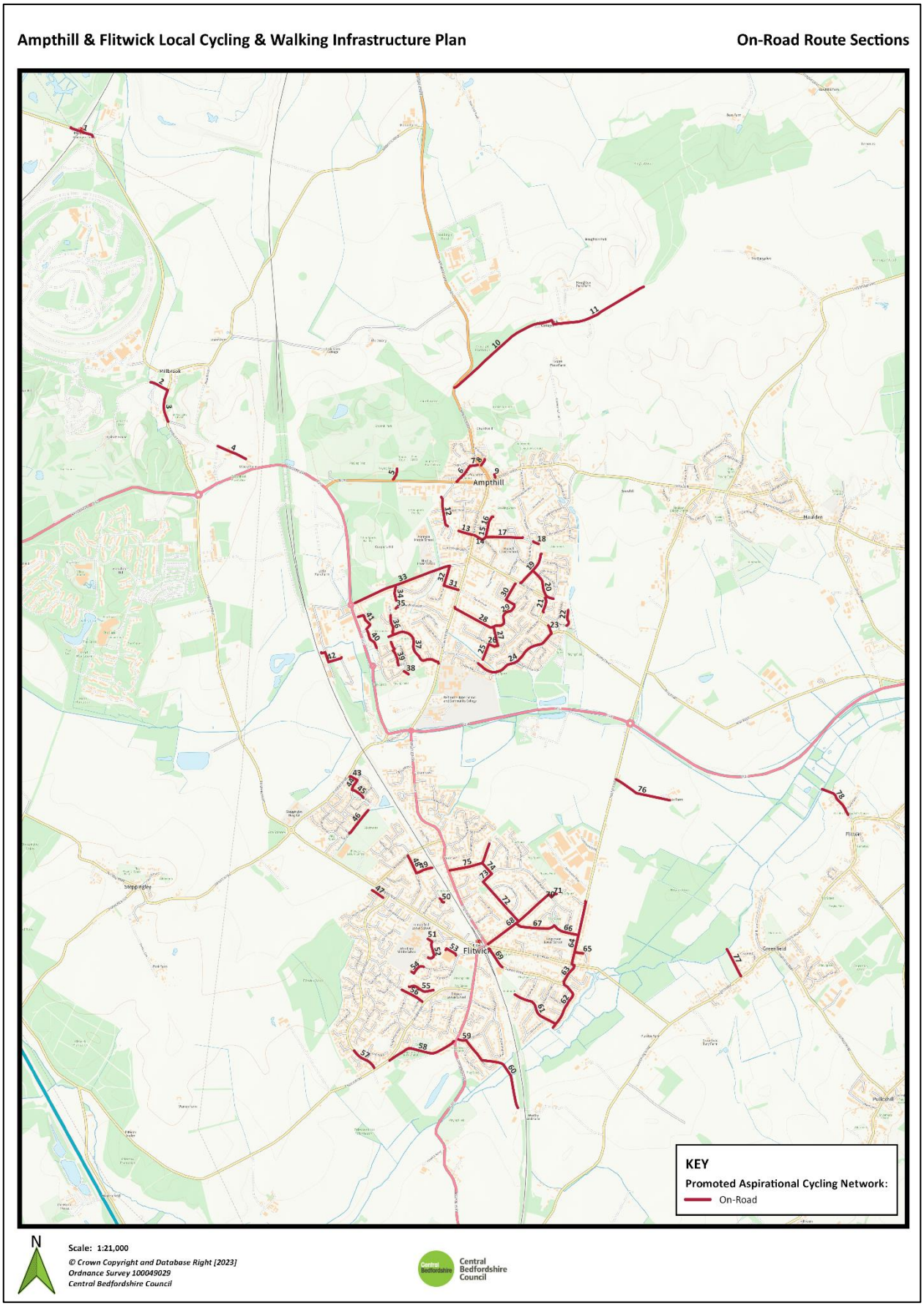

Figure 21: Sections of on-road cycle network route

Table 4: Route information for on-road sections

No.	Route Name	Parish	Length (m)
1	FP7/Rectory Lane	Houghton Conquest	174.29
2	FP7	Houghton Conquest	206.30
3	FP4/FP7	Houghton Conquest	259.80
4	FP4	Houghton Conquest	394.14
5	Kings Wood	Ampthill	892.32
6	Bedford Street	Ampthill	33.83
7	Ampthill Park	Ampthill	295.87
8	Ampthill Park	Ampthill	14.99
9	Woburn Road	Ampthill	239.08
10	FP8	Millbrook	161.61
11	FP8	Millbrook	382.06
12	BW19	Millbrook	113.83
13	Woburn Road	Millbrook	212.84
14	BW23	Millbrook	210.94
15	BW20	Millbrook	382.24
16	BW20	Millbrook	215.69
17	BW20	Millbrook	131.18
18	FP19	Ampthill	279.33
19	Froghall Road/Fordfield Road	Flitwick	947.72
20	Froghall Road/Rail Crossing	Ampthill	306.62
21	FP19	Ampthill	175.43
22	FP19	Ampthill	65.89
23	FP19	Ampthill	100.13
24	FP20	Ampthill	40.13
25	FP20	Ampthill	44.61
26	FPA10	Ampthill	222.13
27	Poppy Drive	Ampthill	242.69
28	Fallowfield/Poppy Drive	Ampthill	38.93
29	FP19	Ampthill	58.41
30	FP21	Ampthill	46.63
31	BW17	Ampthill	371.35
32	FPA9	Ampthill	89.33
33	BW17	Ampthill	284.03
34	Woburn Street	Ampthill	21.61
35	FP18	Ampthill	447.75
36	Green Space Path	Ampthill	105.15
37	Green Space Path (Alt. Alignment)	Ampthill	160.71
38	Preston Close/Green Space	Ampthill	73.26
39	Preston Close/Green Space	Ampthill	48.57
40	FPA7	Ampthill	25.82
41	FP29	Ampthill	59.19

No.	Route Name	Parish	Length (m)
42	FPA7	Ampthill	269.07
43	FP2 to Maulden	Maulden	530.92
44	FP2 to Maulden (Alt. Alignment)	Maulden	186.79
45	Ampthill East Route	Ampthill	488.80
46	Ampthill East Route/Cherrytree Way	Ampthill	68.61
47	Abbey Lane/Cherrytree Way	Ampthill	41.09
48	FP5 (Alt. Alignment)	Ampthill	241.46
49	FP5	Ampthill	457.74
50	Maulden Road	Flitwick	770.12
51	BW2	Flitwick	1003.43
52	The Ridgeway/FPA9	Flitwick	627.93
53	FPA9	Flitwick	165.48
54	Flitwick East Route	Flitwick	789.56
55	Flitwick East Route/Sports Field	Flitwick	1111.45
56	Flitwick East Route	Flitwick	426.69
57	Froghall Road/Ampthill Road	Flitwick	264.08
58	Froghall Road	Flitwick	108.40
59	Froghall Road	Flitwick	429.84
60	Leisure Centre Back Route	Flitwick	206.91
61	Set Back Route	Flitwick	46.85
62	Steppingley Road	Flitwick	385.97
63	FP3	Steppingley	927.23
64	BW9	Steppingley	306.75
65	BW2/BW9	Steppingley	223.86
66	BW2	Steppingley	99.45
67	Pankhurst Row	Flitwick	136.06
68	Fry Grove	Flitwick	50.88
69	FP15	Flitwick	215.17
70	FP15	Flitwick	54.52
71	FP15	Flitwick	67.78
72	FP23	Flitwick	93.83
73	Beaumont Road/The Thinnings	Flitwick	251.31
74	Beaumont Road	Flitwick	29.22
75	BW1	Flitwick	25.12
76	Steppingley Road	Flitwick	553.25
77	Manor Way	Flitwick	171.21
78	FP5	Flitwick	266.38
79	School Alleyway	Flitwick	149.95
80	Kendal Drive	Flitwick	32.37
81	FP4	Flitwick	69.99
82	FP4	Flitwick	69.78
83	Derwent Rise/Eagle Drive	Flitwick	135.92

No.	Route Name	Parish	Length (m)
84	Osprey Road	Flitwick	33.25
85	Eagle Road/Manor Way	Flitwick	530.83
86	Kingfisher Road	Flitwick	225.51
87	Church Road	Flitwick	24.37
88	Osprey Road/Temple Way	Flitwick	94.62
89	Coniston Road/Temple Way	Flitwick	94.38
90	Village Hall/Library	Flitwick	131.15
91	Dunstable Road	Flitwick	119.97
92	Station Road/High Street	Flitwick	26.41
93	Station Road Play Park	Flitwick	239.38
94	BW3	Flitwick	286.11
95	BW3	Flitwick	126.23
96	Track Section to Westoning	Westoning	387.45
97	Tree Belt Route	Westoning	605.99
98	New Development Route	Westoning	407.91
99	FP19	Flitwick	86.41
100	FP19/FP18	Flitwick	243.09
101	FP18	Flitwick	554.83
102	FP14	Flitwick	580.41
103	FP20	Flitwick	257.70
104	FP21	Flitwick	101.39
105	BW7	Flitton & Greenfield	207.53
106	BW7	Flitwick	251.84
107	FPA6	Flitwick	322.96
108	BW2	Flitwick	288.14
109	FP2	Flitton & Greenfield	627.05

On-Road Junctions

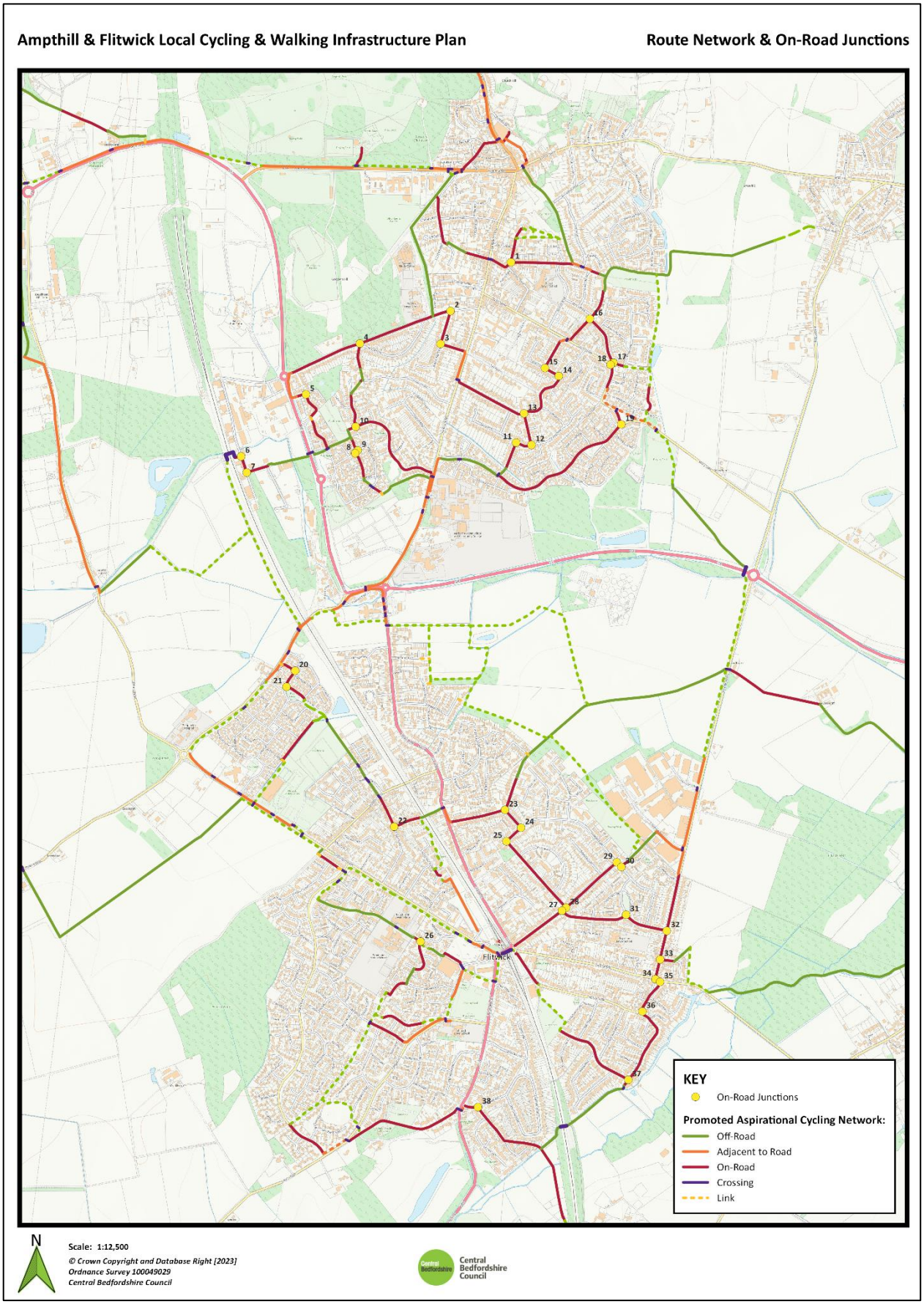

Figure 22: On-road junctions highlighted as part of the cycle network

Table 5: Route information for on-road junctions

No.	Route Name	Parish
1	Baker Street & Saunders Piece	Ampthill
2	Station Road & Ashburnham Road	Ampthill
3	Ashburnham Road & Sidney Road	Ampthill
4	Station Road & Meadow Way	Ampthill
5	Upper Lawn & Rye Field	Ampthill
6	Station Road	Ampthill
7	Station Road	Ampthill
8	Falldor Way & Wagstaff Way	Ampthill
9	Wagstaff Way	Ampthill
10	Tavistock Avenue & Parmiter Way	Ampthill
11	Fallowfield & Lammas Way	Ampthill
12	Fallowfield & Aragon Road	Ampthill
13	Glebe Road & Aragon Road	Ampthill
14	Russell Drive & Cedar Close	Ampthill
15	Cedar Close	Ampthill
16	Neotsbury Road & Willow Way	Ampthill
17	Willow Way	Ampthill
18	Willow Way & Oliver Street	Ampthill
19	Abbey Lane & Poppy Drive	Ampthill
20	Brunel Place & Churchill Drive	Flitwick
21	Churchill Drive & Pankhurst Row	Flitwick
22	Chapel Road & The Thinnings	Flitwick
23	The Ridgeway & Catherine Road	Flitwick
24	Catherine Road & Hinksley Road	Flitwick
25	Hinksley Road & Brookes Road	Flitwick
26	Kendal Drive & Malham Close	Flitwick
27	The Avenue & Easton Road	Flitwick
28	Brookes Road & The Avenue	Flitwick
29	Hinksley Road & The Avenue	Flitwick
30	Hinksley Road & Althorp Close	Flitwick
31	Easton Road & Hatfield Road	Flitwick
32	Hatfield Road & Maulden Road	Flitwick
33	Maulden Road & Moor Lane	Flitwick
34	Maulden Road & King's Road	Flitwick
35	King's Road & Station Road	Flitwick
36	Station Road & Water Lane	Flitwick
37	Water Lane & Elmwood Crescent	Flitwick
38	Hornes End Road & Vicarage Hill	Flitwick

Adjacent to Road Route Sections

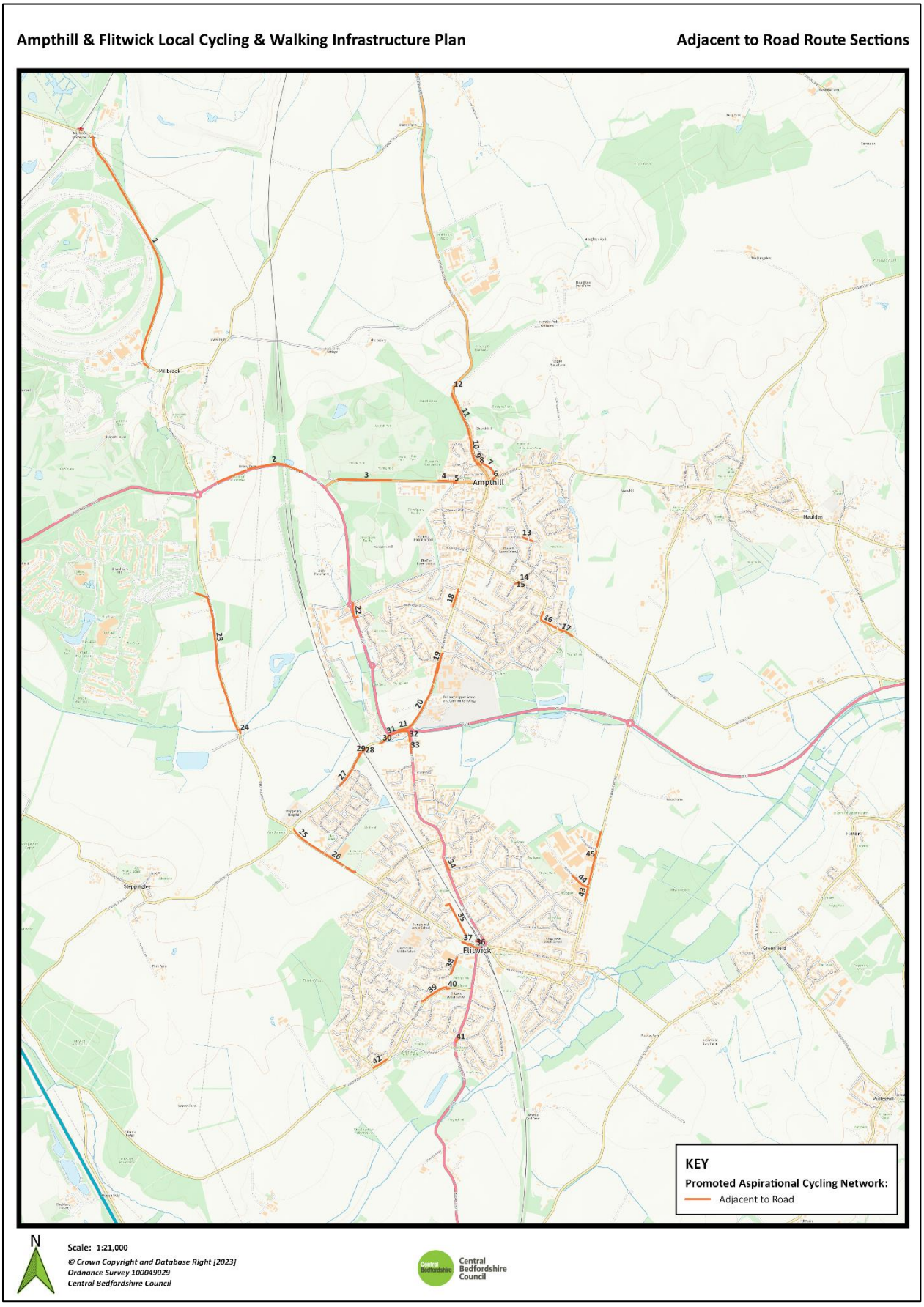

Figure 23: Sections of adjacent to road cycle network route

Table 6: Route information for adjacent to road sections

No.	Route Name	Parish	Length (m)
1	Station Road	Millbrook	1702.60
2	A507	Millbrook	588.23
3	Woburn Road	Ampthill	358.68
4	Woburn Street	Ampthill	110.44
5	Woburn Street	Ampthill	15.64
6	Church Street	Ampthill	22.21
7	Waitrose Car Park	Ampthill	119.09
8	Bedford Street	Ampthill	22.48
9	Bedford Street	Ampthill	89.18
10	Bedford Street	Ampthill	112.78
11	Bedford Street	Ampthill	280.23
12	Hazelwood Lane	Ampthill	9.30
13	Saunders Piece	Ampthill	56.52
14	Oliver Street	Ampthill	6.82
15	Oliver Street	Ampthill	24.63
16	Abbey Lane	Ampthill	169.79
17	Abbey Lane	Ampthill	107.99
18	Flitwick Road	Ampthill	118.95
19	Flitwick Road	Ampthill	141.49
20	Flitwick Road	Ampthill	444.22
21	A507	Ampthill	92.20
22	A507	Ampthill	131.01
23	Fordfield Road	Millbrook	1017.88
24	Fordfield Road	Ampthill	27.80
25	Steppingley Road	Flitwick	242.69
26	Steppingley Road	Flitwick	216.52
27	Froghall Road	Flitwick	227.96
28	Froghall Road/Railway Bridge	Flitwick	67.28
29	Froghall Road	Flitwick	17.54
30	Froghall Road	Ampthill	44.20
31	A507	Ampthill	200.42
32	Ampthill Road	Flitwick	32.50
33	Ampthill Road	Flitwick	37.53
34	High Street	Flitwick	65.18
35	Rail Station Car Park	Flitwick	266.81
36	Steppingley Road	Flitwick	64.28
37	Steppingley Road	Flitwick	44.99
38	Coniston Road	Flitwick	122.44
39	Temple Way	Flitwick	197.13
40	Temple Way	Flitwick	19.62
41	Dunstable Road	Flitwick	23.41

No.	Route Name	Parish	Length (m)
42	Church Road	Flitwick	106.71
43	Maulden Road	Flitwick	97.60
44	Enterprise Way	Flitwick	134.19
45	Maulden Road	Flitwick	340.10

Off-Road Route Sections

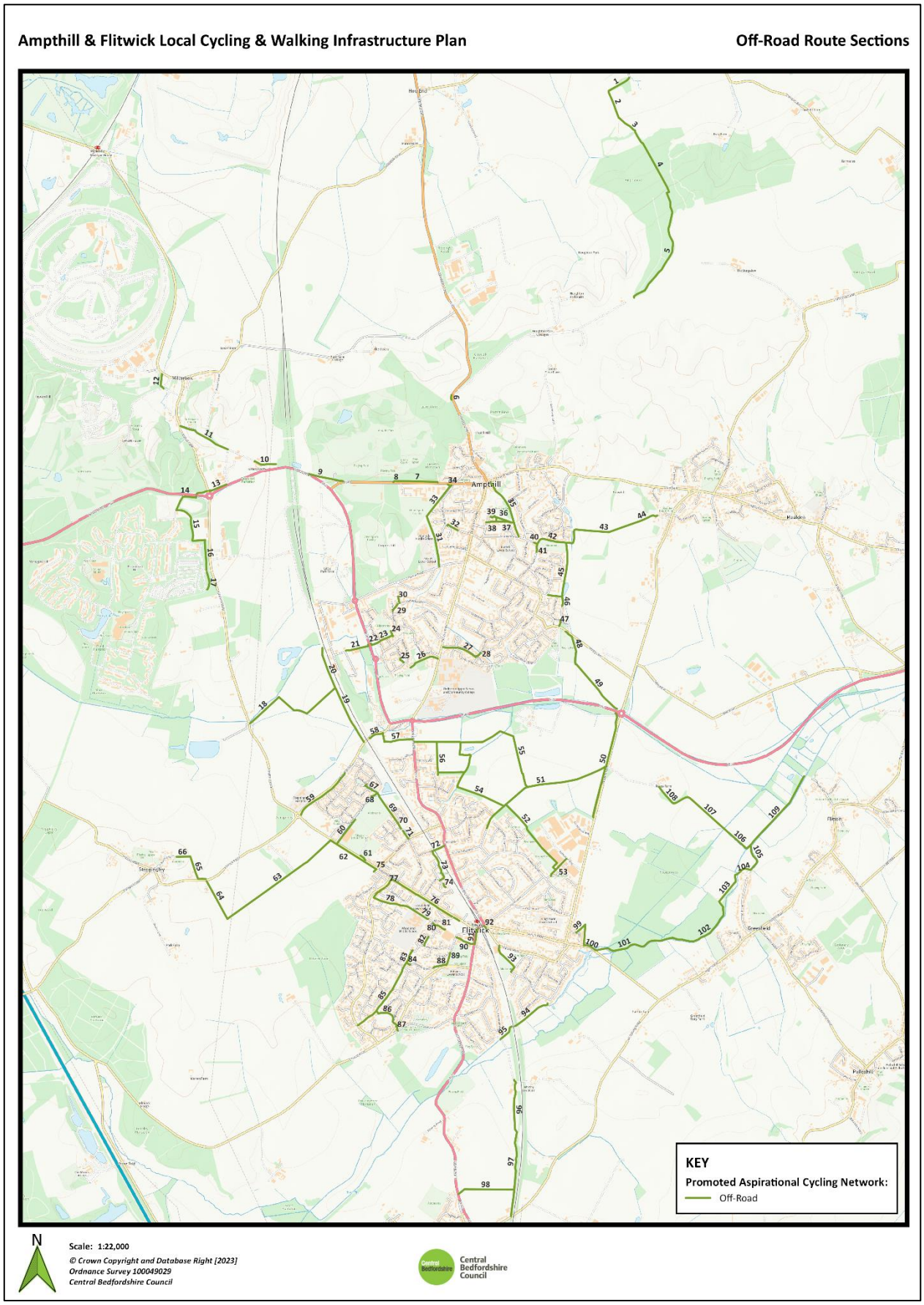

Figure 24: Sections of off-road cycle network route

Table 7: Route information for off-road sections

No.	Route Name	Parish	Length (m)
1	FP7/Rectory Lane	Houghton Conquest	174.29
2	FP7	Houghton Conquest	206.30
3	FP4/FP7	Houghton Conquest	259.80
4	FP4	Houghton Conquest	394.14
5	Kings Wood	Ampthill	892.32
6	Bedford Street	Ampthill	33.83
7	Ampthill Park	Ampthill	295.87
8	Ampthill Park	Ampthill	14.99
9	Woburn Road	Ampthill	239.08
10	FP8	Millbrook	161.61
11	FP8	Millbrook	382.06
12	BW19	Millbrook	113.83
13	Woburn Road	Millbrook	212.84
14	BW23	Millbrook	210.94
15	BW20	Millbrook	382.24
16	BW20	Millbrook	215.69
17	BW20	Millbrook	131.18
18	FP19	Ampthill	279.33
19	Froghall Road/Fordfield Road	Flitwick	947.72
20	Froghall Road/Rail Crossing	Ampthill	306.62
21	FP19	Ampthill	175.43
22	FP19	Ampthill	65.89
23	FP19	Ampthill	100.13
24	FP20	Ampthill	40.13
25	FP20	Ampthill	44.61
26	FPA10	Ampthill	222.13
27	Poppy Drive	Ampthill	242.69
28	Fallowfield/Poppy Drive	Ampthill	38.93
29	FP19	Ampthill	58.41
30	FP21	Ampthill	46.63
31	BW17	Ampthill	371.35
32	FPA9	Ampthill	89.33
33	BW17	Ampthill	284.03
34	Woburn Street	Ampthill	21.61
35	FP18	Ampthill	447.75
36	Green Space Path	Ampthill	105.15
37	Green Space Path (Alt. Alignment)	Ampthill	160.71
38	Preston Close/Green Space	Ampthill	73.26
39	Preston Close/Green Space	Ampthill	48.57
40	FPA7	Ampthill	25.82
41	FP29	Ampthill	59.19

No.	Route Name	Parish	Length (m)
42	FPA7	Ampthill	269.07
43	FP2 to Maulden	Maulden	530.92
44	FP2 to Maulden (Alt. Alignment)	Maulden	186.79
45	Ampthill East Route	Ampthill	488.80
46	Ampthill East Route/Cherrytree Way	Ampthill	68.61
47	Abbey Lane/Cherrytree Way	Ampthill	41.09
48	FP5 (Alt. Alignment)	Ampthill	241.46
49	FP5	Ampthill	457.74
50	Maulden Road	Flitwick	770.12
51	BW2	Flitwick	1003.43
52	The Ridgeway/FPA9	Flitwick	627.93
53	FPA9	Flitwick	165.48
54	Flitwick East Route	Flitwick	789.56
55	Flitwick East Route/Sports Field	Flitwick	1111.45
56	Flitwick East Route	Flitwick	426.69
57	Froghall Road/Ampthill Road	Flitwick	264.08
58	Froghall Road	Flitwick	108.40
59	Froghall Road	Flitwick	429.84
60	Leisure Centre Back Route	Flitwick	206.91
61	Set Back Route	Flitwick	46.85
62	Steppingley Road	Flitwick	385.97
63	FP3	Steppingley	927.23
64	BW9	Steppingley	306.75
65	BW2/BW9	Steppingley	223.86
66	BW2	Steppingley	99.45
67	Pankhurst Row	Flitwick	136.06
68	Fry Grove	Flitwick	50.88
69	FP15	Flitwick	215.17
70	FP15	Flitwick	54.52
71	FP15	Flitwick	67.78
72	FP23	Flitwick	93.83
73	Beaumont Road/The Thinnings	Flitwick	251.31
74	Beaumont Road	Flitwick	29.22
75	BW1	Flitwick	25.12
76	Steppingley Road	Flitwick	553.25
77	Manor Way	Flitwick	171.21
78	FP5	Flitwick	266.38
79	School Alleyway	Flitwick	149.95
80	Kendal Drive	Flitwick	32.37
81	FP4	Flitwick	69.99
82	FP4	Flitwick	69.78
83	Derwent Rise/Eagle Drive	Flitwick	135.92

No.	Route Name	Parish	Length (m)
84	Osprey Road	Flitwick	33.25
85	Eagle Road/Manor Way	Flitwick	530.83
86	Kingfisher Road	Flitwick	225.51
87	Church Road	Flitwick	24.37
88	Osprey Road/Temple Way	Flitwick	94.62
89	Coniston Road/Temple Way	Flitwick	94.38
90	Village Hall/Library	Flitwick	131.15
91	Dunstable Road	Flitwick	119.97
92	Station Road/High Street	Flitwick	26.41
93	Station Road Play Park	Flitwick	239.38
94	BW3	Flitwick	286.11
95	BW3	Flitwick	126.23
96	Track Section to Westoning	Westoning	387.45
97	Tree Belt Route	Westoning	605.99
98	New Development Route	Westoning	407.91
99	FP19	Flitwick	86.41
100	FP19/FP18	Flitwick	243.09
101	FP18	Flitwick	554.83
102	FP14	Flitwick	580.41
103	FP20	Flitwick	257.70
104	FP21	Flitwick	101.39
105	BW7	Flitton & Greenfield	207.53
106	BW7	Flitwick	251.84
107	FPA6	Flitwick	322.96
108	BW2	Flitwick	288.14
109	FP2	Flitton & Greenfield	627.05

Crossing Points

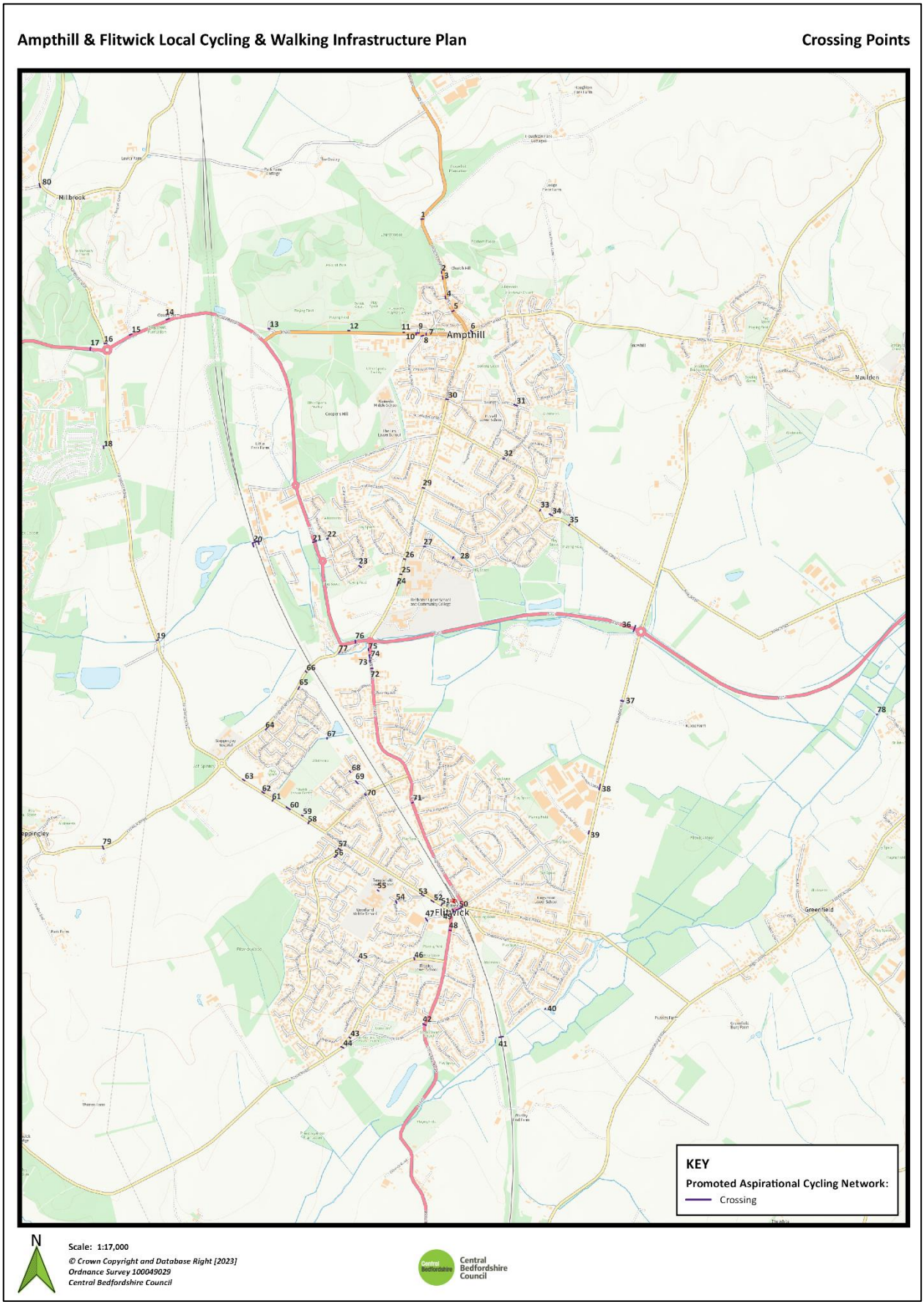

Figure 25: Crossing points linking cycle network routes

Table 8: Route information for crossing points

No.	Route Name	Parish	Length (m)
1	Hazelwood Lane Crossing	Ampthill	13.20
2	Bedford Street Access Crossing	Ampthill	9.66
3	Bedford Street Access Crossing	Ampthill	16.12
4	Swaffield Close Crossing	Ampthill	13.67
5	Bedford Street Crossing	Ampthill	12.08
6	Church Street Crossing	Ampthill	8.88
7	Woburn Street Crossing	Ampthill	9.59
8	Alameda Road Crossing	Ampthill	12.75
9	Russett Close Crossing	Ampthill	9.56
10	Woburn Street Crossing	Ampthill	11.68
11	Woburn Road Access Crossing	Ampthill	7.20
12	Ampthill Park Entrance Crossing	Ampthill	10.33
13	Ampthill Park Car Park Entrance Crossing	Ampthill	9.99
14	Woburn Road Access Crossing	Millbrook	17.80
15	Woburn Road Access Crossing	Millbrook	13.88
16	Sandhill Close Crossing	Millbrook	14.49
17	Woburn Road Crossing	Millbrook	16.68
18	Centre Parcs Entrance Crossing	Millbrook	13.30
19	Fordfield Road Crossing	Millbrook	10.45
20	Railway Bridge Crossing	Ampthill	71.27
21	A507 Crossing	Ampthill	22.32
22	Nottingham Close Crossing	Ampthill	9.02
23	Wagstaffe Way Crossing	Ampthill	15.85
24	Flitwick Road Access Crossing	Ampthill	23.45
25	Flitwick Road Crossing	Ampthill	8.86
26	Flitwick Road Crossing	Ampthill	9.34
27	Elder Way Crossing	Ampthill	9.78
28	Poppy Drive Crossing	Ampthill	11.18
29	Flitwick Road Crossing	Ampthill	10.92
30	Dunstable Street Crossing	Ampthill	14.38
31	Lea Road Crossing	Ampthill	20.15
32	Oliver Street Crossing	Ampthill	7.84
33	Abbey Lane Crossing	Ampthill	9.82
34	Osier Link Crossing	Ampthill	18.76
35	Abbey Lane Crossing	Ampthill	7.62
36	A507 Crossing	Ampthill	33.60
37	Maulden Road Crossing	Flitwick	15.98
38	Commerce Way Crossing	Flitwick	30.73
39	Enterprise Way Crossing	Flitwick	15.91
40	BW3 Footbridge	Flitwick	5.82
41	BW3 Rail Tunnel	Flitwick	24.02

No.	Route Name	Parish	Length (m)
42	Dunstable Road Crossing	Flitwick	19.65
43	Temple Way Crossing	Flitwick	10.09
44	Church Road Crossing	Flitwick	15.11
45	Eagle Drive Crossing	Flitwick	9.95
46	Temple Way Crossing	Flitwick	10.39
47	Coniston Road Crossing	Flitwick	20.09
48	Dunstable Road Crossing	Flitwick	11.74
49	A5120 Crossing	Flitwick	18.66
50	Railway Bridge Crossing	Flitwick	38.15
51	Steppingley Road Crossing	Flitwick	8.53
52	Tesco Access Crossing	Flitwick	17.87
53	Kendal Drive Crossing	Flitwick	14.88
54	Kendal Drive Crossing	Flitwick	14.39
55	School Entrance Crossing	Flitwick	8.88
56	Bluebell Close Crossing	Flitwick	13.16
57	Manor Way Crossing	Flitwick	16.75
58	Steppingley Road Crossing	Flitwick	13.08
59	Care Home Entrance Crossing	Flitwick	8.66
60	Leisure Centre Entrance Crossing	Flitwick	25.37
61	Steppingley Road Crossing	Flitwick	13.26
62	Ryder Way Crossing	Flitwick	15.00
63	Rufus Centre Entrance Crossing	Flitwick	14.76
64	Ryder Way Crossing	Flitwick	9.93
65	Churchill Drive Crossing	Flitwick	14.88
66	Froghall Road Crossing	Flitwick	9.48
67	FP15 Footbridge	Flitwick	7.29
68	Astwood Drive Crossing	Flitwick	9.80
69	Millwright Way Crossing	Flitwick	19.86
70	Windmill Road Crossing	Flitwick	9.93
71	High Street Crossing	Flitwick	8.45
72	Ampthill Road Crossing	Flitwick	11.64
73	Ampthill Road Access Crossing	Flitwick	10.96
74	Petrol Station Access Crossing	Flitwick	18.25
75	Petrol Station Access Crossing	Flitwick	10.79
76	A507 Crossing	Ampthill	13.62
77	Doolittle Yard Crossing	Ampthill	12.13
78	FP2 Bridge	Flitton & Greenfield	4.35
79	Flitwick Road Crossing	Steppingley	17.17
80	Millbrook Proving Ground Entrance Crossing	Millbrook	21.85

New links to improve permeability

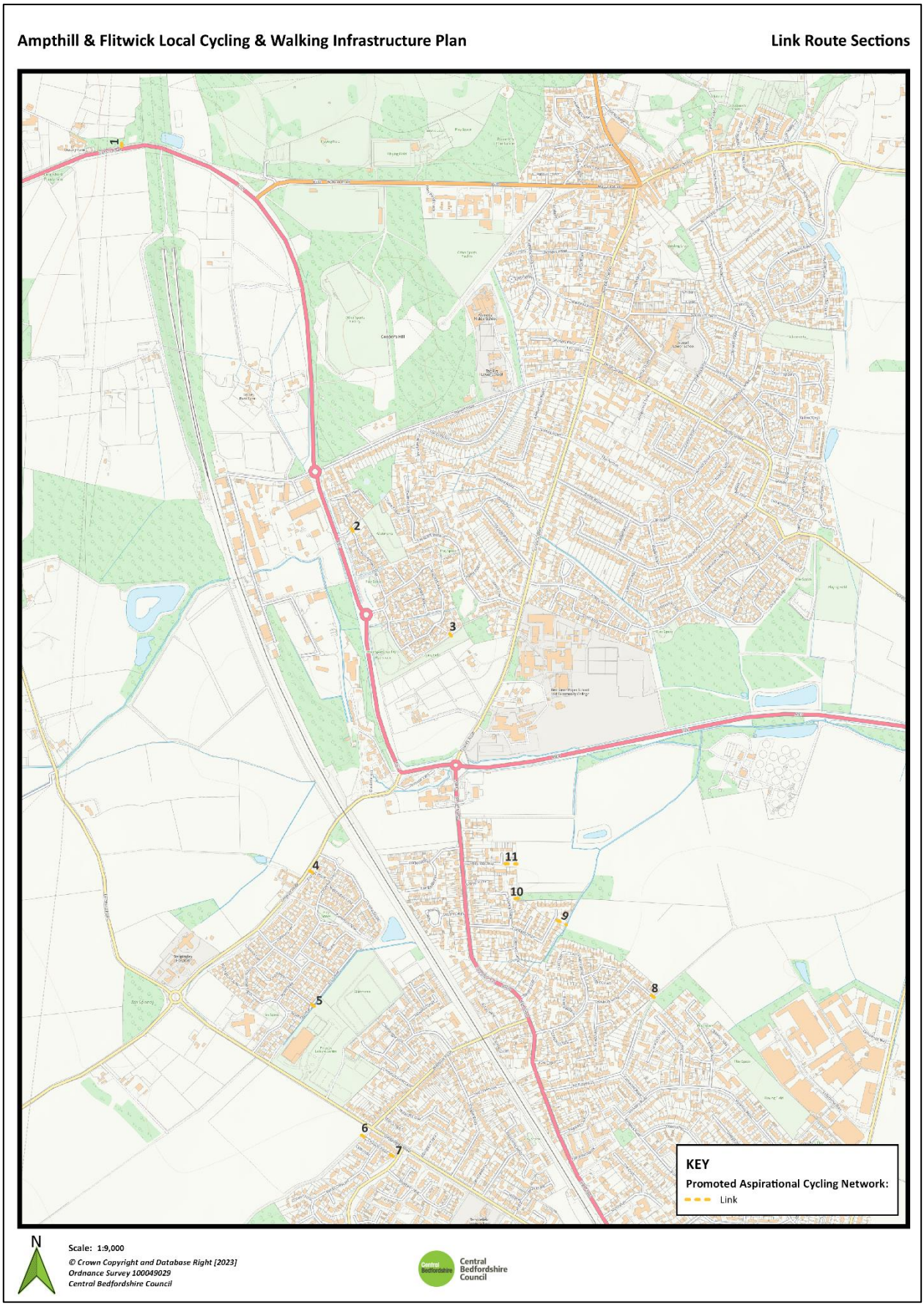

Figure 26: New links to improve permeability between residential areas and the cycle network

Table 9: Route information for links to improve permeability.

No.	Route Name	Parish
1	A507/FP8 Link	Millbrook
2	Rye Field/Nottingham Close Link	Ampthill
3	FPA10/FP20 Link	Ampthill
4	Brunel Place/Froghall Road Link	Flitwick
5	Leisure Centre/Austen Avenue Link	Flitwick
6	Chaucer Road/BW1 Link	Flitwick
7	Chaucer Road/Manor Way Link	Flitwick
8	Salisbury Road/BW2 Link	Flitwick
9	Trafalgar Drive Link	Flitwick
10	Naseby Place Link	Flitwick
11	Chauntry Way Link	Flitwick

6. Delivering the Network

6.1 Summary

6.1.1 The length of the proposed Ampthill and Flitwick network is 65.5km of which 55.5% is off-road. The blueprint has 283 individual route elements and sections.

6.1.2 Delivering the agreed network blueprint for Ampthill and Flitwick will involve the implementation of a range of improvement schemes. These will vary in relation to the nature of the provision, particularly whether sections are on or off-road.

6.1.3 Whilst many schemes are primarily designed to provide routes that are accessible to cyclists, the nature of provision, such as speed reduction, traffic restraint and upgraded crossings will also protect and advantage pedestrians.

6.2 Designing for Pedestrians

6.2.1 Whilst the network blueprint has been designed to meet the needs of cyclists, specifically regular and purposeful journeys to and from local destinations such as shops and schools, all routes will be realised with the needs of pedestrians' forefront as people on foot are anticipated be the predominant user.

6.2.2 For this reason, every location where a road crossing is required, including those involving side roads and accesses, has been highlighted. Each of these locations will need a suitable treatment to afford greater protection to pedestrians in accord with the Highway Code, revised in 2022[11] to include Rule H2 which states that at junctions, drivers should *give way to pedestrians crossing or waiting to cross a road into which they are turning* and in regard to zebra and parallel crossings, *drivers, motorcyclists, and cyclists must give way to pedestrians waiting to cross.*

6.2.3 The provision of new links within the wider network are also designed with pedestrians in mind and go some way to addressing the issues caused by past planning decisions that have focused on accessibility to cars above other modes, often resulting in built up areas featuring a succession of single-entry cul-de-sacs that lack any pedestrian connectivity.

6.2.4 For pedestrians, the main consideration is to remove barriers to movement and to improve comfort, safety and convenience with the focus on locations where people on foot conflict with other road users, such as at road crossings.

6.2.5 Table 10 overleaf provides a list of the most common interventions and improvements to be delivered both as individual improvement schemes and as part of wider, scheduled programmes of maintenance work. This includes cyclical works known as 'structural maintenance' where the authority invests each year in resurfacing lengths of its footway network in each town and village based on assessments of its condition.

6.2.6 The programme of improvements will be informed, and over time will consider all the locations flagged and accepted as problematic for pedestrians through the Commonplace engagement platform.

6.2.7 Details of locations that respondents to the Commonplace engagement consider problematic to pedestrians are shown in map form in Appendix 5 of this report, along with locations where potential improvements could be made.

Table 10: Interventions designed to improve the quality of the pedestrian public realm

Route Type	Measures and Interventions
On-road	'Tightening up' junctions, which are often too widely splayed by changing the kerb line as this helps control vehicle entry/exit speeds and minimises the width of carriageway pedestrians must cross. Provision of dropped kerbs and tactile paving where these are missing, and moving crossings points to better accommodate the 'desire line'. Provision of central refuges and islands, where these are appropriate.
	Introduction of traffic restraints and pedestrian-priority areas, and improved public realm as part of wider council-supported and promoted initiatives, including Play Streets, School Streets and School Safety Zones.
	Introduction of shared space where this affords a significant pedestrian benefit, targeting roads and streets that have high pedestrian flows, and where existing footways are narrow or non-existent, and there is limited opportunity to reallocate carriageway space.
	Measures to reduce and control vehicle speeds in line with legal limits, including raised tables, particularly where these make it safer for people crossing the carriageway.
Off-road footways and footpaths	Widening and improving the surface of paths, removing or supressing adjacent vegetation, improving lighting and drainage.
Off-road footways and footpaths Crossing of a main carriageway, a side road, or a premises access	Moving part or all of an existing footpath onto a new, more advantageous alignment and upgrading in terms of width, surface, drainage and lighting.
	Removal of barriers and other obstructions, such as poorly positioned street furniture. Treating trip hazards such as loose service covers, kerbs etc.
	Creating of a new section of footway or a new footpath where no previous path (or legal rights of access) existed and providing or formalising short 'punch through' to improve pedestrian permeability and link residential areas to wider routes.
	Addressing inconsiderate and obstructive parking and other hazards.
	Providing new, or revising existing, carriageway crossings to improve safety.
Crossing of a main carriageway, a side road, or a premises access Enabling infrastructure	Altering side roads and site / premises access to afford unambiguous priority to pedestrian movements.
	Installing or upgrading structures such as bridges, ramps and steps and benches. Installing wayfinding signage.

[11] The Highway Code

6.3 Designing for Cyclists – On Road

6.3.1 Interventions available to deliver high-quality infrastructure for cyclists for each section of route that is on-road are listed in Table 11 below. Their application will vary depending upon the characteristics of each road or street.

6.3.2 Schemes are subject to design checks and approvals and are required to satisfy independent road safety audit and statutory consultative processes.

Table 11: On-road sections – example interventions

Scheme	Measures and Interventions
Accommodating cyclists within the carriageway	Improvements to be designed and installed on roads that host a section of cycle route include: • 20mph speed limit, as standard[12]. • Appropriate traffic calming measures / features where data shows average traffic speeds to be greater than 20mph, and 85th percentile speeds to be greater than 24mph. • Junction entry treatments to control traffic speeds, with the added benefit of reducing pedestrian crossing distances. • Consideration to the use of distinctive surface treatments. • Installation of regulatory and directional signage. Other measures to be considered as part of a scheme of works include: • Alterations to parking layouts and waiting restrictions. • Installation of cycle symbols and advisory cycle lanes where these are of value, with removal of any centre lines where appropriate[13] • Introduction of cycle contraflows on one-way roads where this is feasible and beneficial. • 'Home zone' (shared space) treatments on roads where pedestrian flows are high and/or where the opportunity to improve provision for pedestrians in addition to cyclists, such as widening footways, is restricted. • 'Quiet Lane' status and treatment for rural roads and lanes • Introduction of restrictions on traffic generally or specifically relating to the school-run period. • Other traffic management measures that serve to provide cyclists with a safe and comfortable cycling environment including consideration of, and consultation on, the modal filters.

[12] May be part of a wider geographic scheme, such as a 20mph zone. Any change to a speed limit is subject to assessment as set out in the authority's Speed Management Strategy.

[13] Where the speed limit is 20mph the use of advisory cycle lane markings will not be recommended. This includes cycle contraflow arrangements, unless recommended by Road Safety Audit and accepted by the scheme designer. Cycle symbols will be used to guide cyclists at locations where they join and leave a route and not repeated at intervals along its length.

6.4 Designing for Cyclists – Junctions

6.4.1 Road junctions are recognised as posing the greatest risk of collisions to all road users and require close attention to ensure they are safe for cyclists and pedestrians.

6.4.2 Each junction on the network, as identified in Figure 22, will be subject to assessment using Active Travel England's promoted Junction Assessment Tool[14]. The assessment considers all permitted cycle movements through a junction and determines a traffic light rating for each. Through design, junctions on the cycle network will be improved to eliminate 'red flag' issues and where reasonable, to convert 'amber' flags to green.

6.4.3 A description of common interventions to improve cyclist safety at junctions, when travelling on-road routes, is provided in Table 12.

6.4.4 Over time the approach will be applied to all junctions on the highways network, not just those on the designated cycle network. In this regard, safety is vital, but cyclists should be able to negotiate all junctions in comfort without undue delay or deviation.

Table 12: Junctions – example interventions

Scheme	Measures and Interventions
Junction safety improvements	Measures will vary depending upon the nature and complexity of each individual junction.
	For **simple 'T' junctions**, a key scheme intervention will be to reduce the speed of traffic on the approach to the junction and to improve intervisibility, for example by removing vegetation and preventing obstructive parking. For selected junctions, road markings may be removed following a Road Safety Audit, as this has been demonstrated to reduce speeds and make drivers more cautious.
	For **mini roundabouts**, a key scheme intervention will be to use geometric features to control the speed of traffic on the approach to the junction. Also, to direct and position cyclists to 'take the lane', ensuring their presence is visible to other traffic and stopping vehicles from inappropriate overtaking.
	For **larger roundabouts,** the most common intervention will be to separate cyclists from other traffic streams, for example by providing bypass lanes.
	For junctions under **signal control**, a bespoke design will be required with consideration given to exempting cyclists from turning movements that are banned for other vehicles alongside opportunities to detect and provide cyclists with an 'advance start', effectively a 'jump', on other traffic.

[14] For detail see Appendix B of Local Transport Note 1/20.

6.5 Designing for Cyclists – Adjacent to Carriageway Cycle Tracks/Shared Paths

6.5.1 Where space within the existing highway allows, a cycle track segregated from the carriageway will be progressed, with 3m the default minimum width. The ideal under LTN1/20 design guidance is to have 2m-wide uni-directional cycle tracks on both side of the road[15]. This is the 'gold standard' on new roads constructed as part of new developments and designed in accordance with the Council's Planning Design Guide and Highways Construction Standards and Specifications Guidance[16].

6.5.2 On existing roads, providing a 3m wide path to accommodate cyclists will be achieved by widening an existing section of footway. Encroaching into the verge or changing the kerb line to create additional space may also be necessary. In sections, it may be necessary to encroach into adjacent land, bringing this into the highway.

6.5.3 In rare instances, where there is 5m of available width, it will be possible to provide cyclists with dedicated facilities segregated from the adjacent footway. Where this is not possible, the default will be to provide a shared use path that utilises the available width. Most such paths will be bi-directional.

6.5.4 Consideration will be given as to the use of colour surfacing for paths that are shared use or, with the inclusion of centre lines, for path designed as cycle tracks, The distinction will be determined by the scheme designer with consideration to the balance of usage.

6.5.5 On some route sections it will be necessary to reposition street furniture such as lighting columns, telegraph poles, electrical cabinets, and on occasion, bus shelters[17].

6.5.6 Taking space from within the carriageway to provide a cycle track will result in a loss of potential kerb space for parking, or its displacement. In some streets this will be problematic for residents, especially on roads where they have become accustomed to parking on-street. However, it may be the only feasible option to avoid gaps in network provision.

6.5.7 On rare occasions, trees other landscaping and drainage features such as ditches and culverts may be affected by a scheme. As is the case in new developments, this may require a planning approval or other consents, such as from the Environment Agency or Internal Drainage Board. In the case of trees and hedgerows, the rule would be that any loss would be mitigated through the planting of suitably mature replacements such that the overall impact offers an ecological and biodiversity net gain.

6.5.8 A description of common components of schemes that provide cycle infrastructure adjacent to the carriageway is provided in Table 13.

[15] There will be situations where provision of 2m cycle tracks on both sides of a new section of carriageway is infeasible due to insufficient space. Also, consideration will need to be given to the expected number of cyclists as the 'gold standard' is most applicable to cities and larger towns.

[16] Central Bedfordshire's Highways Construction Standards and Specifications Guidance.

[17] On occasion the cost to divert underground utility services may be too prohibitive to allow furniture to be moved.

Table 13: Adjacent to carriageway cycle tracks/shared paths – example interventions

Scheme	Measures and Interventions
Upgrading a section of footway or verge alongside the road to a cycle track or shared-use path	Requisite improvements to be designed and installed for each cycle track scheme to include: • Widening an existing section of footway into an adjacent verge, or by extending out into the carriageway by changing the kerb line, where there is sufficient width. This may also involve securing rights to extend the boundary of the highway across adjacent, privately-owned land, through agreement or compulsion. • Reducing, laying or where necessary and with permission, replanting hedgerows and other boundary vegetation where these features constrain the available width. • Adjusting the camber of a path and adding or adjusting features to ensure effective drainage. • Removing or modifying barriers and other forms of access control such as bollards. • Relocating or removing street furniture where these obstruct or constrain the width of a section of path / track, where this is reasonable and feasible. • Restrictions secured through a Traffic Regulation Order to stop people from parking on the path or cycle track. • Measures such as give-way lining and coloured surface treatments that make it clear that cyclists have priority where a path or track crosses the entrance to properties.

6.6 Designing for Cyclists – Off-Road Cycle Tracks / Shared Paths

6.6.1 For paths that are provided as part of new developments, the standard[18] is to provide cyclists with a 3m wide bi-directional cycle track separate from pedestrian facilities.

6.6.2 Where the network utilises existing paths, the default will be to widen to a minimum of 3m, or greater on sections where additional width is available. Also, where space is available, to provide a buffer strip adjacent to the path in locations where there is adjoining vegetation.

6.6.3 A description of common interventions to provide off-road paths suited to cyclists or for safe shared use, is provided in Table 14.

[18] Where cycle and pedestrian flows are low or very low a relaxation of the standard may be acceptable.

Table 14: Off-road cycle tracks/shared paths – example interventions

Scheme	Measures and Interventions
Upgrade an existing footpath to cycle track or shared use. This could be on its current alignment or involve moving a path onto a new alignment.	Secure the rights to create or extend paths that run across private land, through agreement ideally, or compulsion. Widen paths and upgrade the surface in line with standards. Install regulatory and directional signage. With agreement, remove, reduce, or replant hedgerows and other boundary vegetation where these features constrain the available width or create issues, for example due to thorns. Adjust the camber of paths and add /adjust features to ensure effective drainage. Remove or modify fences, barriers and other forms of access control, such as bollards, where these constrain the available width or create an accessibility issue. Relocate or remove street furniture where these obstruct or constrain the width of a section of path, where this is reasonable and feasible.
Realignment of an existing footpath and upgrade to a cycle track	
Creation of a new section of cycle track where no previous path exists	Measures as above with securing a legal approval the first step.
Provision of short 'punch through' interconnecting link to provide network access	

6.7 Designing for Pedestrians and Cyclists – Crossings

6.7.1 Road crossings that are designed for cycle use are a vital element in the network, enabling cyclists to safely cross carriageways that present a hazardous or impenetrable barrier. Such crossings may be 'uncontrolled' or 'controlled'. The two most common example of controlled crossings for cyclists are Toucans, where the crossing is controlled by a push button signal arrangement and Cycle Zebras, where cyclists have a lane adjacent to the striped pedestrian section.

6.7.2 Side road crossings are another feature of the network and require consideration whenever the continuity of a route is punctuated by side roads and accesses to premises. Previously, the standard design approach would assume cyclists and pedestrians would stop and cede priority to traffic entering and existing a side road. However, this priority has been explicitly reversed by recent changes to the Highway Code. Measures that help reinforce the change in priority to people crossing a side road offer substantial safety and convenience benefits.

6.7.3 Table 15 includes some of the considerations as to the appropriate design for the various crossing locations identified within the network.

Table 15: Crossings – example interventions

Scheme	Measures and Interventions
Provision of new/ revision of existing carriageway crossing to afford priority to pedestrian and cycle movements	For carriageway crossings, Figure 27 below, reproduces the guidance in LTN 1/20 on how locations should be assessed. The accompanying text stresses the benefits from reducing traffic speeds as this brings more design options into play. A key consideration is to install crossings on a raised table as this has added safety benefits. Also, to look at dividing crossings into stages using refuges to improve safety.
Alterations to side roads and premises accesses to afford unambiguous priority to pedestrian and cycle movements	For accesses, the default position will be to remove any dropped kerbs or tactile paving such that the footway has clear priority. This may be reinformed by lining and surface treatments. For side roads, the standard treatment will be to raise and continue the footway so that it extends across the junction, unless there are strong engineering reasons not to. Such reasons may be safety-related or the impact on road drainage. The presence of underground services may also be a consideration. An alternative approach, though requiring a special permission from the Department for Transport, will be the use of side road zebra crossings, which are common in the continent.

Speed Limit	Total traffic flow to be crossed (pcu)	Maximum number of lanes to be crossed in one movement	Uncontrolled	Cycle Priority	Parallel	Signal	Grade separated
≥ 60mph	Any	Any					
40 mph and 50 mph	> 10000	Any					
	6000 to 10000	2 or more					
	0-6000	2					
	0-10000	1					
≤ 30mph	> 8000	> 2					
	> 8000	2					
	4000-8000	2					
	0-4000	2					
	0-4000	1					

Provision suitable for most people

Provision not suitable for all people and will exclude some potential users and/or have safety concerns

Provision suitable for few people and will exclude most potential users and/or have safety concerns

Notes:
1. If the actual 85th percentile speed is more than 10% above the speed limit the next highest speed limit should be applied
2. The recommended provision assumes that the peak hour motor traffic flow is no more than 10% of the 24 hour flow

Figure 27: Crossing design suitability matrix
Source: LTN 1/20

6.8 Designing for Pedestrians & Cyclists – Enabling and Supporting Infrastructure

6.8.1 During the network design process, various types of enabling and supporting infrastructure were identified. These are listed in Table 16.

Table 16: Categories of enabling and supporting infrastructure

Type	Measures and Interventions
Major structures such as bridges	All of the LCWIPs will require provision, or modification to large bridge structures. Within Ampthill and Flitwick, this includes upgrading the existing stepped bridge over the Midland Main Line. Many bridges are not highway assets so works will not be within the Council's direct control.
Minor structures such as wheeling channels, ramps and guardrail	On occasion, paths and structures may need to be fitted with ramps or wheeling channels to allow for cyclists use. Where guardrail is fitted for safety reasons, this will be in accord with the council's guidelines on this topic.
Cycle parking, cycle docks and e-bike charging facilities	Provision of secure cycle parking within the highway will be in accord with the Council's published guidelines on this topic. Where appropriate, parking will be fitted with charging facilities for e-bikes. Cycle docks for hire bikes will be assessed on a case-by-case basis.
Cycle repair stations	Cycle repair stations will be provided at leisure centres, rail stations, country parks and town centres, subject to landowner agreement.
Cycle hubs	Provision of cycle hubs at major rail stations and public transport interchanges will be promoted. Such facilities are at the discretion of the operator as the agency responsible for the hub's operation.
Cycle route monitoring equipment including detectors and counters	As part of investment in new and upgraded routes, automated count equipment will be provided, ideally of the type that can differentiate between pedestrians, cyclists, scooters, etc.
Network signage including wayfinding	All routes will be suitably signed as part of a wider signage strategy. Route information will also be made available on-line to facilitate the development and use of journey planning apps.
Lighting	Provision of appropriate street lighting will be considered on all routes including those connecting to adjacent settlements, where in this case the type of lighting will reflect the characteristics of the route, including ecological concerns such as bat foraging. With regard to lighting design, highway standard columns will most often be appropriate for off-carriageway routes and offer a good degree of personal security. Energy consumption and impact on wildlife can be reduced if the lighting is switched off between midnight and 5am when usage is low. Lighting can also be operated by detectors that are triggered by the presence of cyclists and pedestrians. Low level lighting on bollards or solar LED studs can also be used and will offer some improvement in social safety but these should not be placed on paths that are shaded by a tree canopy.

6.9 Delivering for Pedestrians and Cyclists – Maintenance

6.9.1 Poorly maintained cycle and pedestrian surfaces are problematic and unattractive to users. Defects and hazards such as potholes, debris, fallen leaves, encroaching vegetation, poor drainage or snow and ice can all increase the likelihood of a collision or fall.

6.9.2 The maintenance regime for footways, footpaths and cycle tracks is set out in the Council's Network Management & Maintenance Plan as most routes form part of the highway and are therefore included within the highway maintenance regimes for cleaning and repair.

6.9.3 For off-road paths, routine maintenance that includes regular sweeping is important to ensure routes remain safe, comfortable, and attractive to users at all times of the year. Regular, rather than reactive maintenance is a more sustainable approach. It ensures the usable width of a path is protected. Left unchecked, the edges of a path can progressively disappear into the verge. This can result in a costly repair or the need for reconstruction.

6.9.4 LTN guidance on what maintenance programmes should cover for off-road routes is below.

Issue	Activity	Notes	Frequency	Time of year
Cycle track surface	Winter maintenance	Consider importance as utility route	As necessary	Winter
	Inspection	Staff undertaking maintenance works can also carry out site inspections (but not structures – see below) to avoid need for extra visits	Every time site visited. Minimum of 4 visits per year.	Early spring, mid summer, early and late autumn (before and after leaf fall)
	Repairs to potholes etc.	Reactive maintenance in response to calls from public, plus programmed inspections	As necessary	n/a
	Sweeping to clear leaf litter and debris	Combine with other activities if possible	Site specific	n/a
	Cut back encroaching vegetation on verges		Once a year	November, and when sweeping takes place.
	Programmed maintenance, such as resurfacing	The need for remedial work will depend on the condition of the cycle track. Unbound surfaces may require more frequent maintenance.	As necessary	n/a
Drainage	Clear gullies and drainage channels etc.		Twice a year	April, November
Vegetation	Verges – mow, flail or strim	To include forward and junction visibility splays	n/a	May, July and September
	Grassed amenity areas	Include with verge maintenance	n/a	n/a
	Control of ragwort, thistles and docks etc.	See Weeds Act 1959 and Wildlife and Countryside Act 1981. Hand pull, cut or spot treat as necessary.	Before seeding	July or as appropriate
	Cut back trees and herbaceous shrubs	If necessary, allow for annual inspection of trees depending on number, type and condition	As necessary	July
Signs	Repair/replace/clean as necessary	Maintenance will largely depend on levels of local vandalism	n/a	n/a
Access barriers	Repair/replace as necessary	Maintenance will largely depend on levels of local vandalism	n/a	n/a
Fences	Repair/replace as necessary	Dependent on licence arrangements with landowner	n/a	n/a
Structures, including culverts	Inspections	Carried out by suitably qualified staff	Visual inspection every 2 years and detailed structural inspection every 6 years	n/a
Seating sculptures etc.	Maintain or repair	If present	n/a	n/a
Other	Varies	Scheme-specific issues such as Sites of Special Scientific Interest, interpretation and information measures, disability access etc.	n/a	n/a

Figure 28: Maintenance interventions for off-road routes
Source: LTN 1/20

6.10 Area-Based Delivery

6.10.1 The Ampthill and Flitwick cycling network blueprint, alongside improvements to pedestrian information, will be delivered through a phased 'area-based' approach. This will enable the development of cohesive parts of the wider network by connecting schemes together and allows working across both towns.

6.10.2 Details of the implementation approach, including how investment is allocated, will be set out in issue 4 of the Council's Local Transport Plan. This Plan is currently being updated in response to changes in government that will have the effect of refocusing investment in local transport networks towards the achievement of quantified transport-related carbon (emissions) reductions in accord with targets set in law.

7. Ongoing Engagement & Review

7.1 Ongoing Engagement

7.1.1 Following adoption of the Ampthill & Flitwick LCWIP, the network will be published on the Council's online mapping system[19] for viewing and interrogation.

7.1.2 Once all LCWIPs are adopted, the whole network for Central Bedfordshire will be published as a standalone map on the Commonplace platform. This will allow users to continue dropping pins and leaving feedback on the network, highlighting issues and opportunities.

7.2 Review

7.2.1 The Ampthill & Flitwick LCWIP will be reviewed within three years from the date of adoption and where appropriate the network map will be updated. The review provides the opportunity to:

- Review whether and where changes are needed to the network blueprint
- Review priorities and progress on delivering routes
- Consider and respond to feedback received.

[19] My Central Bedfordshire mapping system

Appendix 1: Relevant Strategies

Document	Components	Current Status
Central Bedfordshire Local Transport Plan (LTP Issue No. 3) including component strategies, supporting evidence and impact assessments	Transport Plan Document	LTP3 adopted in April 2011. LTP4 to be completed and published within a reasonable period on receipt of DfT LTP4 guidance
	Walking Strategy	Strategies adopted in April 2011. New versions will be published during the Autumn of 2023
	Cycling Strategy	
	Sustainable Modes of Travel to Schools Strategy	
	Freight Strategy	
	Bus Strategy	New strategies, to be drafted and published alongside LTP Strategy. Bus Strategy will build on the authority's Bus Service Improvement Plan adopted in February 2022
	Rail Strategy	
	Highway Demand and Capacity Strategy	New strategy, to be drafted and published alongside Transport Plan Document
	Electric Vehicle Charge Point Plan	Adopted in June 2021. New version to be published and adopted by the end of 2023.
	Future Shared Mobility Strategy	New strategy, to be drafted and published alongside Transport Plan Document
	Rights of Way Improvement Plan	Incorporated in the authority's outdoor Access Improvement Plan, adopted in 2013. New version will be subject to consultation in 2024.
	Parking Strategy	On-Street Parking Management Strategy adopted August 2022. Parking Standards for New Residential Development adopted August 2023.
	Local Area Transport Plans (11 in total)	These Plans will not be updated as part of LTP4
	Equalities Impact Assessment	New reports to be drafted and published alongside Transport Plan document
	Habitats Impact Assessment	

Document	Components	Current Status
	Strategic Environmental Assessment (including health Impact Assessment)	New reports to be drafted and published alongside Transport Plan document
	Engagement Report	
Sustainability Plan	Sustainability Plan	Plan adopted in September 2020. Updated version to be published in Autumn 2023.
	Sustainability Plan Annual Progress Reports	Published annually
Green Wheel Masterplans	Biggleswade Etonbury Potton Sandy	Masterplans in development include: Leighton Linslade Toddington Masterplans to be developed include: Marston Valley Dunstable & Houghton Regis

Appendix 2: Emerging Ampthill & Flitwick Green Wheel Masterplan Map

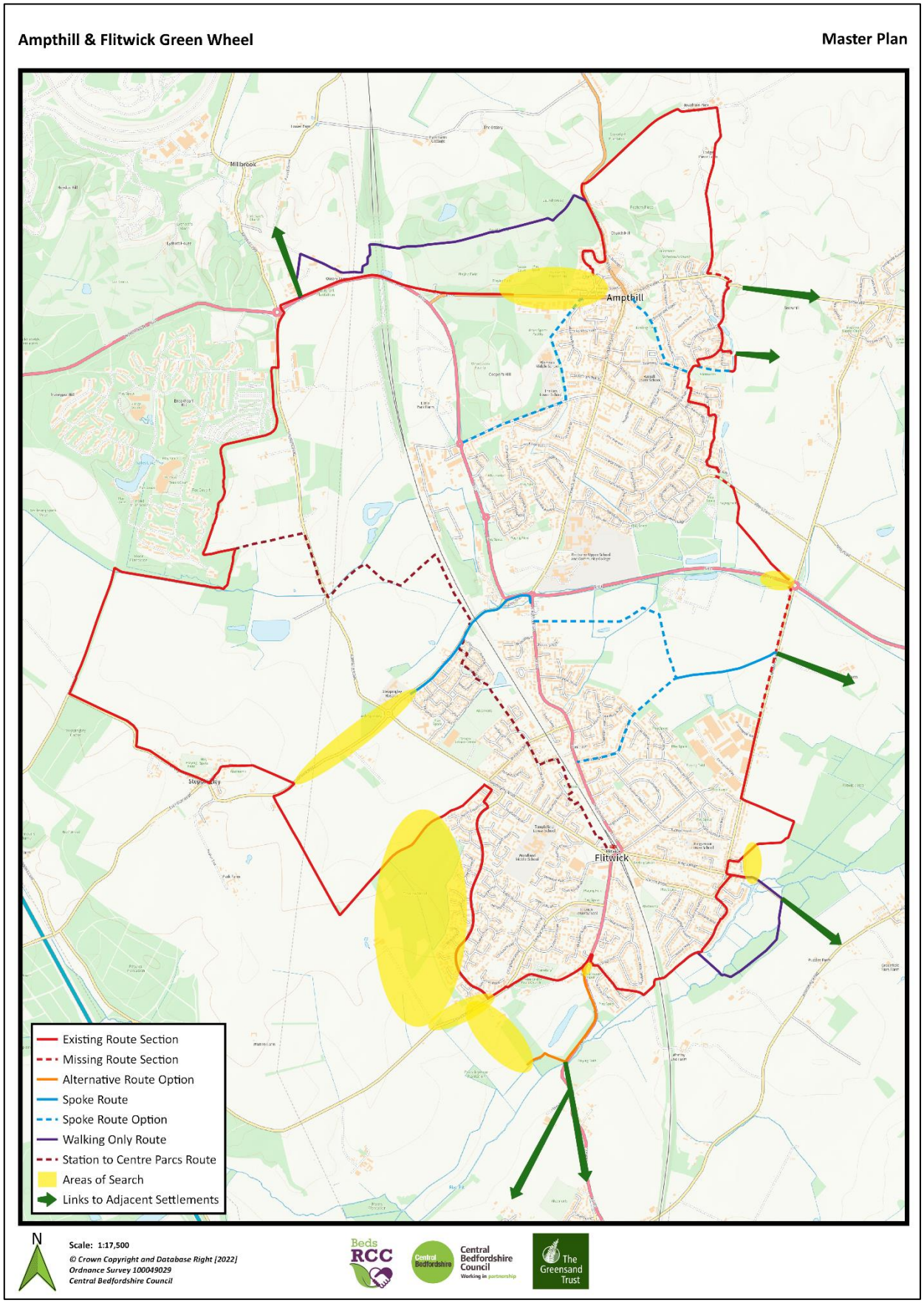

Figure 29: Emerging Green Wheel Masterplan for Ampthill & Flitwick

Appendix 3: 2009 Network Mapping

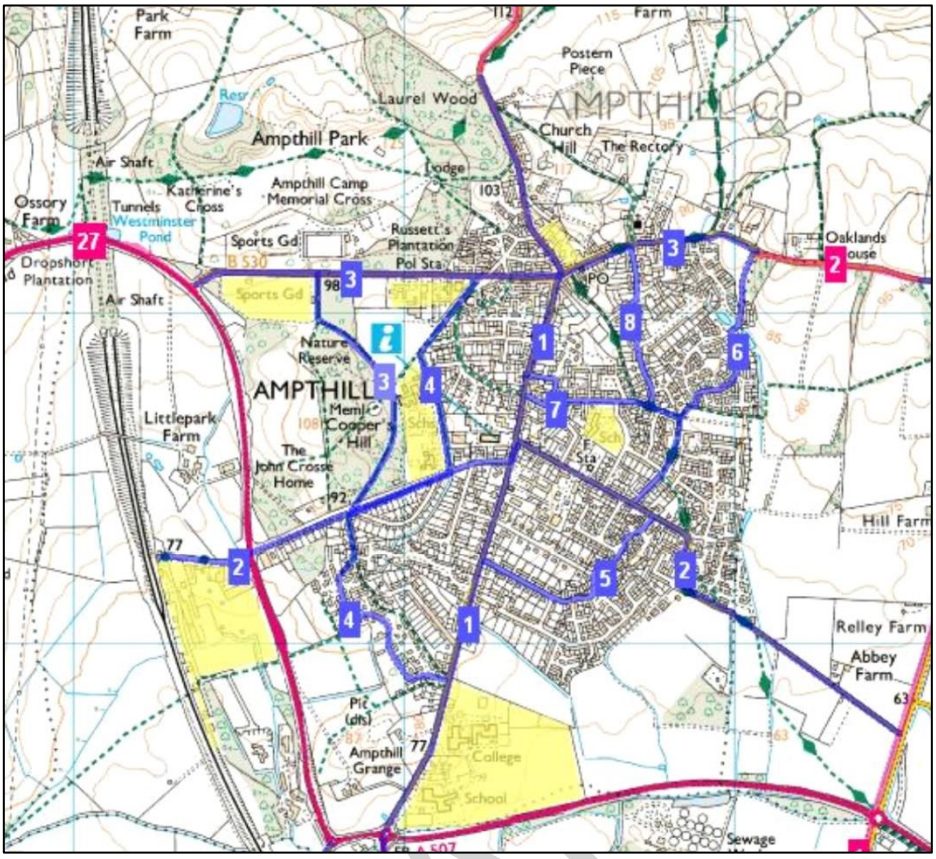

Figure 30: Proposed cycle network map for Ampthill (2009) with destinations shaded in yellow

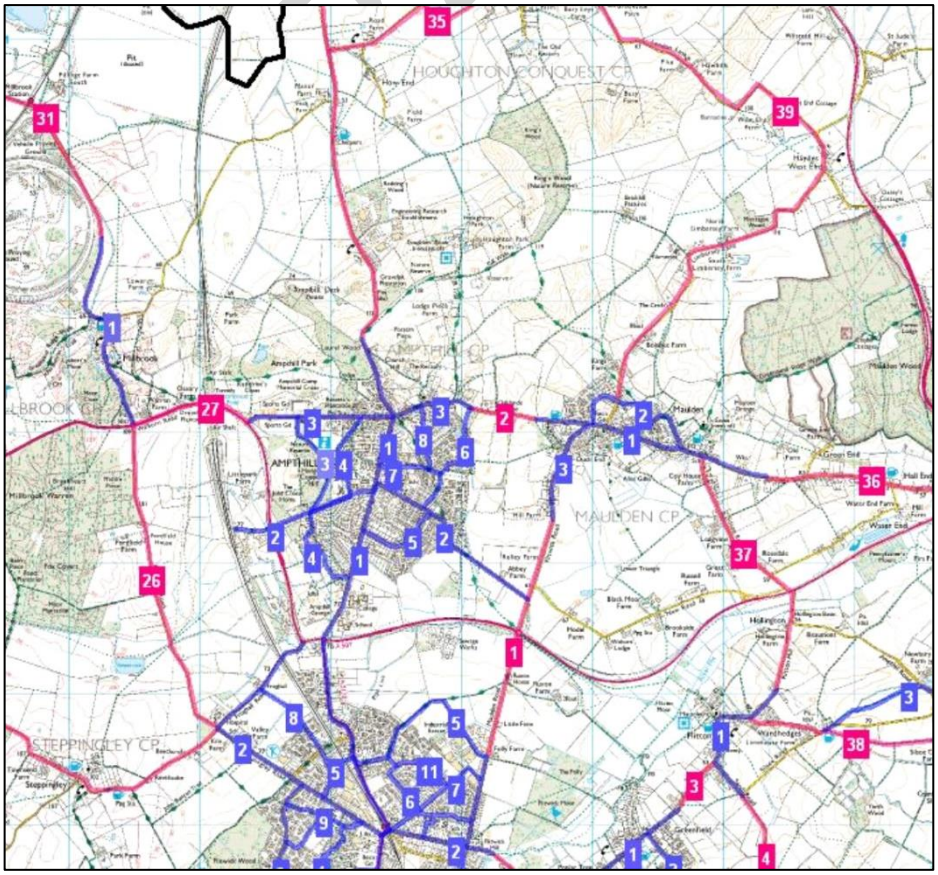

Figure 31: Proposed cycle network map for Ampthill (2009) with links to nearby settlements

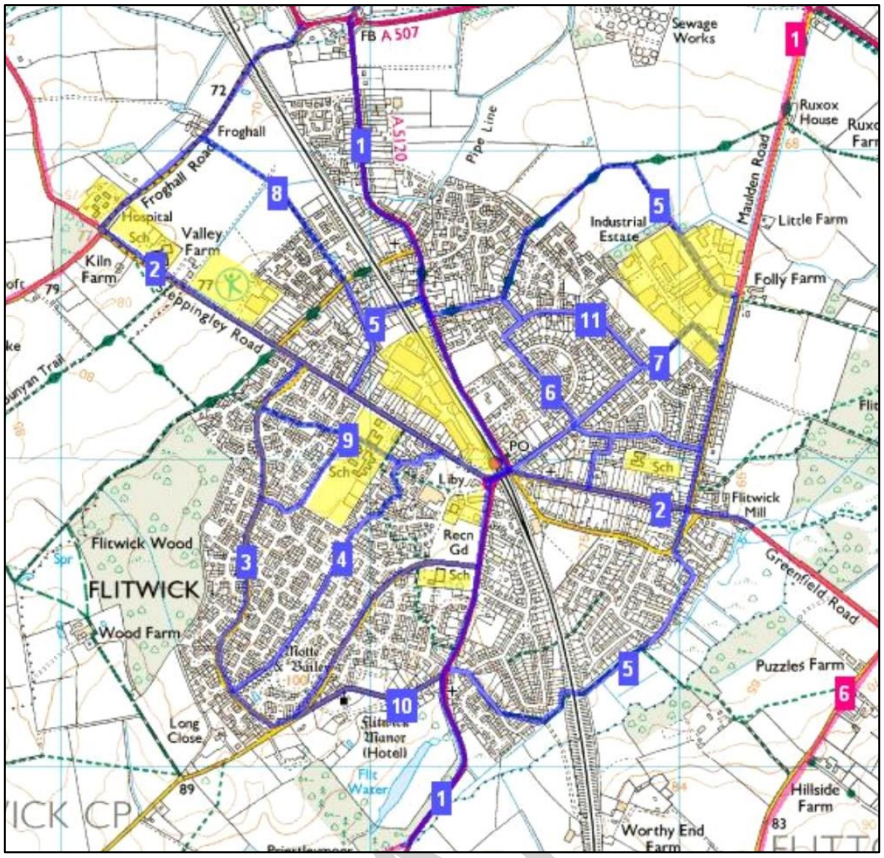

Figure 32: Proposed cycle network map for Flitwick (2009) with destinations shaded in yellow

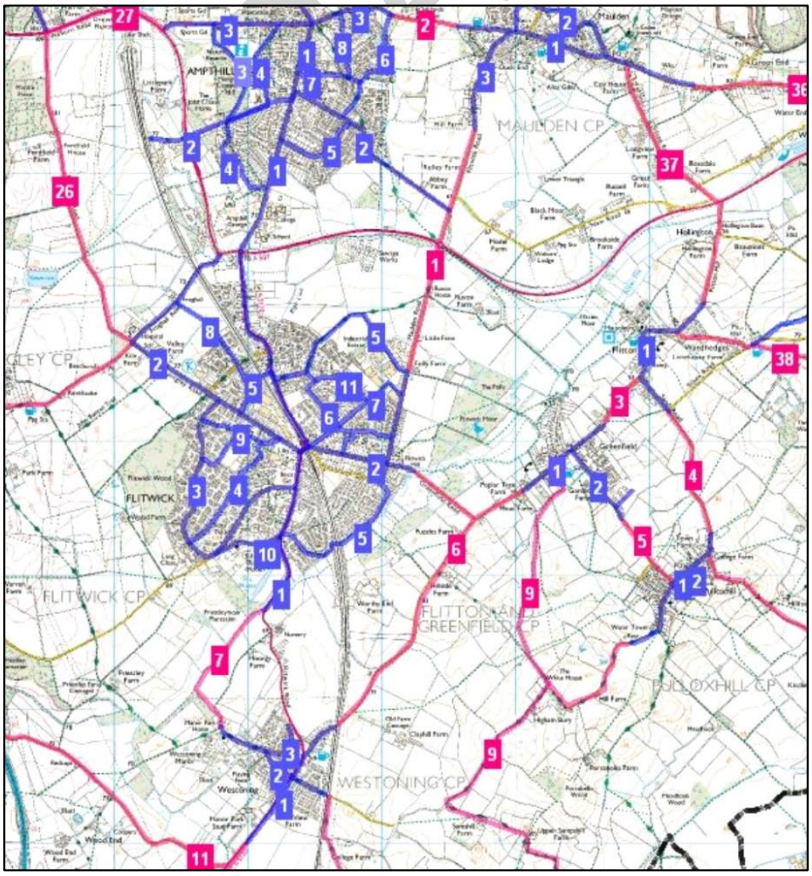

Figure 33: Proposed cycle network map for Flitwick (2009) with links to nearby settlements

Appendix 4: Travel Choices Map for Ampthill & Flitwick

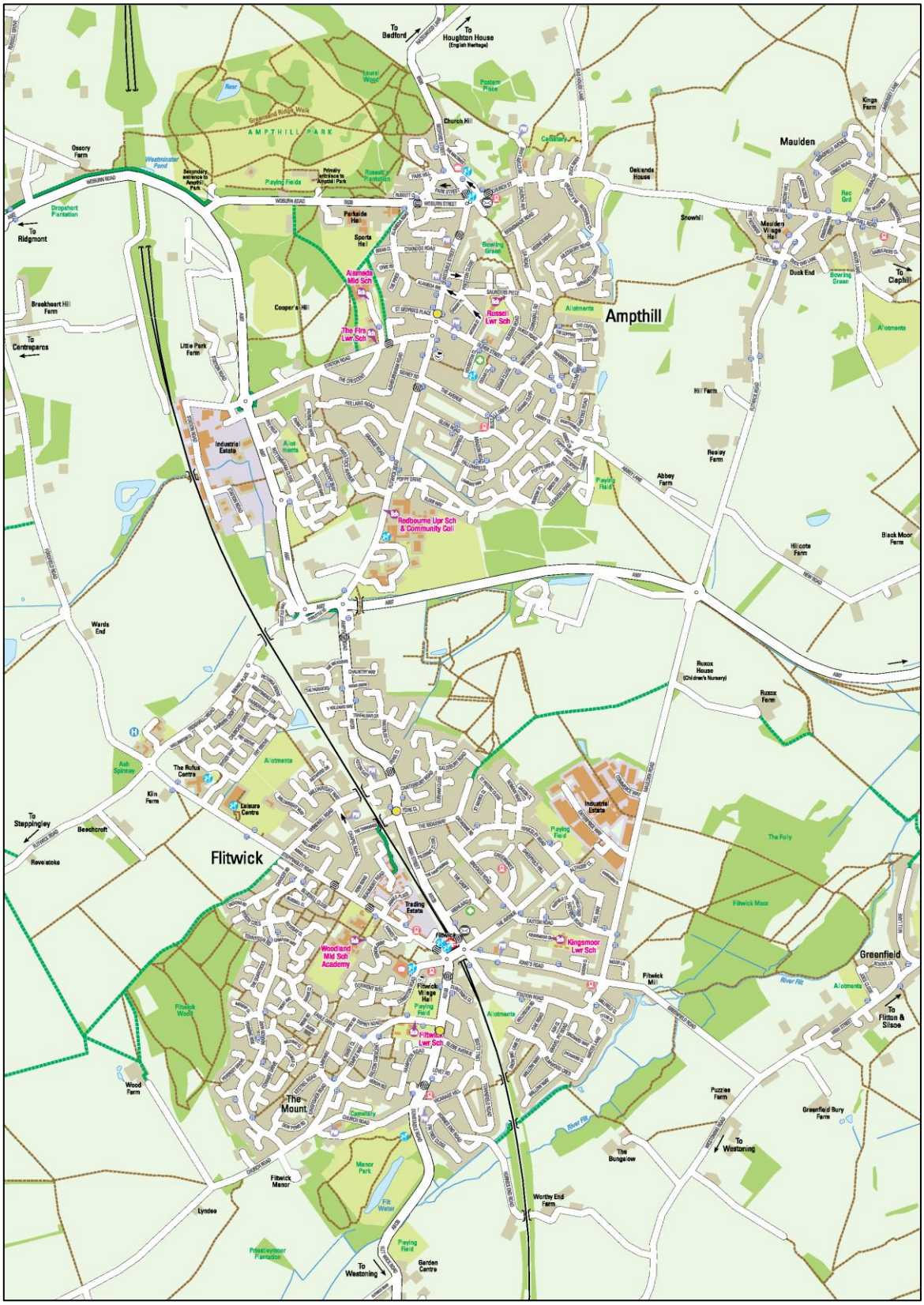

Figure 34: Proposed cycle network map for Ampthill & Flitwick (2015)

Appendix 5: Commonplace Feedback on Walking

The following maps (Figures 35-42) highlight those locations where respondents identified issues for pedestrians on roads and paths within Ampthill and Flitwick. Issues were in relation to:

- Air quality
- Parked cars on the footway
- Lack of direct walking route
- Narrow footway
- Feels unsafe
- Current speed limit
- Poor surfacing
- Traffic congestion

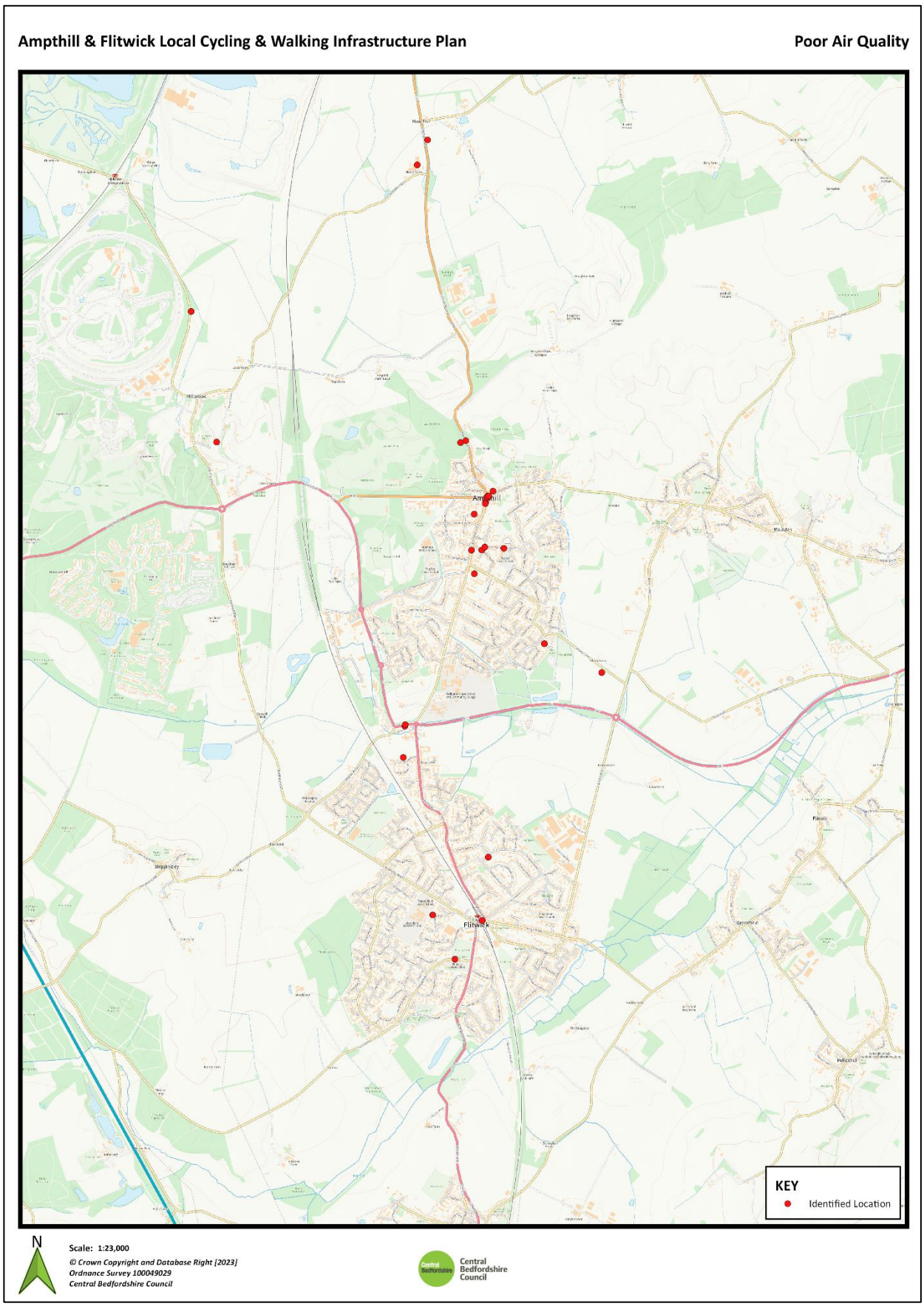

Figure 35: Locations where residents highlighted issues – Poor air quality

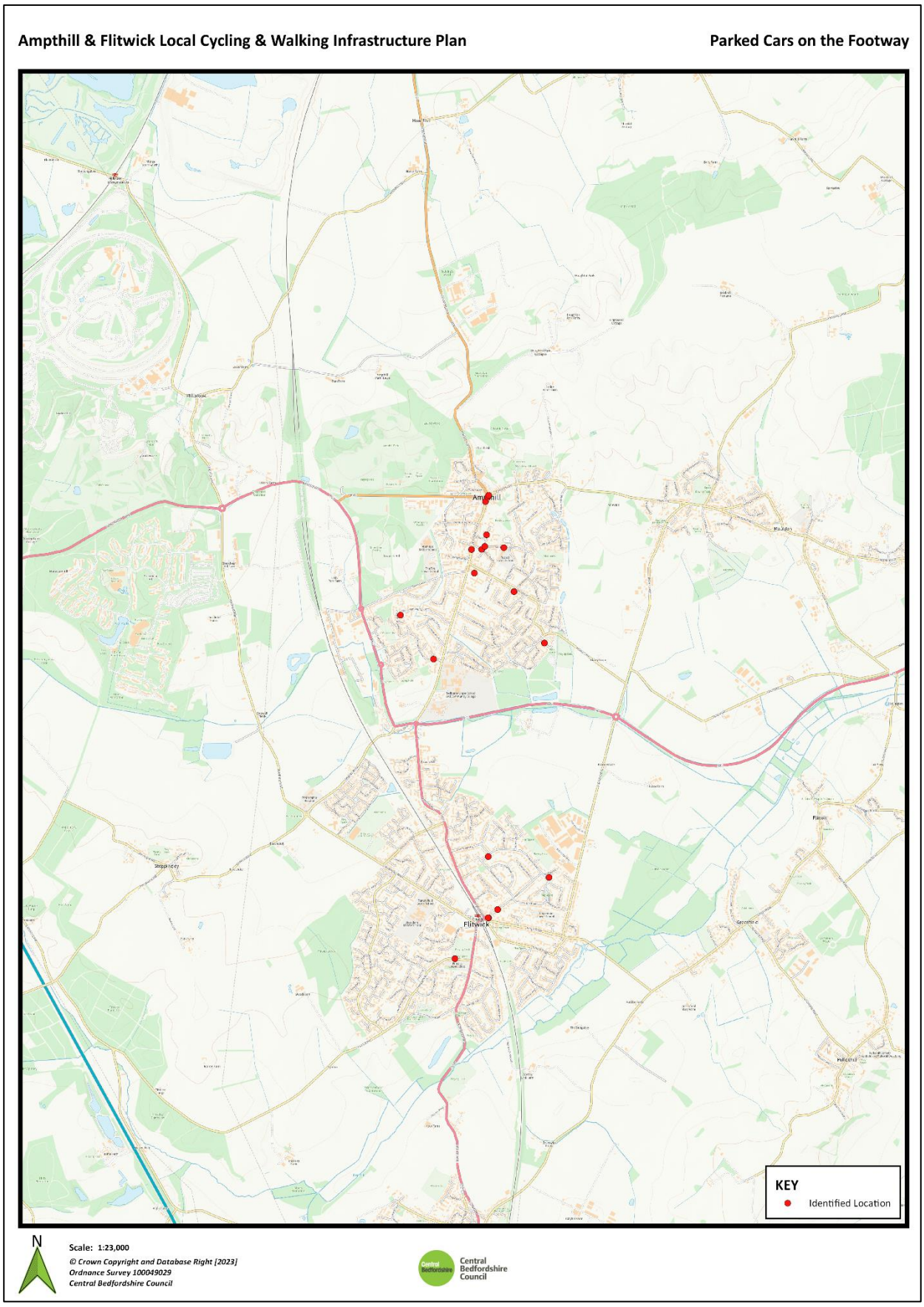

Figure 36: Locations where residents highlighted issues – Parked cars on the footway

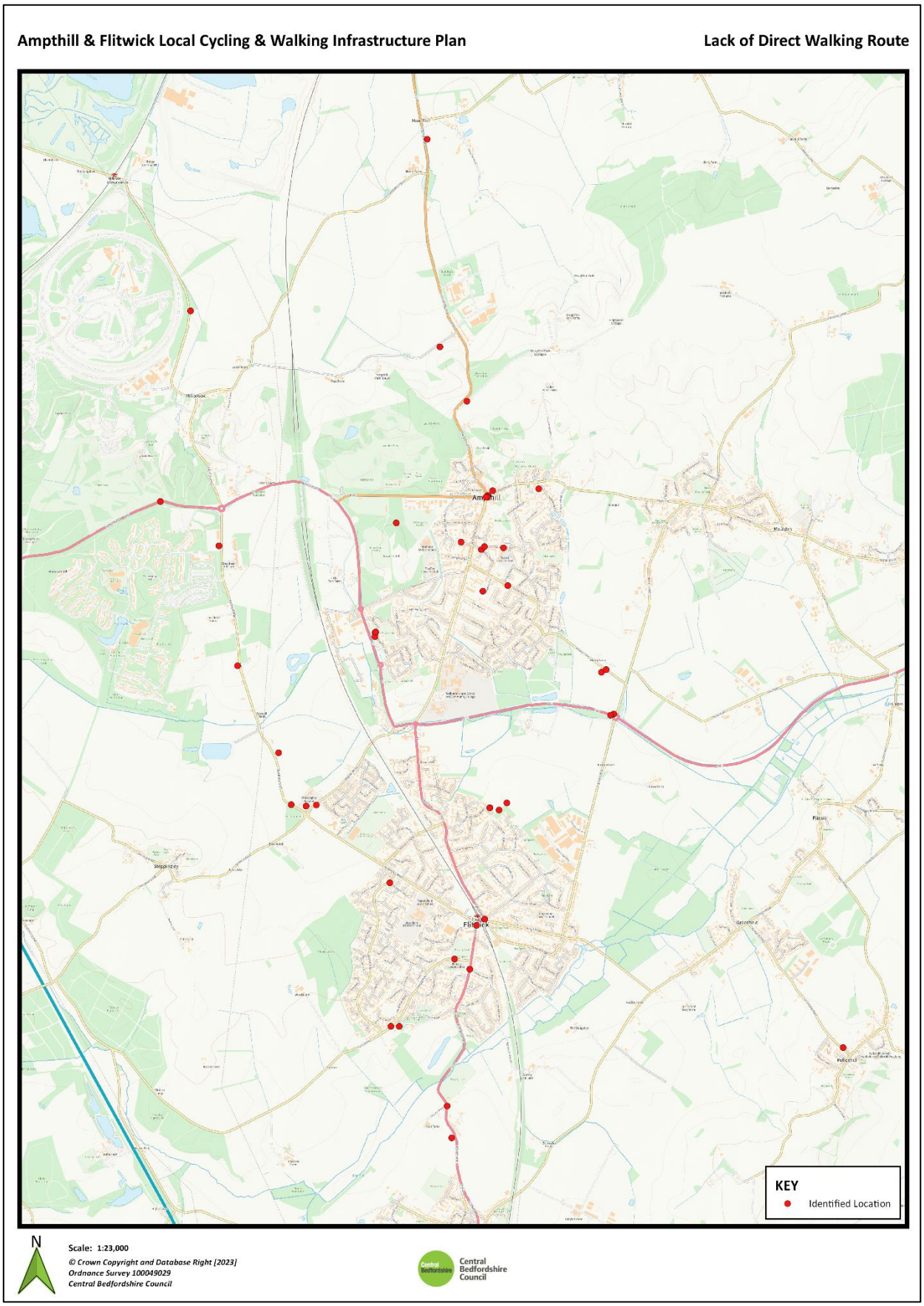

Figure 37: Locations where residents highlighted issues – Lack of direct walking route

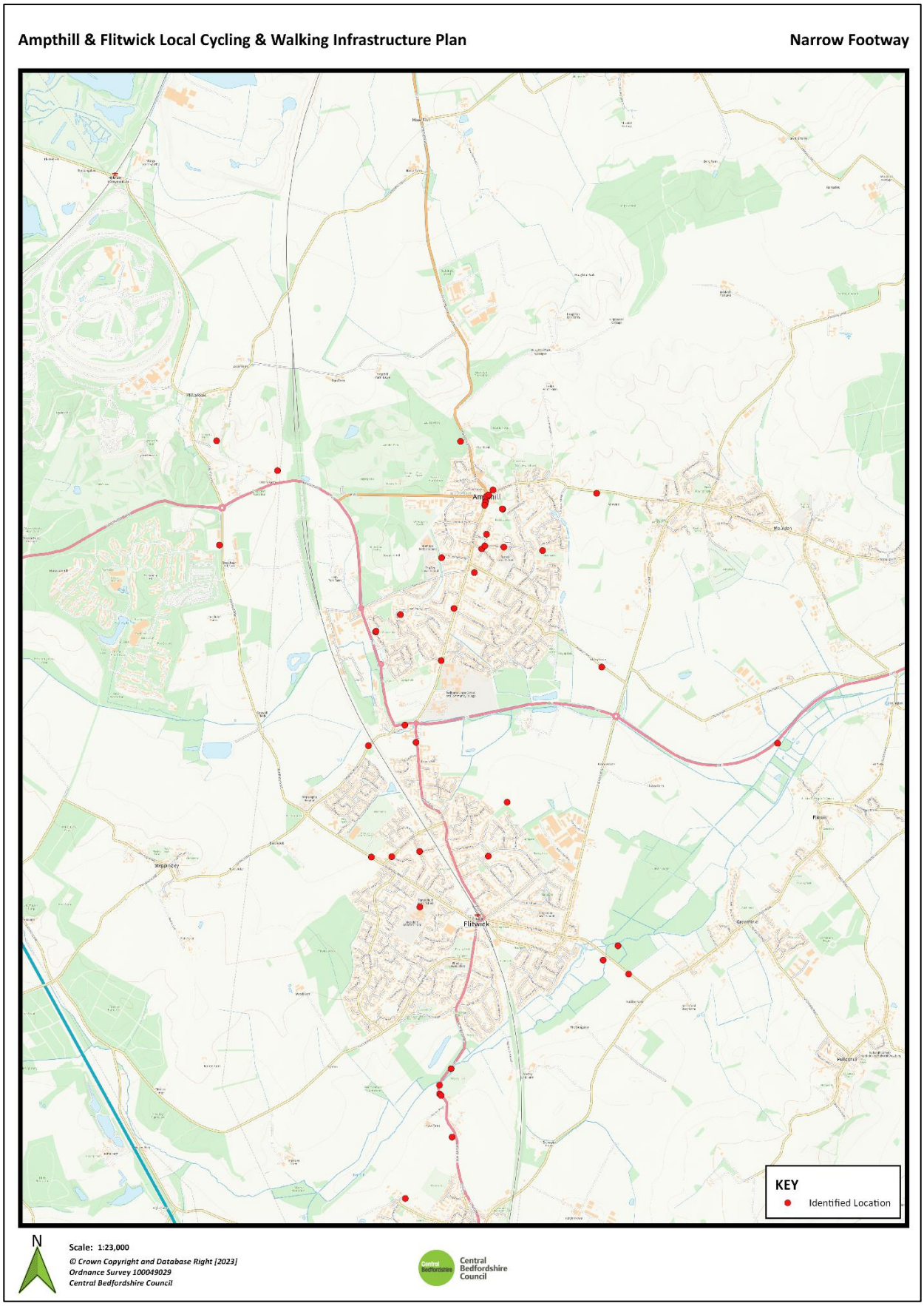

Figure 38: Locations where residents highlighted issues – Narrow footway

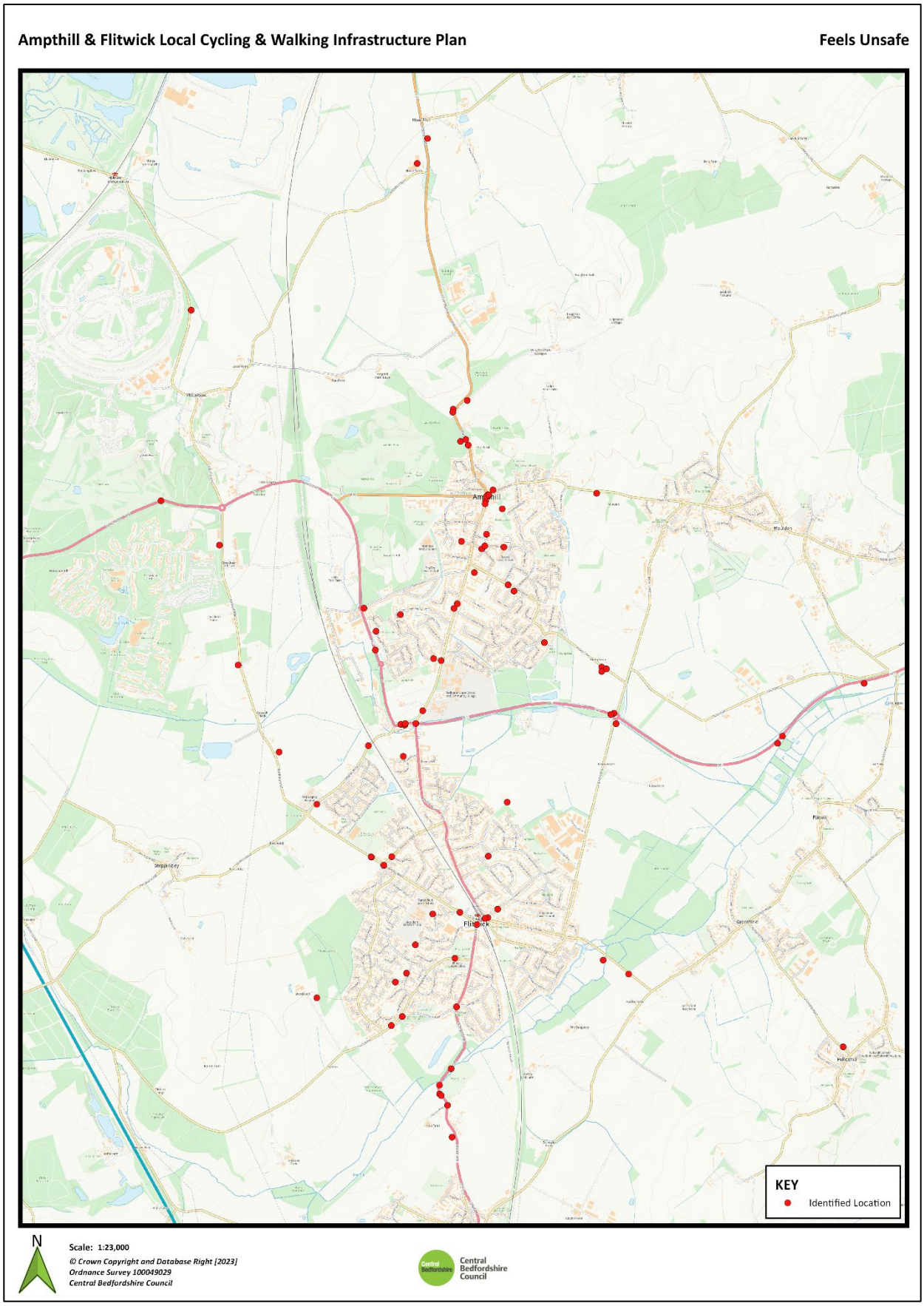

Figure 39: Locations where residents highlighted issues – Feels unsafe

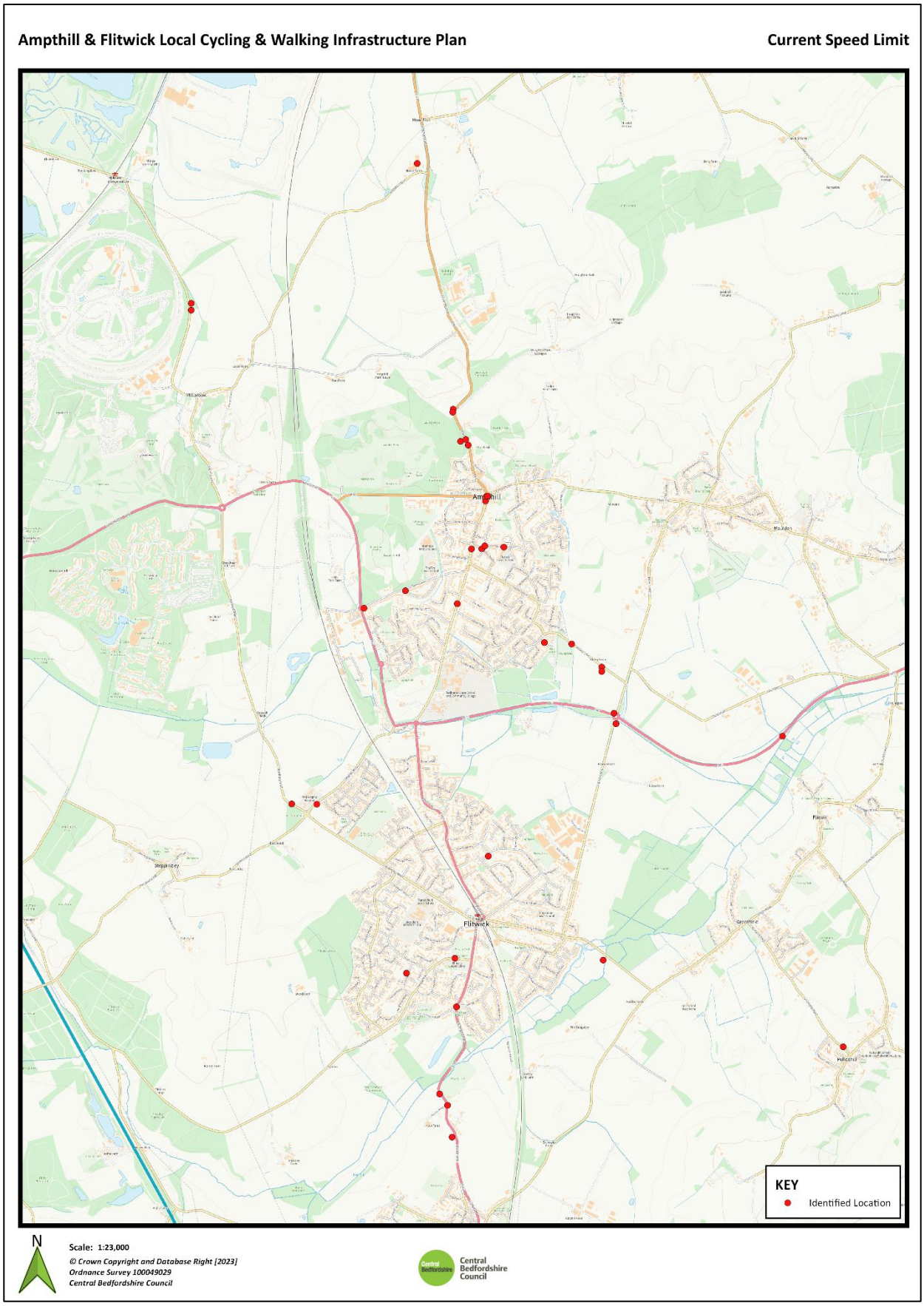

Figure 40: Locations where residents highlighted issues – Current speed limit

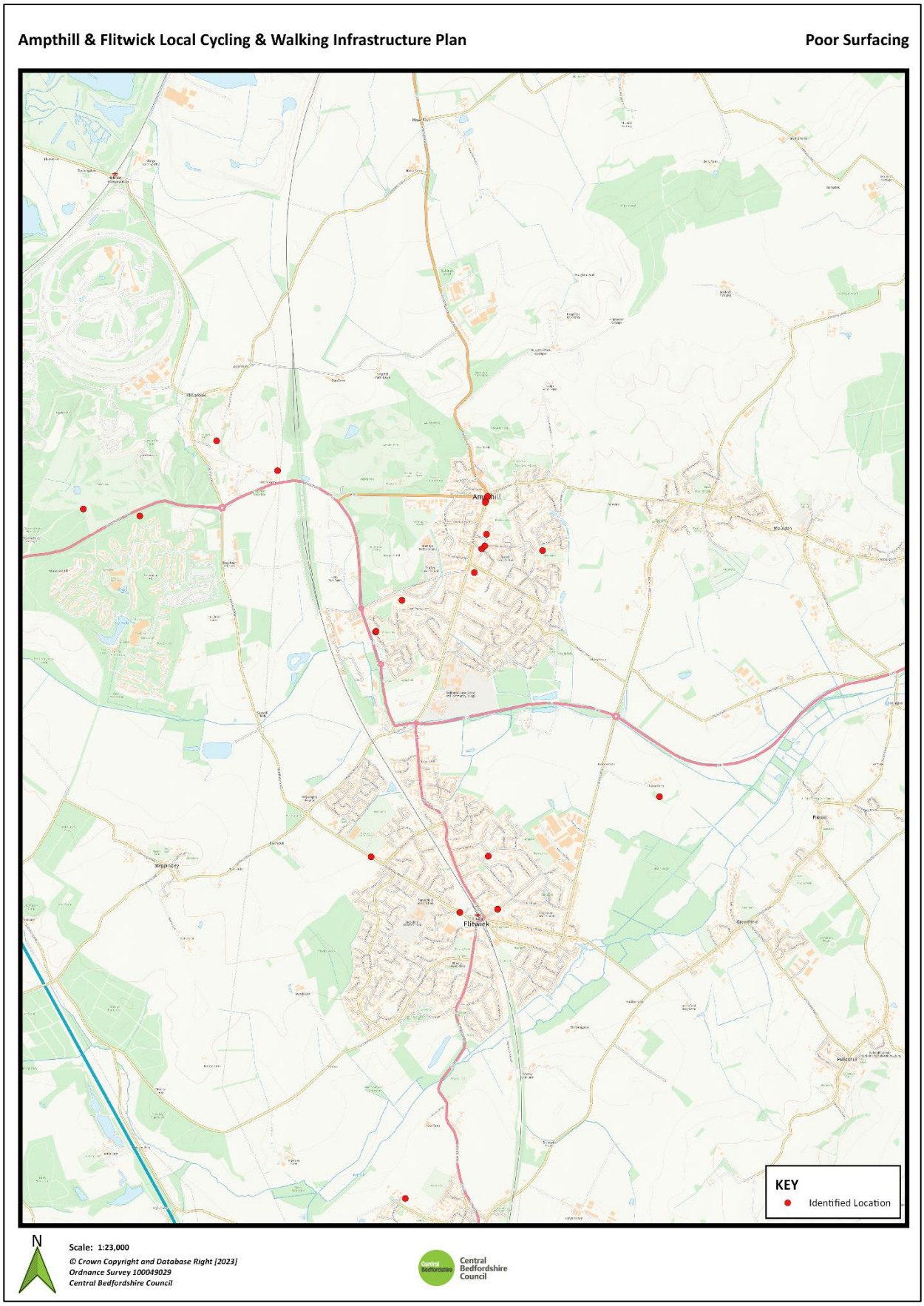

Figure 41: Locations where residents highlighted issues – Poor surfacing

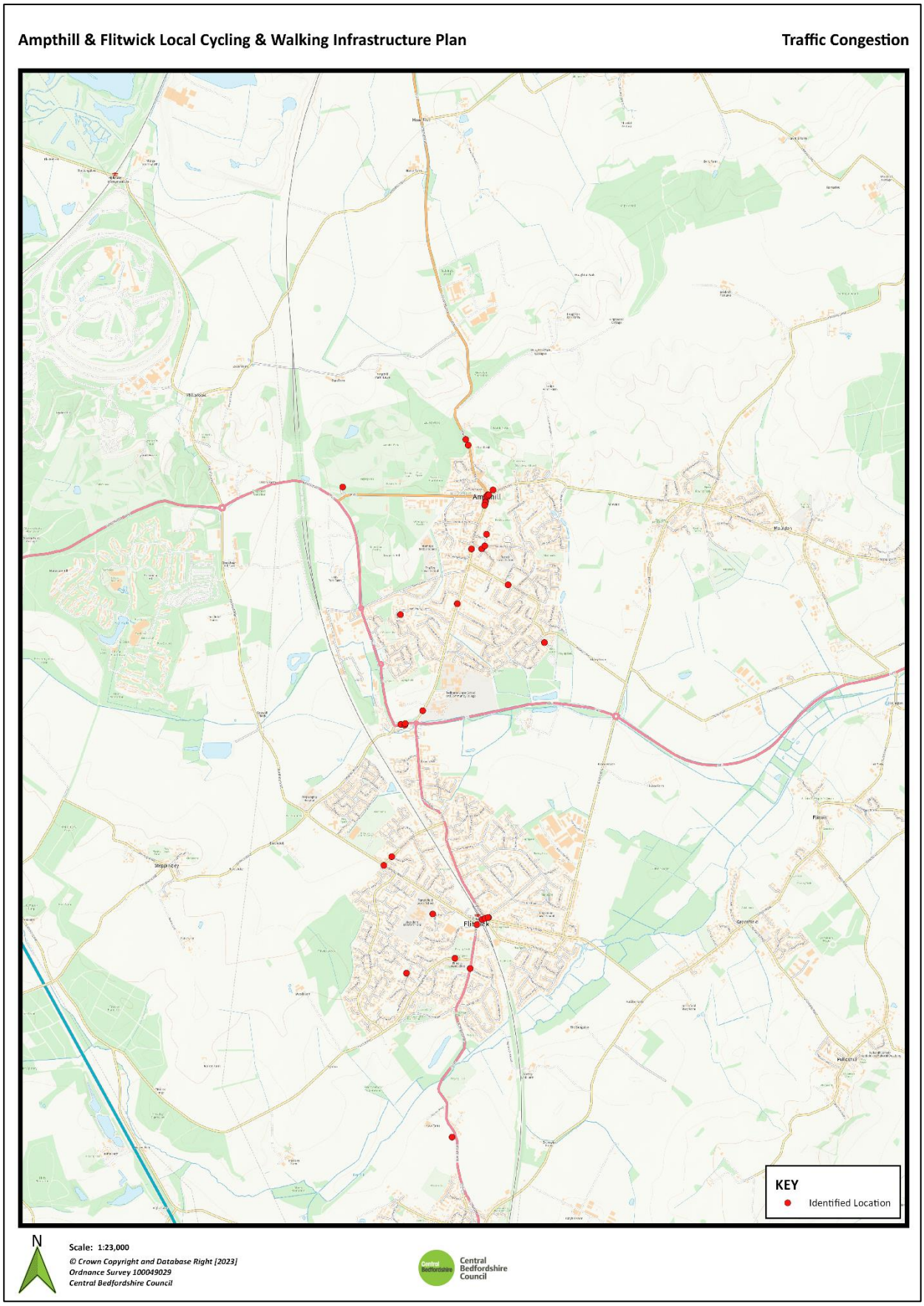

Figure 42: Locations where residents highlighted issues – Traffic congestion

The following maps (Figures 43-50) highlighted the locations where respondents suggested improvements in relation to:

- Junctions
- Signage and wayfinding
- Speed limits
- Surfacing
- Dropped kerbs and tactile paving
- Parking
- Crossings
- Lighting

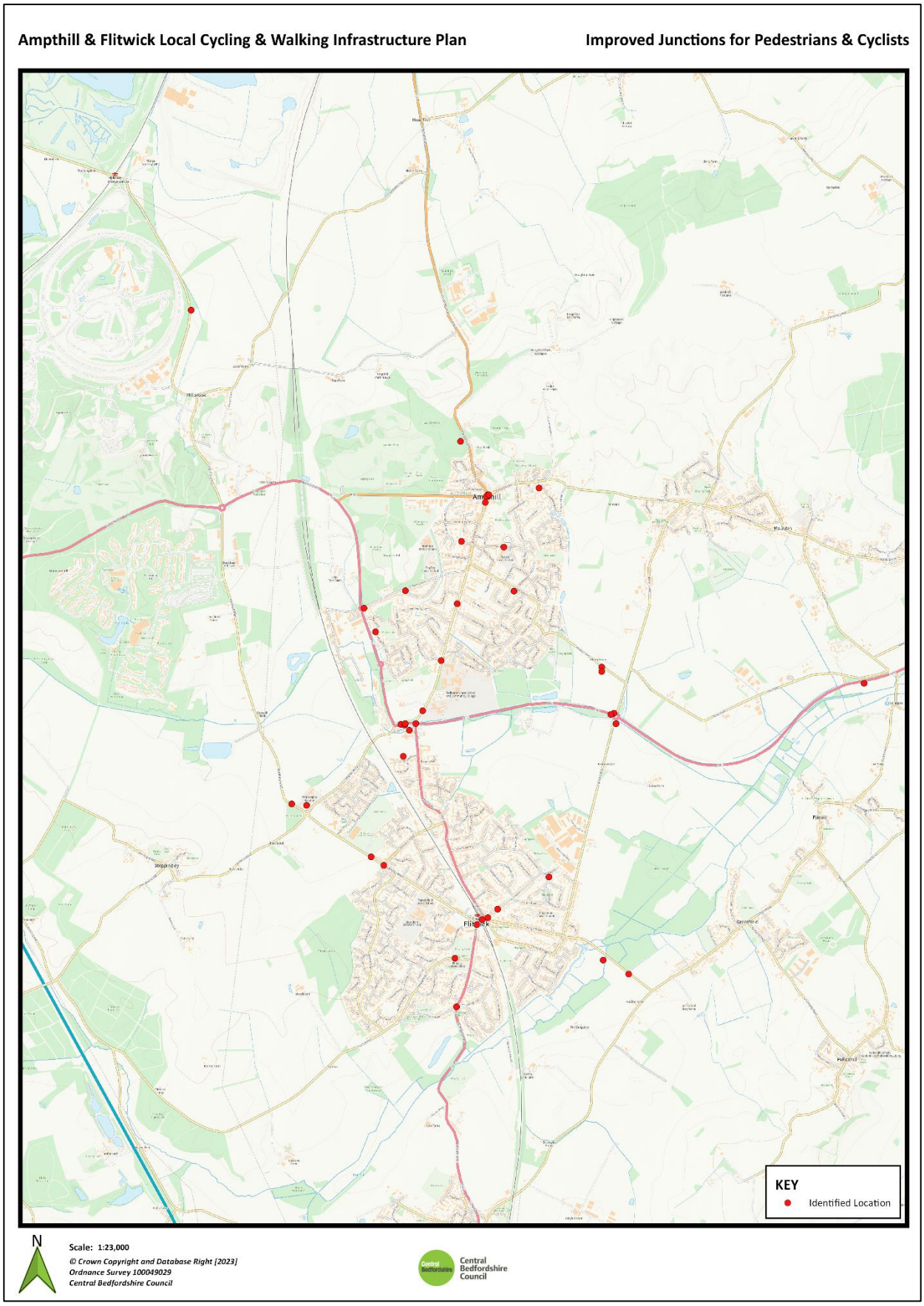

Figure 43: Locations where residents highlighted improvements – Improved junctions

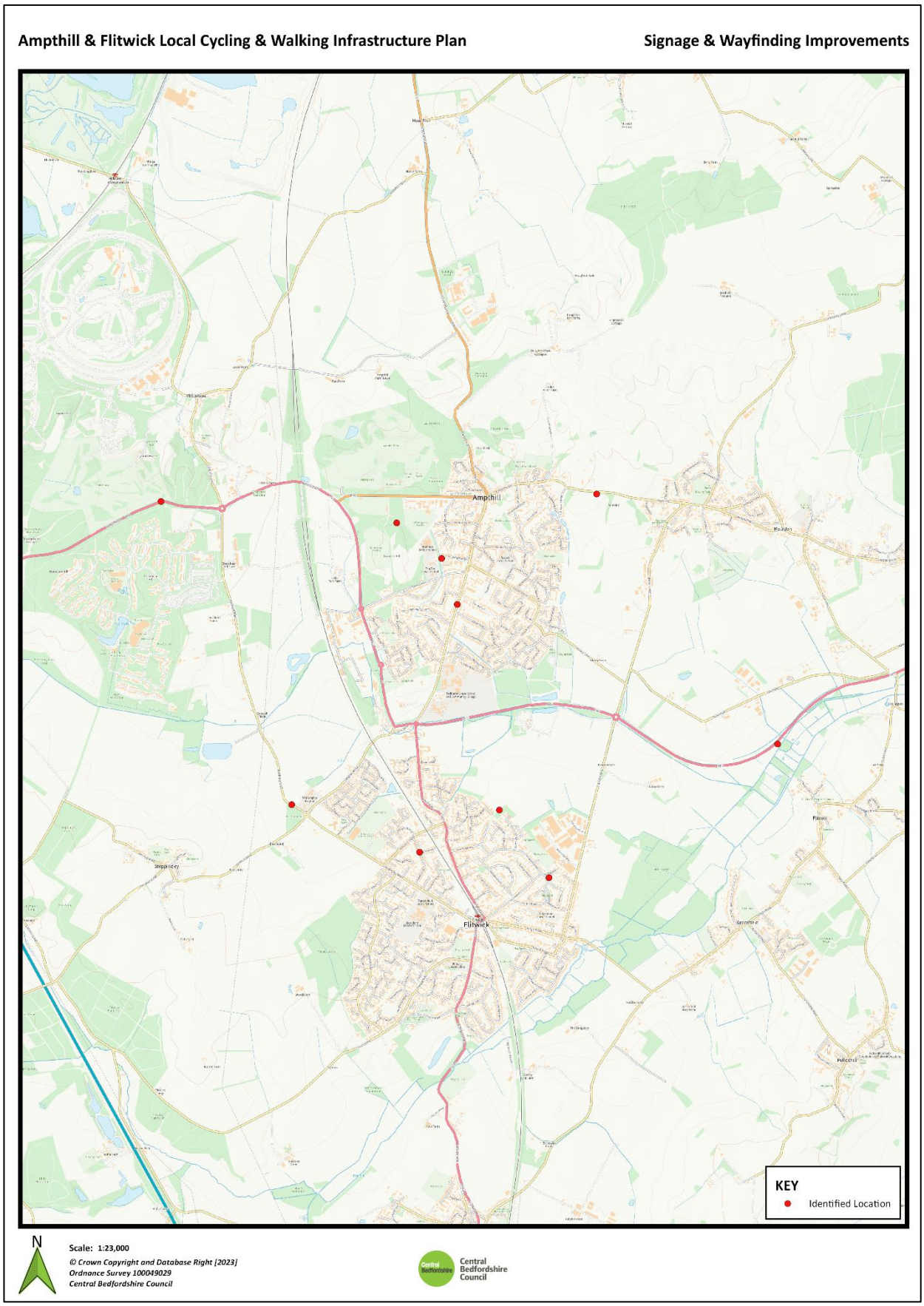

Figure 44: Locations where residents highlighted improvements – Signage & wayfinding improvements

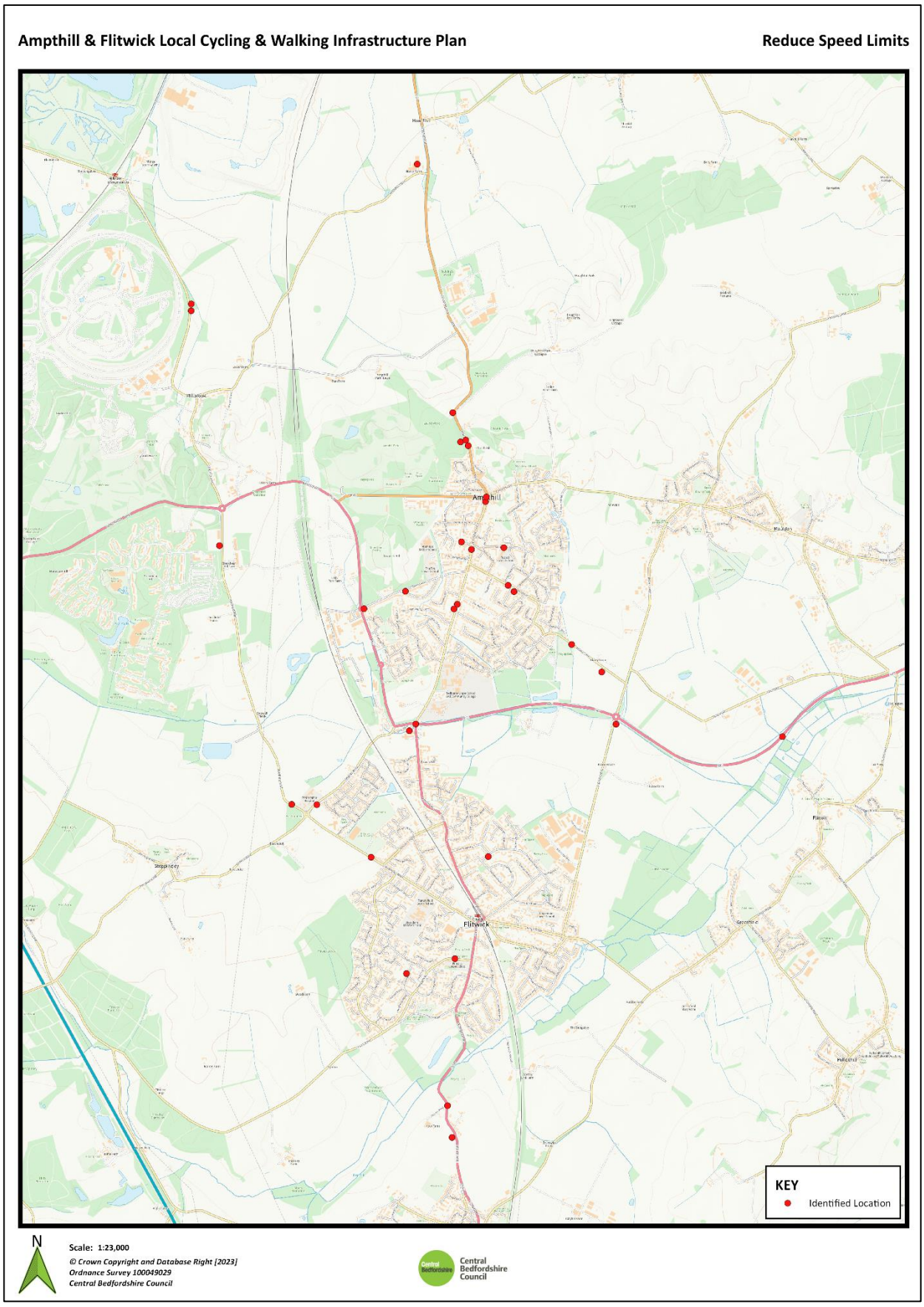

Figure 45: Locations where residents highlighted improvements – Reduce speed limits

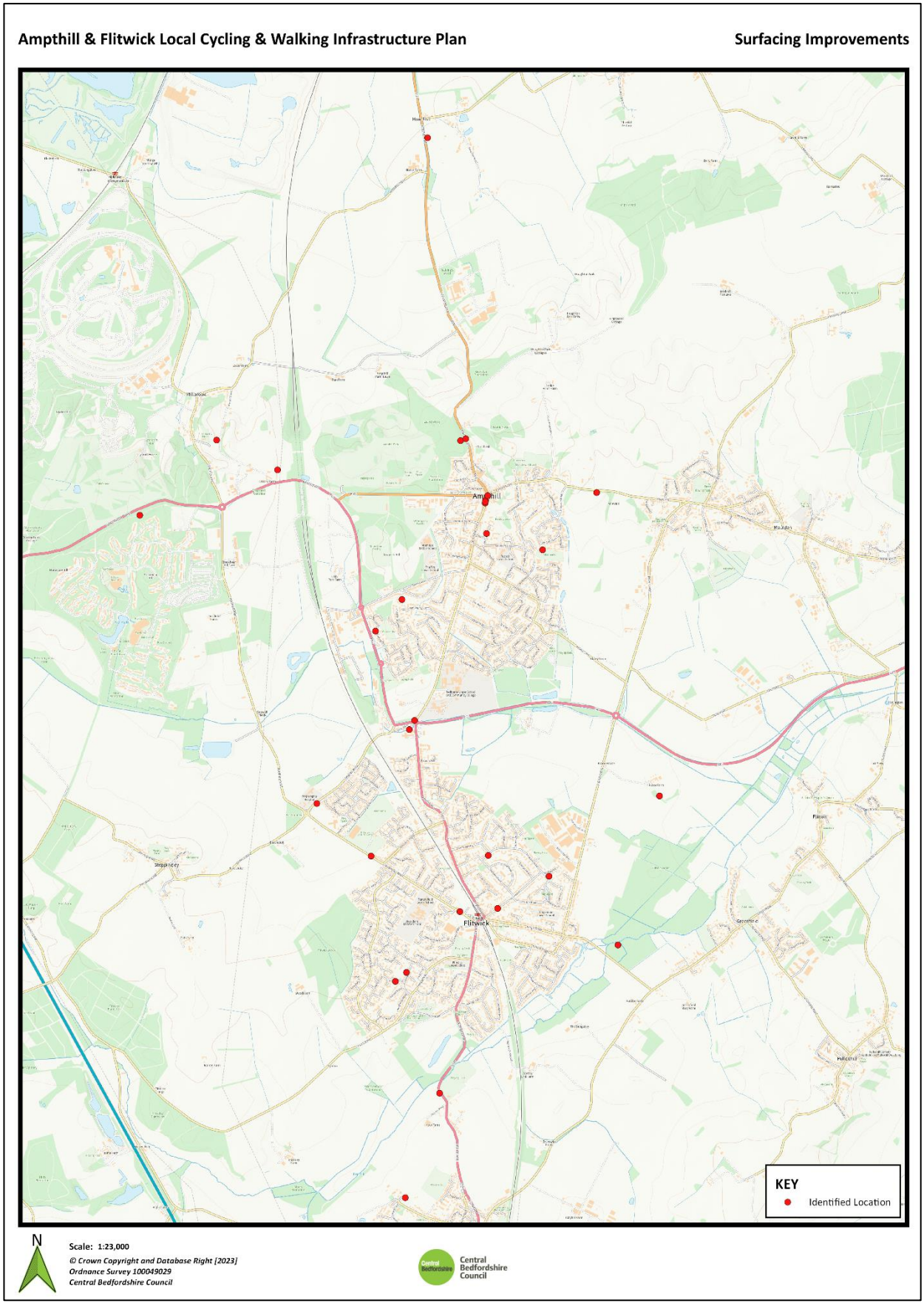

Figure 46: Locations where residents highlighted improvements – Surfacing improvements

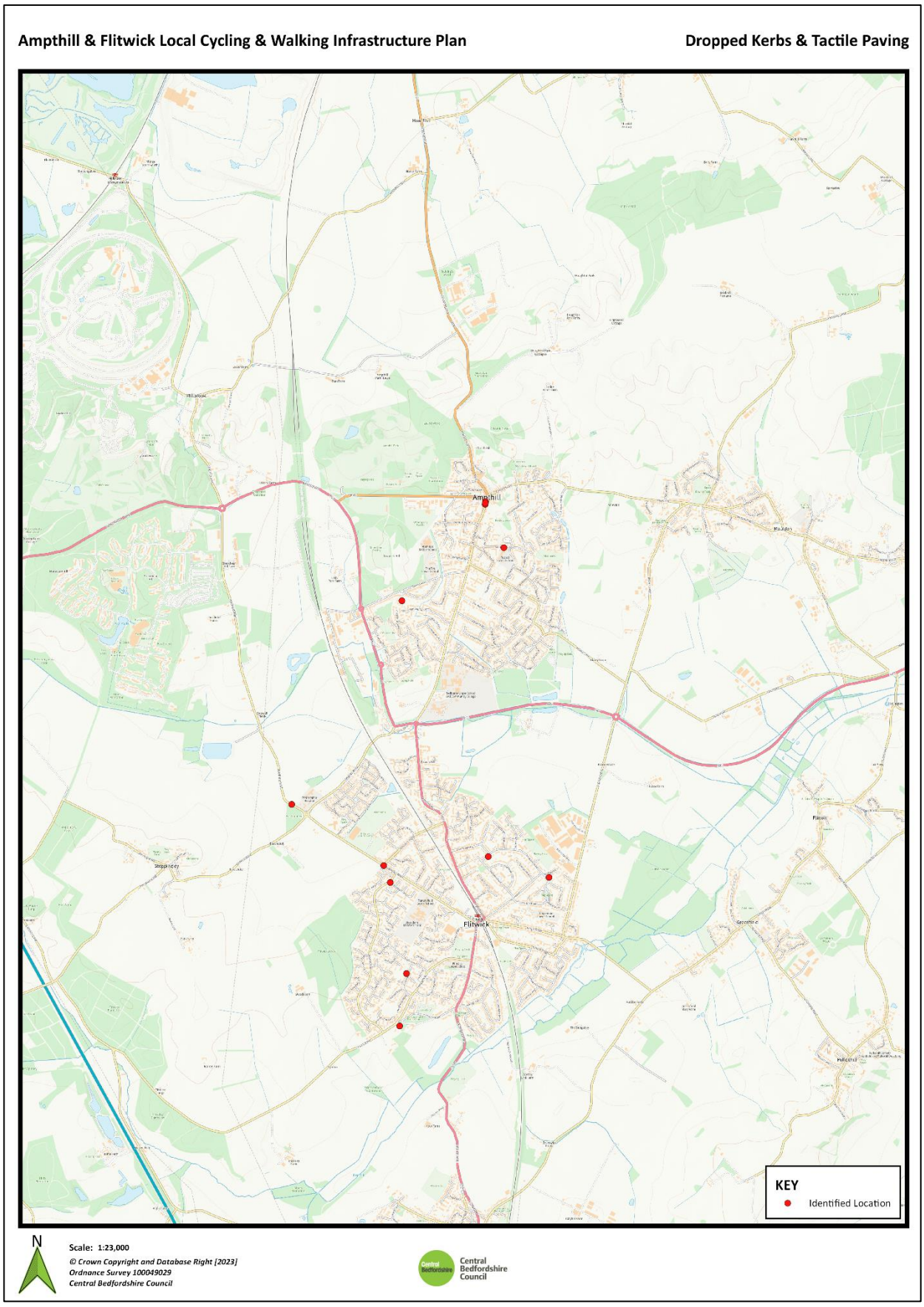

Figure 47: Locations where residents highlighted improvements – Dropped kerbs & tactile paving

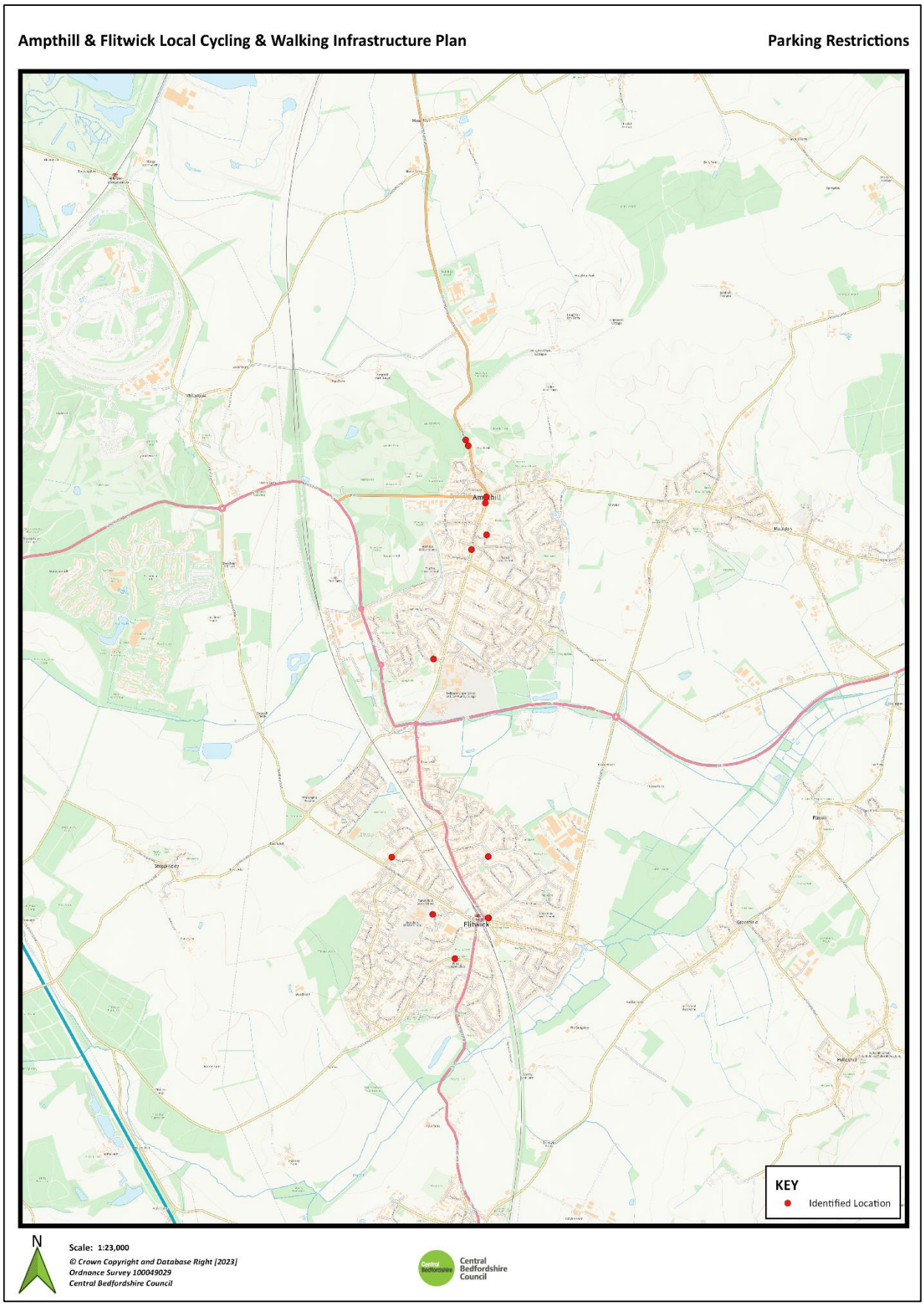

Figure 48: Locations where residents highlighted improvements – Parking restrictions

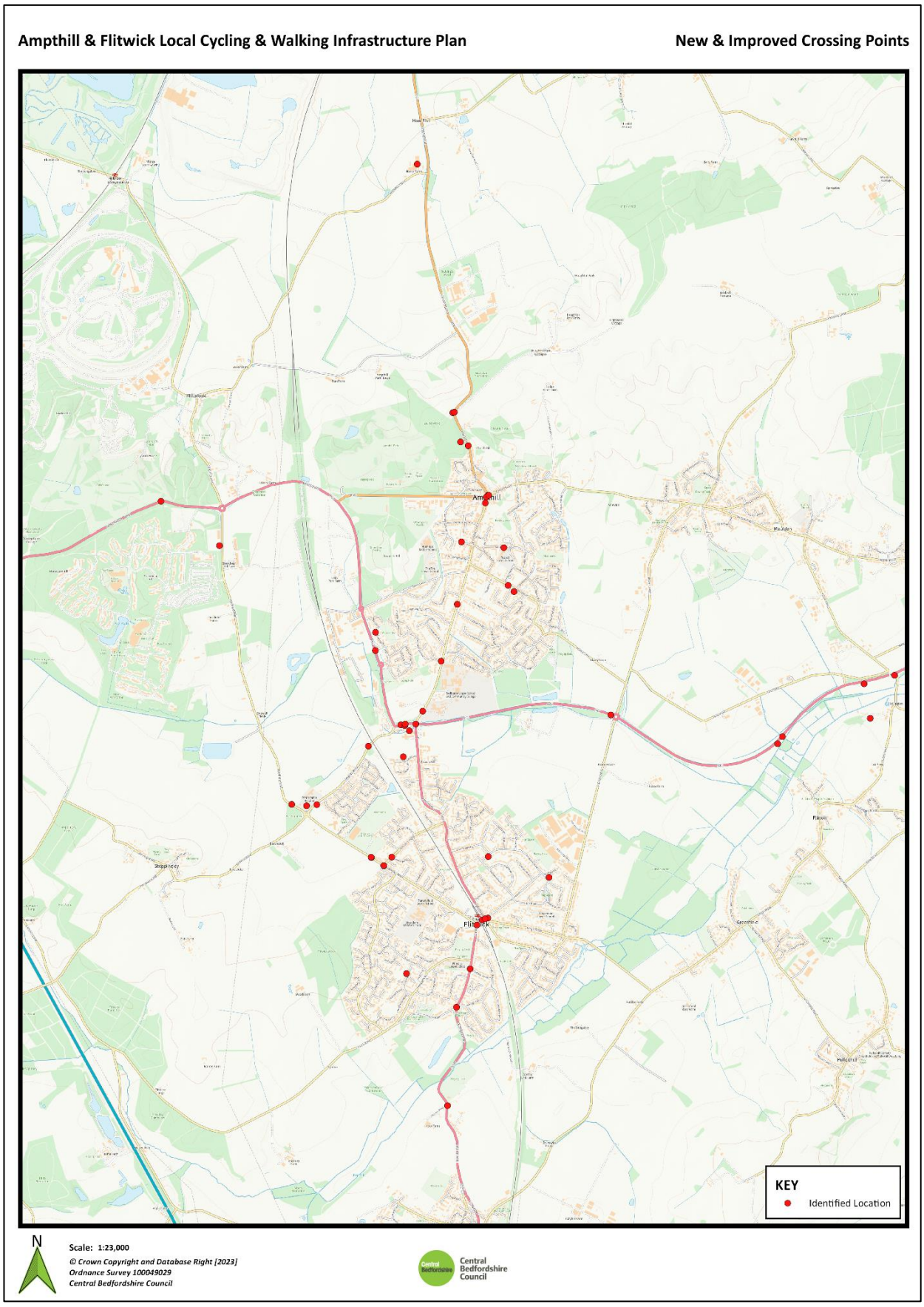

Figure 49: Locations where residents highlighted improvements – New & improved crossing points

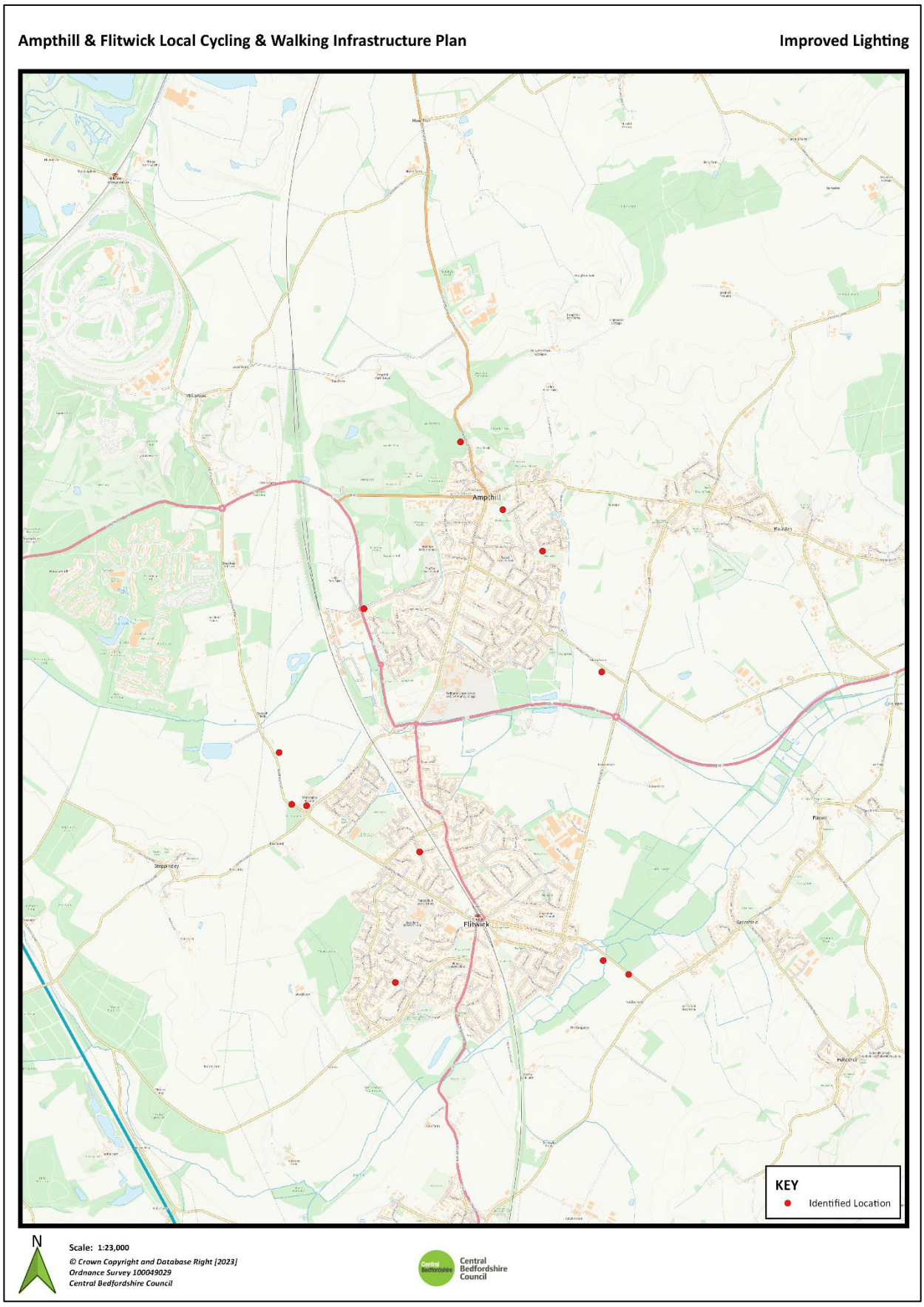

Figure 50: Locations where residents highlighted improvements – Improved lighting

Glossary of Terms

Term	Definition
Active Streets	Measure of a street's suitability for active travel based on an assessment of its characteristics.
Active Travel	Means of getting about that involves being physically active, including walking, wheeling, cycling and running.
Active Travel England (ATE)	Executive agency set up by Government and responsible for making walking, wheeling and cycling the preferred choice for everyone to get around in England.
Biodiversity Net Gain (BNG)	Biodiversity net gain is an approach to development, and/or land management, that aims to leave the natural environment in a measurably better state than it was beforehand.
Bridleway	Path or track along which horse riders have right of way. Most bridleways are designated as public rights of way and are recorded on the Definitive Map and Statement.
Central Refuge	A pedestrian refuge island is a raised island in the centre of the carriageway designed to allow pedestrians and cyclists to cross in two stages. Guidelines on the minimum width of refuges apply, with cyclists requiring 2m.
Collision Cluster	Defined area or site where several vehicle collisions have been recorded over a specified time period, typically 3 years. Collision cluster analysis is where road safety engineers review reported accident data to identify where on the road network collisions mostly occur. It is these 'cluster sites' where road safety engineering interventions are likely to be most beneficial.
Commonplace	Commercially available software application that is designed for managing interactive public engagement and that has a graphical user interface suited to phones and tablets.
Controlled or Uncontrolled Crossing	Controlled crossings give priority to pedestrians or cycles crossing a road and typically take the form of a Zebra, Pelican or Toucan. These contrast with uncontrolled crossings, where traffic has priority.
Cycle Bypass Lane	Facility that allows cyclists to avoid or bypass a junction or a bus stop.
Cycle Contraflow	Where cyclists are permitted under a Traffic Regulation Order to ride in both directions on a street that is one-way for cars. Often this arrangement is implemented with an advisory cycle lane, though this is not CBC's policy where speed limits are 20mph.
Cycle Lane	The part of a road that is separated by a dash or solid white line from the rest of the road, for the use of people riding bicycles.

Term	Definition
Cycle Track	Route that runs along the side of a road, separate from the road, for the use of people riding bicycles.
Cycling & Walking Investment Strategy (CWIS)	Document published by Government in 2017 that outlines the ambition to make cycling and walking the natural choices for shorter journeys, or as part of a longer journey, by 2040. An updated version of the document – CWIS2- was published in March 2023.
Definitive Map & Statement	Legal record of the public rights of way maintained by the authority. Where a route is shown on the Definitive Map and Statement, it is conclusive proof that that route is a public right of way which the public are entitled to use.
Desire Line	Route that reflects people's preference, often evidenced by a distinct path across a grassy surface that is formed by repeated foot traffic. Desire line paths show that pedestrians and cyclists will take short cuts whenever these are available. This is often the case at road junctions where a pedestrian will prefer not to deviate but to remain on a straight line.
Dropped Kerb	Where the kerb line is lowered to allow a vehicle to access a property, or a wheelchair user to cross a road. In the UK, vehicles parked in front of a dropped kerb can be fined as it is classed as an obstruction.
Equality Act (2010)	Legal framework that protects the rights of individuals and advances equality for all. The Act enshrines a discrimination law which protects individuals from unfair treatment and promotes a fair and equal society.
Equestrian	Person who rides horses.
Footway/Footpath	Footpath means a highway over which the public have a right of way on foot only, not being a footway. Footway is that part of highway that has been set aside for pedestrians, being a way over which the public have a right of way on foot only. In common parlance, a footway is the path or pavement that runs alongside the road whereas a footpath is a path separate to the road. Some, but not all, footpaths are designated as public rights of way and are recorded on the Definitive Map and Statement.
Gear Change	Document published by Government in July 2020 setting out the plan to make England a great walking and cycling nation.
Green Wheels	Publicly accessible paths around communities that connect people to local green spaces. They are constructed by linking existing and new paths to create an outer 'rim'. This is supported by 'spokes' radiating out to the rim and beyond. Wheels are 'green' due to their natural setting and because they promote trips using healthy sustainable transport. As well as improving public access, the green wheels seek to

Term	Definition
	protect, manage and enhance biodiversity, landscape and heritage. Where possible, they also create new habitats, landscape and accessible green space. Green wheel routes are designed to be shared by walkers and cyclists, whilst also providing links to the wider bridleway network for horse riders.
Highways Authority	Organisation, which in Central Bedfordshire's case means the Council, responsible for operating, administering, and maintaining public roads.
Highway Code	Government published document that provides a comprehensive guide to the rules of the road with the aim of making roads safer for everyone.
Highways Integrated Schemes	Schemes affecting the public highway that seek to combine different modes of transport to maximise ease and efficiency for the user in terms of time, cost, comfort, safety, accessibility and convenience.
Home Zone	Residential street where people and vehicles share the whole of the street space safely, and on equal terms, with the intention of pedestrian movements having equal precedence over traffic movements. The arrangement needs careful design and is considered most suited to roads where pedestrian movements are higher than traffic movements.
Inclusive Design	Inclusive design aims to make it possible for everyone to participate equally, confidently and independently in everyday activities, including travel.
Integrated Transport Block (ITB) Funding	Monies provided to local authorities annually by Government for transport capital improvement schemes worth less than £5 million.
Journey 'Stage'	Part of a longer journey that involves different forms of transport. An example would be Stage 1: home to local station on foot Stage 2: rail journey Stage 3: remote station to place of work on foot
Junction Assessment Tool	Method to examine the degree of difficulty for cyclists when moving through a road junction. Each movement is assessed, and colour coded as either red, amber or green, with red being the most uncomfortable or unsafe for cyclists. Through design, the aim is to achieve green rating where the potential for a collision is negligible
Junction Intervisibility	Intervisibility related to the ability to see and to be seen by approaching traffic. Good intervisibility helps ensure the safety of road users at junctions. The aim should be to provide the greatest level possible for both drivers and other users. In urban areas, existing building lines and other features may reduce or restrict visibility.

Term	Definition
Light Segregation	Engineering technique designed to protect cyclists using a cycle lane by placing physical objects such as flexible bollards next to the cycle lane marking.
Local Cycling & Walking Infrastructure Plan (LCWIP)	Local Cycling and Walking Infrastructure Plans (LCWIPs), as set out in the Government's Cycling and Walking Investment Strategy, are a strategic approach to identifying cycling and walking improvements required at the local level. They enable a long-term approach to developing local cycling and walking networks, ideally over a 10-year period, and form a vital part of the Government's strategy to increase the number of trips made on foot or by cycle.
Local Transport Note (LTN/Ref)	Official documents issued by Government that summarise the latest and most important ideas about traffic management issues and provide guidance for local authorities.
Local Transport Plan (LTP)	Statutory document drafted by a highways authority setting out transport objectives, policies and strategy.
Low Traffic Neighbourhood	Geographically defined residential area where Modal Filters are used to control how the different modes of traffic can flow with the aim of advantaging walking and cycling, reducing inappropriate 'rat-running' and improving measures of local air quality.
Micro-mobility	Lightweight and small vehicles designed for a single user travelling short distances at speeds below 15mph. Micro-mobility devices include electric scooters, electric bikes, electric skateboards, hoverboards.
Modal Filter	Arrangement under a Traffic Regulation Order that allows the passage of some modes of transport but not others. A common type of modal filter allows buses to pass but not other motorised traffic; frequently referred to as a 'Bus Gate', or 'Bus Lane' where the filter applies to a length of single lane carriageway.
On-road	In relation to cyclists, this means sharing the carriageway with other traffic.
Off-road	In relation to cyclists, this means using paths that cars are not legally allowed to use.
Permeability	Measure of the extent to which an urban area permits the movement of people by walking or cycling.
Play Streets	Name for a programme where streets are closed off to through traffic for a few hours, usually during the evening or at the weekend, to give local children an area to play in.
Protected Space	Routes promoted to cyclists where physical measures such as kerbs or bollards keep users separated from other streams of traffic.
Public Realm	All parts of the built environment to which the public has free access.

Term	Definition
Public Right of Way	Public rights of way are the main means, other than roads, of getting about in the countryside. They are minor highways, protected in law like all other public roads. There are four types: • Footpaths, with recorded rights to walk • Bridleway, with recorded rights to walk, ride a horse or bicycle • Restricted Byway, with recorded rights to walk, ride a horse or bicycle and use a horse-drawn carriage Byway open to all traffic, with recorded rights for all users
Public Sector Equality Duty	The public sector equality duty requires public bodies to have due regard to the need to eliminate discrimination, advance equality of opportunity and foster good relations between different people when carrying out their activities.
Quiet Lane	Quiet Lanes are minor rural roads which have been designated by the highway authority to warrant special attention to the needs of walkers, cyclists, horse riders and other vulnerable road users.
Regulatory Signage	Signage required under traffic laws, regulations and requirements.
Rights of Way Improvement Plan (RoWIP)	Statutory plan that explains how a local authority intends to improve its public rights of way network to provide a better experience for users such as walkers, cyclists, horse riders and carriage drivers.
Road Safety Audit	Process for checking the road safety implications of highway improvements and new road schemes. The aim of the process is to reduce the road collisions occurring once a scheme comes into use.
Road Safety Engineering	Road Safety Engineering is a process, based on analysis of road and traffic related accident information, which applies engineering principles in order to identify road design or traffic management improvements that will reduce the number and severity of accidents in the most cost-effective manner.
School Safety Zone	Package of road safety engineering measures that are put in place to ensure the safety of children around schools.
School Streets	Programme where motorised traffic is restricted from using roads outside schools during drop-off and pick-up times. The restriction applies to school traffic and through traffic but not to residents.
Shared Space	Road or street where the physical divide between the footways and the roads are reduced or removed altogether, requiring pedestrians, cyclists and vehicles to all share the available space. The aim of shared space is to slow down traffic, reduce accidents and make an urban space more flexible and attractive for everyone.
Shared Use Path	Footway where cycling is legally allowed.

Term	Definition
STATS19	Protocol/code which outlines information collected whenever a crash that causes injury is reported to the Police. This code is also frequently used to refer to Britain's official Road Accident Statistics, which are derived from Police STATS19 returns and compiled by the Department for Transport.
Street Furniture	Facilities and structures which are not intended primarily for advertising. These include (but not limited to) seating benches, planters, bins, bus shelters, utility cabinets, telephone boxes, i.e., everything cluttering the highway excluding road signs, traffic signals, street lights and other road-related structures.
Structural Maintenance	The collective term for activities which maintain the integrity of the road and footway structure. The main activities include resurfacing and reconstruction, surface dressing, patching and drainage.
Sustainable Transport	Methods of transporting people and goods that generate low, very low or zero-emissions.
Sustrans	British charity whose purpose is to encourage people to walk, cycle and use public transport rather than private cars in order to reduce motor traffic.
Tactile Paving	Paving slab where on the surface there is a pattern of raised bumps which can be dots, bars, or lozenge bumps. The purpose is to warn people with sight loss to dangers or obstacles they may be approaching, such as a crossing, steps, or the edge of a train station platform. The paving also serves to guide people crossing a road where the pavings are set opposite each other so that the pattern of dots align.
Tetra Tech	A company that offers consulting and engineering services to a worldwide client base.
Traffic Calming	Measures purposefully designed to slow the speed of traffic. These can include horizontal and vertical deflection (narrowing the road / installing chicane arrangements or raised features such as tables, humps or cushions). Measures can also include creating uncertainty by removing road marking.
Traffic Regulation Order	A legal document that specifies speed limits, weight limits and parking and other restrictions including, but not limited to, no entry, banned turns, no stopping.
Traffic Restraint	Measures that have the effect of restricting what classes of vehicle can use a designated road, or a section of a road, and when. These restraints are normally specified in a Traffic Regulation Order.
Traffic Signals - Advance (or early) Start	Separate signal that gives cyclists a head start over other traffic to negotiate the busy junction and to make their intentions clear to drivers / riders behind.

Term	Definition
Trip Attractor	Place frequently visited, such as a school.
Wayfinding Signage	Signage designed to help people navigate to a specified destination or location.
85th Percentile Speed	The speed at which 85 percent of the drivers travel at on a road segment under free-flowing traffic conditions, typically measured using automated recording equipment. Where the 85th percentile figure is more than 10% + 2mph above the speed limit, this is often the trigger for traffic calming measures (e.g. 24mph where the speed limit is 20mph, 35mph where the speed limit is 30mph, etc.)

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