North Hertfordshire District

Local Cycling and Walking Infrastructure Plan

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Local Cycling and Walking Infrastructure Plan

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1 Policy Context

1.1 National Strategic Context

1.1.1. This section presents the existing policy documents that are relevant to this LCWIP on a national level.

Gear Change: A Bold Vision For Cycling And Walking (Department Of Transport, 2020)

1.1.2. Gear Change is the Government's vision to see a step-change in levels of walking and cycling in England. The strategy details how the Government intends to invest £2 billion on increasing the numbers of people walking and cycling.

1.1.3. A core focus of the strategy is on improving safety for all by building high quality cycle infrastructure, the lack of which is a significant barrier to more people choosing to walk or cycle for the everyday journeys. The strategy highlights the need to dramatically improve the quality of cycling infrastructure on England's roads to achieve the substantial increases in cycling required.

1.1.4. The document sets out the actions required at all levels of government, grouped under four themes:

1.1.5. **Theme 1 – 'Better streets for cycling and people'** outlines how the Government will help to fund safe, continuous, direct routes for cycling that help people reach the places they need to get to. The key design principles highlight how routes must be physically separated from pedestrians and from high volumes of motor traffic on links and at junctions. The creation of low traffic neighbourhoods and school streets is also featured due to their role in facilitating local walking and cycling trips and creating better places for people to live in.

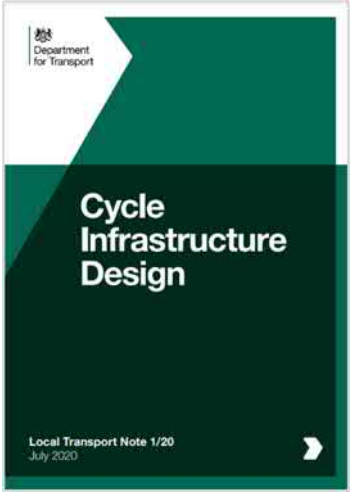
1.1.6. **Theme 2 - 'Putting cycling and walking at the heart of transport, place-making and health policy'** focuses on how cycling and walking should complement and help expand the range of other modes of transport such as bus and rail travel. The strategy mentions how new local and strategic A road schemes should include appropriate provision for cycling and that the tools used to assess transport schemes' value for money will give fair weight to the broader benefits of active travel schemes.

1.1.7. **Theme 3 – 'Empowering and encouraging local authorities'** outlines the new powers and improved assistance for local authorities, such as improving enforcement of traffic violations that impact on pedestrian and bicycle user safety. An important statement under this theme is how funding available for local authorities will only be applied to schemes that meet the new standards and principles described within the first theme.

1.1.8. **Theme 4 – 'Enabling people to cycle and protecting them when they do'** focuses on encouraging more people to cycle by providing people with the confidence and skills to cycle where the appropriate infrastructure facilities cycle journeys. The Government also stipulate their aim to make legal changes to protect vulnerable road users, strengthen the Highway Code to improve safety and mandate higher safety standards on lorries.

Local Transport Note 1/20: Cycle Infrastructure Design (Department for Transport, 2020)

1.1.9. Alongside Gear Change, the DfT also published updated cycle infrastructure design guidance in 2020. LTN1/20 provides guidance and good practice for the design of cycling infrastructure in support of the DfT Cycling and Walking Investment Strategy. LTN 1/20 replaces LTN 2/08: Cycle Infrastructure Design and LTN1/12: Shared Use Routes for Pedestrians and Cyclists have been withdrawn.



1.1.10. The Government expects local authorities to demonstrate they have given due consideration to the guidance when designing new cycle schemes and when applying for Government funding that includes cycle infrastructure.

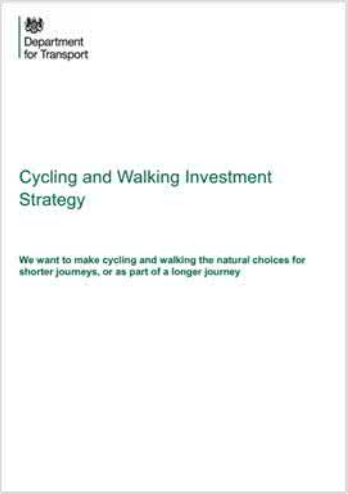
1.1.11. LTN 1/20 is based around five overarching design principles (that cycle routes and networks must be coherent, direct, safe, comfortable and attractive) and 22 further principles that represent the essential requirements to achieve more people travelling by foot or cycle for more of their trips.

1.1.12. The LTN 1/20 explains these principles and gives context to the need to improve the quality of cycle infrastructure as part of wider strategies, such as increasing physical activity, reducing carbon emissions and stimulating economic growth. The LTN also focuses on specific types of cycling infrastructure and the highway network, such as facilities within the highway corridor, motor traffic free routes, quiet mixed traffic streets and junctions and crossings.

1.1.13. LTN 1/20 also covers cycle parking, signage and markings and construction and maintenance which all together provides guidance through the whole process of planning designing and implementing high quality cycle infrastructure.

Cycling and Walking Investment Strategy (Department for Transport, 2017)

1.1.14. The Government published its first Cycling and Walking Investment Strategy (CWIS) in 2017, setting out an ambition to make walking and cycling the natural choice for shorter journeys or as part of a longer journey. The CWIS states that the benefits to doing this would be substantial, potentially leading to cheaper travel and better health, increased productivity for business and increased footfall in shops. Benefits will also include lower congestion, better air quality, and vibrant, attractive places and communities.


Department for Transport

Cycling and Walking Investment Strategy

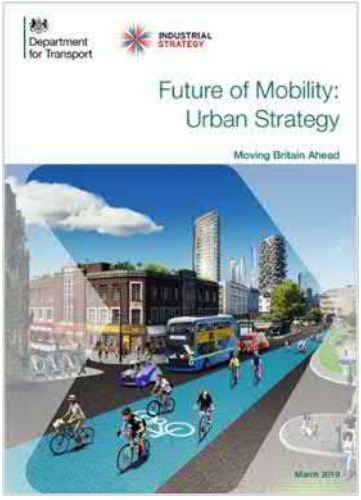
We want to make cycling and walking the natural choices for shorter journeys, or as part of a longer journey

1.1.15. The CWIS outlines ambitious targets for the period to 2025. This includes a doubling of cycling trip stages each year (from 0.8 billion in 2013 to 1.6 billion by 2025), whilst also reversing the current year-over-year decline in walking trip stages. The CWIS also identifies a need to decrease the number of cycle user fatalities and serious injuries each year.

1.1.16. Following the publication of the CWIS (and in line with its strategic objectives), the Government also published its LCWIPs Technical Guide for Local Authorities. As explained in Section 1.2, this document sets out a flexible six-stage methodology for producing an LCWIP. The methodology developed by HCC and WSP for this LCWIP follows this guidance.

Future of Mobility: Urban Strategy (Department for Transport, 2019)

1.1.17. The ‘Future of Mobility: Urban Strategy’ recognises the challenges associated with the rise in motor transport including safety, pollution and space. As the number of people living in urban areas in England is forecast to rise by 4.7 million between 2016 and 2041, towns and cities will become increasingly crowded. This provides us with an opportunity to transform the way we travel and the infrastructure within our towns and cities.



1.1.18. The document sets out principles to guide Government decision making, industry and local authorities, and has recognised active travel as a key area to help shape the future of urban mobility. The principle ‘Walking, cycling and active travel must remain the best option for short urban journeys’ states, in England, 45% of all journeys taken by urban residents are under 2 miles. Many such journeys could be undertaken by sustainable, active modes of transport leading to better air quality, health outcomes and lower congestion. This can be supported by new technologies including intelligent use of real-time data and connectivity making public transport more convenient and responsive. With these improvements active travel can become a more desirable option for multi-stage journeys.

1.1.19. An additional principle identified; ’Mobility as a Service’, suggests introducing well-managed bike-sharing schemes and e-bikes which would encourage people who wouldn’t normally chose cycling as a travel option to switch. This may be especially important given the trend towards an aging population, 62% of e-bikes in the UK are sold to people over the age of 55.

Clean Air Strategy (Department for Environment, Food & Rural Affairs, 2019)

1.1.20. The Clean Air Strategy sets out a comprehensive action required to tackle all sources of air pollution.

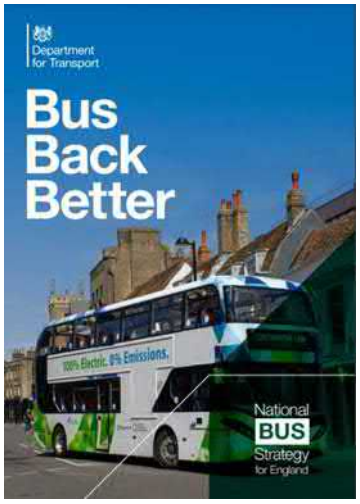
1.1.21. A key action in achieving this is reducing emissions from transport by facilitating modal shift towards low and zero emission options. The report suggests encouraging an increase in cycling and walking for short journeys delivers a reduction in congestion and emissions in addition to the associated health benefits from a more active lifestyle.

1.1.22. Drivers and passengers inside vehicles are often exposed to significantly higher levels of air pollution in comparison to those walking and cycling on the same route. People can be persuaded to walk or cycle in North Herts, as even when there is a build-up of traffic within the town centres, the strategy suggested that those travelling actively, experience lower exposure. Pedestrians and cyclists can be encouraged to use quieter routes away from vehicle traffic to reduce exposure even further.

1.1.23. This method of travel also creates less pollution, with associated health benefits such as improved fitness, mental health and lower risk of obesity and heart diseases. In addition to the funding identified through the Cycling and Walking Investment Strategy, local authorities and mayors have been allocated an additional £700 million to safe infrastructure and other Active Travel projects since the CWIS was published. There has also been £34 million spent to improve cycle facilities at stations, making it easier and more accessible to get to and from station by bike, including 22,000 new cycle parking spaces which as a result increased cycle trips to stations by 40%.

Bus Back Better, National Bus Strategy (Department for Transport, 2021)

1.1.24. Bus Back Better is a long-term strategy for buses in England, outside of London. This new national bus strategy sets out the vision and opportunity to deliver better bus services for passengers across England, through ambitious and far-reaching reform of how services are planned and delivered. The strategy includes various ambitions, such as to “make buses more frequent, more reliable, easier to understand and use, better co-ordinated”, and with “simple, cheap flat fares … with daily and weekly price capping across operators.”

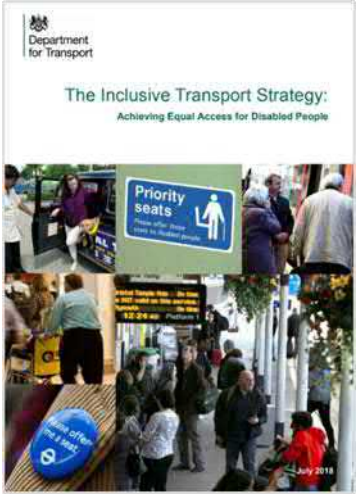


1.1.25. The new strategy challenges councils to give buses greater priority at traffic lights, reallocate road-space for bus lanes, create bus gates, and manage their roads with bus reliability in mind. It recommends looking carefully at street design and locations of bus stops, parking and loading bays and developing ‘Bus Service Improvement Plans’ (BSIPs). Hertfordshire’s BSIP was published in October 2021 and is discussed the next section.

1.1.26. Where bus priority infrastructure is considered for the same corridors as cycle infrastructure and there is limited space, this needs to be taken into account and reconciled. Furthermore, cyclists needs’ should be taken account when designing bus infrastructure and vice versa.

The Inclusive Transport Strategy (Department for Transport, 2018)

1.1.27. The Inclusive Transport Strategy plans to create more inclusive transport system for everyone. The report itself focusses on transport inclusivity, explaining how vehicles, stations and streetscapes can be designed to be inclusive to people with different forms of disability.



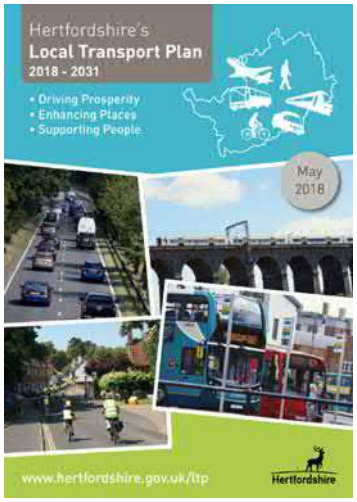
1.1.28. The LCWIP process aims to create a network to support this ambition and allow for users of all abilities to travel safely and comfortably via active travel in and around North Hertfordshire. As part of this LCWIP the council has identified improvements to support a transport system fit for all users, identifying infrastructure interventions to make key cycling and walking routes more accessible and inclusive.

1.2 County Strategies, Policies and Plans

1.2.1. This section will present the existing policy documents that are relevant to this LCWIP on a county level. All of these have been produced by Hertfordshire County Council.

Local Transport Plan 4 (2018-2031)

1.2.2. The Hertfordshire Local Transport Plan 4 (LTP4) sets out a transport vision for Hertfordshire. The plan accelerates the transition from the previous transport strategy (LTP3) towards a less car-centric, more balanced approach which caters for all forms of transport and seeks to encourage a switch from the private car to sustainable transport (e.g. walking, cycling and passenger transport) wherever possible. LTP4 recognises the potential public health benefits associated with increased levels of active travel, further emphasising active travel improvements as an essential feature of the future transport systems within Hertfordshire.



1.2.3. LTP4 Policy 1 'Transport User Hierarchy' is especially important to this LCWIP as it places vulnerable road users such as pedestrians and cyclists at the top of the user hierarchy.

1.2.4. LTP4 highlights strategic corridors in which sustainable transport is a priority. Of relevance to this study are corridor 3 (London-Stevenage-Peterborough) and corridor 6 (Luton-Stevenage), which are highlighted in Figure 1-1. First and last mile connectivity to these corridors could be improved through the development of infrastructure identified in this LCWIP.

Figure 1-1 - Priority Sustainable Transport Corridors Highlighted in LTP4

1.2.5. The LTP4 also sets out various objectives to help encourage walking and cycling, which are detailed below.

Walking

1.2.6. LTP4 recognises that there is a high walking mode share for trips of up to 1 mile across the county, with 76.5% of such trips being undertaken on foot (County Travel Survey, 2015). Policy 7 – Active Travel (Walking) sets out the objectives to further encourage walking, many of which are captured in this LCWIP:

- Implementing measures to increase the priority of pedestrians relative to motor vehicles, especially in town centres, and creating walking friendly towns and centres;
- Delivering infrastructure to provide safer access to key services, and pedestrian facilities to enable and encourage walking.
- Identifying and promoting networks of pedestrian priority routes.
- Promoting walking as a mode of travel and for recreational enjoyment.
- Supporting the implementation of the Rights of Way Improvement Plan.

Cycling

1.2.7. LTP4 recognises that compared with walking, cycling has a much lower more share across Hertfordshire, only making up 1.7% of trips under 1 mile, 4.8% of trips between 1-3 miles and 3.1% of trips between 3-5 miles. LTP4 highlights that there is significant potential in the county to increase cycling activity. Policy 7 – Active Travel (cycling) sets out the objectives to further encourage cycling, many of which will be captured within this LCWIP:

- Infrastructure improvements, especially within major urban areas to enable and encourage more cycling.
- Implementing measures to increase the priority of cyclists relative to motor vehicles.
- Improved safety including delivery of formal/informal cycle training schemes.
- Supporting promotion campaigns to inform, educate, reassure and encourage cycling provision and education, such as Bikeability.
- Facilitating provision of secure cycle parking.

1.2.8. Given the Government CWIS targets and the significant potential to increase cycling activity in Hertfordshire, the LTP4 shows that the council is seeking to achieve a large increase in cycling and walking over the next 10 years. This will require an increase in investment in active travel to create routes and networks which can attract a broader demographic to walk and cycle. This is exactly what an LCWIP helps to plan and so the LCWIP is very well-aligned with the LTP4.

North Central Growth and Transport Plan (2019)

1.2.9. The North Central Growth and Transport Plan (NCGTP) follows on from the LTP4 to provide more detail on specific measures associated with growth and transport within North Herts and Stevenage. A draft version of this document was consulted on in 2019 but it has not yet been published. The NCGTP proposes measures within this area under the following themes:

- Improved walking links within towns including new crossings on busy roads;
- Improved road junctions to reduce delays on key roads and reduce rat-running on quieter roads;
- Improved bus services and priority for buses at junctions;
- Improved cycle links within and between towns, and cycling parking facilities at key locations; and
- Improved walking, cycling and bus connections to railway stations.

1.2.10. The proposals in the NCGTP are defined as interventions, which are grouped into packages. The following packages relevant to the LCWIP study area are shown in Table 1-1 and, where corridors are mentioned, these are shown indicatively on Figure 1-2. This LCWIP supports these objectives through proposals for routes and infrastructure which align with these packages.

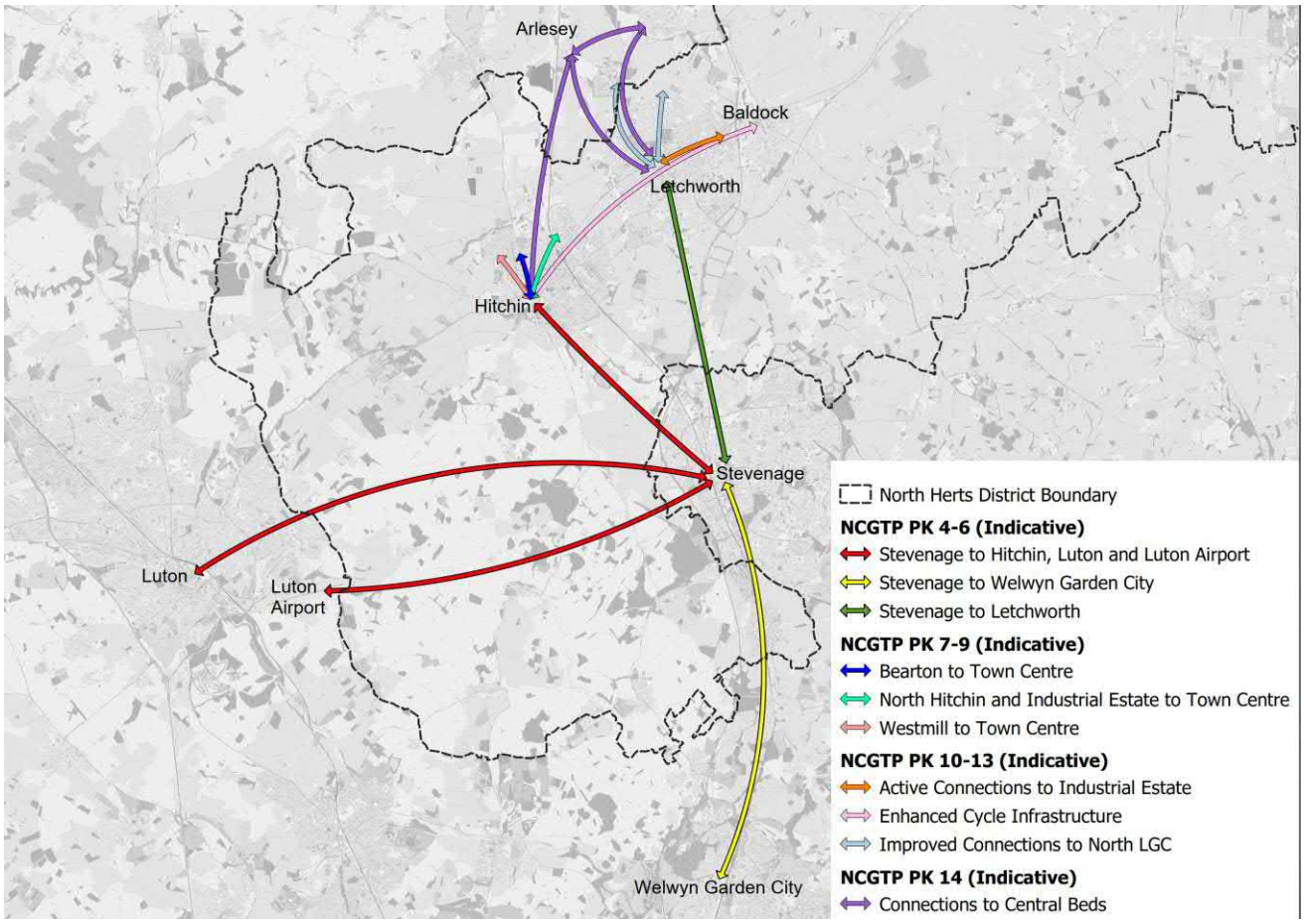
Table 1-1 – NCGTP Intervention Packages Relevant to North Herts

Area	PK	Name	Aim of Package
Stevenage connections to other towns	PK4	Stevenage to Welwyn Garden City	To improve reliability and enable faster journey times for public transport along the B197 from Welwyn to Stevenage
Stevenage connections to other towns	PK5	Stevenage to Hitchin, Luton and Luton Airport	To develop a multimodal corridor between Stevenage, Hitchin and Luton Airport that supports public transport and cycling through improvement of existing infrastructure
Stevenage connections to other towns	PK6	Stevenage to Letchworth	To form a sustainable corridor between Stevenage and Letchworth by upgrading existing cycling infrastructure, improving the public realm in villages on the B197 as well as ensuring bus priority
Hitchin	PK7	Hitchin Centre including Rail Station	To encourage use of public transport through support for services and creation of a safe and attractive corridor to take advantage of the services within Hitchin Centre and Rail Station.
Hitchin	PK8	North Hitchin and Industrial Estate	To build connections to the development site H1 and industrial estate with public transport and increased links to active transport infrastructure.
Hitchin	PK9	West Hitchin	To unlock the potential for active trips with high quality improvements to pedestrian and cycling infrastructure from Hitchin Westmill and Bearton areas to the town centre.

Area	PK	Name	Aim of Package
Hitchin connections to other towns	PK10	Hitchin to Letchworth Garden City/Baldock	To enhance cycling infrastructure between Hitchin, Letchworth Garden City and Baldock; and make it a safe and attractive option for sustainable trips.
Hitchin connections to other towns	PK11	Letchworth Centre Industrial Estate	To increase active transport provision between the centre of Letchworth Garden City and the employment area by providing a signposted and connected active transport network, improve access to the rail station, and improve the safety of routes through the industrial estate (including the link between Avenue One and the B656 and via Works Road to the NMU bridge over the A1.
Letchworth Garden City	PK12	North Letchworth Garden City	To provide improved sustainable connections by supporting a more frequent bus connection as well as a cycling facility between north Letchworth Garden City and the town centre.
Baldock	PK13	Baldock connectivity, railway & dev.	To make Baldock a safe, convenient and attractive place to make sustainable transport trips through improvements to cycling and walking infrastructure and facilities
To Central Beds	PK14	To Hitchin/Letchworth Garden City	Encourage a modal shift in trips from Central Bedfordshire through supporting development trips to use sustainable modes and the creation of inter-urban cycling and walking routes.

Area	PK	Name	Aim of Package
Royston	PK15	Royston	To transform Royston into a town that facilitates safe, attractive and convenient journeys by active and sustainable transport modes.

Figure 1-2 - Corridors from NCGTP relevant to the North Herts LCWIP



Intalink Hertfordshire Bus Strategy (February 2020)

1.2.63. The Intalink Hertfordshire Bus Strategy sets out in greater detail the plans to grow the local bus network to support the shift towards more sustainable transport within Hertfordshire (as shown in LTP4).

HERTFORDSHIRE COUNTY COUNCIL

INTALINK BUS STRATEGY

February 2020

Passenger Transport
Environment and Infrastructure

Hertfordshire

1.2.64. The strategy states that there is clear potential for growth in bus travel in Hertfordshire, noting that only 3% of journeys to work in Hertfordshire are made by bus, which is less than half the national average. It also notes the large numbers of residents who make multi-modal trips to London on the train and the LTP4 declaration that “with 175,000 additional residents by 2031, it will not be acceptable in environmental, economic or social terms to continue to depend on cars.”

1.2.65. The strategy’s plans include giving greater priority to bus services in traffic, making sure bus information is easy to access and raising standards of operation across the county.

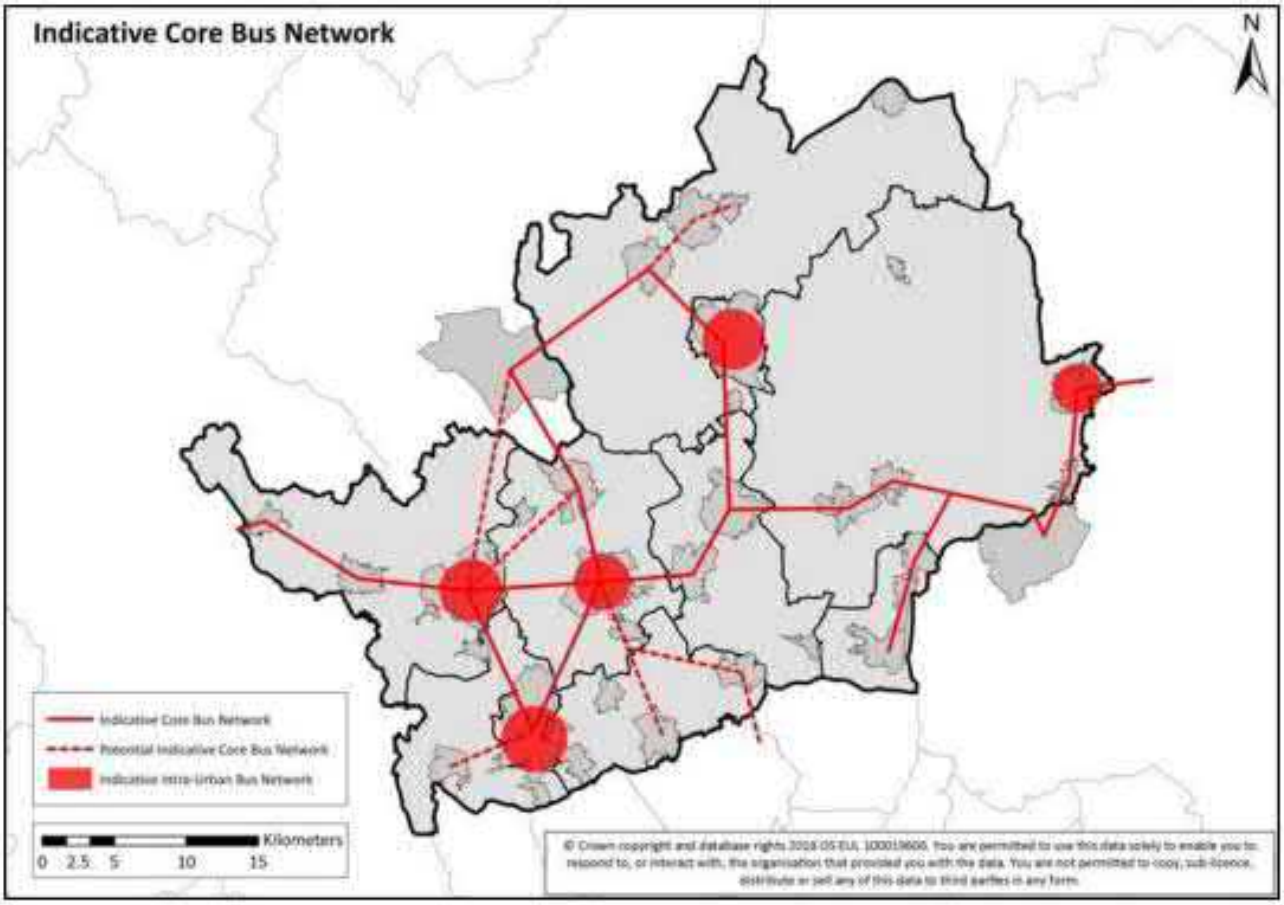
Walking & Cycling

1.2.66. The Intalink Bus Strategy recognises that infrastructure improvements should also be targeted to enhance access to the bus network by walking and cycling. The location, nature and design of interchanges is evolving, and these should consider current and future growth requirements and capacity.

1.2.67. The Strategy focuses on the prioritised improvements presented within LTP4, stating that the prioritised corridors and towns should be well-served in terms of frequency and investment will support patronage growth on routes serving them.

1.2.68. Figure 1-3 shows the indicative core infrastructure corridors identified in LTP4. Routes connecting Hitchin with Stevenage and Luton are identified as part of the indicative core bus network. Another route on the indicative core bus network connects Stevenage with Welwyn Garden City via Stevenage. A route connecting Hitchin with Letchworth Garden City and Baldock is included as part of the potential indicative core bus network.

Figure 1-3 - Indicative Core Infrastructure Corridors from the Strategy



1.2.69. Short and long-term packages for improving bus services and facilities across Hertfordshire have been identified as part of the Bus Service Improvement Plan. The interventions proposed as part of this LCWIP aim to improve pedestrian and cyclist accessibility in Hitchin, Letchworth Garden City, Baldock and Knebworth, which provide an opportunity to enable more walking and cycling as the first or last stages in multi-modal journeys.

Bus Service Improvement Plan (October 2021)

1.2.70. The Hertfordshire Bus Service Improvement Plan (BSIP) acts as the vision for how bus services will be developed and enhanced across Hertfordshire County in the coming years.

1.2.71. Work on Hertfordshire's BSIP began after the LCWIP was underway and was published in October 2021. It should be noted that this document was not available when the key routes contained in this LCWIP were developed. However, future iterations of this LCWIP should compare and align the plans to complement one another. Co-ordination between the development of walking and cycling networks and the bus network provides a great opportunity to maximise the potential for multi-modal travel in North Herts and ensure new developments are well-connected. It should also be noted that new DfT funding for bus priority improvement schemes may even be able to fund certain LCWIP improvements if well-coordinated.

1.2.72. Key corridors where there are gaps in the bus network across Hertfordshire have been identified within the BSIP. These are key corridors that would benefit from increased frequencies and enhanced connectivity particularly during the weekday peak and interpeak periods. Those relevant to North Herts include Hitchin to St Albans, Hitchin to Luton, Hertford to Royston and Letchworth to Royston. However, there is not yet much information on this and whether additional infrastructure would be proposed to support these connections.

1.2.73. A feasibility study has been conducted for Hitchin to identify a package of short- and long-term measures to improve bus travel. A total of nine schemes have been proposed in Hitchin, with an estimated investment of £1.5 million, although there is no information in the BSIP about what these nine schemes comprise.

1.2.74. A challenge could be if bus priority infrastructure is planned on the same corridor as cycle infrastructure and there is limited space available. However, where there is sufficient space, infrastructure (such as bus stop bypasses and bus stop boarders) is available to enable pedestrians, cyclists and buses all to use the same corridors.

Place and Movement Design Guide – Incomplete Draft (March 2021)

1.2.75. The Place and Movement approach is a technical approach intended to recognise the needs of different road users in Hertfordshire and manage the interfaces between them. It intends to provide a way of looking at the appropriate function of any section of highway and therefore a basis for deciding which activities should be prioritised. In doing so, it aims to provide a means to translate LTP4 policies into practice.

1.2.76. As part of this work, each street on Hertfordshire's highway network has been categorised into 9 different street types based on each street's place and vehicle movement function as designed by the guide. The nine street types take the form of a 3x3 matrix and are based on the Healthy Streets approach developed by Transport for London. The LCWIP project team has been given a GIS layer which maps the North Herts highway network onto these street types. Wherever possible, we have sought to match the proposals in this LCWIP with the functionality of the street type. However, due to physical constraints on some streets, it is only possible to provide the infrastructure needed to enable mode shift to walking and cycling by reallocating roadspace away from motor vehicles or adding crossings which may slow down traffic. Where this is the case, further work and consultation may be needed to decide the best way forward as schemes are progressed.

1.2.77. This design guide supports a mode shift towards walking and cycling and is therefore aligned with this LCWIP. The document emphasises that routes should be carefully positioned and easily accessed by all, with particular consideration given to those routes connecting communities to local centres, healthcare facilities and schools.

Sustainable Hertfordshire Strategy (2020)

1.2.78. Following its Climate Emergency Declaration in July 2019, Hertfordshire County Council started developing a Sustainable Hertfordshire Strategy to set out initial policies and strategies needed to embed sustainability across all its council operations and services throughout the county. The strategy has the aim of enabling environmental action across the county; from delivering net zero carbon to preparing for extreme weather.

1.2.79. The strategy identifies that increasing mode-shift away from car towards walking and cycling will help achieve the county's plans for fighting climate change. The document sets out targets, and what is required in order to achieve these. The aims and objectives of the Sustainable Hertfordshire Strategy and the North Herts LCWIP are aligned. Enabling more walking and cycling across North Herts will reduce greenhouse gases and air pollution for those in the district, including any HCC staff that live, travel or work there.

Speed Management Strategy (2020)

1.2.80. The Speed Management Strategy (SMS) is a supporting document to the fourth Local Transport Plan, LTP4. Its purpose is to establish a consistent approach to the setting of speed limits based on the function and nature of the route as set out in DfT Circular 01/2013 Setting Local Speed Limits. The document is an update of the previous strategy adopted in 2014 and reflects changes in regulation, guidance and policy. A key change is the adoption of LTP4, which places much greater emphasis on the consideration of the needs of vulnerable road users such as pedestrians and cyclists.

1.2.81. In order to support this the council has also adopted a place and movement approach which takes account of the varying functions and uses of its roads and categorises them based on whether they are places people want to visit or whether they are primarily focussed on vehicle movement. This helps identify locations which may be suitable for the application of lower speed limits.

1.2.82. To enable the SMS to both deliver LTP4 policies and to provide a consistent approach to setting speed limits across the county, the following core principles have been developed:

- To encourage speed limit changes that support active travel;
- Lower speed limits, where appropriate;
- To change the design of roads in order to change behaviour, where appropriate; and
- Where it has been established that speed limits are too low for the environment, speed limits may be raised.

1.2.83. There is an opportunity to create more suitable environments for active modes where speeds are lowered, such as in 20mph zones. However, 20mph may need to be accompanied by changes in road design (e.g. cycle friendly traffic calming) to ensure that speeds do in fact reduce.

1.2.84. Given the first and third core principles, it is assumed that the proposals in the LCWIP will be supported by the SMS. This is especially important when considering inter-urban cycling trips. Speed limits on roads between settlements (for example between Hitchin, Letchworth and Baldock) often increase to over 30mph. On many of these roads there is limited roadspace for fully kerbed cycle tracks (the only LTN 1/20 compliant infrastructure solution) and there are few or no alternative routes available for cyclists. As such, speed limits (and design speeds) on these roads would need lowering in order to enable on road cycling in a safe manner in accordance with LTN 1/20 guidelines. The LCWIP has proposed this in places, despite the fact that this may be at odds with other strategic transport priorities around the speed and flow of motor traffic and would need to be assessed in line with the SMS guidelines.

Other County Policy, Strategies and Plans

Sustainable Travel Towns

1.2.85. Letchworth and Royston are part of the Sustainable Travel Town programme which aims to reshape the local highway network in line with the sustainable transport objectives set out in LTP4. Each Sustainable Travel Town (STT) will contain a package of measures that will aim to achieve a significant switch to walking, cycling and public transport. The types of potential measures range from: new infrastructure for walking, cycling and public transport; behaviour change programmes; lighting; planting; promotion and marketing; and maintenance.

1.2.86. Action plans are currently being developed for each of the towns and the schemes identified as part of this LCWIP will feed into this process.

B197 Corridor Study

1.2.87. The North Central and South Central Growth and Transport Plans identified the need for a sustainable transport corridor along the B197 from Stevenage in the north and Welwyn Garden City in the south, via the villages of Knebworth, Woolmer Green and Oaklands. The section between Stevenage and Woolmer Green via Knebworth is in North Herts. Validation work has been undertaken and has identified a number of options for the improvement of walking, cycling and bus routes along this corridor.

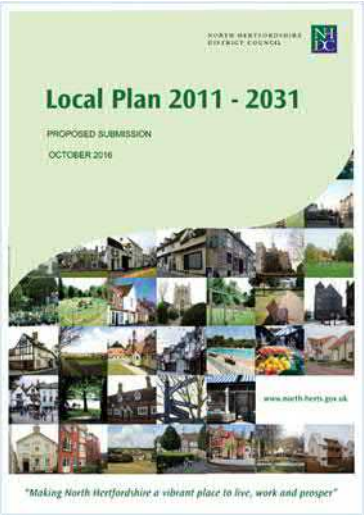
1.2.88. The LCWIP project team has seen the emerging findings of this study, which included suggestions for new crossings in Knebworth, modal filters and a signalised shuttle system under the rail bridge near the station. The work in this LCWIP supports these suggestions and more information is included within the main body of the report.

1.3 District Strategies, Policies And Plans

1.3.1. This section will present the existing policy documents that are relevant to this LCWIP on a district level.

Emerging Local Plan (North Herts District Council, 2011-2031)

1.3.2. The emerging local plan has been prepared by North Herts District Council in order to replace the previous Local Plan, released in 1996. The Local Plan seeks to address the key issues facing North Hertfordshire and sets a strategic vision and spatial strategy for the district over the period of 2011 to 2031. The Local Plan is yet to be adopted but gives an indication of the prevailing policy for the district.



1.3.3. The document highlights that there are a number of challenges facing North Hertfordshire over the next 15 years which the Local Plan will need to address in terms of national policy and at the district and local level. It also highlights that there are also a number of opportunities associated with development which the Council should seek to utilise for the benefit of the district as a whole.

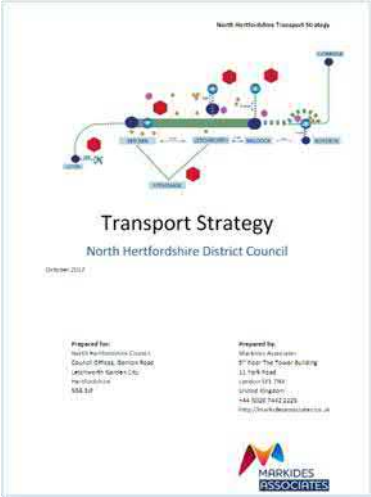
Walking and Cycling

1.3.4. Policy SP6: Sustainable Transport details how the council will deliver accessibility improvements and promote the use of sustainable transport modes insofar as reasonable and practicable. This includes:

- Complying with the provisions of the Local Transport Plan and other supporting documents as considered necessary;
- Encouraging development in locations which enable sustainable journeys to be made to key services and facilities;
- Working with Hertfordshire County Council, Highways England and service providers to ensure that a range of sustainable transport options are available to all potential occupants or users. This may involve new or improved pedestrian, cycle and passenger transport (including rail and/or bus) links and routes;
- Seeking the early implementation of sustainable travel infrastructure on Strategic Housing Sites in order to influence the behaviour of occupiers or users, along with supporting Travel Plans in order that sustainable travel patterns become embedded at an early stage;
- Assessing development proposals against the parking standards set out in this Plan and relevant supplementary advice;
- Requiring applicants to provide assessments, plans and supporting documents to demonstrate the safety and sustainability of their proposals; and
- Protect existing rights of way, cycling and equestrian routes and, should diversion be unavoidable, require replacement routes to the satisfaction of the Council.

Transport Strategy (North Herts District Council, 2017)

1.3.5. The Transport Strategy was produced as supporting evidence for the emerging North Hertfordshire District Council (NHDC) Local Plan covering the period 2011-2031 and also informed the NCGTP discussed earlier. It will sit alongside the Local Plan and be updated over its lifetime, and NHDC will continue to work in close cooperation with the highway authority (Hertfordshire County Council) and other stakeholders, including Highways England, and adjacent local authorities.



1.3.6. The Strategy assesses the implications of the Local Plan proposals on the local transport networks and recommends a strategic approach to provide for transport through the Local Plan period. In recent years, Hertfordshire County Council (HCC) signalled a shift in strategic thinking about transport. The new approach places far greater emphasis on more sustainable travel choices such as cycling and public transport, and lower emphasis on highway improvements. The Transport Strategy has developed from this view and is focused on the potential for solutions and mitigations to better reflect the new sustainable transport priorities of HCC.

1.3.7. The Strategy has identified key principles which will be delivered through various policies. These are detailed in Table 1-2 below and relevant corridors from these are shown on Figure 1-4.

Table 1-2 – NHDC Transport Strategy Policies

Policy Name	Policy Description
New developments have sustainable transport 'built-in'	New developments need excellent walk and cycle links to adjacent areas and key destinations, and good public transport connections. These modes should generally take precedence over highway access and offer easy direct access by sustainable modes to attractions such as schools, railway stations and town centres.
Transport user hierarchy	Remove the priority of designing roads and urban areas for vehicle movements and give priority to other sustainable modes of transport such as walking, cycling and public transport.
Step change in cycling and improved walking within the main urban centres	This requires dedicated travel behaviour change staff based locally, with sufficient resources to develop campaigns and events during the plan lifetime, and who can develop relationships with local stakeholders.
Improvement in bus-based public transport in urban centres	Discussions with the local operators to determine if amendments or enhancements to bus services can be considered, potential bus priority schemes, improved information, better passenger facilities and marketing.
'Sustainable Spine' corridor along the A505	The corridor should be reconsidered in relation to its 'people movement' function, rather than as a highway link only.
A traffic management plan for each main urban town,	This plan should review existing traffic movements and capacity, air quality issues and links to other measures such as buses, walking and cycling. It should then propose a management framework for future changes.
Rural management and improvement measures	These will be site specific measures aimed at resolving traffic issues or taking opportunities to improve the 'place' function of the village or to better link villages to each other or the main urban towns.

Policy Name	Policy Description
Review, provide for and utilise technology improvements	Technological innovation is rapidly changing the transport sector. Many of these are likely to improve highway capacity and/or reduce the cost of highway travel, which may work against measures to encourage more sustainable modes.

Figure 1-4 - Sustainable Transport Corridors from the NHDC Emerging Transport Strategy (relevant to the North Herts LCWIP)

Letchworth Garden City Cycling Strategy (LGC Heritage Foundation, 2018)

1.3.8. The overall aim of this strategy is to assist HCC, NHDC and other external funders in identifying and proposing potential improvements for cyclists in Letchworth Garden City.

1.3.9. The purpose of this strategy is therefore to build on the strong foundations of Letchworth Garden City's built environment for active travel modes and to identify 'quick-win', as well as medium- to long-term improvements to cycling conditions in Letchworth. The strategy also considers what cycling schemes / improvements could be included within new developments.

1.3.10. The objectives of this strategy are:

1. Enhance and extend cycle routes to create a comprehensive network, making cycling an easy, pleasant choice;
2. Make it easier and safer for all to cycle in and through residential areas;
3. Improve access by bicycle to key destinations in Letchworth Garden City including the town centre, the station and the leisure centre; and
4. Give people the confidence and skills to cycle and encourage positive and safe interactions between cyclists and other road users.

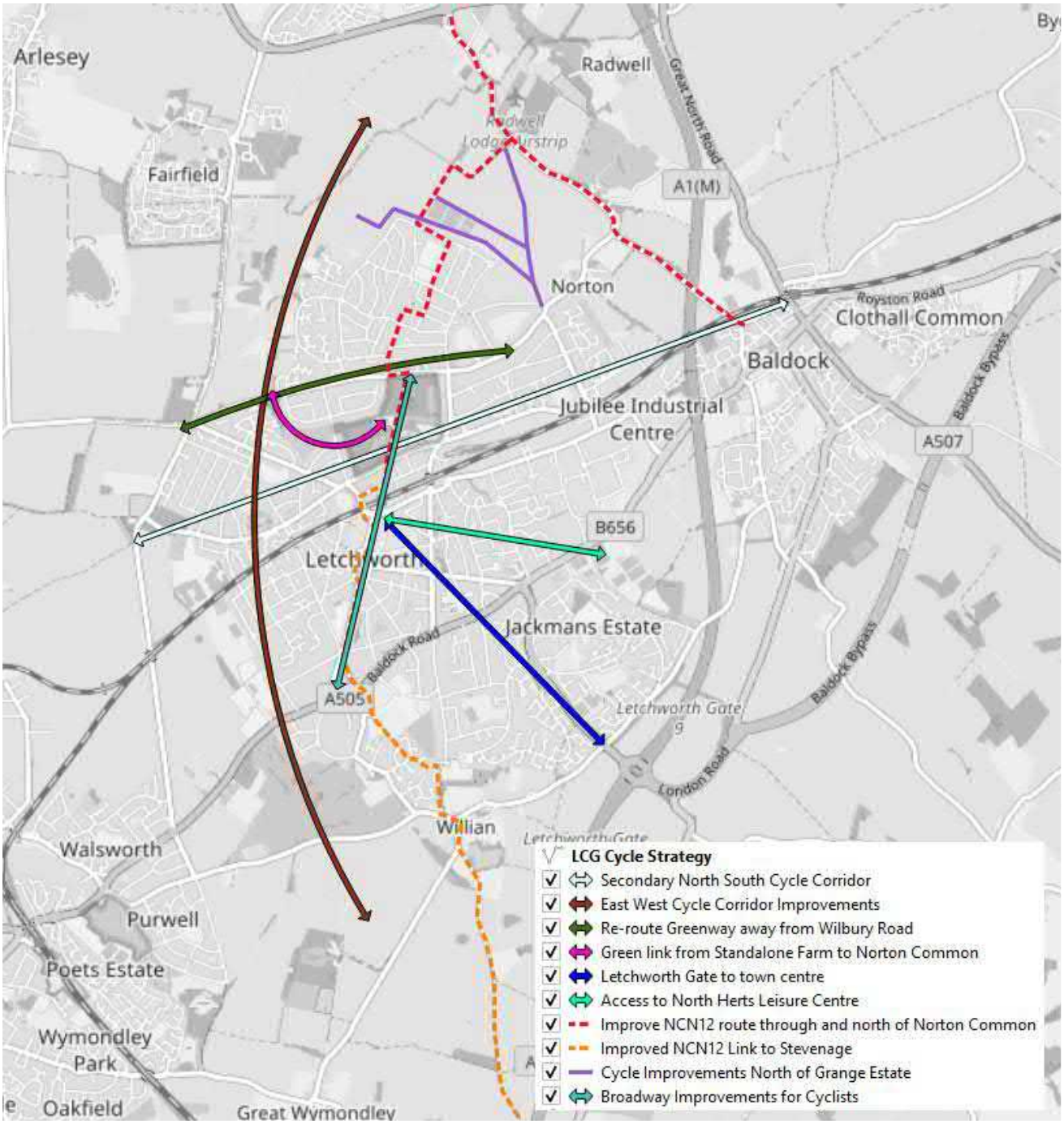
1.3.11. The strategy proposes potential recommended schemes to improve conditions for cycling in Letchworth. These are shown in Table 1-3 and mapped on Figure 1-5.

Table 1-3 – Schemes presented in the LGC Cycling Strategy

ID	Scheme Description
1.1	Improve NCN12 route through and north of Norton Common
1.2	Development of secondary north-south cycle corridor
1.3	East-west cycle corridor improvements
1.4	Re-route Greenway away from Wilbury Road mini-roundabouts
1.5	Surfacing and access improvements to Greenway
1.6	Green link from Standalone Farm to Norton Common
1.7	Improve NCN12 link to Stevenage
1.8	Create cycling link from Letchworth Gate to town centre
1.9	Improvements to the cycling network in and north of the Grange Estate
2.1	Improved wayfinding for cyclists
2.2	Cycle track priority over junction mouths
2.3	Tightening junction turning radii
2.4	Designating more footways as shared use
3.1	Creation of a leisure cycle hub
3.2	Town centre access improvements for cyclists
3.3	Broadway improvements for cyclists
3.4	Town centre cycle parking improvements
3.5	Improving cyclist access to North Herts Leisure Centre

ID	Scheme Description
3.6	Development of a cycle to school strategy
4.1	Mitigating path user conflict on the Greenway
4.2	Driver behaviour cycle awareness campaign
4.3	Extend the programme of cycle training
4.4	Develop a programme of community cycling events

Figure 1-5 - LGC Cycling Strategy Schemes



1.3.12. This LCWIP reviewed the suggestions identified and, where there was evidence for the improvements and the suggestions conformed with latest best practice and the results of LCWIP auditing, these have been incorporated into the LCWIP. The scheme prioritisation in Section 8 also takes into account the location of the infrastructure improvements in relation to this strategy in its scoring system.

Knebworth Neighbourhood plan (Knebworth Parish Council, 2021)

1.3.13. The Knebworth Neighbourhood Plan (KNP) sets out a plan to make Knebworth a vibrant and inclusive place to live, with aspirations around good design, environmental performance and sustainable growth while maintaining its rural character.

1.3.14. Several policies in the neighbourhood plan are in alignment with the goals of the LCWIP, notably KBT1. While this policy is primarily focused on new developments, the text states that the Parish Council "supports proposals that encourage change of travel mode away from the private car to more sustainable forms of transport" and goes on to talk about "encouraging a switch to walking and cycling by improving the safety and quality of existing facilities".

1.3.15. The main barriers to improving the active travel network in Knebworth are the very busy 'high street' section of the B197 and the constraints under the rail bridge near Knebworth station. In order to create a continuous quality cycle facility on the B197, at least some of the parking on the 'high street' would need to be relocated. The KNP does not currently support this and so the LCWIP has instead identified a need for traffic calming in this area with a note that there should be a long-term goal to relocate the parking if possible. Under the rail bridge, a shuttle system has been proposed but this would require much further work and consultation to determine its feasibility and the level of local support.

Baldock, Bygrave and Clothall Neighbourhood Plan (2021)

1.3.16. This neighbourhood plan has been produced by a small number of volunteers drawn from community organisations in Baldock, together with representatives from Bygrave and Clothall. The plan contains policies that complement the emerging North Hertfordshire Local Plan, providing additional safeguards and requirements.

1.3.17. The plan supports walking and cycling infrastructure, having highlighted the need for improved infrastructure in key areas, as detailed below:

- Improving the link between Baldock High Street and Tesco superstore;
- Improving access to Baldock station;
- Providing a sustainable link between Bygrave and Baldock, via Bygrave Road/Ashwell Road; and
- Upgrading Royston Road to become a sustainable travel corridor.

1.3.18. The report also emphasises the importance of reducing congestion and improving air quality within Baldock, stating that a key way to combat this to provide walking and cycling routes that allow safe and convenient access between the sites and Baldock town centre, railway station, employment areas and primary and secondary schools.

1.3.19. This LCWIP supports these plans and in some cases identifies the infrastructure needed.

Pirton Neighbourhood Development Plan (Pirton Parish Council, 2018)

1.3.20. This neighbourhood plan was developed by Pirton Parish Council in conjunction with numerous local organisations and sets out a vision for the future of the Pirton up to 2031.

1.3.21. The key purpose of this plan is to encourage sustainable development in accordance with the character of the village and Parish of Pirton, with an emphasis on encouraging walking and cycling in and around the village and parish. Key areas highlighted within the plan which this LCWIP supports include:

- Safe pedestrian links to the principal village facilities, including the village centre and recreation ground; and
- Improved access to the Icknield Way path and the Chiltern Cycleway;

Ashwell Neighbourhood Plan (Ashwell Parish Council, 2021)

1.3.22. This neighbourhood plan was produced by a working group acting on behalf of the Parish Council, incorporating the views of the residents of the Parish of Ashwell. The purpose of the plan is to structure development within the parish and provide guidance to any interested parties wishing to submit planning applications for development within the parish.

1.3.23. The plan supports improving walking and cycling infrastructure to encourage short, local journeys to be made by foot. The plan supports the need for improved walking and cycling connections within the area as well as a complete walking and cycling link between Ashwell and the railway station, both of which are supported by this LCWIP.

Wymondley Parish Neighbourhood Plan (Wymondley Parish Council, 2019)

1.3.24. This neighbourhood plan was produced by the Wymondley Neighbourhood Plan Committee, a sub-committee of Wymondley Parish Council. The plan includes policies which strive to create a more sustainable way of life for residents, resulting in Wymondley Parish becoming a safer, healthier and greener place to live and work.

1.3.25. The plan recognises the importance of green infrastructure in reducing carbon footprints and supports appropriate initiatives to maintain, extend, improve, promote or facilitate use of these transport routes. Plans in this LCWIP complement the plan's intentions around improving footpaths and bridleways to facilitate safe walking and cycling within the Parish and reduce motoring.

Preston Parish Neighbourhood Plan (Preston Parish Council, 2020)

1.3.26. Preston Parish Council have developed this neighbourhood plan to establish a vision for the whole Parish and to help deliver the local community's wishes and needs for the plan period 2018 – 2031.

1.3.27. The plan presents various objectives in relation to the promotion and improvement of walking and cycling facilities, including:

- To support and encourage safe and sustainable transport, including walking and cycling.
- To support and encourage safe use of roads, paths and bridleways for all users: walkers, joggers, cyclists and horse riders.

1.3.28. Policy TC1 'Safe and Sustainable Transport' further emphasises Preston Parish's desire to improve sustainable transport infrastructure, stating that development proposals will be supported where "amenities in the village can be readily and safely accessed by pedestrians and cyclists".

1.3.29. Although no specific infrastructure proposals in the Preston area are included in this LCWIP, the need for active travel routes within Preston town and from Preston to Hitchin and Stevenage have been recognised and included in this LCWIP.

1.4 Relevant Plans in Neighbouring Authorities

Cambridgeshire Greenways

1.4.1. The Greater Cambridge Partnership are working on the development of a high-quality greenway network, which will encourage walking and cycling as a mode of travel both into and out of Cambridge. The Melbourn Greenway is relevant to this LCWIP as it proposes to link Royston to Cambridge via Melbourne, Foxton and Trumpington. The analysis conducted for this LCWIP also identifies a need for this connection, and infrastructure proposed in Section 7 would tie in with the Melbourn Greenway's proposal for a bridge over the A505 to link into Royston. Current validation work is being undertaken separately by HCC to look at these links.

Stevenage LCWIP

1.4.2. Stevenage Borough Council developed the Stevenage LCWIP in 2019, which sets out a network of preferred and future routes for walking and cycling in the borough. There are a few interfaces between the two LCWIPs identified in this report:

- This LCWIP has confirmed a need for an active travel link between Hitchin and Stevenage. High-level infrastructure ideas for this link are included in Section 7 of this report. Plans included in this LCWIP end at the district boundary, to the west of Junction 8 of the A1(M). The Stevenage LCWIP Route 1 'North Stevenage to Stevenage Central', links this junction to Stevenage town centre via the A602, creating an opportunity for a long, cross-boundary connection. However, plans in the Stevenage LCWIP stop short of continuing the route over the junction, instead continuing the route north along the National Cycle Network route towards Letchworth via Gravely. While this link is important too, there is a need to address the A602 barrier in order to provide a more direct connection between Stevenage and Hitchin. This would require further collaboration between HCC, Stevenage Borough Council and NHDC.
- The B197 corridor study links Stevenage in the north with Welwyn Garden City in the south and the North Herts section (from Stevenage to Woolmer Green via Knebworth) is also covered in this LCWIP. However, the first iteration of the Stevenage LCWIP did not include connections to such a route. Further collaboration between the three authorities is therefore required here too, in order to ensure any future B197 connection is properly integrated into Stevenage's walking and cycling networks.

- There are some developments planned on the edge of the Stevenage urban area (by Great Ashby) which are inside North Herts district. In terms of active travel, the key connections for these developments will be into Great Ashby and Stevenage, which are in Stevenage Borough. These connections have been identified in Sections 5 and 6 of this report.

Luton LCWIP

1.4.3. Luton Borough Council are currently developing an LCWIP, which is expected to be completed in 2022. There are some developments planned on the edge of Luton which are inside North Herts district. The key walking and cycling connections for these developments will be into Luton, on the other side of the district boundary. These connections have been identified in Sections 5 and 6 of this report.

Luton Airport Expansion

1.4.4. Luton Airport, which is located on the border of North Hertfordshire is currently consulting on opening a second terminal. To minimise the impact of additional trips on the road network, the proposals for the expansion would include funding for highway improvements. This might also include changes to parking controls, traffic management and calming measures close to the airport and in rural areas to the east of the airport. The proposals assumed that few passengers would walk or cycle to the airport.

1.4.5. The mitigations document proposes a number of junctions in Hitchin that would require mitigation to accommodate extra traffic flows to the airport. Any junction improvements will also need to include walking and cycling enhancementsA602 Parkway/ Upper Tilehouse Street

- A505 Offley Road/ Upper Tilehouse St
- A602 Park Way/ Stevenage Road/ Hitchin Hill

1.4.6. There are also some traffic calming areas identified in the villages to the east of Luton.

1.4.7. The two key documents are:

- Getting to and from the Airport
- Appendix D Highway Mitigation Drawings

1.5 COVID-19 and the Active Travel Fund

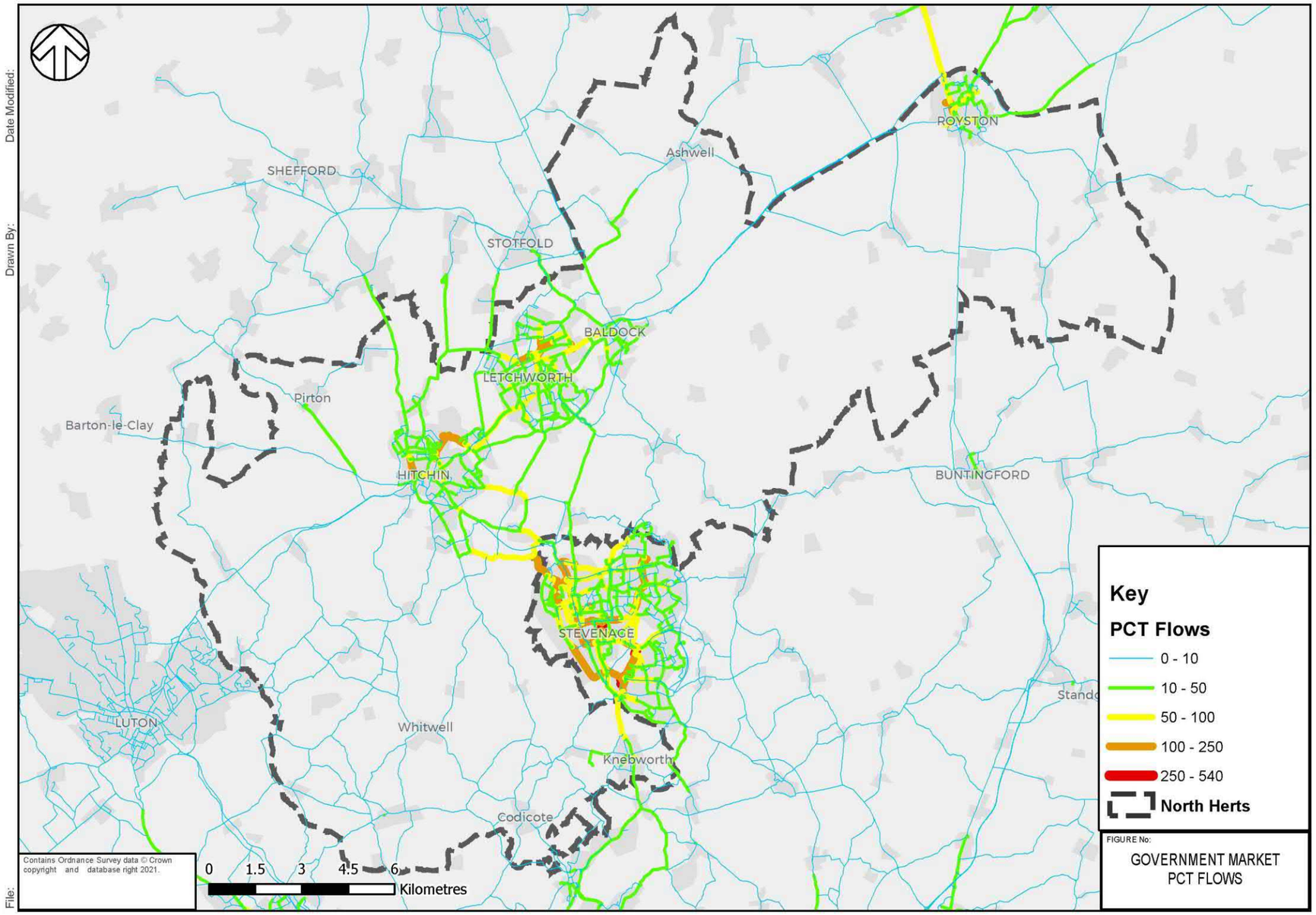
1.5.1. As with the rest of the country, travel patterns in North Hertfordshire in 2020 were massively disrupted by the covid-19 pandemic. Many workers started working from home rather than commuting and schools were closed, impacting these trips as well. People were advised by the government to avoid non-essential trips, to not use public transport, and to prioritise walking or cycling rather than driving to help avoid streets becoming gridlocked. Cycle sales in the UK were much higher than usual in 2020 and the DfT reported increases of around 200% in cycling trips made between March 16th and June 1st compared to the year before.

1.5.2. To support this desired shift to walking and cycling, and to make social distancing easier, on 11 May 2020 the government announced a £250m Emergency Active Travel Fund (EATF). This fund was distributed to local authorities across England in two tranches. The council used funding from the first tranche to improve active travel infrastructure across Hertfordshire. This included measures in Hitchin and Royston town centres to support social distancing by providing more space for pedestrians.

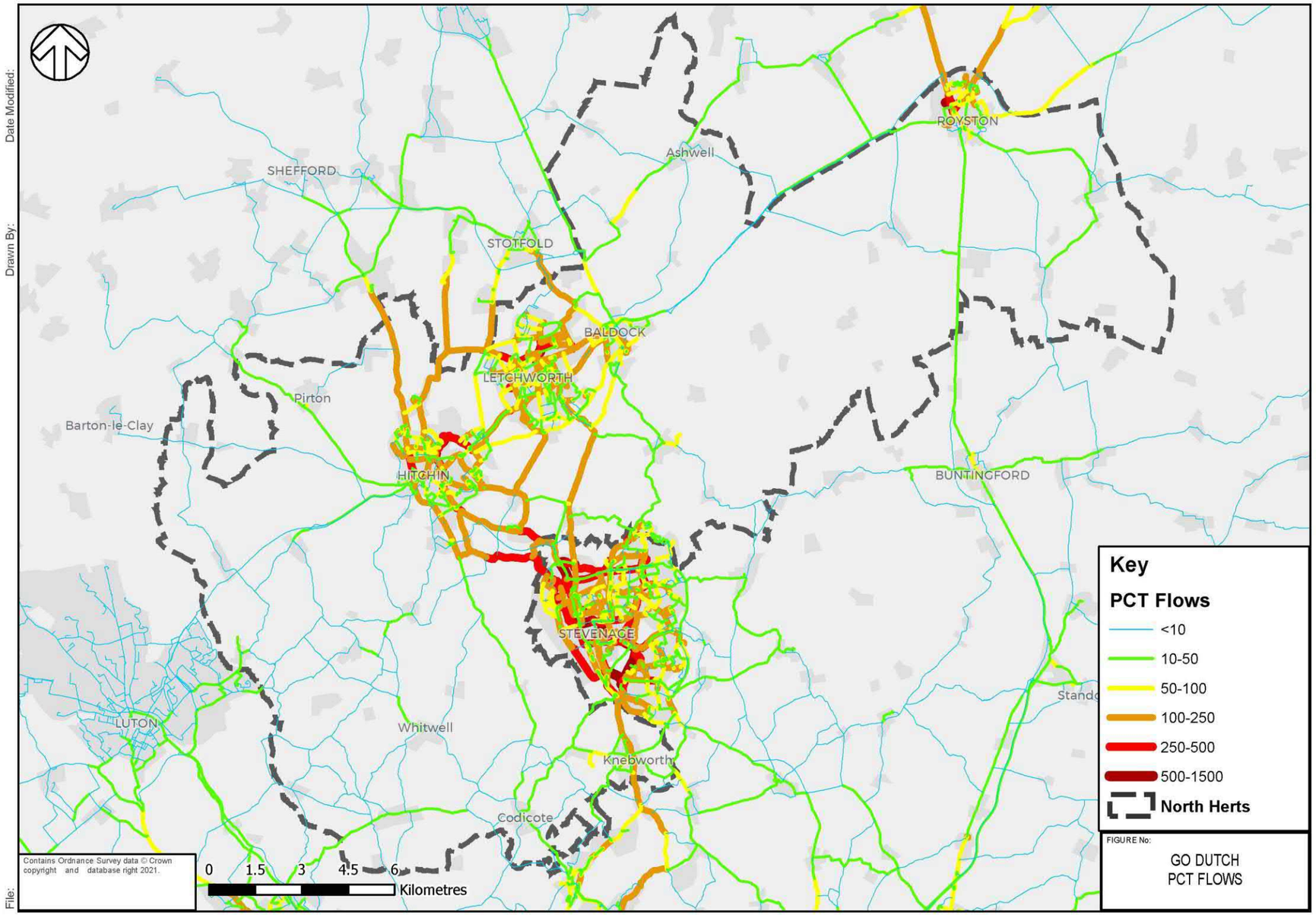
1.5.3. The fund was then renamed the Active Travel Fund and the second tranche of funding was awarded based on plans submitted to the DfT by the council. This includes development of a new cycle route along North Road in Stevenage. Later tranches of funding are increasingly dependent on authorities having LCWIPs in place. It is hoped that some of the proposals in this LCWIP can be funded through this route, once the LCWIP has been adopted.

Appendix B – PCT Outputs

A map showing the PCT outputs for both journeys to work in the Government Target (Near Market) scenario at a district-wide level.



A map showing the PCT outputs for both journeys to work in the Go Dutch scenario at a district-wide level.



GIS Model Overview

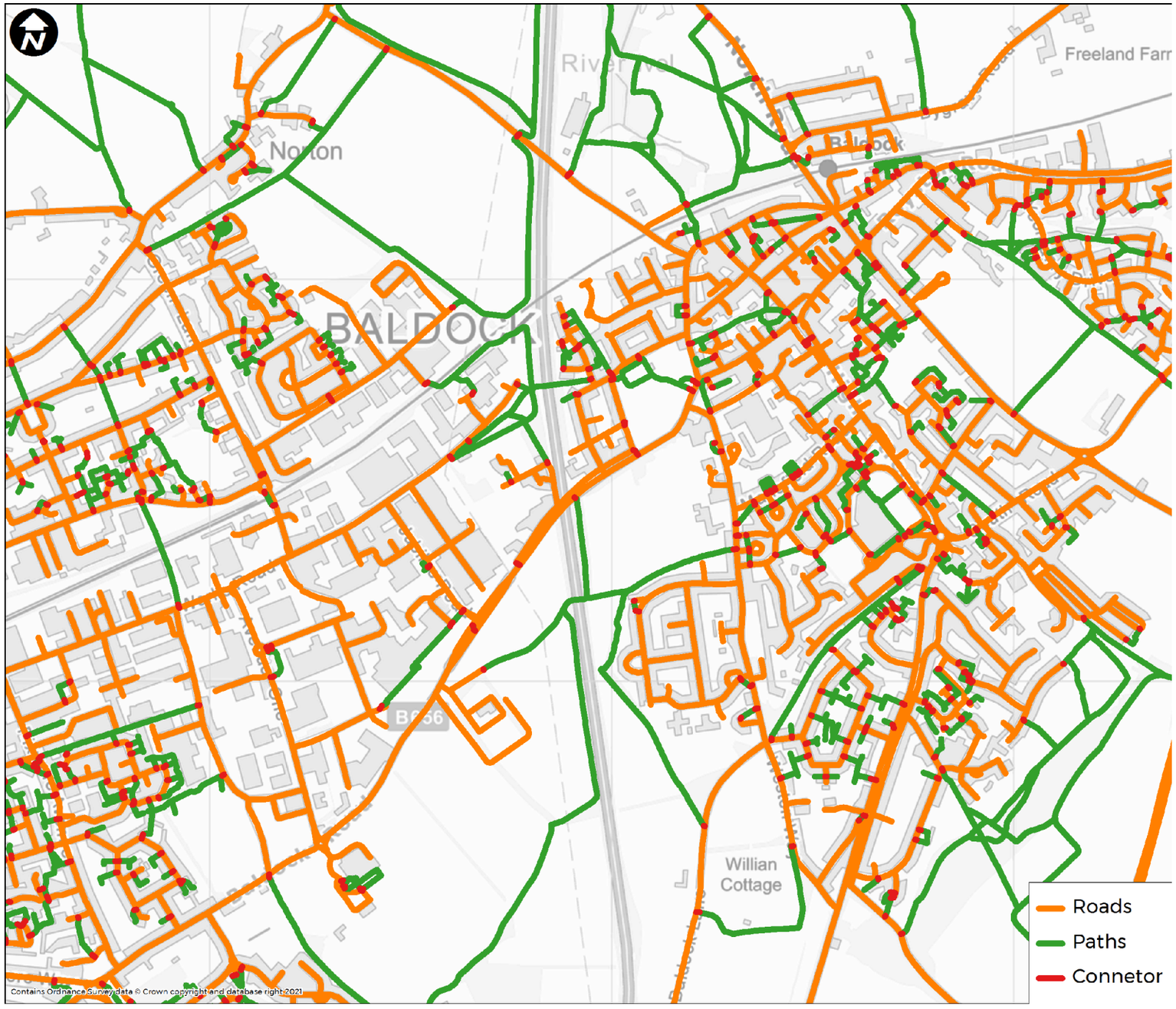
Introduction

- A suite of models has been developed to automate the creation of desire lines for walking and cycling.
- The models require the following inputs: a walk/cycle network, origins, destinations and associated parameters.
- The models create two types of output:
  1. ‘As crow fly’ lines with the number of trips calculate between respective origins and destinations
  2. Walk/cycle network based lines that aggregate the number of trips to the actual network

Inputs

Input 1: Walk/Cycle Network

- A walk/cycle network has been built for the whole of Hertfordshire plus an 8km buffer.
- The datasets were downloaded from the vendor (Emapsite) on 4th May 2021.
- The data consist of two Ordnance Survey MasterMap datasets, one is the most detailed road network available and the second is the associated paths dataset. These two datasets have been merged together correctly before building the network.
- The walk/cycle network can be used for any of Hertfordshire County Council's LCWIPs projects.
- One-way streets have not been modelled.



Input 2: Origin Points

- The origin points dataset has been created from three sources:
  1. Experian Mosaic postcodes with 2019/20 population estimates
  2. North Herts COMET R6 Housing Completions L3
  3. North Herts COMET R6 Perm Sites L3
- The COMET datasets were supplied by Hertfordshire County Council. It is understood that the council has its own Acorn data and in future runs this can be used instead of the Experian Mosaic dataset.
- There are a total of 19,628 origin points across North Hertfordshire plus an 8km buffer
- Each origin point has a weight score, representative of the population at each point.

Input 3: Destination Points

- The destination points dataset has been created from 25 individual datasets supplied by Hertfordshire County Council.
- The extent of destinations was North Hertfordshire plus an 8km buffer
- The combined walk destinations dataset includes all 25 individual datasets, which includes bus stops, and contains 9,157 points
- The combined cycle destinations dataset does not include bus stops, and contains 6,839 points
- Each destination dataset is referred to as a "Destination Type". The Key Employment Areas destination type is made up of three individual destination datasets combined together (Key Employment Areas, Employment Completions, Employment Perm Sites)
- Every destination point within each destination type is given a weighting, however, in the majority of cases, the weighting is a value of one, meaning that all destinations within that destination type, have the same attractiveness as one another. Some destination types have a specific weighting that represents the varying attractiveness of each point, such as number of jobs.
- Each destination type is assigned two pieces of information:
    1. Model Run Category – one of four options (All2All, Nearest1, ClosestX, ClosestY)
    2. Assignment Proportion – each destination type is given a value that represents the proportion of trips being generated by an origin that go to the corresponding destination type. E.g. 10% of all trips from an origin will go to a secondary school.
    - The run category will determine how this proportion of trips generated at an origin point is distributed between the respective destinations within the destination type.

Destination Parameters: Run Category Types & Values

Run Category	Description	Example Destination Type
All2All	This run category will generate data between each origin and every one of the destination points within the corresponding destination type. Serious consideration should be given to using this run category as it can generate millions of data rows which will cause the models to fail (run out of memory).	Town centres
Nearest1	This run category will generate data between each origin and the single nearest destination point within the corresponding destination type.	Train stations, secondary schools
ClosestX	When running the models, the user assigns a value for X, and this run category will generate data between each origin and the X closest destination point within the corresponding destination type.	Primary schools, bus stops
ClosestY	When running the models, the user assigns a value for Y, and this run category will generate data between each origin and the Y closest destination point within the corresponding destination type.	Business parks, retail centres

Run Category	Value for North Herfordshire Model Runs
ClosestX	3
ClosestY	5

Walk Destination Parameters

Destination Type	Run Category	Proportion (Total = 100%)
Bus Stops	ClosestY	6%
Coach Stations	Nearest1	1%
Colleges/Universities	Nearest1	5%
Community Centres	Nearest1	1%
Dentist	Nearest1	1%
Event Spaces	ClosestX	1%
GPs/Walk-in Centres	Nearest1	1%
Hospitals	All2All	5%
Key Employment Areas / Acorn Data /Future Employment	All2All	10%
Libraries	Nearest1	1%
Local/Neighbourhood Centres	Nearest1	20%
Market Areas / Marketplaces	ClosestX	1%
Nurserys	ClosestX	1%
Parks/Open Spaces	Nearest1	1%
Post Office	Nearest1	1%
Primary Schools	ClosestX	9%
Railway Stations	Nearest1	5%
Retail Parks	All2All	1%
Secondary Schools	ClosestX	10%
Sport and Leisure Centres	Nearest1	1%
Supermarkets	Nearest1	5%
Tourist Attractions / Points of Interest	Nearest1	3%
Town Centre Area	All2All	10%

Cycle Destination Parameters

Destination Type	Run Category	Proportion (Total = 100%)
Coach Stations	ClosestY	1%
Colleges/Universities	Nearest1	5%
Community Centres	Nearest1	1%
Dentist	Nearest1	1%
Event Spaces	ClosestX	1%
GPs/Walk-in Centres	Nearest1	1%
Hospitals	All2All	5%
Key Employment Areas	All2All	30%
Libraries	Nearest1	1%
Local/Neighbourhood Centres	Nearest1	5%
Market Areas / Marketplaces	ClosestX	1%
Nurserys	ClosestX	2%
Parks/Open Spaces	All2All	1%
Post Office	Nearest1	1%
Primary Schools	ClosestX	6%
Railway Stations	Nearest1	6%
Retail Parks	All2All	5%
Secondary Schools	Nearest1	6%
Sport and Leisure Centres	Nearest1	1%
Supermarkets	Nearest1	5%
Tourist Attractions / Points of Interest	All2All	5%
Town Centre Area	All2All	10%

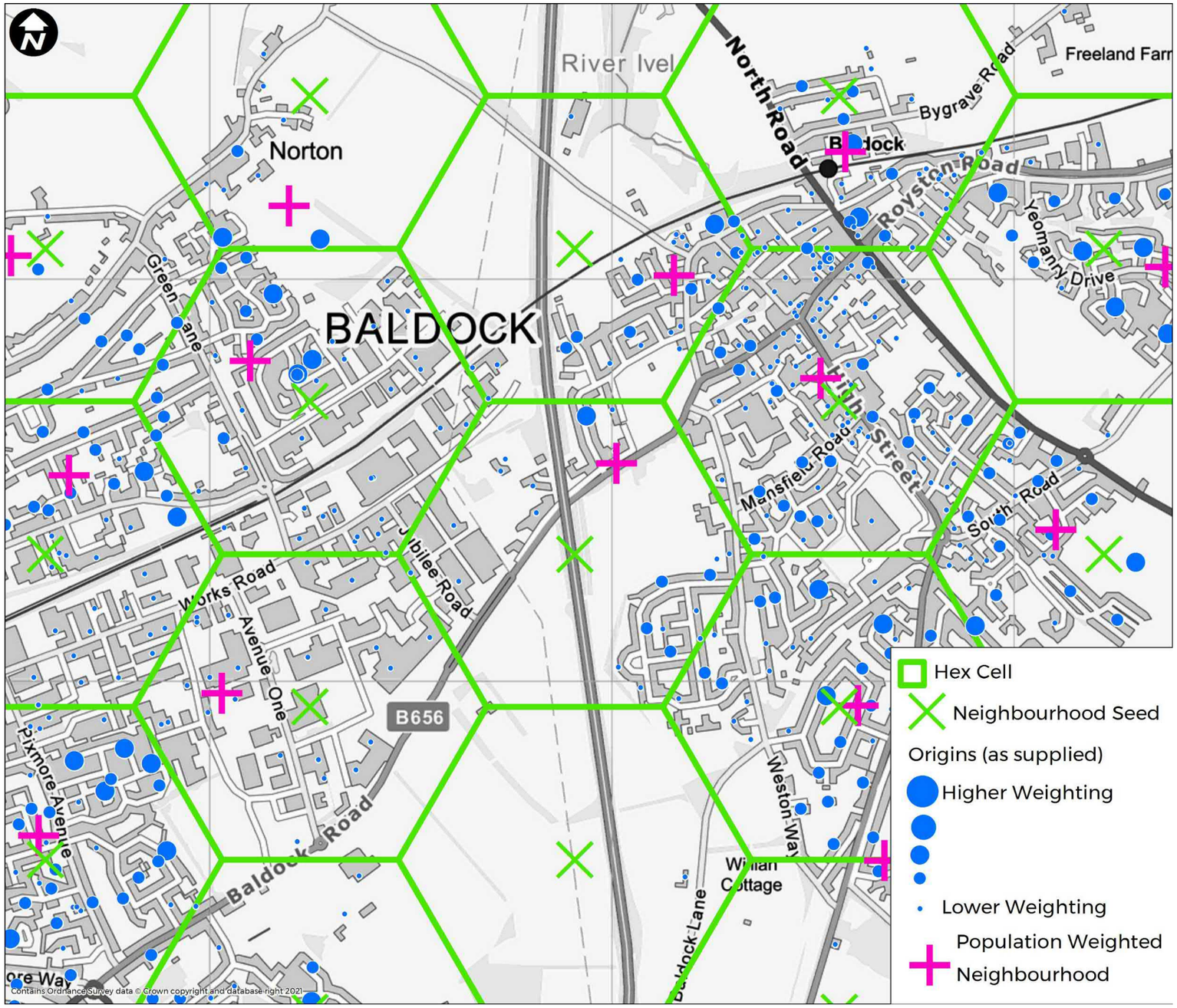
Methodology

Workflow

- A suite of models have been created that run though Esri ArcGIS Desktop.
- Running the models requires an ArcGIS Desktop Advanced license and Network Analyst license.
- The workflow for the models is as follows:
  1. The user manually pre-processes the origin and destination points to ensure both datasets have the required fields and attribute values.
  2. The user selects the required model inputs: walk/cycle network, origin points, destination points and hex cells
  3. The user manually inputs the values of X and Y for ClosestX and ClosestY run categories
  4. The origin and destination points are automatically aggregated to neighbourhood points so that less data is used by the model, however there is no loss to the weighting values associated with origins/destinations. This is essential as with 19,000 origins and 9,000 destinations, up to 171,000,000 trip lines could be generated and a normal computer would not be able to process this.
  5. The model creates an Origin-Destination Matrix (OD Matrix) from all origins to the appropriate destinations destinations, respecting the Run Category parameters for the respective destination type. For example, trips are made from each origin to all hospitals (All2All) and trips are made from each origin to the closest three nurseries (ClosestX). The OD Matrix distances are based on network distances not straight line distances.
  6. The OD Matrix is used to generate the 'as crow flies' lines between origins and destinations. A series of table joins add the origin weight value and destination proportion value to the respective OD lines. A gravity model calculates the number of trips being assigned to each line. The gravity calculation assigns trips based on a formula that balances the distance between origin and destinations and the attractiveness of the destinations. The output dataset is then run through a python script (outside of ArcGIS) to create the clustered desire lines
  7. The OD Matrix is used to generate the walk/cycle network based lines between origins and destinations. A series of table joins add the origin weight value and destination proportion value to the respective OD lines. A gravity model calculates the number of trips being assigned to each line. The gravity calculation assigns trips based on a formula that balances the distance between origin and destinations and the attractiveness of the destinations. Additional processes then aggregate the network based lines to the underlying road network, summing the total number of trips along concomitant sections of road.

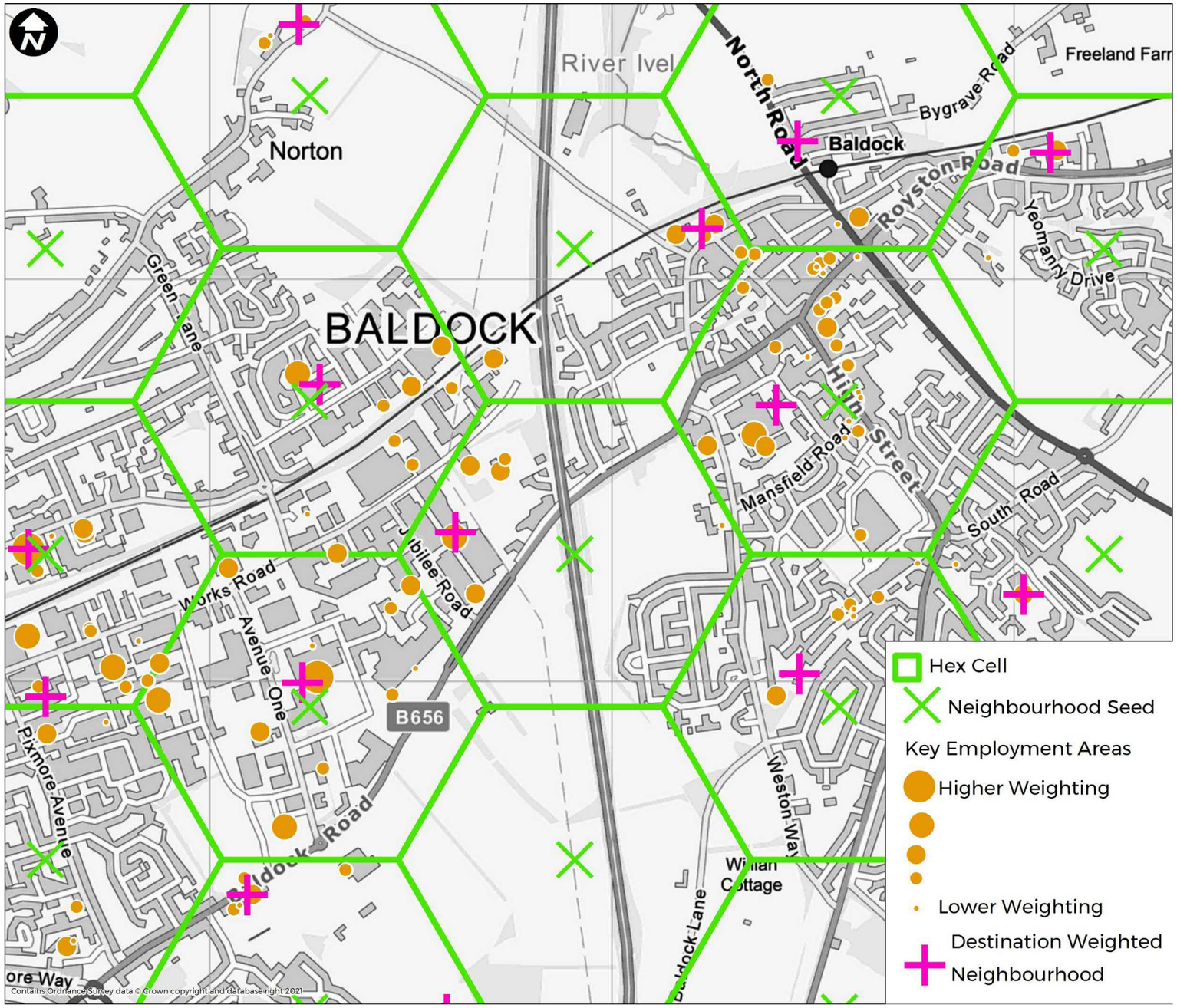
Aggregating Origins

- A grid of hex cells is used as a proxy for neighbourhoods and the centroid of each hex cell used as a 'first step' neighbourhood seed.
- The supplied origins are assigned to the nearest neighbourhood seed using the road network and the total origin weight for each neighbourhood seed calculated (sum of all origin weights)
- A new location to best represent the respective origins is calculated creating a population weighted neighbourhood point
- The population weighted neighbourhood point is now a proxy for all origins deemed to be within a neighbourhood.
- Note that an origin can be physically located in one hex cell, but the closest neighbourhood seed when using the road network is actually in another hex cell. The origin is assigned to the other neighbourhood seed instead.

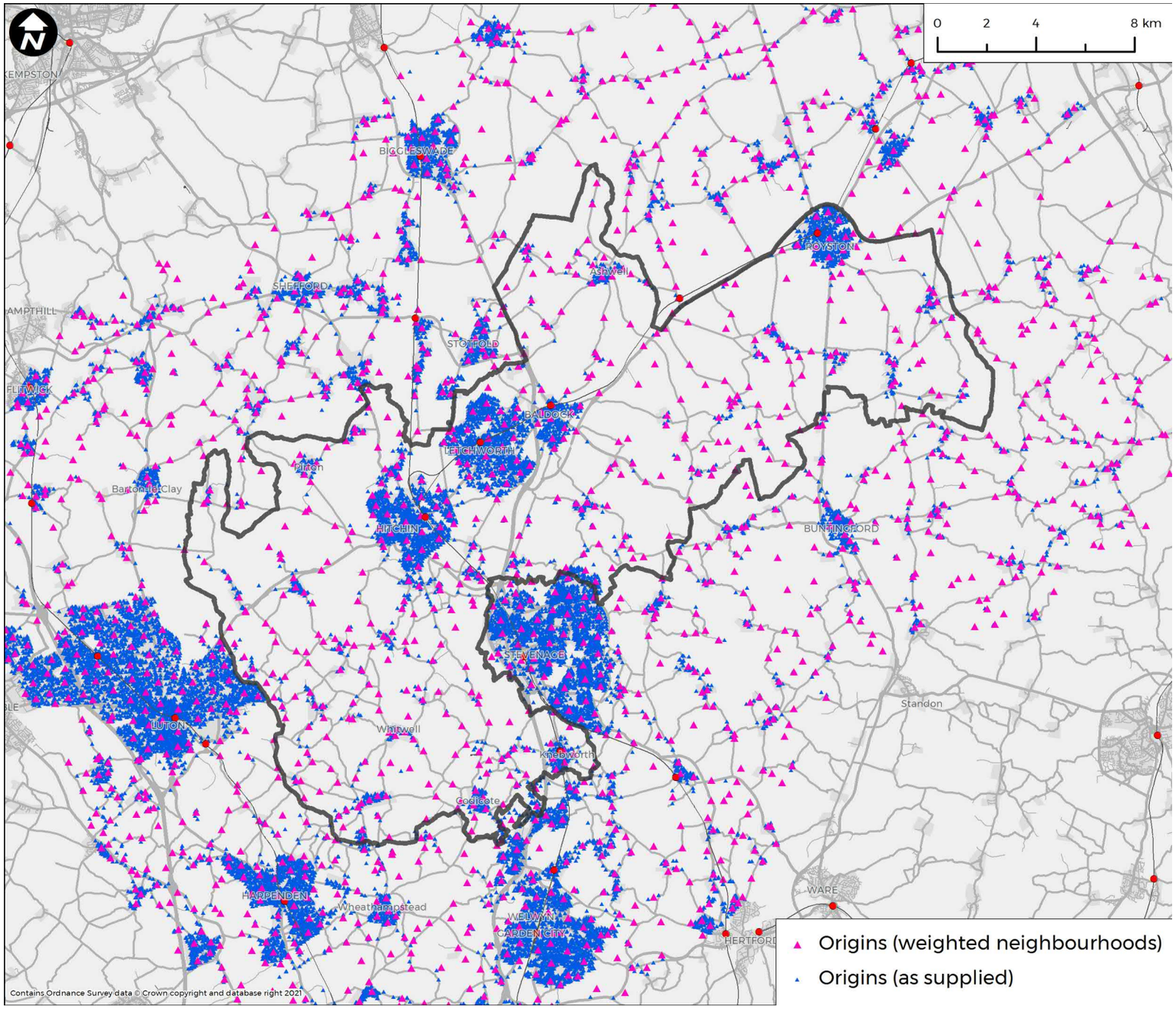


Aggregating Destinations

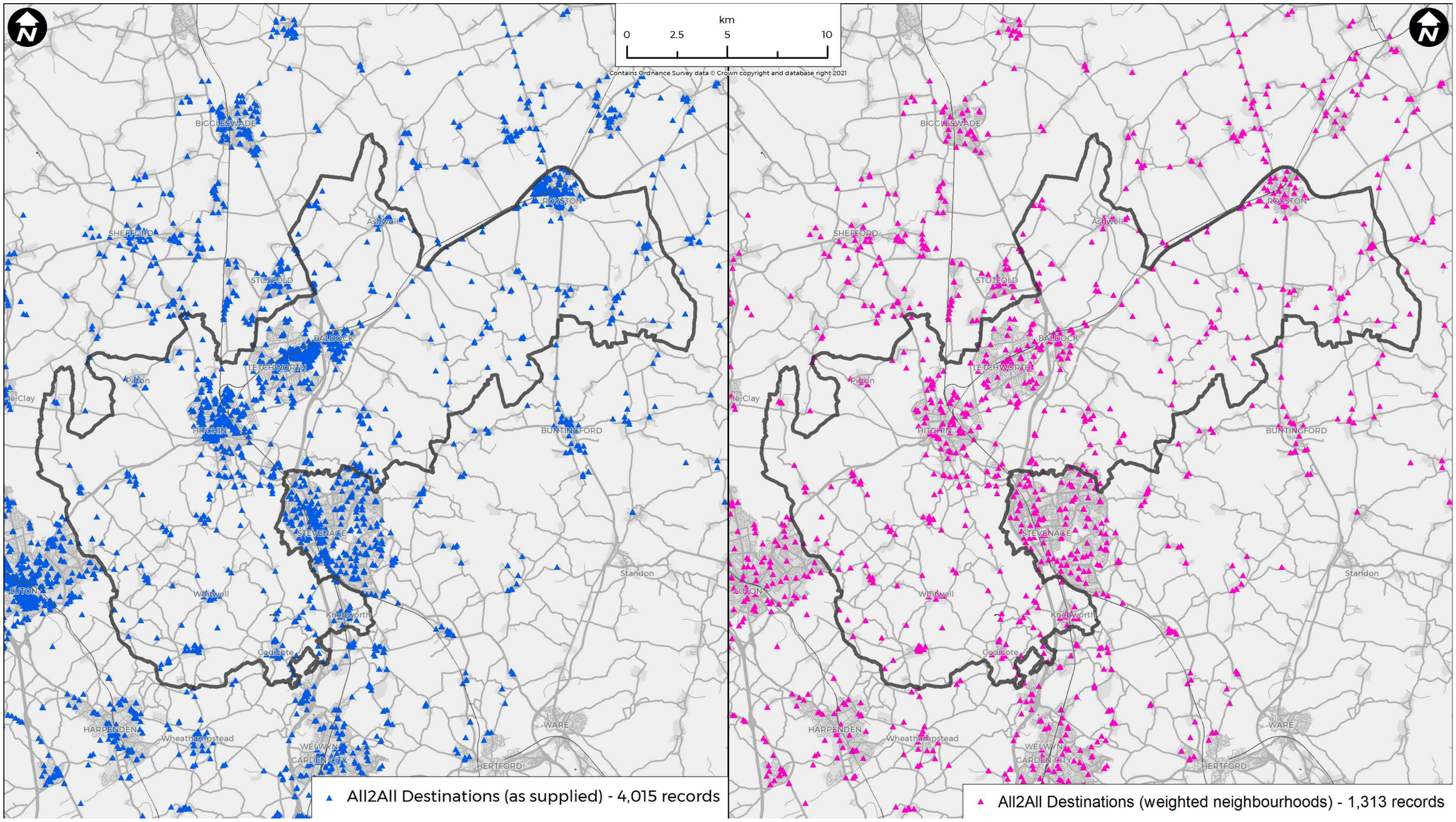
- The same methodology was used as for aggregating origins to weighted neighbourhood points
- A specific set of destination weighted neighbourhood point was created for each of the destination types – the image illustrated the destination type of Key Employment Areas only.
- All sets of destination specific weighted neighbourhood points were merged into one final dataset used by the model.



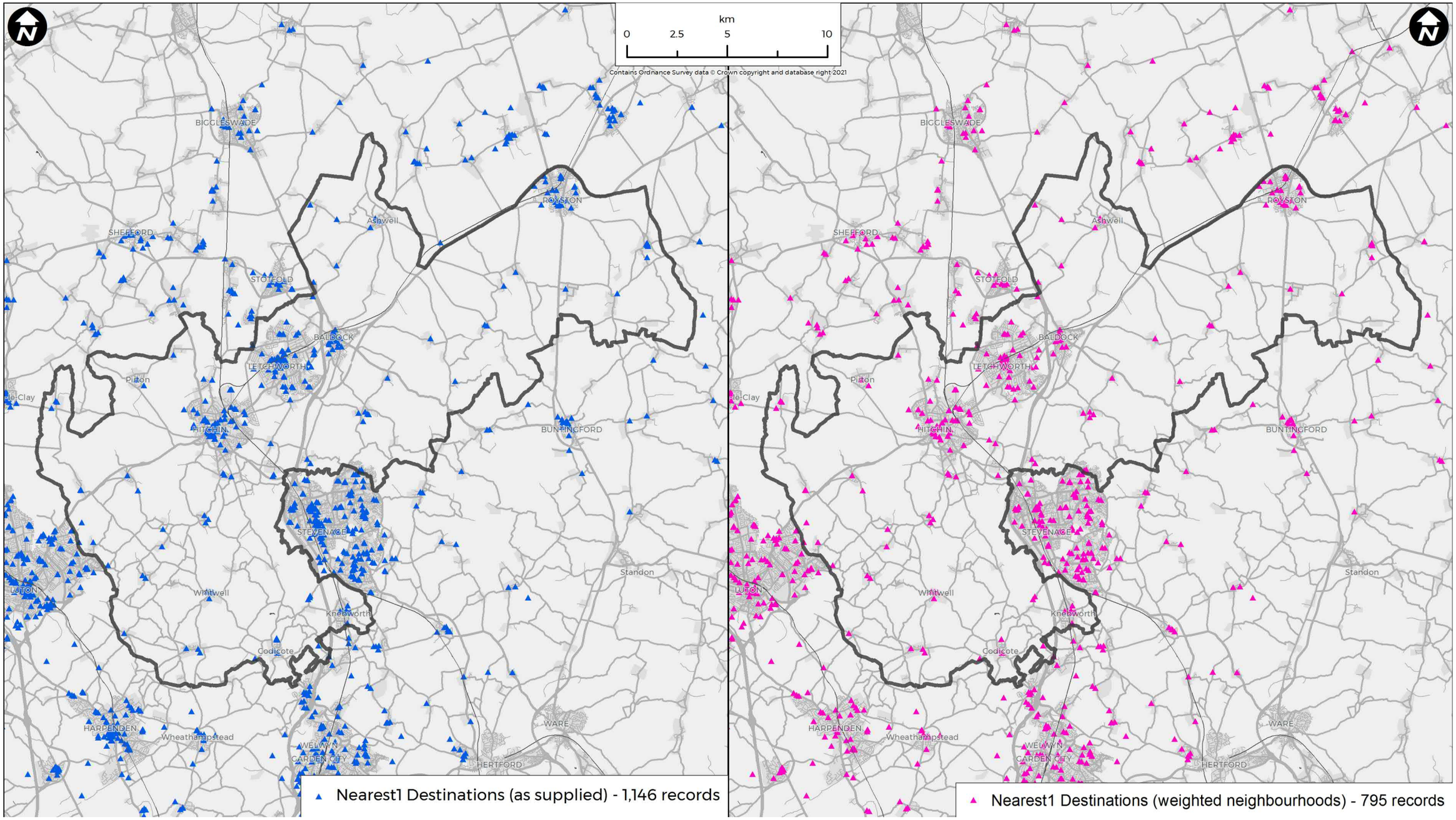
Origins: As supplied & Aggregated to Neighbourhoods



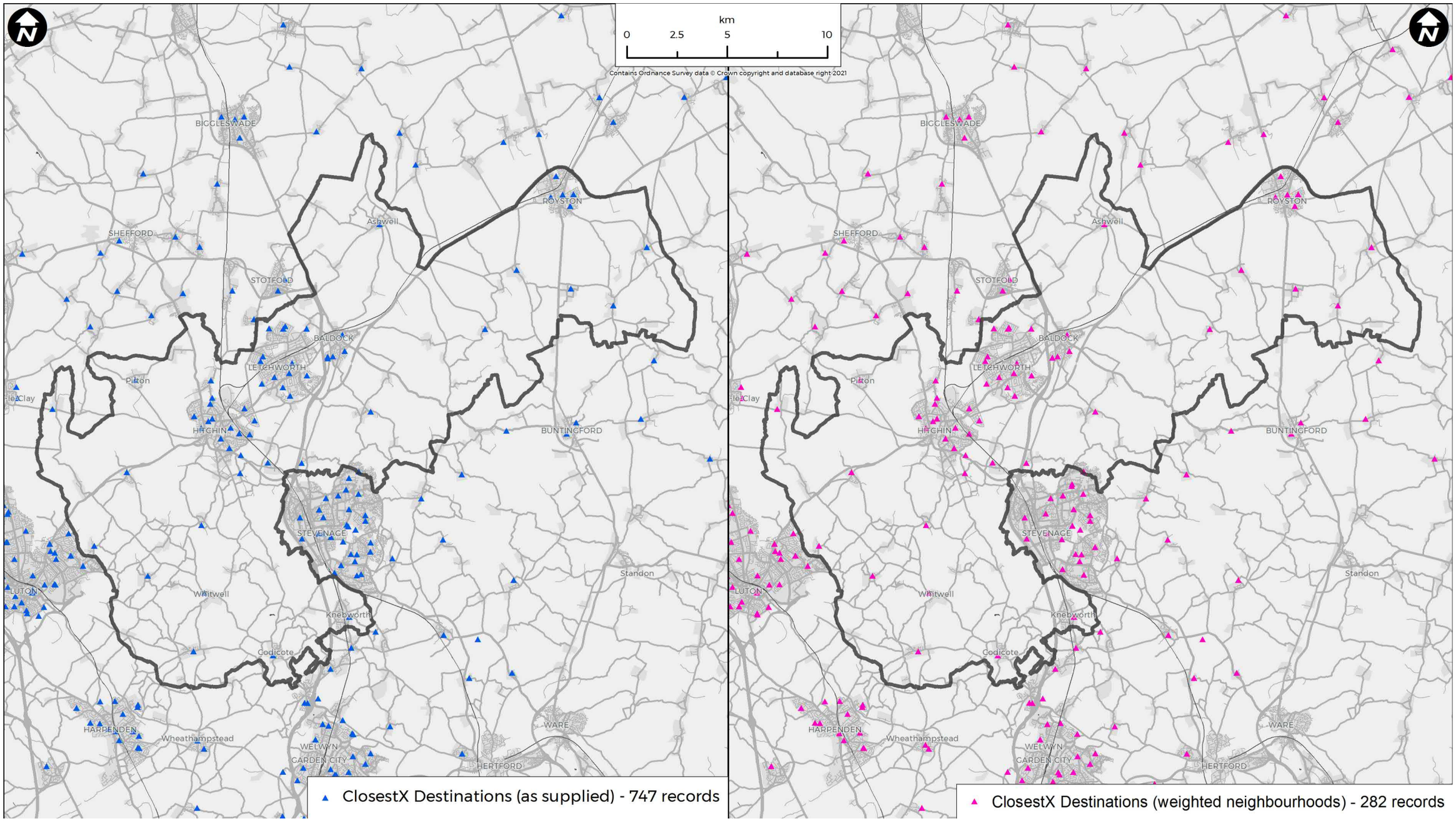
Aggregating All2All Destination Types



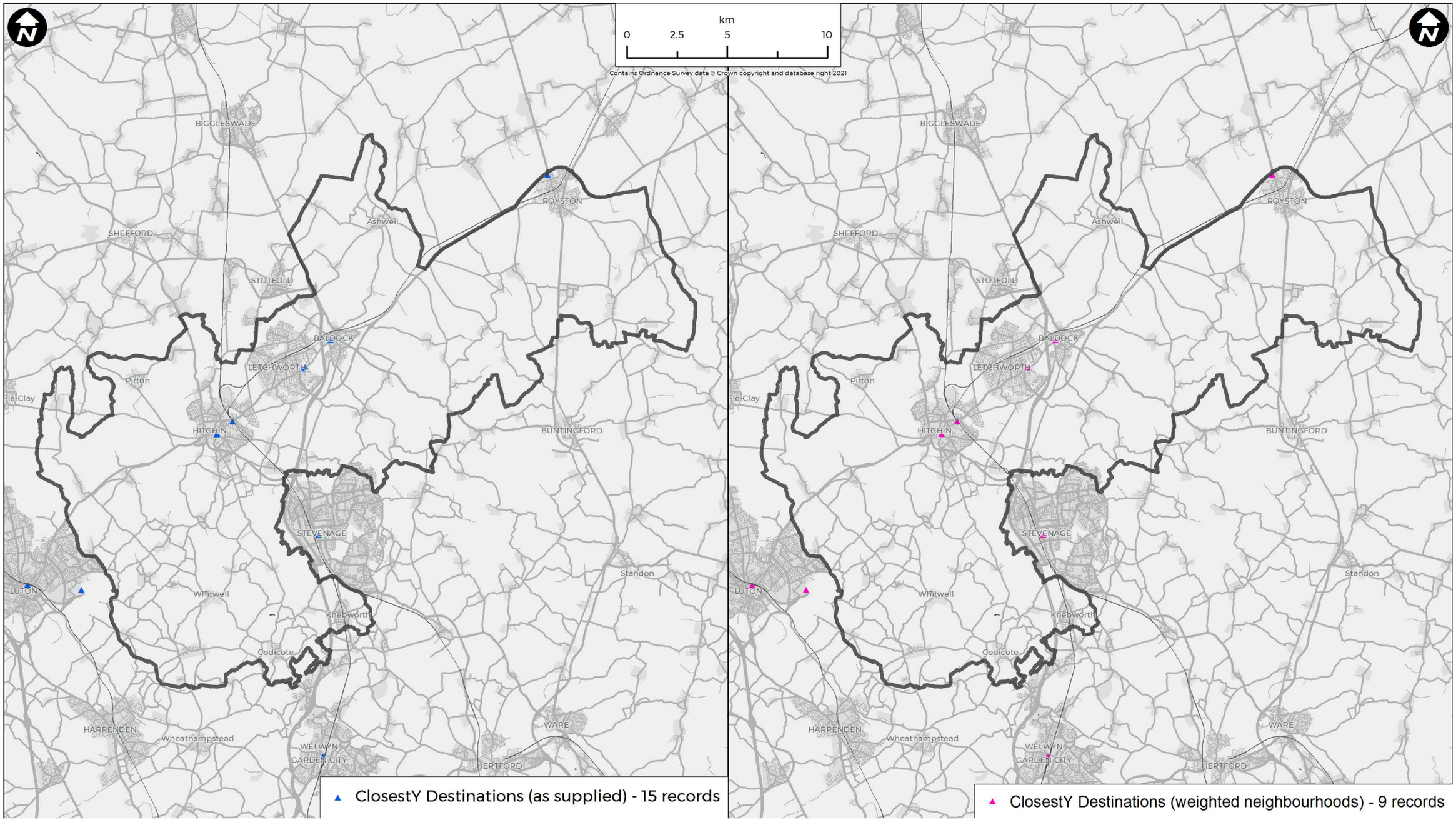
Aggregating Nearest1 Destination Types



Aggregating ClosestX Destination Types

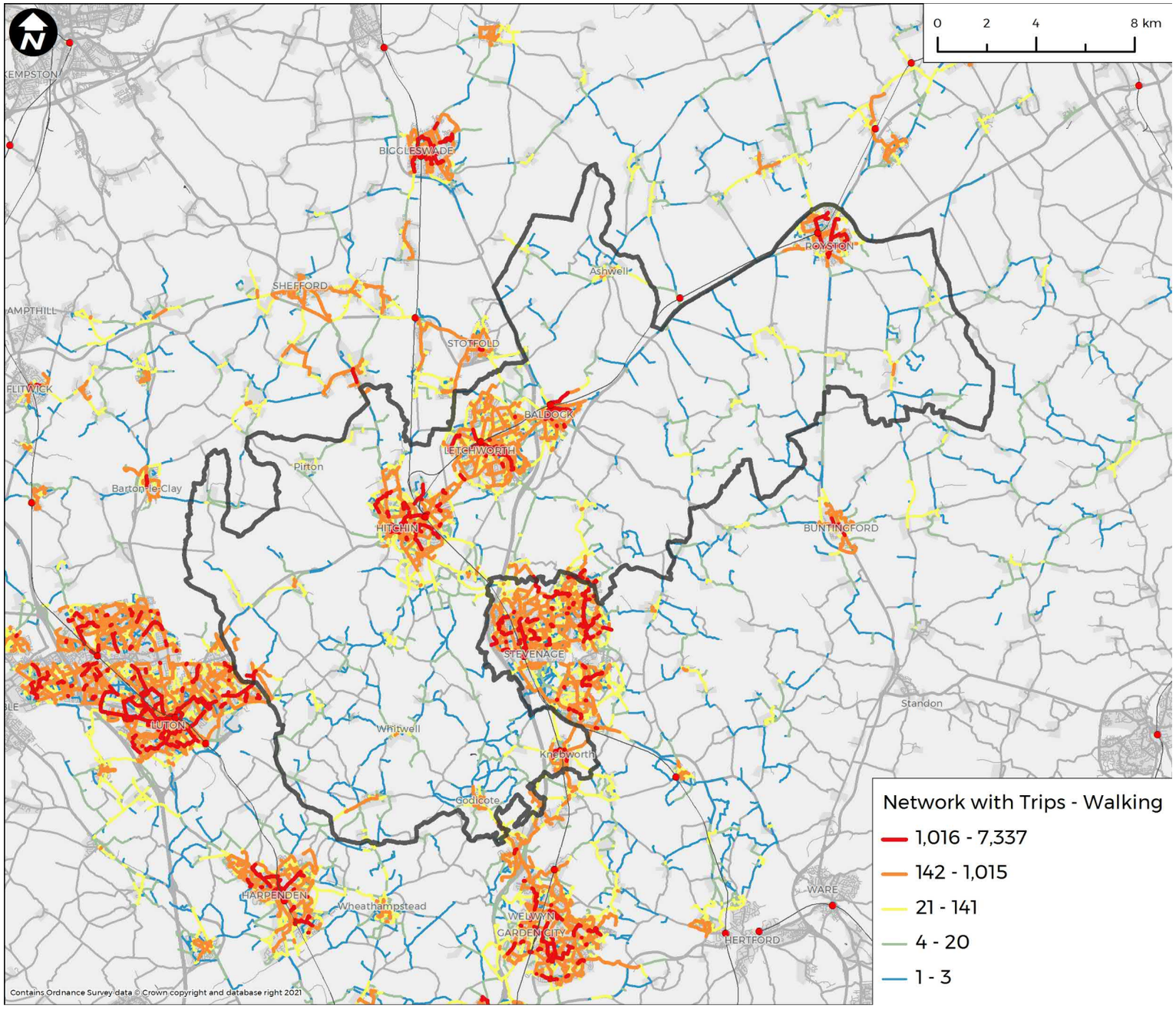


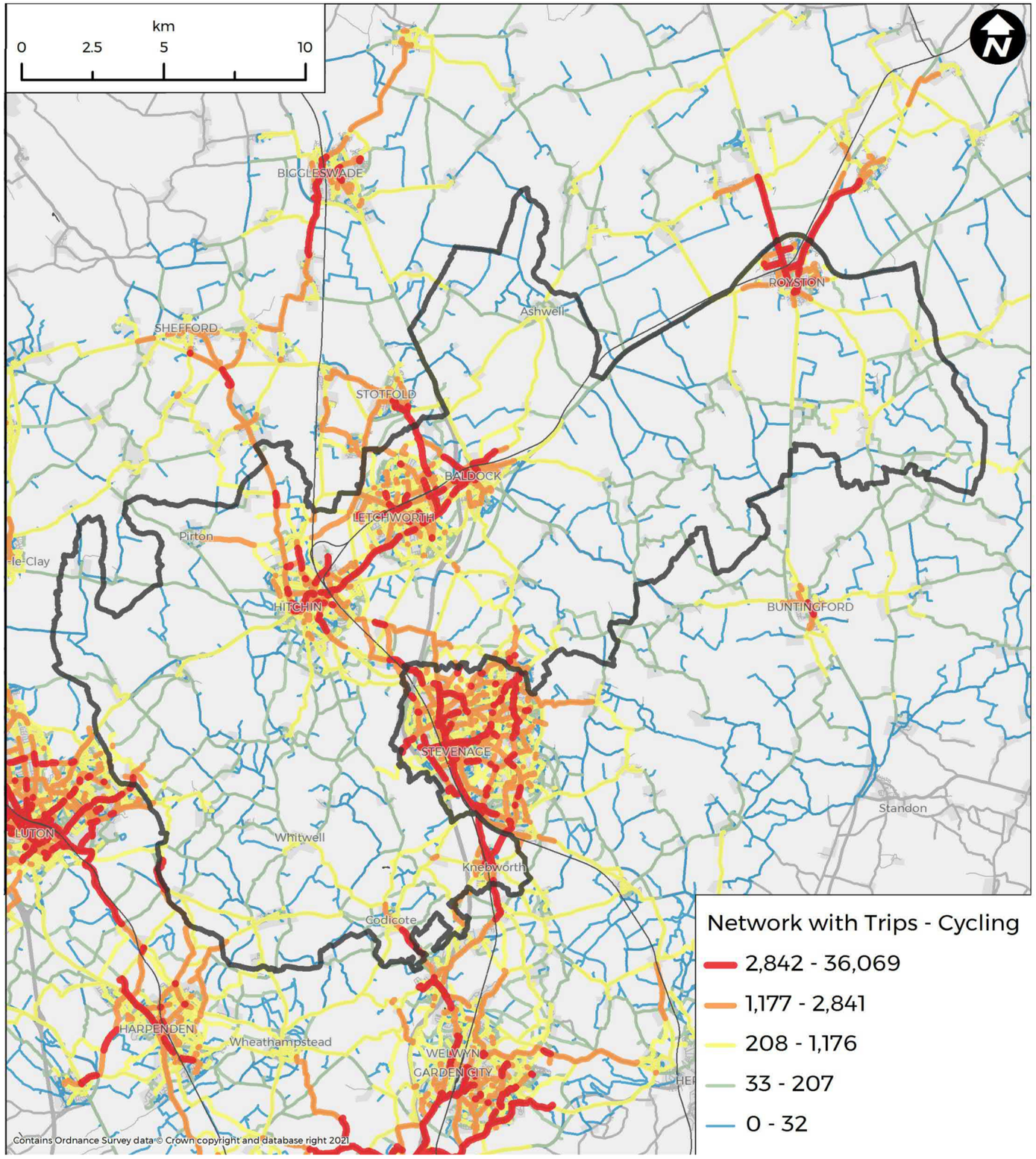
Aggregating ClosestY Destination Types



Outputs

Aggregating Destinations




km
0
2.5
5
10
N
BIGGLESWADE
SHEFFORD
Ashwell
ROYSTON
STOTFOLD
BALDOCK
LETCHWORTH
Pirton
HITCHIN
BUNTINGFORD
STEVENAGE
Standon
LUTON
Whitwell
Knebworth
Codicote
HARPENDEN
Wheathampstead
WELWYN
GARDEN CITY
Contains Ordnance Survey data © Crown copyright and database right 2021
Network with Trips - Cycling
2,842 - 36,069
1,177 - 2,841
208 - 1,176
33 - 207
0 - 32

WSP House

70 Chancery Lane

London

WC2A 1AF

Appendix C2 – LCWIP report

GIS model technical note

Software requirements

- ArcGIS Desktop Advanced license
- Network Analyst extension

LCWIPS model (summary)

- This suite of models has been developed to help complete and add value to stages 2, 3 and 4 of the DfT LCWIP six-stage process. The models allow the user to input origin data, destination data, and a network. These are then manipulated by the models to identify potential trips across the study area. The key output is a plan of the network with flows assigned to it, allowing the user to see where future demand for trips may be concentrated.
- This suite of models has several advantages over the widely-used 'Propensity to Cycle Tool' (PCT), which was also developed for LCWIPs. The PCT is based on Census 2011 data, only considers trips to school and workplaces, and does not account for developments built since 2011, or planned for the future. This suite of models allows users to input more recent population data, any type of destination data they like and a more up-to-date network layer too.
- The current version of the model suite is v4.3, and the toolbox is called *LCWIPS_Model_Suite_v4_3.* It is located within the geodatabase called *LCWIPS_Model.gdb*. The toolbox has been created inside a geodatabase to facilitate its portability across servers and local drives.
- The toolbox contains nine models however only the four models prefixed with "Step … " are to be run by the user. The five models prefixed with "SubModel_... " are called by the other models, where applicable, and should not be interacted with by the user at all. The nine models are as follows:
- Step 1 – Create GDB Environment
- Step 2 – Process Model Inputs
- Step 3 – Run LCWIPs Model – Generate OD Matrix
- Step 4 – Run LCWIPs Model – Create Network-based Output

- SubModel_Clipping_Iterator
- SubModel_NA_All2All
- SubModel_NA_ClosestX
- SubModel_NA_ClosestY
- SubModel_NA_Nearest1
- The four interactive models are run through ArcCatalog by either double-clicking the model, or right-clicking the model and selecting “Open“. Both ways require the user to input the appropriate required parameters.

Compatibility

- This suite of models has been created using *Esri ArcGIS Destop 10.5* (“Desktop”), which will allow them to be compatible with *ArcGIS Pro* (“Pro”) in the future. The key incompatibility between Desktop and Pro is the *Calculate Field* tool. In Desktop, the tool is defaulted to Visual Basic (VB), however, Pro does not support VB. Python has been used for all instances of the Calculate Field tool, however a reasonable amount of reworking will still be required to remedy unforeseen incompatibility issues with other tools, as and when Esri update them, and change the underlying code.

Workflow overview

- Process the input feature classes.
- Run model: *Step 1 - Create GDB Environment* to create the geodatabases in the appropriate model run folder.
- Run model: *Step 2 - Process Model Inputs* to import the model input feature classes.
- Manually populate *In_Destination_Type_Proportions* (this is created by the second model run) with the appropriate values for Dest_Proportion and Run_Category fields (see Table 3, below).
- Run model: Step 3 - Run LCWIPs Model - Generate OD Matrix.
- Run model: Step 4 - Run LCWIPs Model - Create Network-based Output.
- QA and map the output feature class called *Out_Network_with_Utilisation_Data* that will be located within *LCWIPs_Model_Run_GDB.gdb.*

Network dataset

- The network dataset used for the model has been pre-built and covers Hertfordshire plus 8km buffer.
- The network dataset is derived from OS MasterMap data sourced from Emapsite on 4th May 2021. The network contains the full OS MasterMap Highways Network RAMI and OS MasterMap Highways Network Paths, which have been correctly merged with networking junctions. As the analysis concerns walking and cycling, one-way restrictions have not been included (in the case of cycling, the outputs of the model may build a case for introducing a contraflow facility on an existing one-way street, for example).
- Both the network dataset and network feature class are located within a feature dataset called *Network__RAMI_Paths* and are located in the geodatabase called *Hertfordshire_Network__OS_Roads_Paths.gdb.*
- The network impedance field used to build the network dataset is simply the default length value (where the units are metres), and the models are hardcoded to use this.
- The model will require the user to input two aspects of the road network:
    - i The network dataset, called *Network__RAMI_Paths_ND*. This is used by the Network Analyst tools within the models to calculate least-cost paths from all origins to the required destinations (as specified in Table 4).
    - ii The network feature class, called *Network__RAMI_Paths*. This is the line feature class associated with the network dataset.

Processing the input feature classes

- The inputs of the models, which are manually pre-processed by the user prior to being consumed by the model, require specific fields to be present. Additional fields will not affect the model. The prescribed data structure of the data inputs is detailed in the following sections.
- Emphasis should be placed on meticulous data preparation.

Origin points

- Origins must be a point feature class, projected to British National Grid.
- The prescribed data structure is shown within Table 1, below.

Table 1: Data structure for origins

Field name	Type	Description
O_ID	Text, 50	A unique ID, containing alpha-numeric characters as well as underscores (“_”) or dashes (“-“).Spaces should not be used.
Weight	Double	A numeric value representing the population at the origin. This can be the population at a postcode or total number of people forecast on a new development. The value must not be blank, null or zero.

Destination points

- Destinations must be a point feature class, projected to British National Grid.
- The prescribed data structure is shown within Table 2, below.

Table 2: Data structure for destinations

Field name	Type	Description
Dest_ID	Text, 100	A unique ID, containing alpha-numeric characters as well as underscores (“_”) or dashes (“-“). Ideally, this will acknowledge what type of destination it is, e.g. “PrimSchool_1”. Spaces should not be used.
Dest_Type	Text, 50	A value that describes succinctly the type of destination. Examples include: GP, Hospital, School Primary, School Secondary, Bus Stop, Rail Station. The string must only contain alpha-numeric characters as well as underscores (“_”) or dashes (“-“). Spaces should not be used.

Field name	Type	Description
Weight	Double	A numeric value representing the attractiveness of the destination, in comparison to the other destinations of the same destination type. This can be a factual value - such as number of jobs, number of buses/trains per hour, or floor area, or subjective value - such as a score between 1-10, where 10 is the most attractive. A value of one is assigned to all destinations within a destination type, where an attractiveness factor is not relevant. The value must not be blank, null or zero. In this North Herts LCWIP, the attractiveness of an employment site was calculated from its floor area. It was assumed that 50% of the floor area was usable and that there was one job per 30m^2.

Hex cells

- A polygon feature class called *HexCells__Herts_plus_8km* has been supplied and is located in the geodatabase called *Hertfordshire_Datasets.gdb*.
- The hex cell feature class is projected to British National Grid and covers Hertfordshire plus 8km buffer. The size of each hex cell is 500,000m^2 and a diameter (east to west vectors) of 877m.
- The purpose of the hex cell feature class is to create pseudo neighbourhoods to aggregate the origin and destination datasets and reduce the number results being generated, which would otherwise cause the model to fail due to the processing computer running out of memory.
- Each origin and destination point is assigned to a hex cell (“neighbourhood”) using Network Analyst which calculates the least cost path between the origin and the closest hex cell centroid across the walk/road network. This means that because of the layout of the relevant local road network, an origin point can be assigned to a different hex cell to the one that it is contained within.

- A subset of the *HexCells__Herts_plus_8km* feature class should be created that covers the extent of the required project area. This subset, and not the full dataset, should be the input to the model.

Clipping cells

- A polygon feature class called *ClippingCells__Herts_plus_8km* has been supplied and is located in the geodatabase called *Hertfordshire_Datasets.gdb*.
- The clipping cell feature class is projected to British National Grid, and covers Hertfordshire plus 8km buffer. The size of each square clipping cell is 100,000,000m^2 with a width of 10,000m.
- The purpose of the clipping cell feature class is to physically split and then batch process certain elements of the analysis in order to reduce the size of datasets being processed, which would otherwise cause the model to fail due to the processing computer running out of memory.
- A subset of the *HexCells__Herts_plus_8km* feature class should be created that covers the extent of the required project area. This subset, and not the full dataset, should be the input to the model.

Run model: Step 1 - create GDB environment

- This model creates two creates two file geodatabases in the folder that the user specifies (the only parameter).
- These two geodatabases are used by the subsequent models and are called *LCWIPs_Model_Run_GDB.gdb* and *Scratch_GDB.gdb*. Once all the models have been run, all the important feature classes and tables will be within the former.
- The user selected folder should be unique to this scenario test.
- The folder name must only contain alpha-numeric characters and underscores ("_"). Spaces and dashes ("-") should not be used.

Run model: Step 2 - process model inputs

- This model has six parameters, as detailed in Table 3, below. The abbreviation “FC” refers to the parameter being a feature class.

Table 3: Model parameters

Parameter	Description
Select Project Folder	The user specifies the correct folder for this scenario test (the same as the previous model).
Select Network Dataset	The user specifies the *Network__RAMI_Paths_ND* network dataset.
Select Origin Points (FC)	The user specifies the correctly processed origin points feature class.
Select Destination Points (FC)	The user specifies the correctly processed destination points feature class.
Select HexCells (FC)	The user specifies the correct subset of the supplied Hex Cells feature class.
Select Clipping Cells (FC)	The user specifies the correct subset of the supplied Clipping Cells feature class.

- This model will create copies of all the input feature classes and apply numerous geoprocessing steps to prepare them for subsequent models. They are saved within *LCWIPs_Model_Run_GDB.gdb* and can be useful for auditing purposes in the future.
- This model creates a new table called *In_Destination_Type_Proportions* within *LCWIPs_Model_Run_GDB.gdb*, that requires the user to manually input certain additional values before the next model is run. The table lists each unique Destination Type (as per the Dest_Type field of the input Destination points feature class), and the user must manually populate the two fields, as detailed in Table 3, below, with specific values determined by subject matter experts for each Destination Type.

Table 4: Destination type additional data

Required information	Description
Destination Type Proportion	Each destination type is assigned a numeric value, where the sum of this value for all destination types is 1. This numeric value therefore represents the proportion of trips produced by an origin that go to the respective destination type.
Run Category	Each destination type is assigned with one of four types of run category. These are: ▪ All2All ▪ Nearest1 ▪ ClosestX ▪ ClosestY N.B. These four string values must match exactly the text shown above. Additional details of these are given in Table 5.

Table 5: Run categories

Run category	Description	Example destination type
All2All	This run category will generate data between each origin and every one of the destination points within the corresponding destination type. Serious consideration should be given before using this run category as it can generate millions of data rows which will cause the models to fail (run out of memory).	Town centres

Run category	Description	Example destination type
Nearest1	This run category will generate data between each origin and the single nearest destination point within the corresponding destination type.	Train stations, secondary schools
ClosestX	When running the model called *Step 3 - Run LCWIPs Model - Generate OD Matrix*, the user assigns a value for X, and this run category will generate data between each origin and the X closest destination points within the corresponding destination type.	Primary schools, bus stops
ClosestY	When running the model called *Step 3 - Run LCWIPs Model - Generate OD Matrix*, the user assigns a value for Y, and this run category will generate data between each origin and the Y closest destination points within the corresponding destination type.	Business parks, retail centres

Run model: Step 3 - run LCWIPS model - generate OD matrix

- This model has five parameters, as detailed in Table 6, below.
- Although the model says some parameters are options, please assume that they are not optional. Insert a value of 0 (zero) if ClosetX or ClosestY are not required. A value must be inserted for *Trip Cut off Distance (m)* – failure to do so will generate enormous amounts of data that will cause the preceding model to fail (run out of memory).

Table 6: Model Parameters

Parameter	**Description**
Select Project Folder	The user specifies the correct folder for this scenario test (the same as the previous model).
Select Network Dataset	The user specifies the *Network__RAMI_Paths_ND* network dataset.
Number of Destination for ClosestX	The user specifies the value of X (see Table 5) for this Run Category.
Number of Destination for ClosestY	The user specifies the value of Y (see Table 5) for this Run Category.
Trip Cut off Distance (m)	The user specifies the maximum network distance (as opposed to straight line 'as crow flies' distance) that is allowed for trips between an origin and destination. The units are in metres. For example, in the North Herts LCWIP, the *Trip Cut off Distance* was 8000 for cycling and 2000 for walking.

- This model uses Network Analyst to generate an Origin-Destination Matrix (OD Matrix) table that is consumed by the preceding model. The OD Matrix comprises network trips between all origins and all destinations, conforming to the specification of Destination Types and the associated Run Category (see Table 2, Table 4 and Table 6).
- This model uses iterators to iterate between the individual Destination Types within each Run Category and merges all the individual OD Matrices together.

- The processing within this model principally utilises Network Analyst, is stable and should run until completion.

Run model: Step 4 - run LCWIPS model - create network-based output

- This model has two parameters, as detailed in Table 7below.

Table 7: Model Parameters

Parameter	Description
Select Project Folder	The user specifies the correct folder for this scenario test (the same as the previous models).
Select Network Dataset	The user specifies the *Network__RAMI_Paths_ND* network dataset.

- This model uses Network Analyst to post-process the OD Matrix table (generated in the preceding model) and generate a line feature class that follows the underlying network dataset. A series of computationally and memory intensive geoprocessing tools are then used to aggregate the line feature class version of the OD Matrix.
- As detailed in Table 5, unnecessary use of the *All2All* Run Category, or unrealistic (large) values for *ClosestX* and *ClosestY* will generate enormous amounts of data that will cause the model to fail.
- Within the model, an iterator is used to split and batch-process the line feature class using the *Clipping Cells* feature class that was processed by the *Step 2 - Process Model Inputs* model. This process aims to mitigate the amount of data being processed at any one time; however, as this increases the number of processes being run, there is a commensurate impact on the overall model run time.

Output feature class

- The output line feature class generated by the Step 4 - Run LCWIPs Model - Create Network-based Output model is called Out_Network_with_Utilisation_Data and is located in the geodatabase called LCWIPs_Model_Run_GDB.gdb.
- The output feature class is projected to British National Grid.

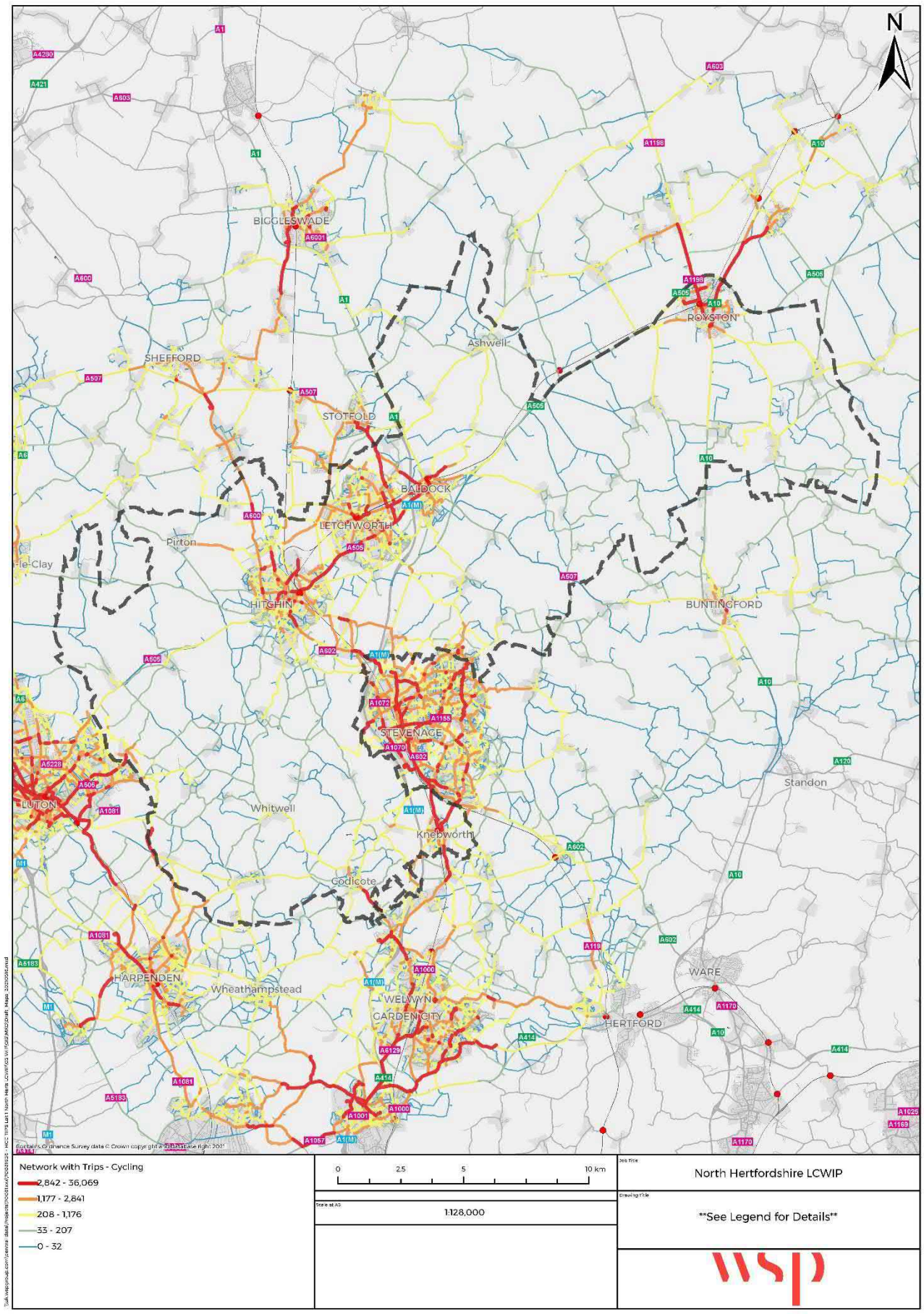
- This feature class has three fields that can be mapped, which are detailed in Table 5, below.

Table 8: Mappable fields

Field name	Description
Trips	The total number of trips calculated and aggregated to the unique segment of road or footpath.
Trips_Reclassed	The total number of trips normalised so that the value is between 0 and 1, where 0 = the lowest value in the data range and 1 = the highest value in the data range.
Trips_Ranked	Each unique segment is ranked in order of the number of trips the segments has. The segment with a rank of 1 has the most trips using it.

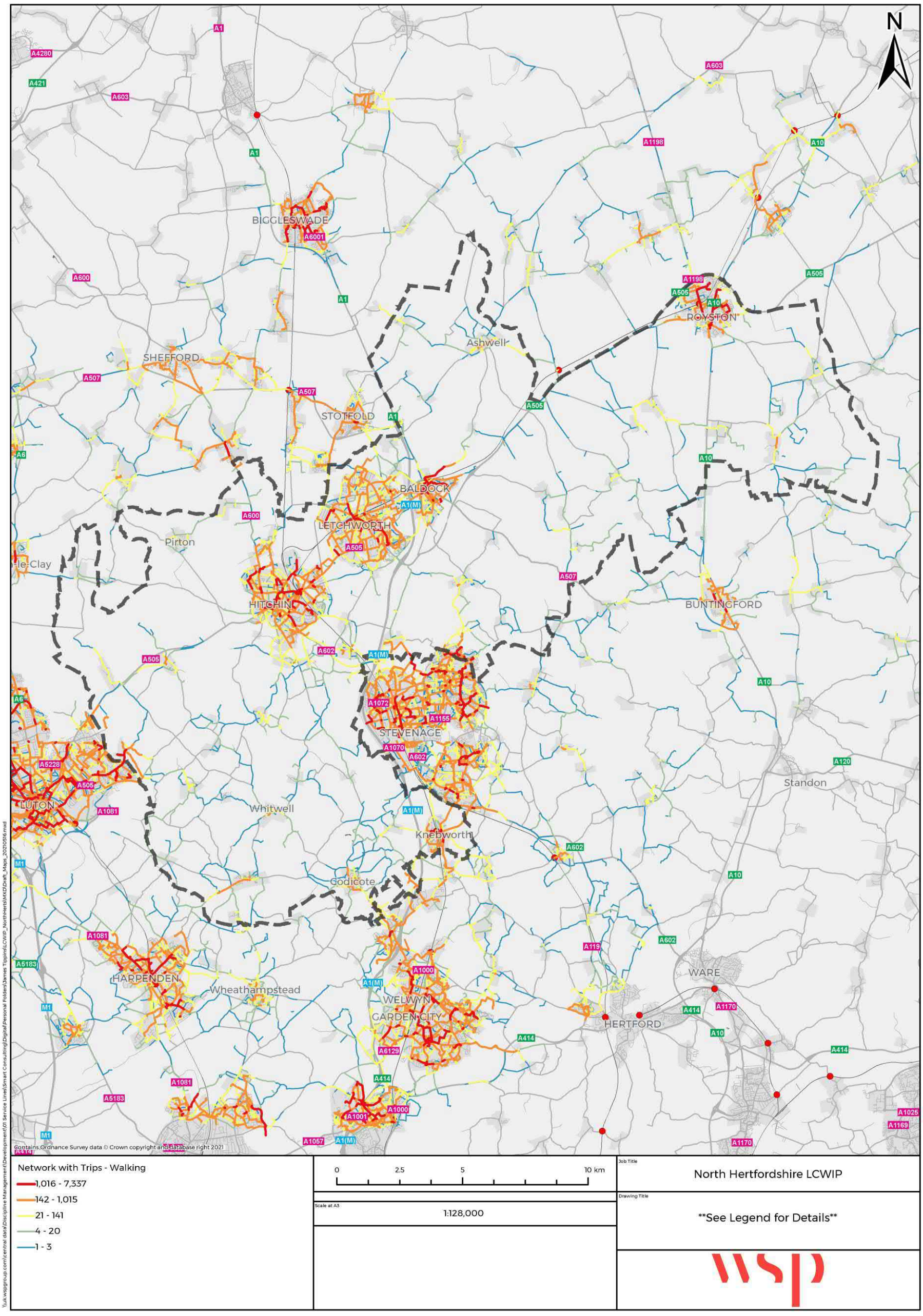
Appendix D – LCWIP GIS Model District-Wide Cycling Outputs

A map showing the model outputs for the cycling model run at a district-wide level.



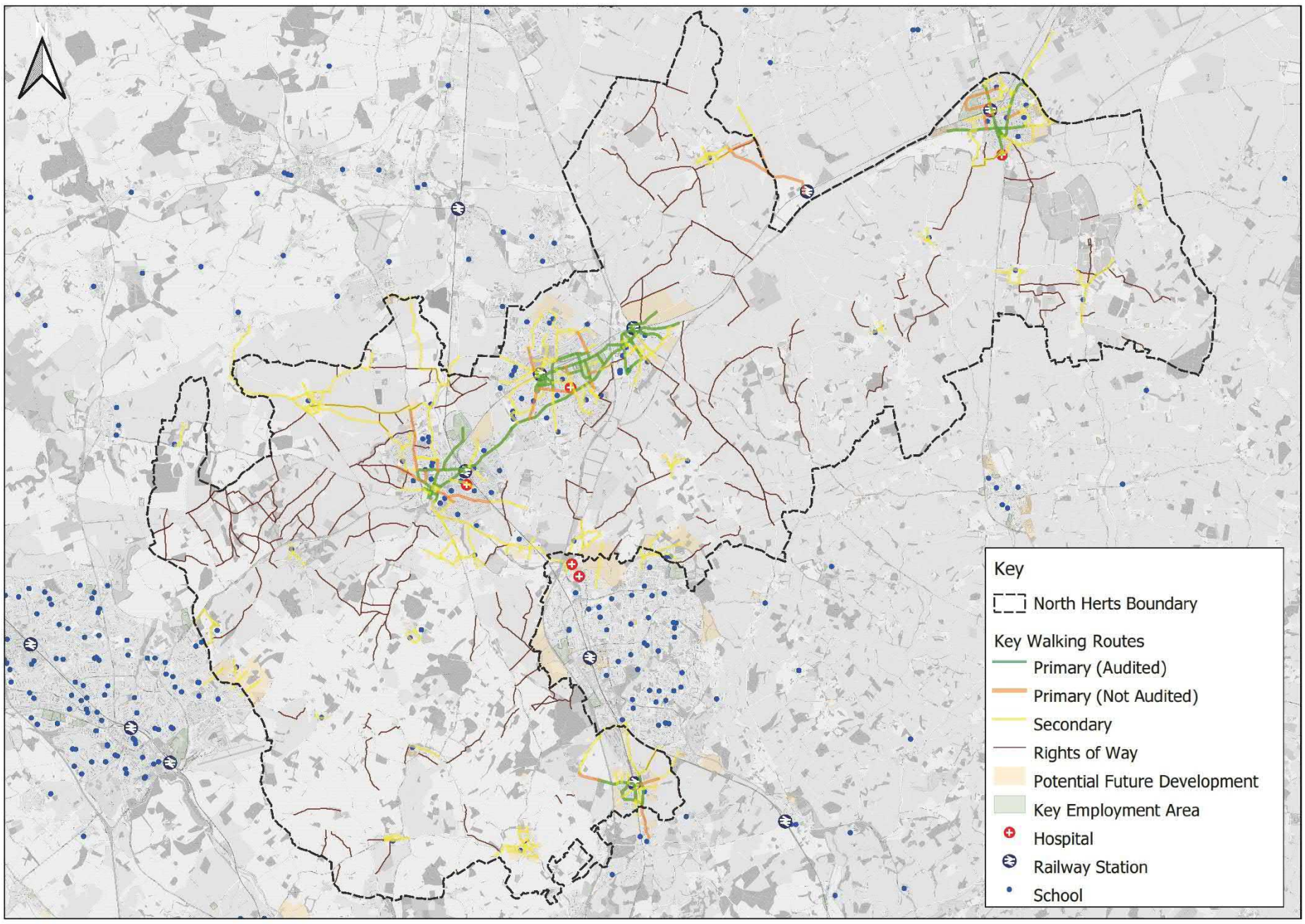
Appendix E – LCWIP GIS Model District-Wide Walking Outputs

A map showing the model outputs for the walking model run at a district-wide level.

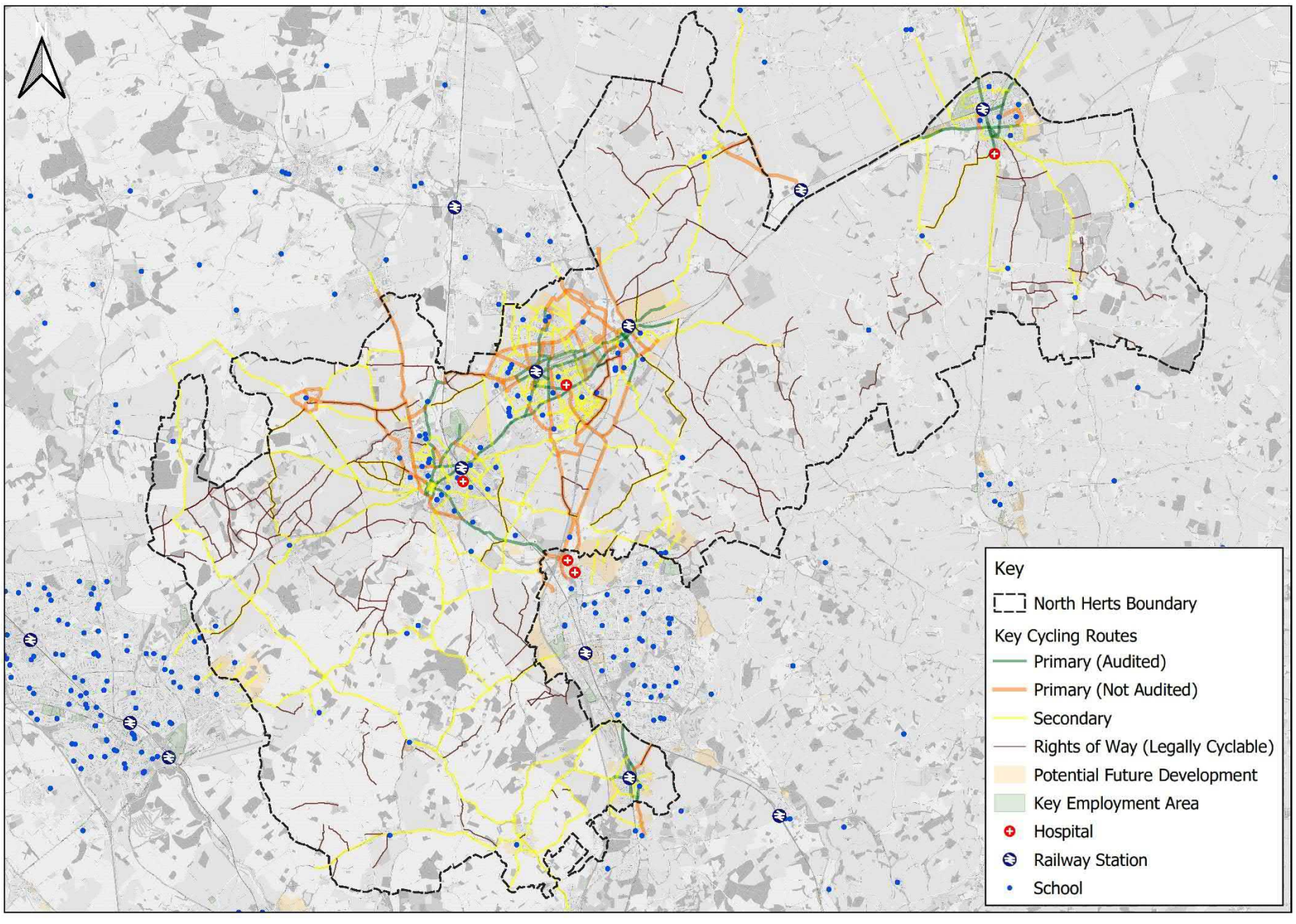


Appendix F – North Herts District Network Plans for Walking and Cycling

A map showing the final network plans for walking.

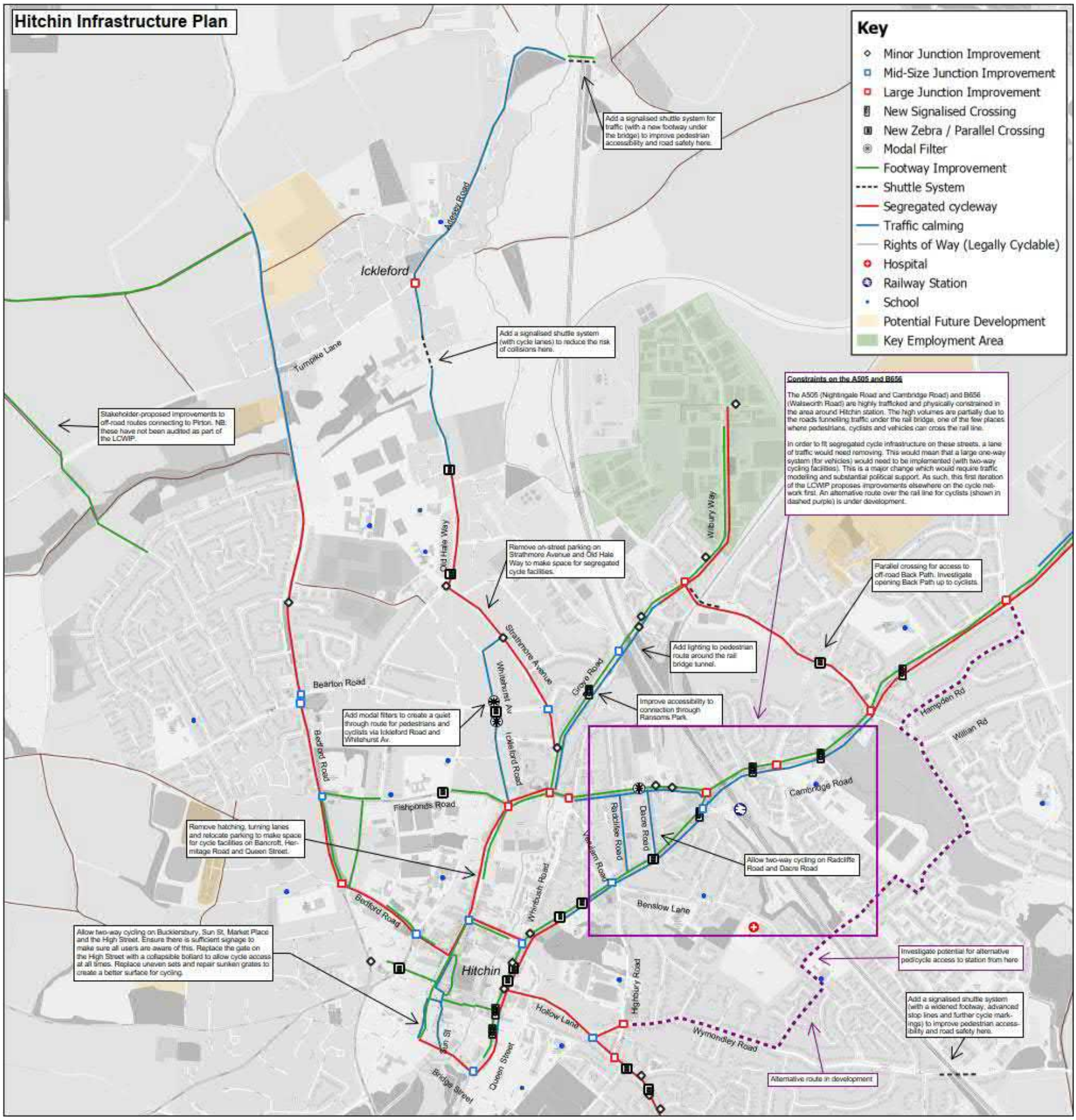


A map showing the final network plans for cycling.

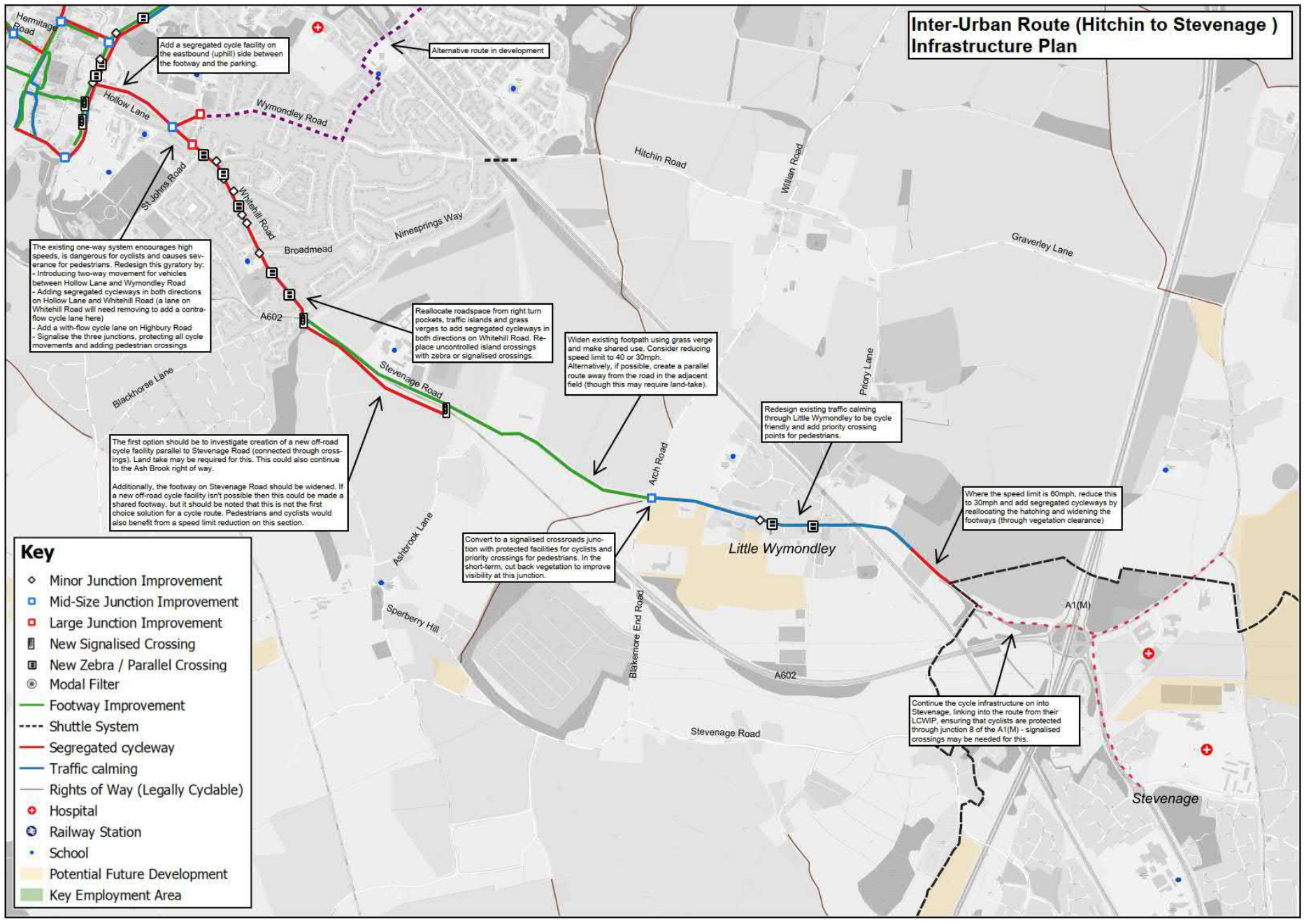


Appendix G – Detailed Infrastructure Plans

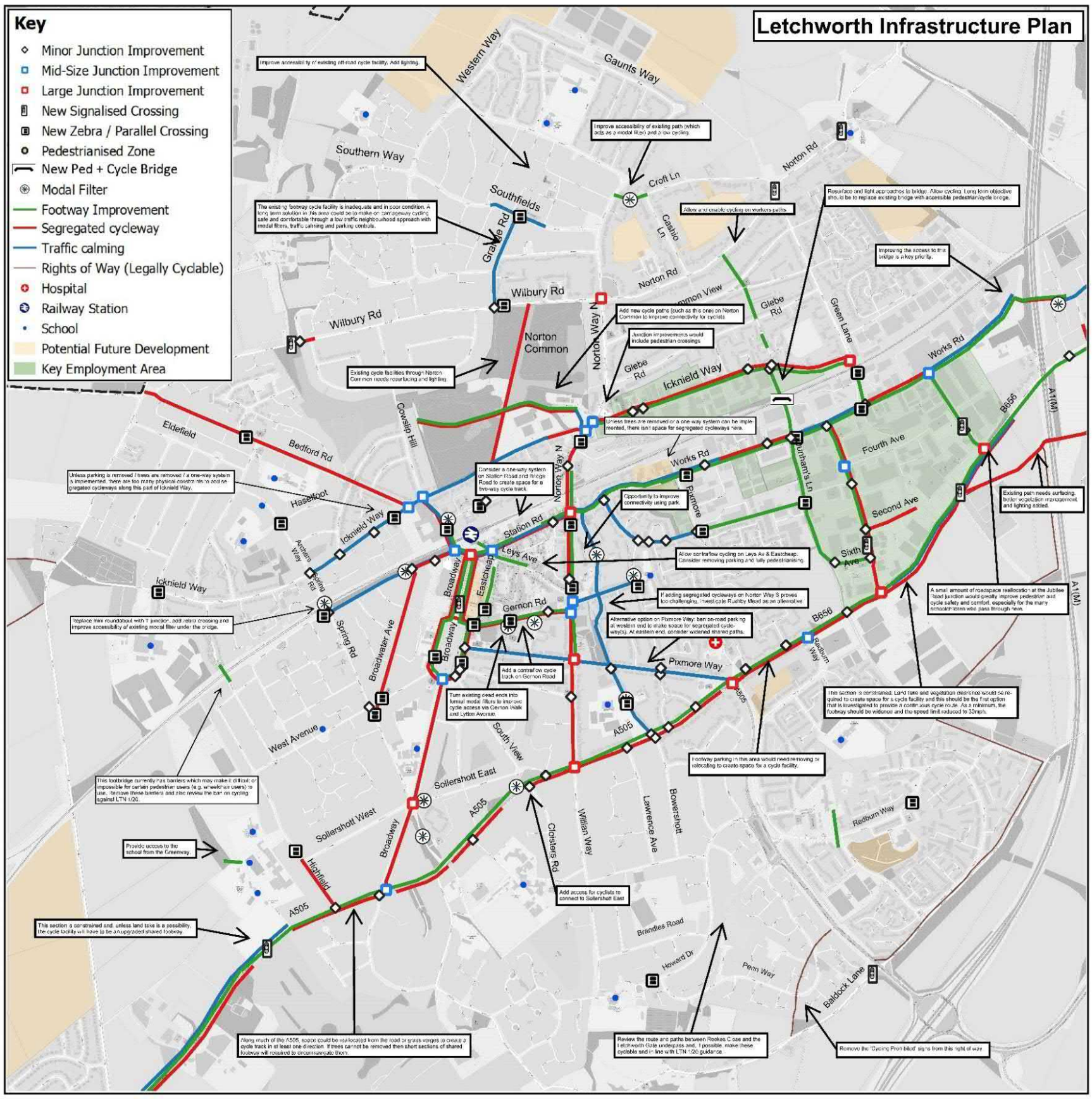
A map showing the proposed infrastructure interventions identified in Hitchin.



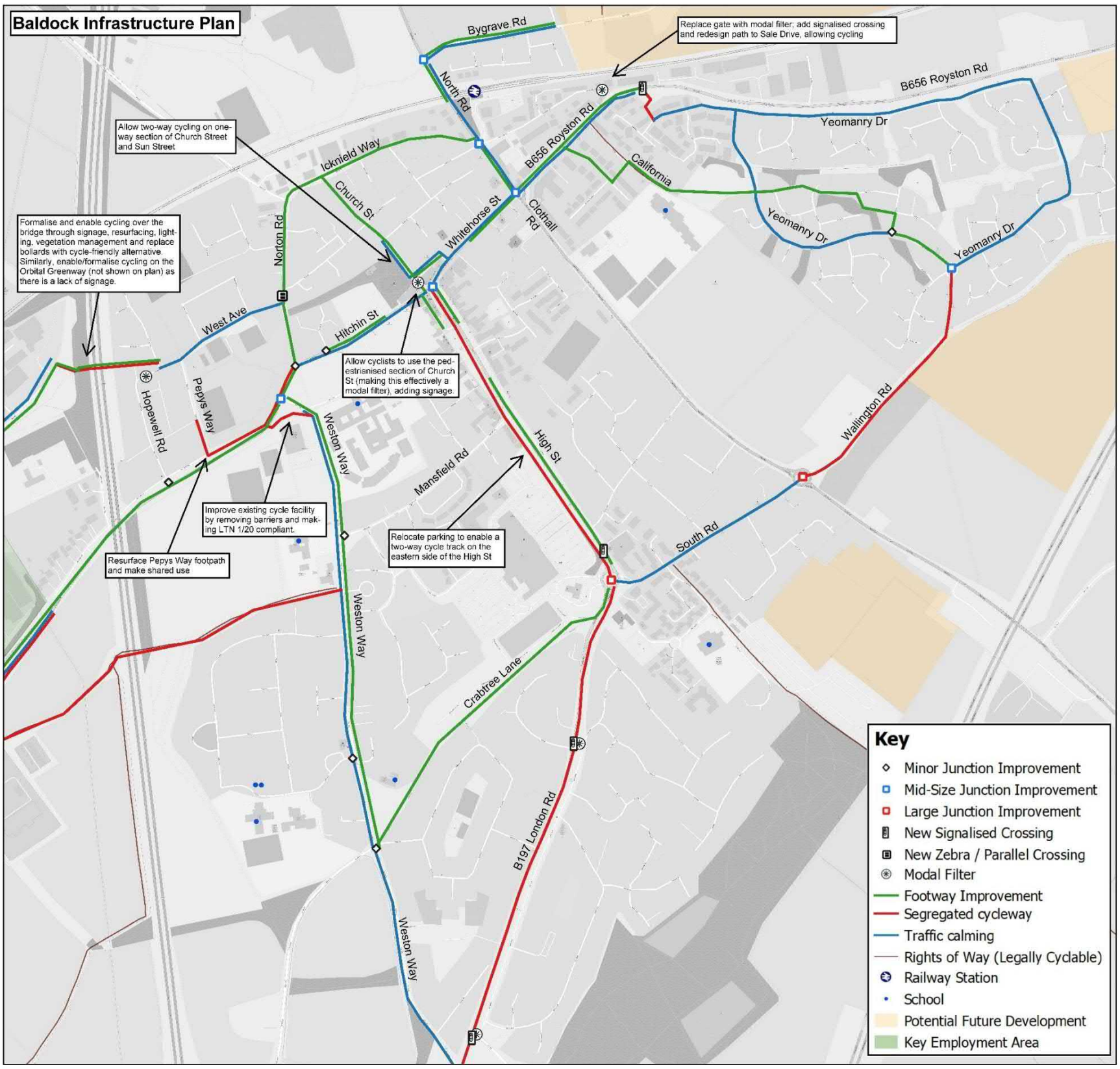
A map showing the proposed infrastructure interventions identified on the inter-urban route between Hitchin and Stevenage



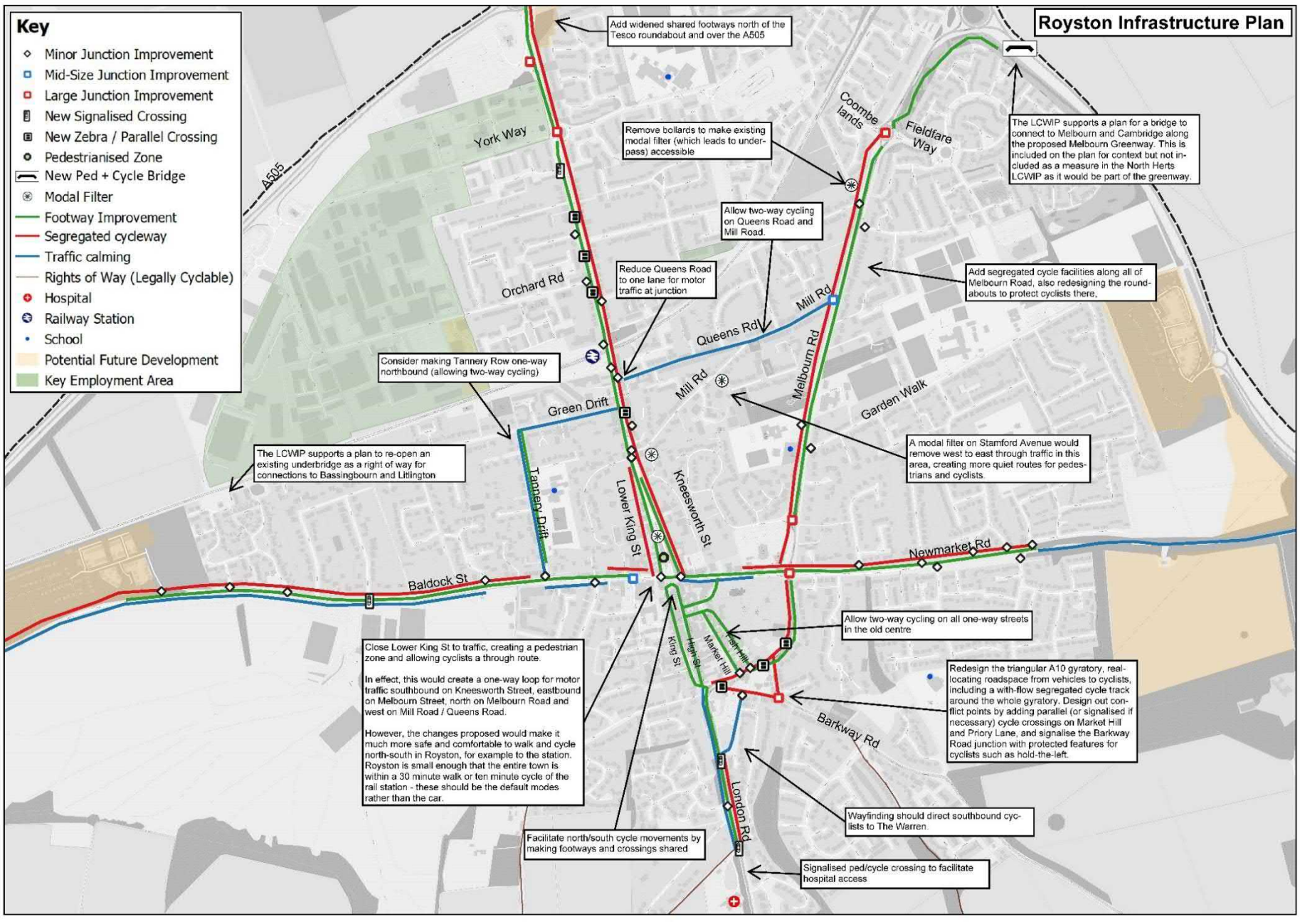
A map showing the proposed infrastructure interventions identified in Letchworth Garden City.



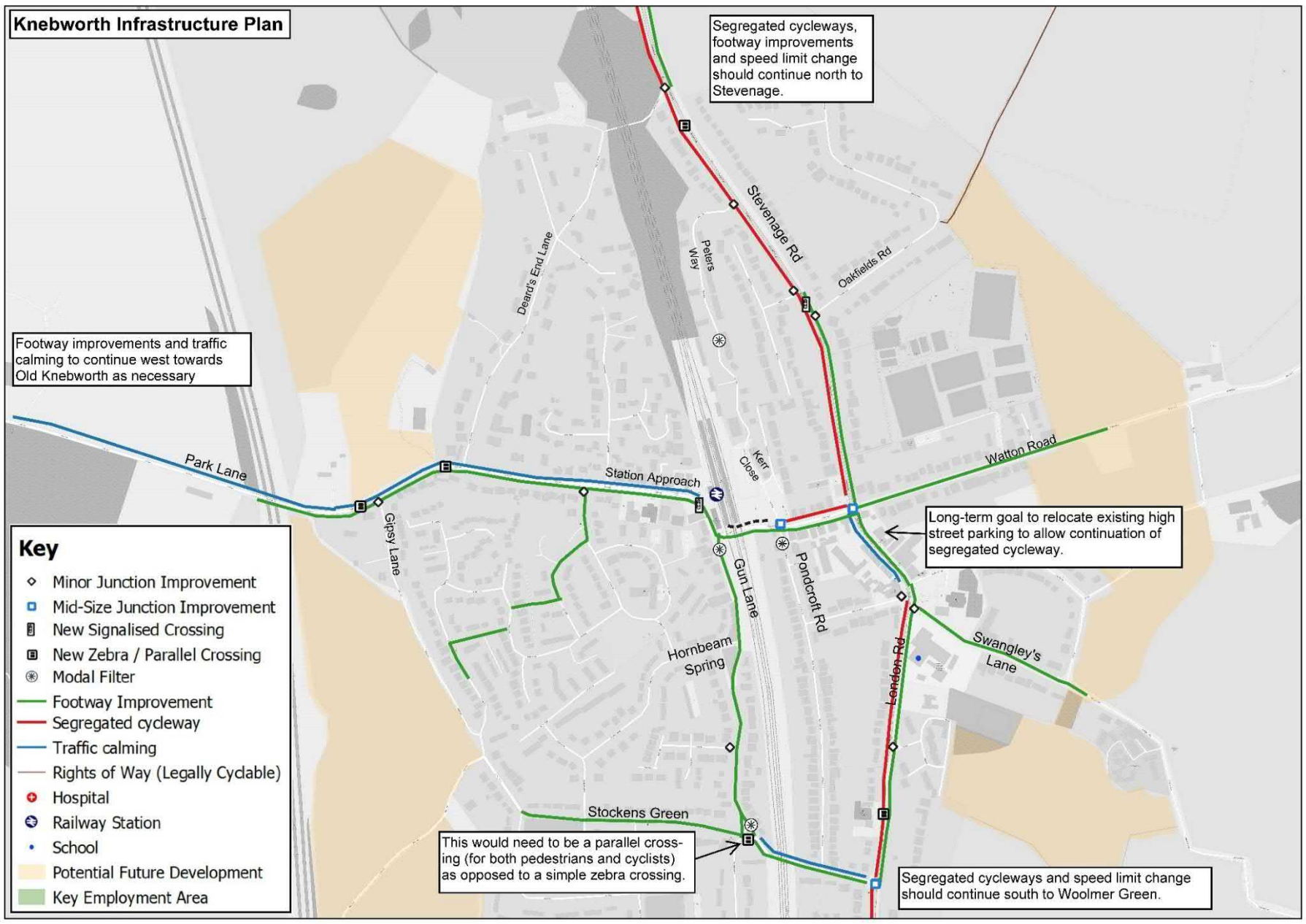
A map showing the proposed infrastructure interventions identified in Baldock.



A map showing the proposed infrastructure interventions identified in Royston.



A map showing the proposed infrastructure interventions identified in Knebworth.



North Herts Urban Transport Plan (UTP) update

The GTP and LCWIP

The North Central Growth Transport Plan (GTP) and Local Cycling and Walking Intervention Plan (LCWIP) have been developed to provide a new long-term strategic vision for walking and cycling within North Herts. The plans identify the key issues and opportunities which currently exist or may occur in the future and the interventions needed to address these issues and improve the transport network.

Urban Transport Plans

Both the GTP and LCWIP have been developed in partnership with North Herts and in-line with the latest local and national policy and DfT guidance to act as successors the previous Urban Transport Plans (UTPs)

UTPs were developed for the towns of Hitchin, Letchworth /Baldock and Royston. They predated HCC's Local Transport Plan 4 and the North Herts Local Plan development and were generally focussed on smaller scale schemes to address existing issues on the transport network with less emphasis on improving conditions for pedestrians and cyclists or catering for future growth than the more recent Growth and Transport Plan.

Where relevant and still appropriate the schemes identified in the UTPs have been fed into the LCWIP and GTP process. Other schemes have already been implemented and some are no longer appropriate as they are not aligned with our current Local Transport Plan policies. In a small number of cases more localised walking and cycling schemes may not have been picked up by the GTPs or LCWIP as they were away from growth areas or the key prioritised LCWIP corridors. Where this is the case, details of these will be retained for reference to help inform future discussions with developers or further iterations of the GTP and LCWIP.

For reference, the table below provides a summary of the individual walking and cycling schemes identified within North Herts UTPs and a brief update on each project and the status in the context of the GTP/LCWIP.

Key:

Green	Scheme completed
Amber	Scheme superseded by the GTP/LCWIP and/or the research retained
Red	Scheme not pursued or included as a GTP/LCWIP intervention

Where cells have been greyed out with N/A in them = not included as a 'like-for-like' scheme in the GTP/LCWIP (although elements of the scheme may be included, or the information retained for future reference)

Where entire rows have been greyed out with N/A = measures considered as standard for any new active travel schemes/interventions

Table 1: Summary of UTP walking/cycling schemes

Measure reference	Walking / Cycling	Location	Description of the UTP measure	Status / Update	RAG	Measure identified in GTP	Measure identified in LCWIP
CM2	Cycling	Hitchin	Upgrade existing cycle routes, for example from the industrial areas to the town centre	Addressed through CM10 - CM15	N/A	N/A	N/A
CM3	Cycling	Hitchin	Segregate cyclists and pedestrians along the High Street and Market Square	Scheme to be considered as part of the ongoing High Street improvement project	Amber	N/A	N/A
CM4	Cycling	Hitchin	Provide new two-way routes for cyclists around Hitchin	Multiple new routes and interventions identified within the NCGTP and LCWIP	Amber	Multiple interventions	Multiple interventions
CM5	Cycling	Hitchin	Introduce designated pedestrian and cycle routes to and from schools	New walking and cycling routes identified in the NCGTP and LCWIP with particular consideration given to those routes connecting communities to local centres, healthcare facilities and schools.	Amber	Multiple interventions	Multiple interventions

Measure reference	Walking / Cycling	Location	Description of the UTP measure	Status / Update	RAG	Measure identified in GTP	Measure identified in LCWIP
CM7	Cycling	Hitchin	Provide cycleways along the B656, A602 and A600	New interventions along the B656, A602 and A600 identified in the NCGTP and LCWIP	Amber	Scheme reference/s: SM38: B656 Walsworth Road Pedestrian Priority Corridor & SM53: Cycle Route	Multiple interventions
CM8	Cycling	Hitchin	Improve signing on the cycle network	New/improved signage to be considered alongside any new interventions	Amber	N/A	N/A
CM9	Cycling	Hitchin	Provide (covered) cycle parking at entrances to the town centre	Scheme to be considered as part of the ongoing High Street improvement project	Amber	N/A	N/A
CM10	Cycling	Hitchin	Implement Route 2 (Town Centre to industrial area) identified through the Cycle Route Network Survey	Scheme superseded by interventions identified in the NCGTP and LCWIP	Amber	SM91: Employment area connectivity	Multiple interventions
CM11	Cycling	Hitchin	Implement Route 5 (Town Centre to Ickleford) identified through the Cycle Route Network Survey	Scheme superseded by interventions identified in the NCGTP and LCWIP	Amber	SM52: North Hitchin Cycle Route	Multiple interventions

Measure reference	Walking / Cycling	Location	Description of the UTP measure	Status / Update	RAG	Measure identified in GTP	Measure identified in LCWIP
CM12	Cycling	Hitchin	Implement Route 6 (Town Centre to west Hitchin) identified through the Cycle Route Network Survey	The outline designs for this scheme have been developed and will be retained for reference to help inform any new interventions within this area.	Amber	SM53: West Hitchin Cycle Route	Multiple interventions
CM13	Cycling	Hitchin	Implement Route 8 (Town Centre to east Hitchin) identified through the Cycle Route Network Survey	The outline designs for this scheme have been developed and will be retained for reference to help inform any new interventions within this area.	Amber	N/A	Key elements of the route included as part of the primary and secondary routes identified within the LCWIP (Appendix E)
CM14	Cycling	Hitchin	Implement Route 11 (Rail station to south Hitchin) identified through the Cycle Route Network Survey	The outline designs for this scheme have been developed and will be retained for reference to help inform any new interventions within this area.	Amber	N/A	Key elements of the route included as part of the secondary routes within the LCWIP (Appendix E)
CM15	Cycling	Hitchin	Implement Route 12 (Southern Hitchin) identified through the Cycle Route Network Survey	The outline designs for this scheme have been developed and will be retained for reference to help inform any new interventions within this area.	Amber	N/A	Key elements of the route retained as part of the secondary routes within the LCWIP (Appendix E)

Measure reference	Walking / Cycling	Location	Description of the UTP measure	Status / Update	RAG	Measure identified in GTP	Measure identified in LCWIP
CM16	Cycling	Hitchin	Implement the medium and low priority routes identified through the Cycle Route Network Survey	N/A	N/A	N/A	N/A
CM16-1	Cycling	Hitchin	Route 1 – Ickleford to Chaucer Way via Purwell Valley: This is a north-south route linking Ickleford with Cadwell Lane making use of a number of traffic-free paths	The outline designs for this scheme have been developed and will be retained for reference to help inform any new interventions within this area.	Amber	N/A	Scheme encapsulated within LCWIP primary and secondary routes (Appendix E)
CM16-2	Cycling	Hitchin	Route 4 – Westmill to railway station: This is an east-west link between the Westmill estate and the station, with additional connectivity to the industrial area via routes 2 and 1	The outline designs for this scheme have been developed and will be retained for reference to help inform any new interventions within this area.	Green	SM53: West Hitchin Cycle Route	Multiple interventions. New proposed scheme outlined and designed.

Measure reference	Walking / Cycling	Location	Description of the UTP measure	Status / Update	RAG	Measure identified in GTP	Measure identified in LCWIP
CM16-3	Cycling	Hitchin	Route 7 – Westmill Road to Old Hale Way: A series of short routes which improve access to the Priory school from the west, south and east	The outline designs for this scheme have been developed and will be retained for reference to help inform any new interventions within this area.	Green	SM53: West Hitchin Cycle Route	Multiple interventions. New proposed scheme outlined and designed.
CM16-4	Cycling	Hitchin	Route 9 – Stevenage to Hitchin: This is a proposed route is intended to provide a direct link between the two towns and build upon the existing cycle network in Stevenage.	Scheme picked up by interventions identified in the NCGTP and LCWIP	Amber	SM29: Hitchin to Stevenage Cycle route	Multiple interventions
CM16-5	Cycling	Hitchin	Route 14 – St. Michaels Road to Highover: This route would provide a link from the railway station to the east of Hitchin, expanding upon the identified high priority routes 8 and 11	The outline designs for this scheme have been developed and will be retained for reference to help inform any new interventions within this area.	Amber	N/A	Eastern cycle routes identified as part of the secondary routes within the LCWIP (Appendix E)

Measure reference	Walking / Cycling	Location	Description of the UTP measure	Status / Update	RAG	Measure identified in GTP	Measure identified in LCWIP
CM16-6	Cycling	Hitchin	Route 15 – Hollow Lane, Wymondley Road and Highbury Road: This is a series of short routes to improve cycle access to Hitchin Girls School and to the town centre from the south-east	The outline designs for this scheme have been developed and will be retained for reference to help inform any new interventions within this area.	Amber	N/A	Southern cycle routes identified as part of the secondary routes within the LCWIP (Appendix E)
CM16-7	Cycling	Hitchin	Route 3 - Cadwell Lane to Old Hale Way: This provides a route between the north-west of the town and the Cadwell Lane area, supporting high priority routes 2 and 5.	The outline designs for this scheme have been developed and will be retained for reference to help inform any new interventions within this area.	Amber	SM91: Employment area connectivity / SM52: North Hitchin Cycle Route	LCWIP interventions: NH52 – H50/H51

Measure reference	Walking / Cycling	Location	Description of the UTP measure	Status / Update	RAG	Measure identified in GTP	Measure identified in LCWIP
CM16-8	Cycling	Hitchin	Route 10 – Gosmore Road to Town Centre: This proposed link would provide a route into the town centre from the area to the south-east of Stevenage Road which would complement high priority route 12	Scheme superseded by interventions identified in the NCGTP and LCWIP	Amber	N/A	Alternate route identified in LCWIP along London Road (adj. to Gosmore Road) as a secondary route (Appendix E)
CM16-9	Cycling	Hitchin	Route 13 – Letchworth to Ickleford: This proposed link would connect the northern part of Hitchin with the northern part of Letchworth and supporting route 1	Scheme superseded by interventions identified in the NCGTP and LCWIP	Amber	N/A	Key elements of the route included as part of the secondary routes within the LCWIP (Appendix E)
CM16-10	Cycling	Hitchin	Route 16 – Letchworth to North Herts College: This coincides with high priority route 8	The outline designs for this scheme have been developed and will be retained for reference to help inform any new interventions within this area.	Amber	SM59: A505 Cycle Route and Junction Treatment for Cycle Priority	Multiple interventions

Measure reference	Walking / Cycling	Location	Description of the UTP measure	Status / Update	RAG	Measure identified in GTP	Measure identified in LCWIP
CM17	Cycling	Hitchin	Upgrade Nightingale Road Pelican Crossing to a Toucan crossing	Scheme superseded by interventions identified in the NCGTP and LCWIP	Amber	SM59: A505 Cycle Route and Junction Treatment for Cycle Priority	LCWIP intervention: NH47
WM1	Walking	Hitchin	Provide footpath access to new residential developments	Ensuring sustainable transport access to new developments is a key priority within the NCGTP and LCWIP	Amber	Multiple interventions	Multiple interventions
WM2	Walking	Hitchin	Provide more pedestrian crossings in Hitchin	Multiple new crossings and crossing improvements identified within the LCWIP	Amber	N/A	Multiple interventions
WM2.1	Walking	Hitchin	Provide a pedestrian crossing facility at Stotfold Road/Cambridge Road junction	Completed	Green	N/A	N/A
WM2.2	Walking	Hitchin	Introduce a crossing facility at Bancroft by Regal Chambers	Completed	Green	N/A	N/A
WM2.3	Walking	Hitchin	Upgrade existing pedestrian crossings at Bedford Road/Fishponds Road	Scheme superseded by interventions identified in the NCGTP and LCWIP	Amber	PR54: Bedford Road, Pedestrian Crossings	NH14 – H1>H10, Multiple interventions

Measure reference	Walking / Cycling	Location	Description of the UTP measure	Status / Update	RAG	Measure identified in GTP	Measure identified in LCWIP
WM2.4	Walking	Hitchin	Introduce a pedestrian crossing facility at Queen Street by Bridge Street*	Completed.	Green	N/A	N/A
WM2.5	Walking	Hitchin	Introduce pedestrian crossing facilities over Stevenage Road/Hitchin Hill Roundabout*	Completed.	Green	N/A	N/A
WM2.6	Walking	Hitchin	Introduce more pedestrian crossings along the length of Stevenage Road	Scheme superseded by interventions identified in the NCGTP and LCWIP	Amber	N/A	NH38 – X12, Multiple inter-urban interventions (Hitchin to Stevenage)
WM3	Walking	Hitchin	Improve the lighting and cleanliness of alleyways around the town centre	Opportunities to be explored as standard as part of any route improvements around the town centre	N/A	N/A	N/A
WM4	Walking	Hitchin	Introduce walking buses to schools	Multiple schemes introduced	Green	N/A	N/A
WM5	Walking	Hitchin	Increase pedestrianisation of the town centre, in particular on market days	Scheme to be considered as part of the ongoing High Street improvement project	Amber	N/A	N/A

Measure reference	Walking / Cycling	Location	Description of the UTP measure	Status / Update	RAG	Measure identified in GTP	Measure identified in LCWIP
WM6	Walking	Hitchin	Improve pedestrian links to the industrial area	Scheme superseded by interventions identified in the NCGTP and LCWIP	Amber	SM91: Employment area connectivity	Multiple interventions
WM6.1	Walking	Hitchin	Upgrade the crossing facilities at the Cadwell Lane crossroads (provision of pedestrian islands etc)	Scheme investigated but not pursued as not feasible given space constraints	Red	N/A	N/A
WM7 / WM10	Walking	Hitchin	Review the quality and provision of footways across Hitchin (including lighting)	Footway quality to be reviewed as standard as part of any route improvements	N/A	N/A	N/A
WM8	Walking	Hitchin	Provide a southern access to the rail station	Scheme investigated but superseded by prioritising Eastern access - project ongoing	Amber	N/A	N/A
WM11	Walking	Hitchin	Increase the provision of facilities for disabled or mobility impaired people (ramps, dropped kerbs etc)	All proposed improvements designed to be inclusive to people with different forms of disability	N/A	N/A	N/A

Measure reference	Walking / Cycling	Location	Description of the UTP measure	Status / Update	RAG	Measure identified in GTP	Measure identified in LCWIP
WM12	Walking	Hitchin	Provide a pedestrian footbridge over the railway line around Cambridge Road	Considered as part of Cycle Route 8. Scheme outlined and designed but not implemented.	Amber	N/A	Eastern cycle routes identified as part of the secondary routes within the LCWIP (Appendix E)
WM01	Walking	Royston	Introduction of new pedestrian crossing facilities at Market Hill, Melbourn Street, A10 Green Street, Baldock Street, Kneesworth Street and Burns Road	Scheme superseded by interventions identified in the NCGTP and LCWIP	Amber	PR79: Royston Cycle Network / PR104 Industrial estate connectivity / SM81: Melbourn Greenway connection to Royston	Multiple interventions
WM02	Walking	Royston	Enhanced pedestrian facilities at The Cross	Scheme investigated but not pursued	Red	N/A	N/A
WM03	Walking	Royston	Improvements to Angel Pavement	Scheme to be considered as part of the ongoing High Street improvement project	Amber	N/A	N/A
WM04 / WM08	Walking	Royston	Improved signage in town centre and for visitors from car parks and rail/bus stations	N/A	N/A	N/A	N/A

Measure reference	Walking / Cycling	Location	Description of the UTP measure	Status / Update	RAG	Measure identified in GTP	Measure identified in LCWIP
WM05	Walking	Royston	Pavement widening on Fish Hill Square and Kneesworth Street	Scheme designed with successful trial in 2017. Further designs carried out with investigations into potentially affected underground services undertaken in Nov 2018 and Feb 2019. Scheme deferred due to cost and scale of additional construction works required. Designs and studies to be retained to help inform any future schemes in the area, such as the Royston Cycle Network.	Amber	PR79: Royston Cycle Network	NH64 – R85, footway improvements
WM15+A9:A18	Walking	Royston	Provide improved crossing to the rail station	Completed.	Green	N/A	N/A
WM06	Walking	Royston	Improve pedestrian access to island site across the A10 at top of Market Hill	Completed.	Green	N/A	N/A
WM07	Walking	Royston	Improvement of pavement surfaces	N/A	N/A	N/A	N/A
WM09	Walking	Royston	Demonstration project to encourage walking to shops	N/A	N/A	N/A	N/A

Measure reference	Walking / Cycling	Location	Description of the UTP measure	Status / Update	RAG	Measure identified in GTP	Measure identified in LCWIP
WM10	Walking	Royston	Improve pedestrian/cycle/rail crossing from Green Drift to South Close	Scheme superseded by interventions identified in the NCGTP and LCWIP	Amber	PR79: Royston Cycle Network / PR104 Industrial estate connectivity	NH53-R70, New parallel crossing
WM13	Walking	Royston	As the former farmland abutting the A505 is developed, preserve a 6m strip to provide a link to other paths, which the A505 effectively severs en route to Cambridgeshire. This link could potentially connect to the rail underpass and other links across Royston	Scheme investigated but not pursued.	Red	N/A	N/A
WM14	Walking	Royston	Divert Footpaths 2 and 17 to share the farm bridge located approximately halfway between the two	Scheme investigated but not pursued.	Red	N/A	N/A

Measure reference	Walking / Cycling	Location	Description of the UTP measure	Status / Update	RAG	Measure identified in GTP	Measure identified in LCWIP
WM16	Walking	Royston	Resurface the verge along the A10 between Buntingford and Royston, as well as the villages Chipping, Buckland and Reed, to provide a safe route to work / school / recreation facilities in Royston suitable for all nonmotorised users	Scheme investigated but not pursued.	Red	N/A	N/A
WM12	Walking	Royston	The Icknield Way Regional Trail runs parallel to the A505 at Burloes and on farmland, under a 10-year permissive access agreement. This route could be upgraded to a permanent arrangement & upgrade to shared use	Scheme investigated but not pursued.	Red	N/A	N/A
CM01	Cycling	Royston	Completion of new rail underpass	Completed.	Green	N/A	N/A

Measure reference	Walking / Cycling	Location	Description of the UTP measure	Status / Update	RAG	Measure identified in GTP	Measure identified in LCWIP
CM02 (CM13)	Cycling	Royston	Completion of new cycle measures linking the new rail crossing, and promoting cycle network and safety in schools	Scheme investigated but required significant support/investment from Network Rail. New cycle measures and interventions identified within the NCGTP and LCWIP.	Amber	PR79: Royston Cycle Network	Multiple interventions
CM05	Cycling	Royston	Widening of existing cycle lanes	All cycleway improvements to be developed in line with LTN 1/20 guidance (in instances where this may not be possible, LTN 1/20 recognises that there may be constraints that prevent delivery of an optimal scheme and provides guidance on how compromises should be made).	N/A	N/A	N/A
CM07	Cycling	Royston	Additional cycle parking in Market Square and at Rail Station	Ongoing.	Green	PR77: Cycle Parking	N/A
CM14	Cycling	Royston	Introduce Toucan Crossing on Newmarket Road	Completed.	Green	N/A	N/A

Measure reference	Walking / Cycling	Location	Description of the UTP measure	Status / Update	RAG	Measure identified in GTP	Measure identified in LCWIP
CM03	Cycling	Royston	Implementation of town wide cycle network	Scheme superseded by interventions identified in the NCGTP and LCWIP	Green	PR79: Royston Cycle Network	Multiple interventions. New proposed scheme outlined and designed.
CM8	Cycling	Royston	Improved formalised rail crossing at Western side of town	Scheme investigated but not pursued.	Red	N/A	N/A
CM9	Cycling	Royston	Cycle facilities along and across A505 around the North side of town	Scheme superseded by interventions identified in the NCGTP and LCWIP	Amber	PR79: Royston Cycle Network / SM81 Melbourn Greenway Connection to Royston	Multiple interventions
CM10	Cycling	Royston	Improve connectivity between existing and proposed cycle links	N/A	N/A	N/A	N/A
CM11	Cycling	Royston	Improve permeability between housing estates for cyclists	N/A	N/A	N/A	N/A
CM12	Cycling	Royston	Improve conditions for cyclists at roundabouts	N/A	N/A	N/A	N/A

Measure reference	Walking / Cycling	Location	Description of the UTP measure	Status / Update	RAG	Measure identified in GTP	Measure identified in LCWIP
CM15	Cycling	Royston	Upgrade cycle link between Hitchin & Royston identified in Hertfordshire Strategic Cycle Network (Regional Route 69)	Improved connections identified between Royston and Baldock/Letchworth via the A505 within the GTP and LCWIP. Ongoing improved connections between Baldock/Letchworth and Hitchin provide a sustained route from Royston to Hitchin.	Amber	SM59: A505 Cycle Route and Junction Treatment for Cycle Priority	Multiple interventions
NM1	Cycling	Letchworth	Cycle corridor 1: Road (A505) to Town Centre and Station via Broadway	The outline designs for this scheme have been developed and will be retained for reference to help inform any new interventions within this area.	Amber	SM59: A505 Cycle route and junction treatment priority	Multiple primary and secondary interventions identified in LCWIP (Appendix E)
NM2	Cycling	Letchworth	Cycle corridor 2: Jackmans Estate to Grange Estate via Works Road	Scheme constructed in March 2017.	Green	SM67: Connections to North Letchworth developments sites	Multiple interventions
NM3	Cycling	Letchworth	Cycle corridor 3: Grange Estate to Town Centre	The outline designs for this scheme have been developed and will be retained for reference to help inform any new interventions within this area.	Amber	SM67: Connections to North Letchworth developments sites	Multiple interventions

Measure reference	Walking / Cycling	Location	Description of the UTP measure	Status / Update	RAG	Measure identified in GTP	Measure identified in LCWIP
NM4	Cycling	Letchworth	Cycle corridor 4: Jackmans Estate to Town Centre and Highfield School	Scheme superseded by interventions identified in the NCGTP and LCWIP	Amber	N/A	Multiple primary and secondary interventions identified in LCWIP (Appendix E)
NM5	Cycling	Baldock	Cycle corridor 5: A1(M) Bridge to Baldock Station	Prep work completed. Scheme to be considered within the context of the new BA1 (North Herts) development (as well as other smaller developments within and adjacent to Baldock) as part of the GTP and LCWIP	Amber	SM103: Baldock Multi-modal road links	Multiple interventions
NM6	Cycling	Baldock	Cycle corridor 6: Clothall Common to Baldock Station	Scheme superseded by interventions identified in the NCGTP and LCWIP	Amber	PR72: Access to Baldock Station and Sustainable Spine via Icknield Way East.	Multiple interventions
NM7	Cycling	Baldock	Cycle corridor 7: Clothall Common to A1(M) Underpass via Baldock Town Centre and Knights Templar School	Scheme superseded by interventions identified in the NCGTP and LCWIP	Amber	PR72: Access to Baldock Station and Sustainable Spine via Icknield Way East.	Multiple interventions

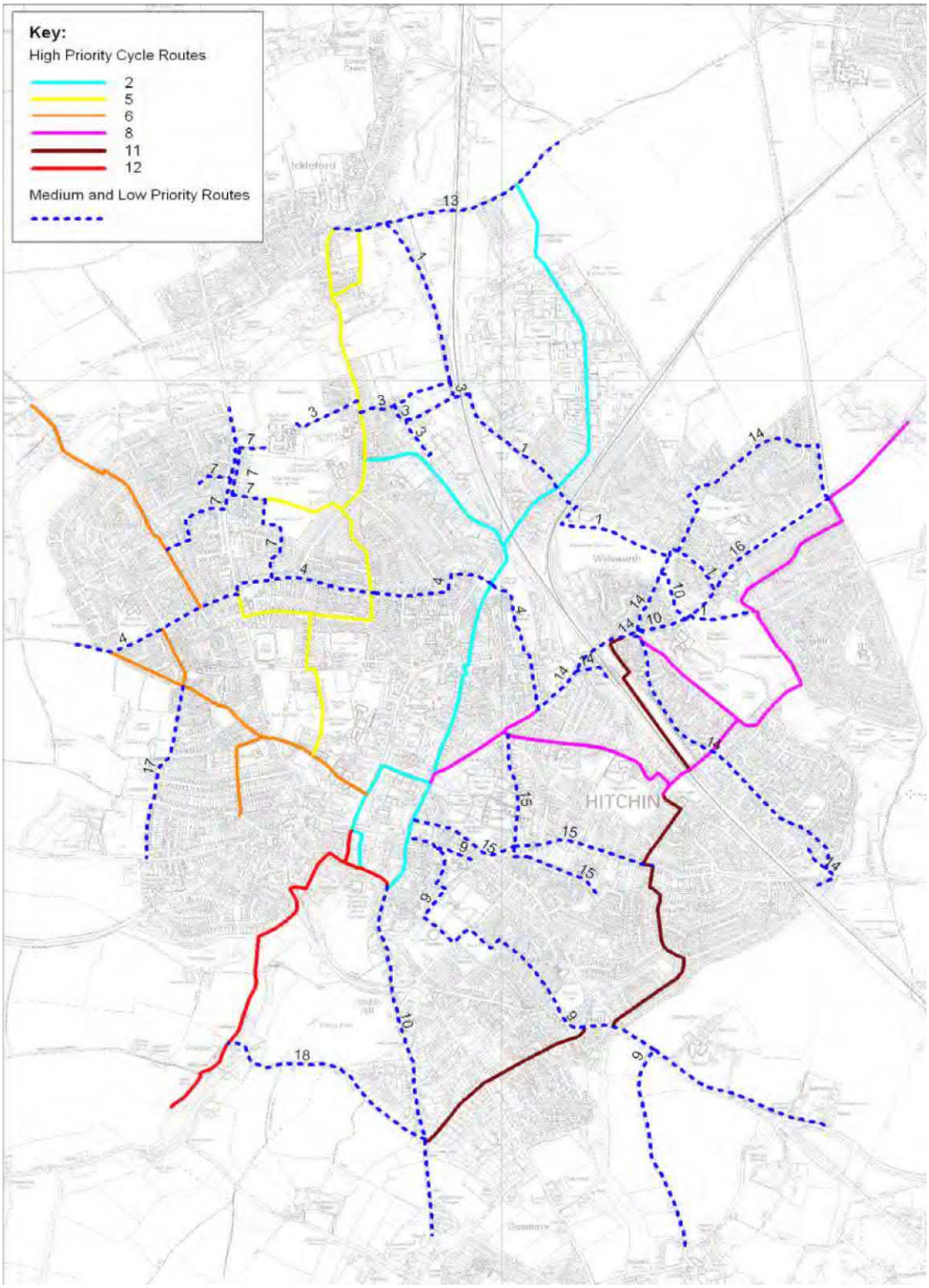
Measure reference	Walking / Cycling	Location	Description of the UTP measure	Status / Update	RAG	Measure identified in GTP	Measure identified in LCWIP
NM8	Cycling	Letchworth	Cycle corridor 8: Broadway Gardens Crossing	Completed.	Green	N/A	N/A

Scheme Plans for Hitchin, Royston, Letchworth and Baldock

Hitchin:

Source: [Hitchin Cover 2 May 2011.ai (hertfordshire.gov.uk)]

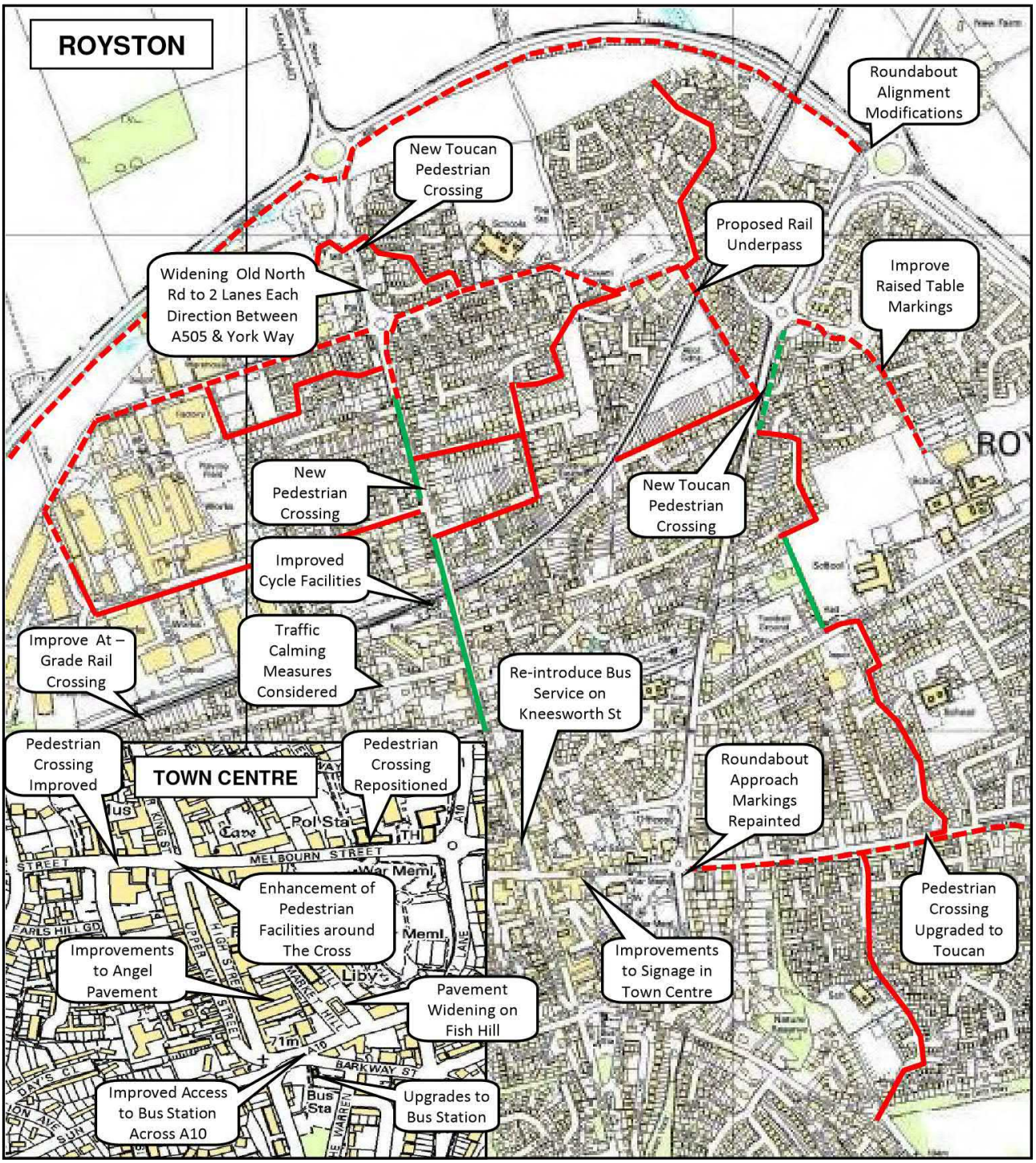
Location Plan/outline Scheme Plan



Proposed high, medium and long term cycle routes identified through the Cycle Network Survey

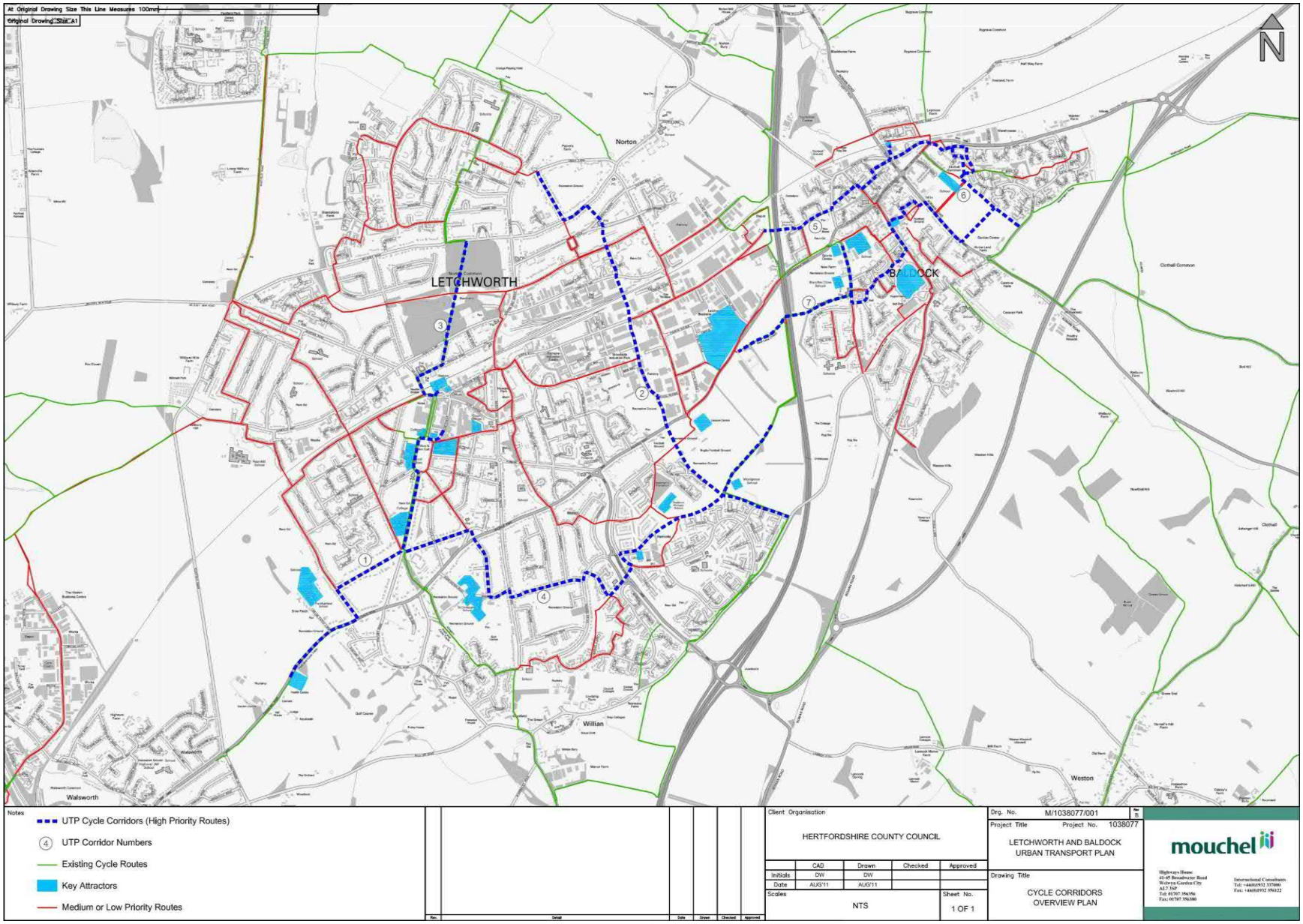
Royston:

Source: [royston-urban-transport-plan-vol-2.pdf (hertfordshire.gov.uk)]



Letchworth/Baldock:

Source: [Letchworth and Baldock Urban Transport Plan (hertfordshire.gov.uk)]



Route	Area	Location	Total Cost	Modelled increase in walking & cycling trips	Infrastructure impact on active travel	Strategic Fit	Support for new housing	Access to jobs	LTN 1/20 compliance	Technical feasibility	Dependency	TOTAL
NH14	Hitchin	Bedford Road (Hitchin)	£7,140,000.00	2.0	2.2	1.0	1.7	1.7	2.4	-0.3	0.4	**15.7**
NH78	Hitchin	Woolgrove Road	£4,775,000.00	2.0	2.4	0.2	1.4	1.6	2.4	-0.4	0.4	**13.6**
NH1	Baldock	A1(M) Pedestrian Bridge	£220,000.00	2.0	2.0	1.0	0.5	1.5	2.0	0.5	0.5	**13.0**
NH23	Hitchin	Cambridge Road	£8,809,500.00	2.0	2.3	1.0	0.7	0.9	2.5	-0.3	0.7	**12.8**
NH32	Hitchin	Grove Road & Wilbury Way	£5,244,500.00	1.9	1.5	1.0	0.9	1.7	1.6	-0.1	0.9	**12.2**
NH50	Letchworth Garden City	Norton Common N-S	£600,000.00	2.0	2.0	1.0	2.0	0.0	2.0	0.0	0.0	**12.0**
NH16	Hitchin	Bedford Road (One-Way) & Brand Road	£1,786,000.00	2.0	1.7	0.7	1.3	1.3	2.0	-0.7	0.7	**12.0**
NH12	Letchworth Garden City	Baldock Road (A505 & B656)	£10,465,000.00	2.0	1.6	0.9	0.5	1.7	1.8	-0.3	0.9	**11.9**
NH7	Baldock	B656 Royston Road	£750,000.00	2.0	1.6	1.0	1.6	0.4	1.6	0.2	0.4	**11.4**
NH29	Hitchin	Fishponds Road & Butts Close	£2,285,000.00	1.8	1.5	0.8	0.7	1.7	2.0	-0.2	1.0	**11.4**
NH67	Letchworth Garden City	Station Place & Station Road & Bridge Road	£5,868,750.00	2.0	2.4	0.9	0.4	0.7	2.2	-0.1	0.6	**11.3**
NH47	Hitchin	Nightingale Road	£6,844,000.00	2.0	2.1	0.9	0.1	1.1	2.1	-0.2	0.8	**11.1**
NH10	Baldock	Baldock High Street	£2,865,000.00	1.9	1.9	1.0	0.9	1.1	1.7	-0.4	0.6	**10.9**
NH38	Inter-Urban	Hitchin to Stevenage Route	£4,285,000.00	1.9	1.6	1.0	1.3	1.0	1.3	-0.3	0.5	**10.8**
NH2	Letchworth Garden City	A505 Hitchin Road	£1,725,000.00	2.0	1.8	1.0	0.2	1.2	1.7	0.0	0.8	**10.8**
NH40	Letchworth Garden City	Icknield Way & Green Lane	£5,825,000.00	1.9	1.6	0.8	0.5	1.5	1.6	0.0	0.8	**10.6**
NH11	Royston	Baldock Road - Baldock Street	£3,422,500.00	2.0	1.1	1.0	2.0	0.5	1.1	-0.2	0.4	**10.5**
NH22	Baldock	California	£206,000.00	1.5	1.0	0.5	2.0	2.0	1.0	0.0	1.0	**10.3**
NH45	Royston	Melbourn Road	£6,770,000.00	2.0	1.7	0.9	0.7	0.8	1.5	-0.3	1.0	**10.3**
NH79	Letchworth Garden City	Workers Paths & Bridge	£2,116,000.00	2.0	1.2	0.6	1.4	1.2	1.0	-0.4	0.8	**10.2**
NH48	Baldock	North Road - Station Road	£1,645,000.00	2.0	1.3	0.7	1.7	0.7	0.8	0.0	0.7	**10.2**
NH17	Letchworth Garden City	Birds Hill & Works Road	£2,272,500.00	2.0	1.2	0.9	0.0	1.9	1.3	-0.1	0.7	**10.1**
NH34	Hitchin	Hermitage Road	£1,230,000.00	2.0	2.5	0.3	0.0	0.8	2.5	-0.3	0.8	**10.0**
NH44	Royston	Lower King Street	£542,000.00	2.0	2.0	0.2	1.6	0.6	1.0	0.0	0.2	**10.0**
NH3	Letchworth Garden City	Avenue One & Second Avenue	£3,211,000.00	1.8	1.8	0.0	0.0	2.0	2.2	-0.1	0.9	**9.8**
NH41	Baldock	Icknield Way & Norton Road	£731,000.00	2.0	1.4	0.8	0.8	0.8	1.4	-0.2	1.0	**9.8**
NH42	Letchworth Garden City	Jubilee Road	£2,180,000.00	1.8	1.8	0.5	0.0	2.0	1.5	-0.3	1.0	**9.7**
NH51	Letchworth Garden City	Norton Way (N & S)	£8,489,000.00	1.8	2.2	0.1	0.4	1.4	2.1	-0.2	0.7	**9.6**
NH6	Baldock	B656 Letchworth Road	£890,000.00	1.8	1.2	1.0	0.4	1.2	1.8	0.2	0.6	**9.4**
NH52	Hitchin	Old Hale Way & Arlesey Road	£4,156,500.00	1.6	1.5	1.0	0.9	1.4	1.6	-0.2	0.3	**9.4**
NH73	Hitchin	Walsworth Road	£3,206,500.00	2.0	1.9	1.0	0.0	0.6	1.8	-0.2	0.9	**9.3**
NH8	Baldock	B656 Whitehorse Street	£606,500.00	2.0	1.0	1.0	1.0	1.0	0.7	0.0	0.7	**9.3**
NH13	Hitchin	Bancroft	£2,708,000.00	2.0	2.2	0.0	0.0	1.0	2.2	-0.2	0.8	**9.2**
NH37	Baldock	Hitchin Street (Baldock)	£682,000.00	2.0	1.0	1.0	0.8	1.0	1.0	0.0	0.6	**9.2**
NH72	Royston	Tannery Drift - Green Drift	£310,500.00	2.0	1.3	0.3	1.3	1.0	0.3	0.0	0.7	**9.0**
NH20	Letchworth Garden City	Broadway	£6,565,000.00	1.7	2.1	1.0	0.1	0.3	2.0	0.2	0.7	**8.8**
NH27	Letchworth Garden City	Dunham's Lane & Sixth Avenue	£285,000.00	2.0	1.2	0.2	0.0	2.0	1.0	0.0	1.0	**8.8**
NH61	Royston	Queens Road - Mill Road	£803,000.00	1.8	1.8	0.0	0.8	0.7	1.8	0.3	0.5	**8.8**
NH18	Hitchin	Bridge Street (Hitchin)	£640,000.00	1.5	2.5	0.5	0.0	0.5	3.0	0.0	0.5	**8.8**
NH53	Royston	Old North Street - Kneesworth Street	£5,547,000.00	2.0	1.6	-0.6	1.2	1.0	1.6	-0.1	1.0	**8.7**
NH56	Letchworth Garden City	Other LGC Improvements	£2,320,000.00	1.4	1.8	0.4	0.9	0.8	2.2	0.0	0.9	**8.5**
NH65	Letchworth Garden City	Rushby Mead	£487,000.00	1.8	1.3	0.2	0.0	1.5	1.7	0.3	0.8	**8.3**
NH15	Letchworth Garden City	Bedford Road (LGC)	£1,565,000.00	2.0	2.0	0.3	0.0	0.7	2.0	-0.3	0.7	**8.3**
NH46	Royston	Melbourn St - Newmarket Road	£2,980,500.00	2.0	1.1	-0.2	1.9	0.6	0.8	-0.2	0.8	**8.3**
NH24	Baldock	Church Street & Sun Street	£112,500.00	2.0	1.8	1.0	0.0	0.0	1.8	0.3	0.8	**8.3**
NH70	Hitchin	Strathmore Avenue & Water Lane	£1,300,000.00	1.8	1.6	0.6	0.4	0.8	1.4	-0.2	0.8	**8.1**
NH21	Baldock	Bygrave Road	£637,500.00	2.0	1.0	0.0	2.0	0.3	1.0	0.3	0.0	**8.0**
NH68	Letchworth Garden City	Station Way	£1,060,500.00	1.7	2.1	0.3	0.0	0.4	2.2	0.2	0.7	**7.9**
NH76	Baldock	Weston Way	£1,098,500.00	1.9	1.0	0.6	0.1	1.4	1.3	0.0	0.7	**7.8**
NH31	Letchworth Garden City	Grange Road & Southfields	£366,500.00	1.4	1.2	0.6	1.2	0.8	1.8	0.0	0.6	**7.7**
NH39	Hitchin	Hollow Lane	£3,650,000.00	1.3	2.3	0.5	0.8	1.0	2.3	-0.8	0.3	**7.4**
NH4	Knebworth	B197 Corridor (Knebworth)	£4,087,500.00	2.0	1.1	1.0	0.0	0.6	1.4	-0.3	0.8	**7.3**
NH30	Letchworth Garden City	Gernon Road & Hillshott	£1,763,500.00	1.5	2.0	0.0	0.0	0.5	2.5	0.3	0.6	**7.3**
NH66	Baldock	South Road and Wallington Road	£4,256,000.00	1.4	1.6	0.4	1.4	1.2	1.8	-0.6	-0.4	**7.2**
NH60	Hitchin	Queen Street	£1,858,000.00	1.3	2.1	1.0	0.0	0.3	1.8	0.0	0.8	**7.1**
NH57	Knebworth	Park Lane - Station Approach - Station Road	£2,747,000.00	1.7	1.9	0.1	0.3	0.7	1.8	-0.4	0.5	**7.1**
NH59	Royston	Priory Lane & A10 Gyratory	£4,141,000.00	1.7	1.8	0.1	0.2	0.6	1.9	-0.4	1.0	**7.1**
NH77	Hitchin	Whitehurst Avenue & Ickleford Road	£1,928,500.00	1.7	2.2	0.0	0.0	0.2	2.3	0.3	0.5	**7.1**
NH55	Knebworth	Other Knebworth Improvements	£120,000.00	2.0	1.0	0.0	0.5	0.5	2.0	0.0	1.0	**7.0**
NH75	Baldock	West Ave & Pepys Way	£114,500.00	1.5	1.5	0.5	0.0	1.0	2.0	0.0	0.5	**7.0**
NH5	Baldock	B197 London Road (Baldock)	£2,730,000.00	1.3	1.4	1.0	0.1	0.4	2.6	-0.4	0.4	**6.4**
NH80	Baldock	Yeomanry Drive	£1,225,000.00	1.3	1.0	0.0	1.3	1.3	1.5	0.3	0.3	**6.4**
NH58	Letchworth Garden City	Pixmore Way	£3,589,500.00	2.0	1.3	0.0	0.3	0.4	1.6	-0.1	0.7	**6.1**
NH35	Letchworth Garden City	Highfield (including School Access)	£329,000.00	1.3	1.3	-0.3	0.0	2.0	1.8	-0.3	0.8	**6.0**
NH28	Letchworth Garden City	Eastcheap & Leys Ave	£720,000.00	1.4	1.8	0.2	0.0	0.4	1.8	0.0	0.8	**6.0**
NH43	Royston	London Road & The Warren	£719,500.00	2.0	1.3	-0.3	0.0	1.3	1.1	-0.1	0.4	**5.9**
NH19	Letchworth Garden City	Broadwater Avenue	£750,000.00	1.2	1.6	-0.8	0.0	1.4	2.2	-0.2	0.8	**5.4**
NH33	Knebworth	Gun Lane - Gun Road	£774,500.00	2.0	0.8	0.3	0.0	0.2	2.0	-0.3	0.8	**5.2**
NH25	Baldock	Crabtree Lane	£128,000.00	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	**5.0**
NH26	Hitchin	Dacre Road	£80,500.00	1.0	3.0	0.0	0.0	0.0	2.0	0.0	0.0	**5.0**
NH62	Hitchin	Radcliffe Road	£94,500.00	1.0	3.0	0.0	0.0	0.0	2.0	0.0	0.0	**5.0**
NH36	Hitchin	Hitchin Centre Routes	£444,500.00	1.5	2.0	-0.5	0.3	0.2	1.5	-0.1	0.6	**5.0**
NH63	Letchworth Garden City	Ridge Road & Path	£518,000.00	1.2	1.2	-0.3	0.0	1.1	1.2	0.0	0.9	**4.6**
NH69	Knebworth	Stockens Green	£157,000.00	1.3	0.7	0.0	0.0	0.0	2.3	0.0	1.0	**4.2**
NH71	Knebworth	Swangley's Lane	£68,000.00	1.0	1.0	0.0	2.0	1.0	1.0	0.0	-1.0	**4.0**
NH54	Hitchin	Other Hitchin Improvements	£750,000.00	1.0	2.0	1.0	1.0	0.0	1.0	-1.0	0.0	**4.0**
NH9	Baldock	Back Lane (Baldock - LGC Off-Road Link)	£820,000.00	0.0	2.0	1.0	0.0	2.0	2.0	1.0	0.0	**3.0**
NH9	Letchworth Garden City	Back Lane (Baldock - LGC Off-Road Link)	£65,000.00	0.0	2.0	1.0	0.0	2.0	2.0	1.0	0.0	**3.0**
NH74	Knebworth	Watton Road	£90,000.00	1.0	1.0	0.0	2.0	0.0	1.0	0.0	-1.0	**3.0**
NH64	Royston	Royston Centre Routes	£230,000.00	1.1	1.0	0.0	0.0	0.1	0.3	0.0	1.0	**2.6**
NH49	Letchworth Garden City	Norton Common E-W	£768,500.00	0.7	1.0	-0.3	0.0	0.0	1.3	0.0	0.3	**2.1**
Not applicable	*Not applicable*	*Not applicable*	Minimum Possible Score	0	-1	-1	0	0	-1	-2	-1	-6
Not applicable	*Not applicable*	*Not applicable*	Maximum Possible Score	2	3	1	2	2	3	1	1	15

Appendix J - Acronyms Used in this Report

(listed in alphabetical order)

BSIP	Bus Service Improvement Plan
CWZ	Core Walking Zone
CWIS	Cycling and Walking Investment Strategy
DfT	Department for Transport
GIS	Geographic Information System
HCC	Hertfordshire County Council
KNP	Knebworth Neighbourhood Plan
LCWIP	Local Cycling and Walking Infrastructure Plan
LGC	Letchworth Garden City
LTN 1/20	Local Transport Note 1/20 (Cycle Infrastructure Design)
LTP4	Local Transport Plan 4 (published by HCC)
NCGTP	North Central Growth and Transport Plan
NCN	National Cycle Network
NHDC	North Herts District Council
PCT	Propensity to Cycle Tool
ROW	(Public) Rights of Way
RST	Route Selection Tool (a DfT tool developed for LCWIP audits)
SMS	Speed Management Strategy (supporting document to LTP4)
STT	Sustainable Travel Town
WRAT	Walking Route Audit Tool (a DfT tool developed for LCWIP audits)
WSP	WSP UK (the engineering consultancy firm)