



St Albans District

Local Cycling and Walking Infrastructure Plan

HCC / SADC





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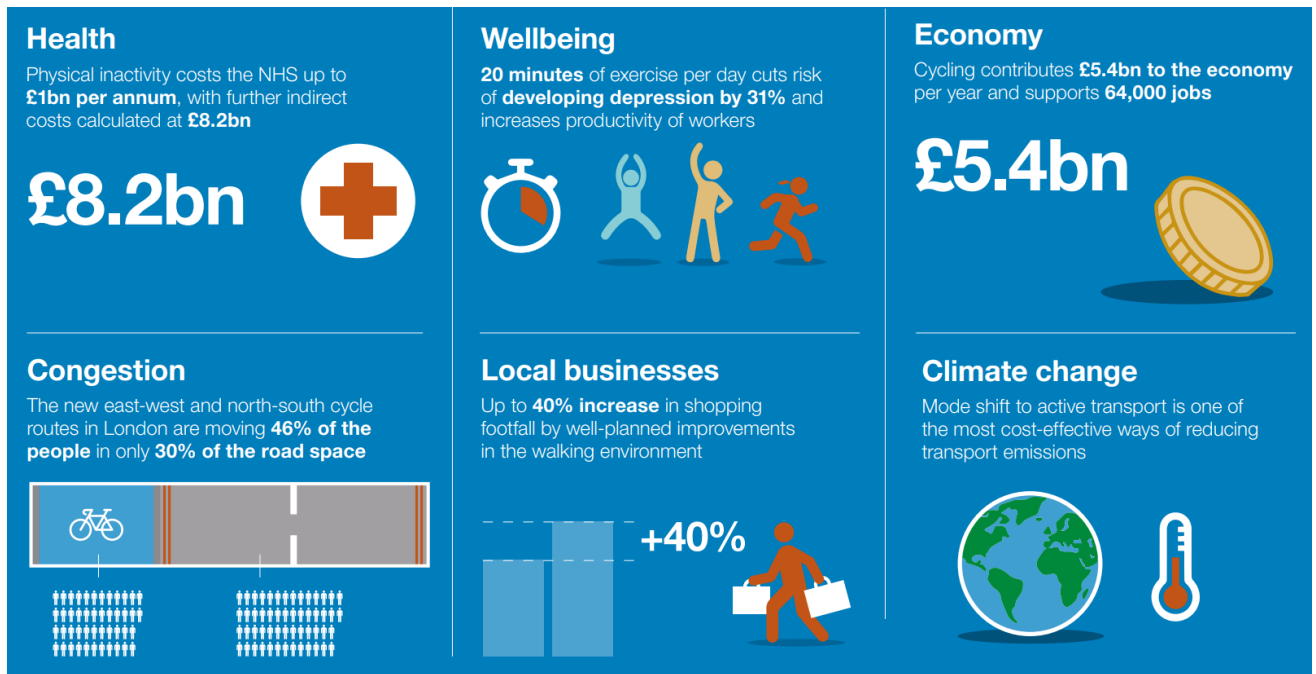
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1 Introduction

1.1 Background

- 1.1.1. This Local Cycling and Walking Infrastructure Plan (LCWIP) covers St Albans District and showcases that Hertfordshire County Council (HCC) and St Albans District Council (SADC) share central government’s ambition to make walking and cycling the natural choice for shorter journeys or parts of longer journey.
- 1.1.2. This study has been carried out in partnership between HCC and SADC, with HCC acting as the Highway Authority lead.
- 1.1.3. Evidence shows that enabling increased active travel trips brings benefits in areas such as road safety, congestion reduction, clean air, quieter streets, social mobility, the economy and public health, and wellbeing. Gear Change (England’s Cycling and Walking Strategy, published in 2020 by the Department for Transport) gathers much of the existing research on the benefits of active travel. Figure 1-1 is an infographic taken from Gear Change, listing some of the key benefits.

Figure 1-1 - The benefits of cycling and walking investment (source: Gear Change)



- 1.1.4. This LCWIP represents a first stage in the councils' aspirations for active travel network development. To achieve this, the councils recognise the need for a step change in the process of planning active travel networks, identifying and prioritising infrastructure improvements, and incorporating emerging best practice in design.
- 1.1.5. LCWIPs represent an ongoing process where the development of active travel networks can evolve over time, and in a way closely aligned to strategic objectives and transport, public health, environmental and planning policy.
- 1.1.6. As such, the St Albans LCWIP will be revisited periodically and updated as infrastructure is built throughout the District. While all of St Albans District has been considered in this first iteration of the LCWIP, it is acknowledged that the audits and subsequent infrastructure ideas identified are limited to the larger settlements (of St Albans and Harpenden) and shorter inter-urban routes, as required by the Government's LCWIP guidance. This was a value for money consideration taking into account the fact that these are the areas and routes in the District with the greatest potential for increased walking and cycling, due to their greater population density.
- 1.1.7. However, there is much active travel work currently ongoing outside of St Albans and Harpenden outside of this LCWIP. Separate document Appendix A 'Rural Connectivity' details this work, giving a high-level overview of the ongoing projects, their status and how they connect to the LCWIP.
- 1.1.8. In the next iteration of the LCWIP, a major focus will be on areas in the District which were not audited in this iteration. This will help tie together the work in this LCWIP with the rural connectivity work detailed in separate document Appendix A . These areas will include (but are not limited to) for example: outer neighbourhoods in St Albans and Harpenden, and villages/parishes such as Bricket Wood, Chiswell Green, How Wood, London Colney, Park Street/Frogmore, Redbourn, Wheathampstead, Colney Heath and Sandridge. This is discussed in more detail in sections 5.7, 6.6, 7.4, 7.5 and 9 of this report.
- 1.1.9. WSP has worked in close collaboration with HCC and St Albans District Council (SADC) to develop this LCWIP in line with the DfT guidance. WSP are responsible for producing the key deliverables of the LCWIP, including:
 - network plans for walking and cycling in St Albans District;

- a prioritised programme of infrastructure improvements for future investment; and
- this report which sets out the process and underlying analysis carried out and draws together our LCWIP outputs.

1.1.10. An LCWIP offers the council a chance to strengthen partnerships with local stakeholders and interest groups who can be influential in identifying and providing infrastructure to enable more walking and cycling journeys to be made. LCWIPs also provide an opportunity for the council to demonstrate its commitment to related policy issues, such as net zero, clean air, reducing congestion and health and wellbeing.

1.2 The LCWIP process

1.2.1. In 2017 the Department for Transport (DfT) produced a technical guidance document to help local authorities develop LCWIPs. Table 1-1 summarises the six-stage LCWIP process as detailed in this guidance document.

Table 1-1 – LCWIP process

Stage	Name	Description
1	Determining Scope	Establish the geographical extent of the LCWIP, and arrangements for governing and preparing the plan.
2	Gathering Information	Identify existing patterns of walking and cycling and potential new journeys. Review existing conditions and identify barriers to cycling and walking. Review related transport and land use policies and programmes.

Stage	Name	Description
3	Network Planning for Cycling	Identify origin and destination points and cycle flows. Convert flows into a network of routes and determine the type of improvements required.
4	Network Planning for Walking	Identify key trip generators, core walking zones and routes, audit existing provision and determine the type of improvements required.
5	Prioritising Improvements	Prioritise improvements to develop a phased programme for future investment.
6	Integration and Application	Integrate outputs into local planning and transport policies, strategies, and delivery plans.

Source: LCWIP Technical Guidance for Local Authorities, DfT, April 2017

1.2.2. Throughout the LCWIP process there were five stakeholder workshops held over three rounds of engagement.



1.2.3. Table 1-2 details the rounds of engagement, showing workshop dates and the activities undertaken. Further information about the stakeholder engagement can be found in sections 5.5, 6.4 and 7.3 within this document.

Table 1-2 - Stakeholder engagement process

Date	LCWIP stage	Activity
4 November 2021	2	<p>Early-Stage Stakeholder Engagement</p> <p>In the first round of engagement, stakeholders (including councillors, officers and local walking and cycling groups) were led through a review of the existing barriers to walking and cycling in the district, followed by a discussion about where strategic corridors, junction improvements, new crossings and area-wide measures could help bring mode shift to walking and cycling. The findings from this session helped inform the production of the draft walking and cycling networks.</p>
13 December 2021	2	<p>Review of Draft Walking and Cycling Networks (Councillors)</p> <p>The first of two workshops in the second round of engagement. County and district councillors and officers were shown draft walking and cycling network plans and were asked to provide feedback on the routes identified and highlight any key issues or opportunities.</p>
16 December 2021	2	<p>Review of Draft Walking and Cycling Networks (Wider Stakeholders)</p> <p>The second of two workshops in the second round of engagement. Organisations external to HCC and SADC were invited to review and feedback on the same walking and cycling network plans.</p>

Date	LCWIP stage	Activity
7 June 2022	3 & 4	<p>Review of Infrastructure Improvement Plans (Councillors)</p> <p>The first of two workshops in the third and final round of engagement. County and district councillors and officers were shown the draft infrastructure improvement maps that were produced based on the audits undertaken. They were provided with an opportunity to comment on the identified improvements and make any further suggestions. They were also invited to review and feedback on updated network maps.</p>
10 June 2022	3 & 4	<p>Review of Infrastructure Improvement Plans (Wider Stakeholders)</p> <p>The second of two workshops in the third and final round of engagement. Organisations external to HCC and SADC were invited to review and feedback on the same infrastructure improvement plans and updated network maps.</p>

1.3 Report structure

- 1.3.1. This report details the technical support provided by WSP at each stage of the LCWIP development.
- 1.3.2. LCWIP Stage 1 (Determining Scope) was largely completed by HCC and SADC as defined in their Scoping Report. One aspect WSP contributed to was defining the geographical scope, as explained in Section 2 (LCWIP Geographical Scope).
- 1.3.3. The majority of support provided by WSP was during LCWIP Stages 2 to 5. For the technical support provided for LCWIP Stages 2-5, details of the approach, methodology, assumptions, and outputs are provided in this report.
- 1.3.4. LCWIP Stage 6 (Integration and Application) concerns the integration of the LCWIP into local policy, strategies, and plans. In this report, Section 9 (Next Steps) sets out some initial ideas for how this can be done, but the actual process of integrating the LCWIP into local policy, strategy and plans will be progressed by HCC and SADC over the coming months.

1.3.5. The report structure is detailed in Table 1-3 below, showing the sections of the report and how they fit within the six-stage LCWIP process.

Table 1-3 – Report structure

Section	Title	Associated LCWIP stage(s)
2	LCWIP Geographic Scope	1 – Determining Scope
3	Policy Context	2 – Gathering Information
4	Gathering Information	2 – Gathering Information
5	Network Planning for Walking	4 – Network Planning for Walking
6	Network Planning for Cycling	3 – Network Planning for Cycling
7	Walking and Cycling Infrastructure Improvements	4 – Network Planning for Walking 3 – Network Planning for Cycling
8	Scheme Costing and Prioritisation	5 – Prioritising Improvements
9	Next Steps	6 – Integration and Application

1.3.6. The appendices after the main body of the report contain additional information and LCWIP deliverables. The content of each appendix is listed in the report contents before this introduction. Of particular help to the reader may be separate document Appendix K, which contains a list of acronyms used in this report.

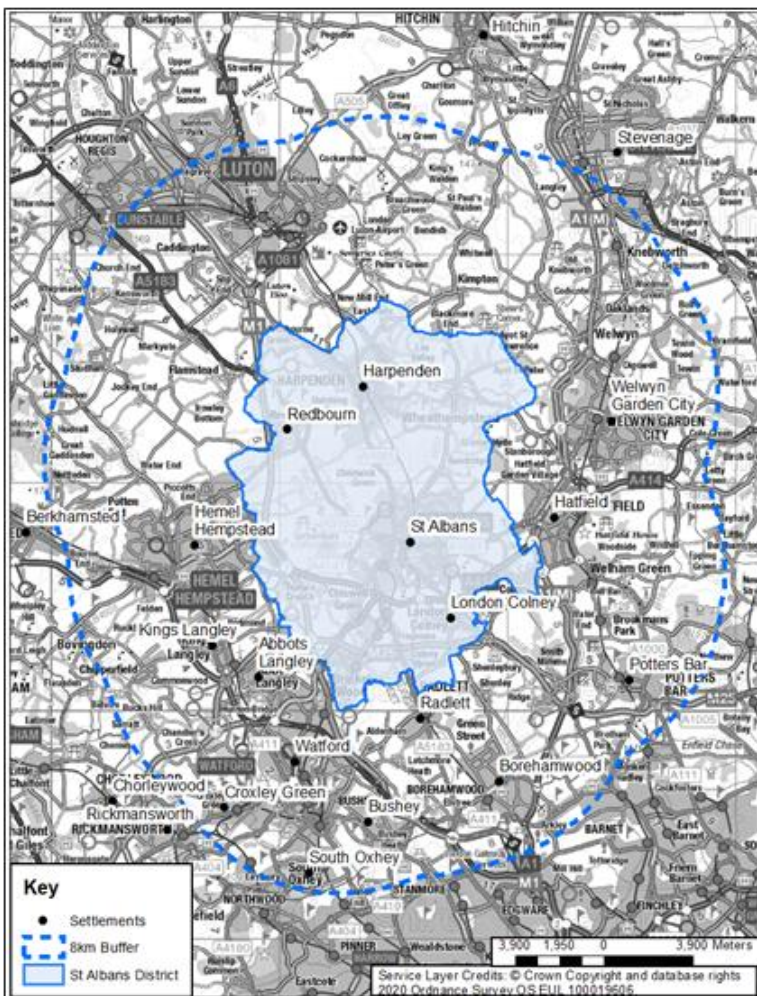
2 LCWIP Geographical Scope

2.1 LCWIP Geographical Scope

2.1.1. The routes and infrastructure plans contained within this LCWIP do not extend beyond the St Albans District boundary. However, these routes and infrastructure plans are influenced by the potential for journeys coming in and out of the District from nearby settlements, such as Hatfield, Welwyn Garden City and Hemel Hempstead. As such, when developing this LCWIP, a wider area (8km from the District boundary) has been studied. This 8km (5 mile) distance was selected based on the DfT’s Gear Change document, which refers to 5 miles as being a distance that is ‘suited to cycling’ for ‘many people’.

2.1.2. Figure 2-1 shows the geographical scope of this LCWIP, illustrating the St Albans District boundary as well as the 8km buffer zone.

Figure 2-1 - Geographical Scope of the St Albans LCWIP



3 Policy Context

3.1 Overview

3.1.1. The tables in this section set out the existing policy documents that are relevant to this LCWIP on the national, county and district levels. Table 3-1 sets out the national strategic context while Tables 3-2 and 3-3 set out the county and district strategies, policies and plans respectively. More detail on the policy context and how it all relates to the LCWIP can be seen in separate document Appendix B.

Table 3-1 - National Strategic Context

Document	Publisher and Date Published	Description
Gear Change	Department for Transport (DfT) 2020	Government's vision for a step-change in levels of walking and cycling in England, the strategy details how the Government intends to increase the numbers of people walking and cycling. The document sets out the actions in required, under four key themes, to increase uptake and achieve half of all journeys in towns and cities are cycled or walked by 2030.
Local Transport Note 1/20: Cycle Infrastructure Design	Department for Transport (DfT) 2020	Explains the five overarching design principals (cycle routes and networks must be coherent, direct, safe, comfortable, and attractive) 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.

Document	Publisher and Date Published	Description
Cycling and Walking Investment Strategy (CWIS)	Department for Transport (DfT) 2017	Outlines ambitious targets up to 2025 including a doubling of cycling trip stages each year whilst also reversing the year-on-year decline in walking trip stages. The benefits of doing this are stated as potentially leading to cheaper travel and better health, increased productivity for business and increased footfall in shops. Along with lowering congestion, better air quality, and vibrant, attractive places and communities.
Cycling and Walking Investment Strategy 2	Department for Transport, 2022	Follows on from the initial Cycling and Walking Investment Strategy (2017) and provides the objectives and financial resources for the period of April 2021 to March 2025. The St Albans LCWIP may be seen as vital to achieving the objectives set by CWIS2 and a key enabler for funding outlined in the strategy.
Future of Mobility: Urban Strategy	Department for Transport (DfT) 2019	The document sets out principles to guide Government decision making, industry and local authorities, it recognises active travel as a key area to help shape the future of urban mobility. It states many journeys could be undertaken by sustainable, active modes of transport leading to better air quality, health outcomes and lower congestion which could in turn be supported by new technologies making public transport more convenient and responsive.

Document	Publisher and Date Published	Description
Clean Air Strategy	Department for Environment, Food and Rural Affairs (DEFRA) 2019	Sets out a comprehensive action plan required to tackle all sources of air pollution. It 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.
Bus Back Better, National Bus Strategy for England	Department for Transport (DfT) 2021	A long-term national bus strategy setting 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 Inclusive Transport Strategy	Department for Transport (DfT) 2018	Plans to create a more inclusive transport system for everyone. The report focusses on transport inclusivity, explaining how vehicles, stations and streetscapes can be designed to be inclusive to people with different forms of disability.
Future of Freight: A Long-Term Plan	Department for Transport (DfT), 2022	Plans for a safe cycling network identified by the LCWIP will provide a last mile delivery solution using e-cargo bikes. This will help to remove road freight from congested city and town networks.
Net Zero Strategy: Build Back Green	Department of Business, Energy, and Industrial Strategy, 2022	Aims to increase journeys by alternative modes, including walking and cycling. A commitment to building segregated cycle lanes and low traffic neighbourhoods.

Document	Publisher and Date Published	Description
National Disability Strategy	Department for Work and Pensions (DWP) 2021	The National Disability Strategy outlines the government’s commitment to removing barriers disabled people experience across everyday life, and ‘reflects the experiences of disabled people across the UK’. The strategy principally outlines areas where the government can issue new guidance, undertake research, legislate, or otherwise compel changes to remove or mitigate these barriers as much as possible.
National Planning Policy Framework	Ministry of Housing, Communities and Local Government (MHCLG) 2021	Outlines planning policies for England and how these should be applied, providing the required details and framework for local development plans to be produced. The purpose of the planning system, as given in the framework, is ‘to contribute to the achievement of sustainable development’ which is provided a high-level summary thusly: ‘meeting the needs of the present without compromising the ability of future generations to meet their own needs’.
Decarbonising Transport: A Better, Greener Britain	Department for Transport (DfT) 2021	Provides a series of government commitments and strategies to reduce the overall carbon footprint of transport by all modes as the nation moves towards net zero by 2050.

Document	Publisher and Date Published	Description
Local Cycling and Walking Infrastructure Plans: Technical Guidance for Local Authorities	Department for Transport (DfT) 2017	Provides the framework for undertaking strategic walking and cycling network developments, including the six stage process this LCWIP follows, and the type and nature of data collected and used as part of the process.

Table 3-2 - County Strategies, Policies and Plans

Document	Publisher and Date Published	Description
Local Transport Plan 4	Hertfordshire County Council (HCC) 2018-2031	The plan sets out a new transport vision for Hertfordshire and accelerates the transition 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 wherever possible. The document also highlights several regionally strategic corridors in which sustainable transport is a priority
South Central Growth and Transport Plan (SCGTP)	Hertfordshire County Council (HCC)	The suite of Growth and Transport Plans support LTP4 whilst focusing on different sub-areas within Hertfordshire. The area covered by SCGTP is undertaking a large amount of development which will increase demand on an already constrained highway network unless a significant shift towards walking, cycling and public transport is achieved.

Document	Publisher and Date Published	Description
South West Growth and Transport Plan (SWGTP)	Hertfordshire County Council (HCC)	Growth and Transport Plans are localised, spatial strategies used to support projected growth and development in an area via key infrastructure and accompanying projects. The SWGTP covers parts of the St Albans district, including Harpenden.
Intalink Hertfordshire Bus Strategy	Hertfordshire County Council (HCC) 2020	Sets out in greater detail the plans to grow the local bus network to support the shift towards more sustainable transport within Hertfordshire. 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.
Sustainable Modes of Travel Strategy	Hertfordshire County Council (HCC) 2020	Provides the councils vision to increase opportunities for children and young people to travel to, from, and between schools and colleges by sustainable modes in line with the Education and Inspections Act 2006, which places a requirement upon on local authorities to promote said travel methods.
Sustainable Hertfordshire Strategy	Hertfordshire County Council (HCC) 2020	Sets out initial policies and strategies needed to embed sustainability across all its council operations and services throughout the county. Identifies an increased mode shift away from the car towards walking and cycling will help achieve the county's plans for fighting climate change.

Document	Publisher and Date Published	Description
Speed Management Strategy	Hertfordshire County Council (HCC) 2020	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 needs of vulnerable road users such as pedestrians and cyclists.
Air Quality Strategy	Hertfordshire County Council (HCC) 2019	Provides the county position on air quality, including both the strategic vision and the aims and objectives that will contribute to delivering this vision. It is heavily aligned with the sustainability strategy but provides an additional layer of policy support for both air quality monitoring and air quality improvements across the network.
Maintenance for Active Travel Strategy	Hertfordshire County Council (HCC) 2019	Outlines how routine or ad hoc highway maintenance programmes may contribute to the uptake of active travel, by ensuring that existing infrastructure is kept to the appropriate standards and new infrastructure suitably maintained to ensure a long, efficient lifecycle.
Accessibility Strategy 2018-2031	Hertfordshire County Council (HCC) 2019	Serves as a strategic analysis of existing accessibility within Hertfordshire, based around distance to services using the TRACC software to isolate distance and access via travel modes

Document	Publisher and Date Published	Description
Rural Transport Strategy 2019-2031	Hertfordshire County Council (HCC) 2019	Assist in the delivery of LTP4 policies within the context of rural transport, recognising that for rural residents there are often transport-related barriers to accessing services which mean the motor car remains the dominant transport choice.
Rights of Way Improvement Plan 2017/8-2027/8	Hertfordshire County Council (HCC) 2018	Provides the framework for the changes, enhancements, and improvements to Hertfordshire's extensive Right of Way network, aiming to provide better provision for walkers, cyclists, and equestrians regardless of ability level or familiarity with the network.
Hertfordshire Place and Movement Planning and Design Guide	Hertfordshire County Council In development (2023)	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 a basis for deciding which activities should be prioritised. In doing so, it aims to provide a means to translate LTP4 policies into practice. This document is currently in development.

Document	Publisher and Date Published	Description
Active Travel Strategy	Hertfordshire County Council In development (2023)	Identifies key challenges that people living and working in Hertfordshire face when making decisions to replace car journeys, or generate new trips, through more walking and cycling. It also set out how the County Council and its partners would identify, deliver, and promote interventions to increase the numbers of people walking and cycling in Hertfordshire. This document is currently in development.

3.1.2. At the time of writing there are a number of additional county level strategies in development that may influence the LCWIP in future, these include:

- Network Management Strategy
- Road Safety Strategy

Table 3-3 - District Strategies, Policies and Plans

Document	Publisher and Date Published	Description
St Albans Local Plan (St Albans District Council, 1994)	St Albans District Council (SADC) 1994	The document is very much a product of its time, promoting car-focused accessibility for developments that are no longer within national or regional transport plans, but retains a number of accurate comments that continue to reflect local transport (for example, St Albans City Centre suffering from traffic congestion) and does promote active travel provision for pedestrians and cyclists to prevent the exacerbation of existing traffic issues recognised across the district.

Document	Publisher and Date Published	Description
Neighbourhood Plans	St Albans District Council (SADC)	Neighbourhood Plans have been made in Harpenden, St Stephen, and Sandridge, with further Plans in development in Wheathampstead, Redbourn, London Colney and Colney Heath. Relevant transport and movement objectives are summarised in the Rural Connectivity Appendix.
Sustainability and Climate Crisis Strategy	St Albans District Council (SADC) 2020-2023	Sets out the actions that will be taken by SADC over a three-year period, 2020-2023, to reduce environmental impacts following a climate emergency declaration.
Alban Way Greenspace Action Plan (2019-2024)	St Albans District Council (SADC) 2019-2024	The plan aims to ensure the Alban Way maintains high standards of access, safety, user enjoyment and environmental quality, through upkeep of recent improvements and adoption of sustainable long-term management.
Nickey Line Greenspace Action Plan	St Albans District Council (SADC) 2016-2021	The plan provides the key ambitions and objectives for the Nickey Line Principally, the same aims and objectives for the Alban Way apply to the Nickey Line and are in line with the general Rights of Way Improvement Plan that HCC has adopted for similar routes across the district and county.

3.2 Relevant Plans in Neighbouring Authorities

- 3.2.1. Welwyn Hatfield Borough Council have also developed an LCWIP in partnership with HCC, with WSP's support. The walking and cycling networks in these two LCWIPS have therefore been aligned. The key inter-urban routes that connect to the St Albans District LCWIPs are the Alban Way and the A1057. The Alban Way is an off-carriageway active travel route between the two, while the A1057 is a slightly more direct route but has a worse level of service for pedestrians (there is only one footway) and cyclists (who must mix with high volumes of traffic).
- 3.2.2. Dacorum Borough Council, Hertsmere Borough Council and East Herts District Council are also looking to develop LCWIPs with HCC and WSP in the foreseeable future.
- 3.2.3. Connections with neighbouring authorities are discussed in more detail in sections 5, 6, 7, 8 and separate document Appendix A.

4 Gathering Information

4.1 Introduction

4.1.1. The following information sources were mapped in GIS and referred to as the first drafts of the walking and cycling network plans were developed:

- Outputs of the Early-Stage Stakeholder Engagement
- Outputs of the Propensity to Cycle Tool
- Outputs of the WSP/HCC LCWIP GIS Model
- Existing Rights of Way
- Existing Cycle Routes and Facilities
- Strategic Routes / Connections (from the strategies, plans and policies in Section 3).

4.1.2. This section of the report introduces each of these information sources, explaining why they are relevant to the LCWIP. Sections 5 and 6 of the report explain how they were used together to develop the draft network plans.

4.2 Early-Stage Stakeholder Engagement

4.2.1. In an online workshop held on 4th November 2021, local stakeholders (including councillors, local authority officers and representatives from local walking and cycling groups) were invited to discuss issues and opportunities for active travel in St Albans District.

4.2.2. The session was led by nationally renowned active travel expert, Brian Deegan, who has lived in Harpenden for a number of years. WSP provided support in facilitating the session.

4.2.3. Stakeholders were led through a review of the existing barriers to walking and cycling in the district (such as highly trafficked roads, rivers, rail lines, busy junctions). Stakeholders were invited to suggest additional barriers, and these were all mapped to GIS live during the session. With barriers mapped, Brian and WSP staff then facilitated a discussion about where strategic corridors, junction improvements, new crossings and area-wide measures could help bring mode shift to walking and cycling. Again, stakeholders were invited to suggest their own ideas, which were also mapped to GIS in the session.

4.2.4. The session provided an early indication of areas of focus for the LCWIP, and outputs (mapped in GIS) were used to help inform the draft network plans and, later, the draft infrastructure plans too.

4.3 Propensity to Cycle Tool

Overview

- 4.3.1. The Propensity to Cycle Tool (PCT) was developed on behalf of the DfT between 2016-2019. It is a web-based tool designed to help authorities plan cycle networks, with LCWIPs in mind.
- 4.3.2. The PCT helps identify desire lines for cycle traffic for trips to work and to schools. It can also help inform network development, as its outputs can be configured to be applied to the existing network, giving ‘heat maps’ of indicative demand.
- 4.3.3. It is based on data from the 2011 Census, which is then manipulated and uplifted to represent a number of future scenarios, showing potential cycle demand patterns. Two scenarios were modelled in the study area for this LCWIP: “Government Target (Near Market)” and “Go Dutch”. The latter scenario looks at the distances between homes and workplaces and applies Dutch willingness to cycle to these, imagining how many additional trips could be cycled if there was Dutch-style cycle infrastructure in the UK and Dutch levels of willingness to cycle.
- 4.3.4. More information on the PCT and its scenarios is on the PCT website which can be found using the following link: <https://www.pct.bike>.

PCT Outputs

- 4.3.5. The PCT outputs for both journeys to work in both the “Government Target (Near Market)” and “Go Dutch” scenarios are shown at a District-wide level, applied to the network, in Figure 4-1 and Figure 4-2. These can be found in greater resolution in separate document Appendix C.

Figure 4-1 – PCT Output – District-wide “Government Market (Near Market)” Scenario

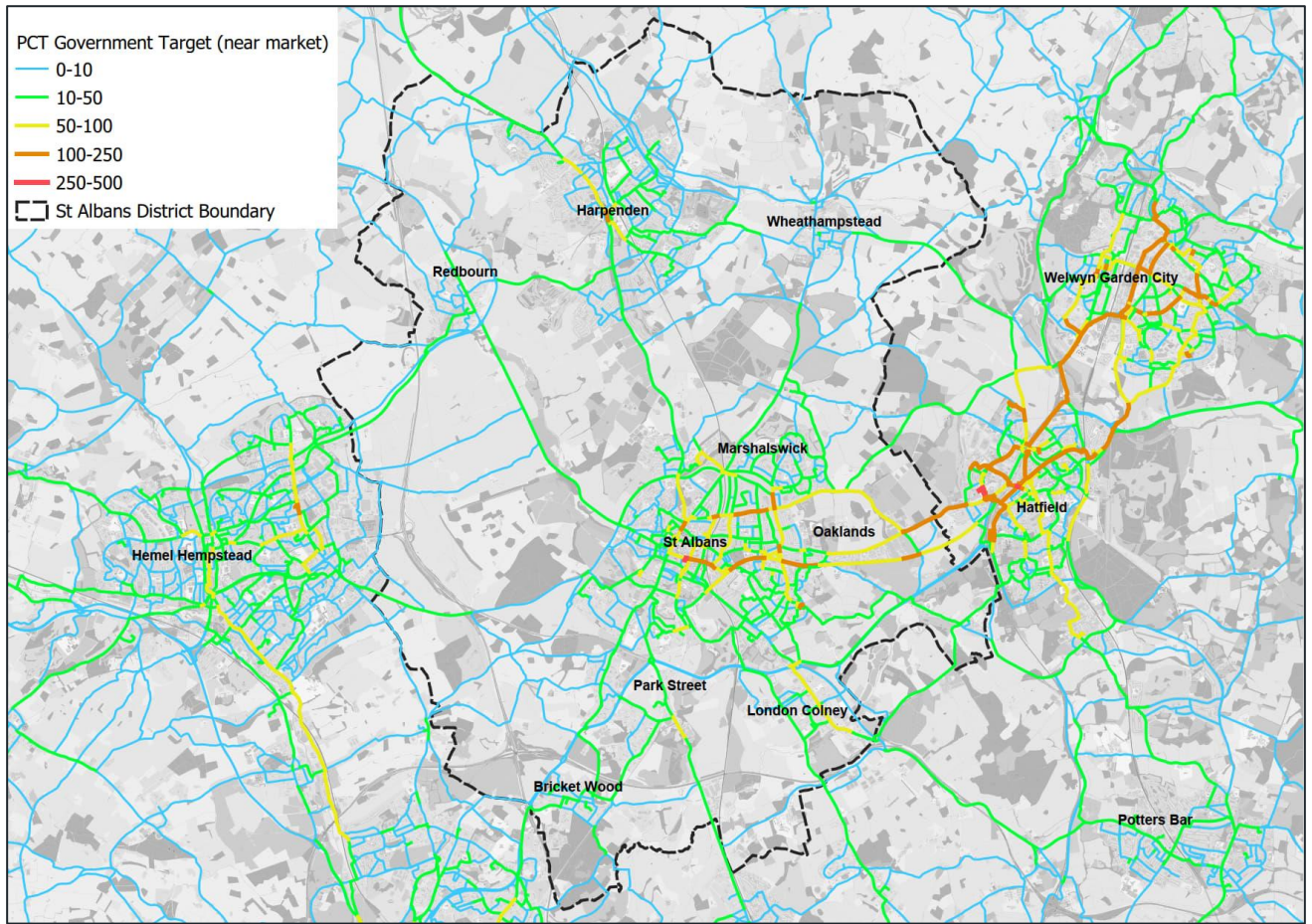
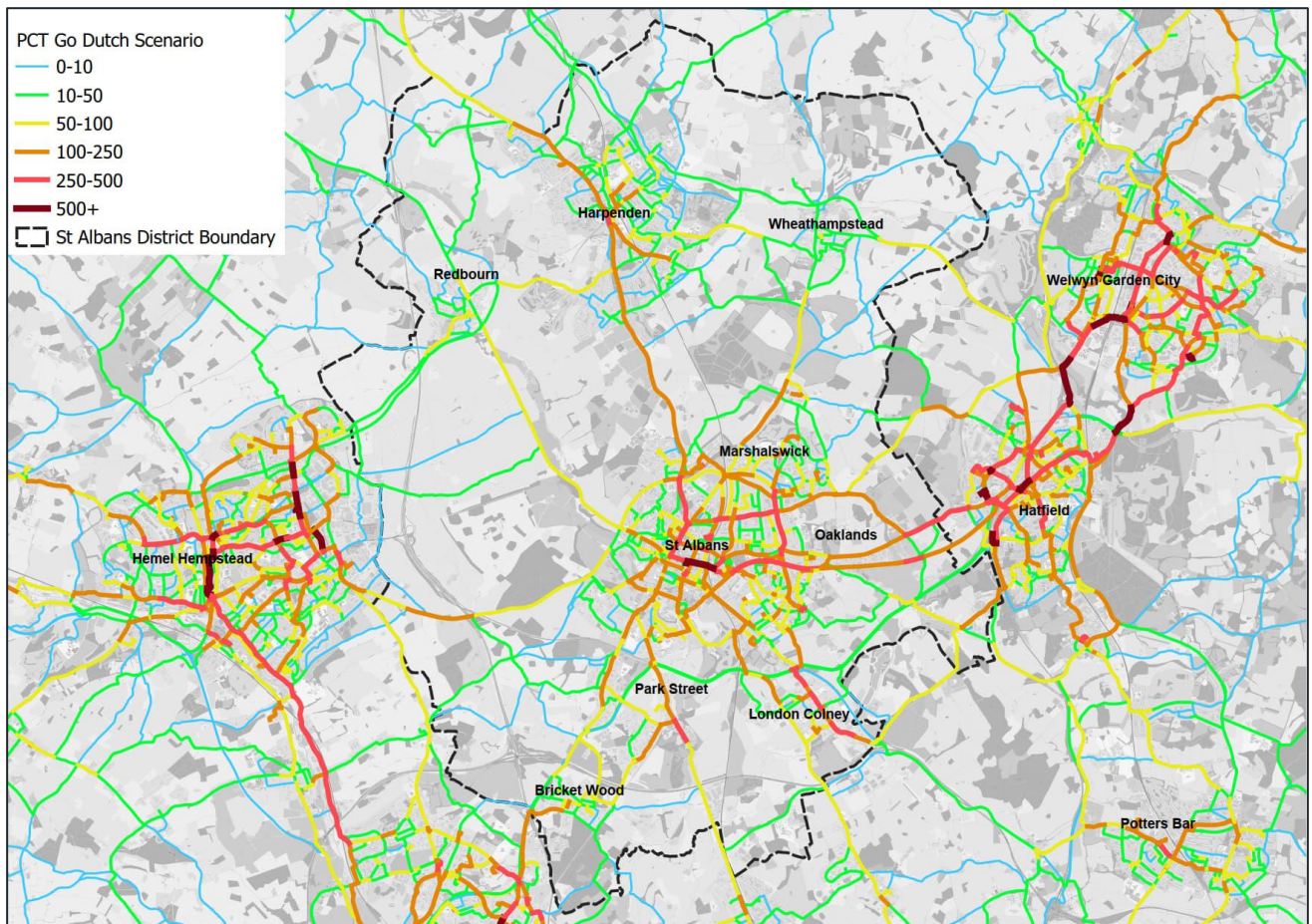


Figure 4-2 – PCT Output - District-wide “Go Dutch” Scenario



Limitations

- 4.3.6. While the PCT is a very useful tool, it has some key limitations when considering potential demand for cycling. This is even acknowledged in the DfT LCWIP guidance.
- 4.3.7. The first key limitation is that it only looks at journeys to work and school. This misses out a large number of shorter trips that are well-suited to cycling, such as trips to the shops, town centres and multi-modal trips via rail stations.
- 4.3.8. A second key limitation is that it is based on old data and does not consider any residential developments or key employment areas built since 2011, nor any planned developments.
- 4.3.9. Finally, it also is limited in that it only considers cycling trips.
- 4.3.10. For these reasons, WSP has built a GIS-based LCWIP model for Hertfordshire which has a similar functionality to the PCT but is customisable in terms of the origins, destinations and network that is input. The next section of the report explains this in more detail and displays and discusses the outputs of the model.

4.4 LCWIP GIS Model

Overview

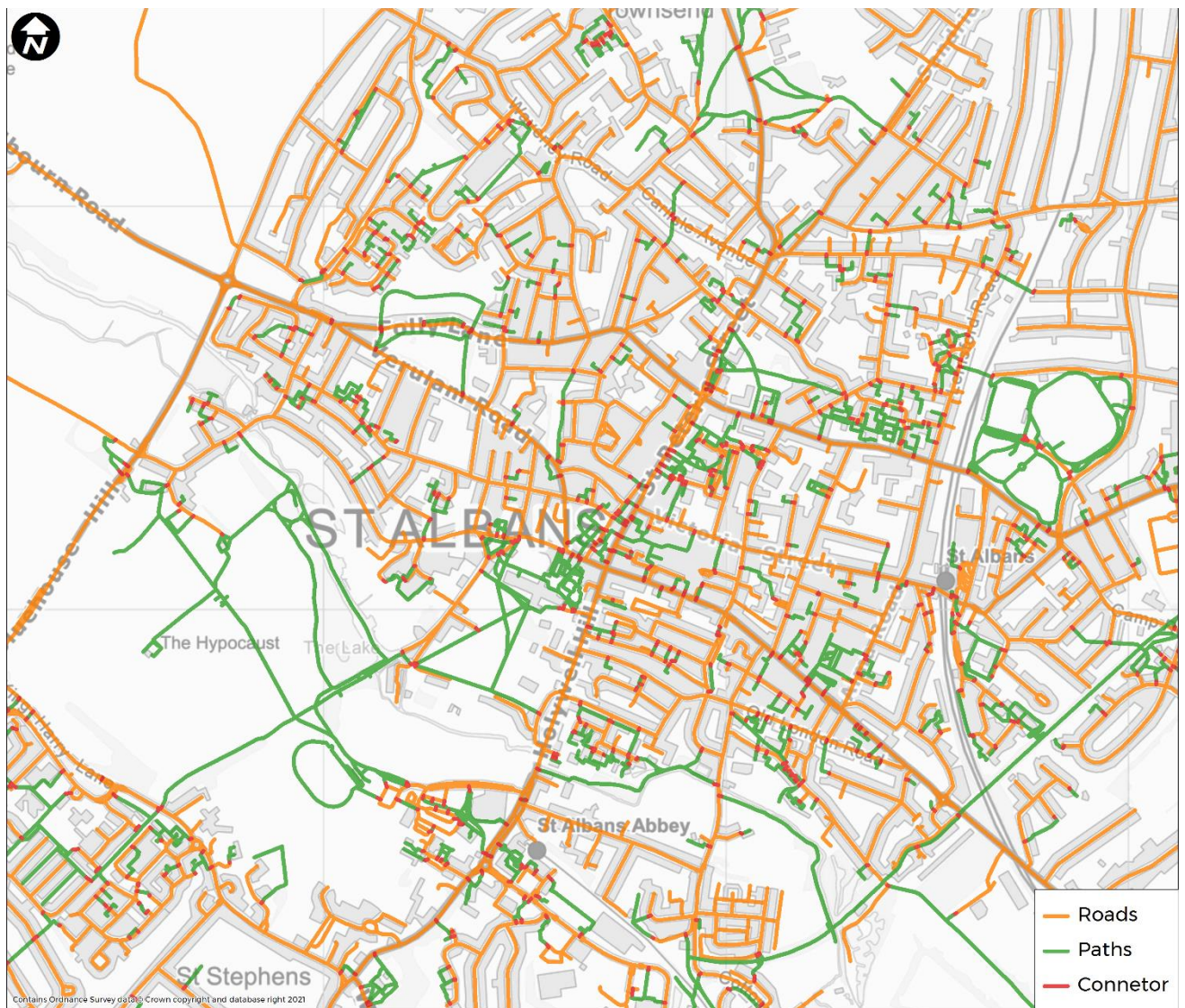
- 4.4.1. WSP has built a GIS model for Hertfordshire County Council (HCC) to use in their LCWIPs. This model compensates for the limitations in the PCT by allowing the latest origin and destination data to be input and applied to a custom network. This gives us an indication of potential demand for cycle and walk trips beyond the commute and the school run, and also takes into account potential demand from housing built since 2011 and housing planned in the future.
- 4.4.2. This section of the report explains the model in simple terms. A more technical and detailed explanation is included in separate document Appendix D. In brief, the model consists of a custom network (which trips are assigned to), a series of origin points (based on existing and future housing locations) and a series of destination points. Potential walk and cycle trips are then assigned to the network to link these origins and destinations, based on a set of assumptions agreed between WSP, HCC and SADC. This gives an indication of where in the network there may be suppressed demand for walking and cycling trips, and/or potential future demand.

Network

- 4.4.3. The model's network consists of all the roads and paths which are assumed to be walkable and cyclable in Hertfordshire and its surrounding areas (the network extends to 8km beyond the county boundary in all directions).
- 4.4.4. The network consists 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 were downloaded from Emapsite on 4th May 2021 and then merged together with some 'connectors' (as can be seen in Figure 4-3). Motorways have been removed.
- 4.4.5. It is acknowledged that not every road or path on the network will be walkable (as some roads don't have footways etc.). For the purposes of modelling this is okay as the model's purpose is to identify potential demand, which includes suppressed demand due to lack of facilities. Where footways aren't present, this will likely be identified during the audit stage in any case.

- 4.4.6. Similarly, not every road or path on network will be cyclable, either legally or practically (due to traffic speeds, gradients etc.). Again, the purpose of the model is to identify potential demand. Whether roads or paths are cyclable, and can be made cyclable, is investigated later in the process.
- 4.4.7. One-way streets have been modelled as two-way on this network. For cycling, this is to reflect the fact that many one-way streets can often be converted to two-way streets for cycling with relative ease. This allows us to see where such an intervention may be beneficial.

Figure 4-3 – Model Network (built from Ordnance Survey MasterMap Datasets)



Origin Points

4.4.8. The origin points dataset used in the model was created from the following sources:

- Current residential addresses (Source: AddressBase Plus data (for existing households)); and
- Proposed housing developments (Source: St Albans COMET R6 Perm Sites L3).

4.4.9. There are 300,264 origin points in the study area (St Albans District boundary plus 8km). Each origin point is weighted to represent its current or likely future population.

Destination Points

4.4.10. The destination points datasets include:

- Bus stops
- Coach stations
- Colleges/universities
- Community centres
- Dentists
- Events spaces
- GPs/walk-in centres
- Hospitals
- Key employment areas
- Libraries
- Local (neighbourhood) centres
- Market areas / marketplaces
- Nurseries
- Parks/open spaces
- Post offices
- Primary schools
- Railway stations
- Retail parks
- Secondary schools
- Sport and leisure centres
- Supermarkets

- Tourist attractions / points of interest
- Town centre areas

4.4.11. A total of 25,445 unique destination points were considered as part of this process. The total cycling destination points is lower than walking due to bus stop being omitted from the cycling assumptions

4.4.12. In simple terms, the model connects the origins and destinations using the network, and gives a heat map style output, showing the relative number of trips on different parts of the network. These outputs (for the walking model run and cycling model run) are shown in Figure 4-4 and Figure 4-5 respectively.

4.4.13. There are a series of assumptions that inform these outputs:

- Not all origin points are linked to all destination points. For most destination types, origin points are only linked with the closest of each type (e.g., the closest library, the closest supermarket).
- For some destination types, such as schools, origin points were linked with the nearest 3 or 5 destinations of that type.
- For a small number of destination types, including town centres and key employment areas, origin points were linked with every destination of that type.
- Where origins linked with multiple destinations of a type, the model assigned more trips to closer destinations and, in the case of key employment areas, it additionally factored in the likely number of jobs (based on the size of the key employment area) and would assign more trips to larger, closer employment sites.
- Origins are linked with destinations along the shortest route available on the network, as directness is a key factor when considering walking and cycling desire lines.
- Trips over 2km in length are excluded from the walking model, as the focus in an LCWIP is on short utility trips. 2km is length referred to in the LCWIP guidance and most people can walk this distance in 20-30 minutes.
- Trips over 8km in length are excluded from the cycling model for a similar reason. Gear Change refers to trips up to 5 miles (roughly 8km) in length as journeys 'perfectly suited to cycling' for 'many people'.

- The model generates more trips to some destinations than others. Trip proportions were initially based on data on trip types from the Hertfordshire Travel Survey, then discussed, adjusted, and agreed. Trip proportions are different in the walking and cycling models. More trips were generated to key employment areas, town centres, schools, railways, and retail.

4.4.14. Greater detail on the model and its assumptions (e.g., a breakdown of percentages of trips in the model to different destinations) can be found in separate document Appendix D.

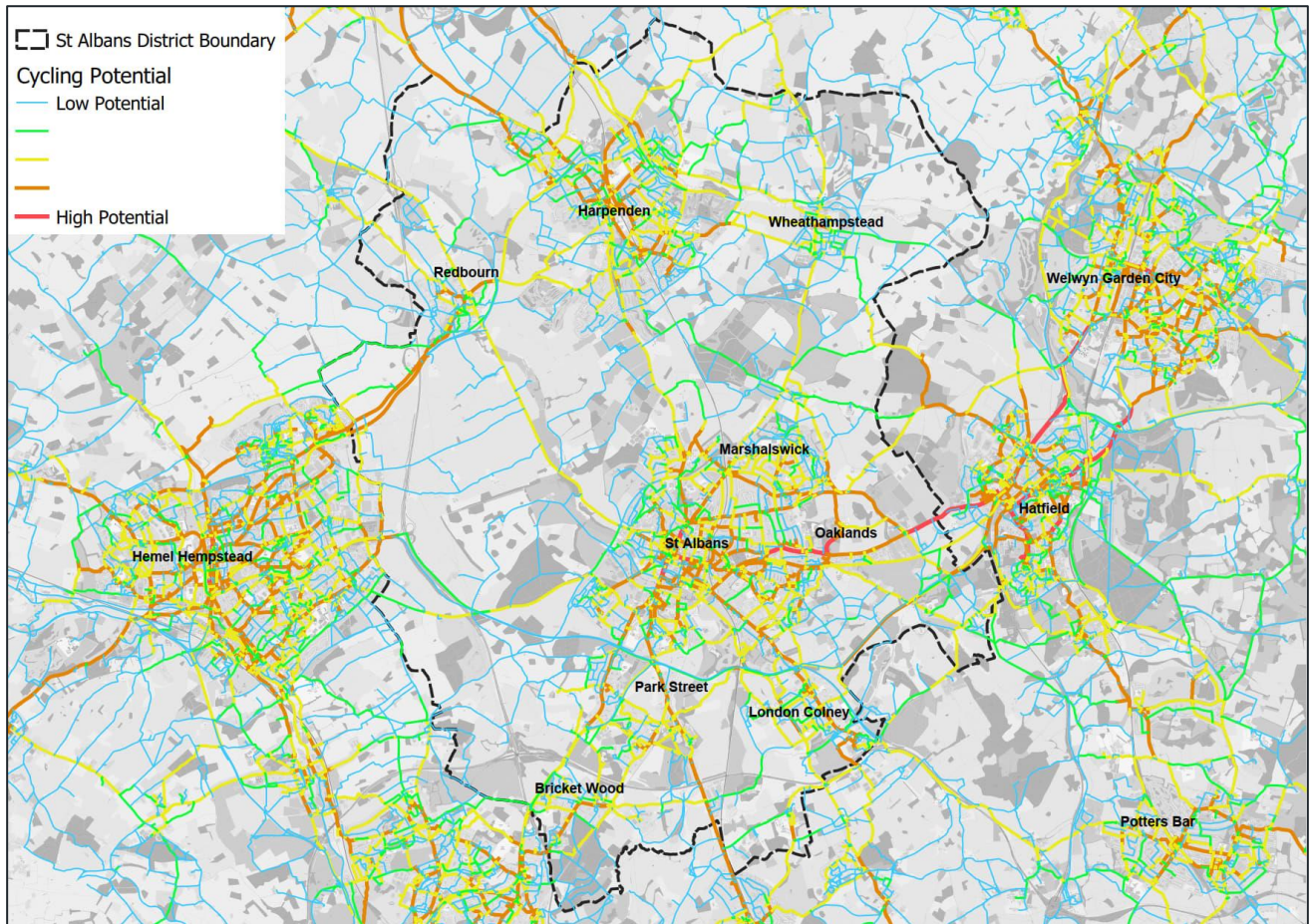
Limitations

4.4.15. As with the Propensity to Cycle Tool, the WSP/HCC LCWIP GIS model has limitations and is not a perfect representation of reality. This is true of most models in transport planning. In the case of the GIS model, for example, the model does not take into account topography and many assumptions had to be made as listed in the previous section. However, it approximates trips to the network which may be missed by the Propensity to Cycle Tool, and by using the two together (along with other information sources), a fuller picture of potential walking and cycling demand in St Albans has been built.

GIS Model Cycling Outputs

4.4.16. The model outputs for the cycling model run are shown at a District-wide level in Figure 4-4. This can be found in greater resolution in separate document Appendix E.

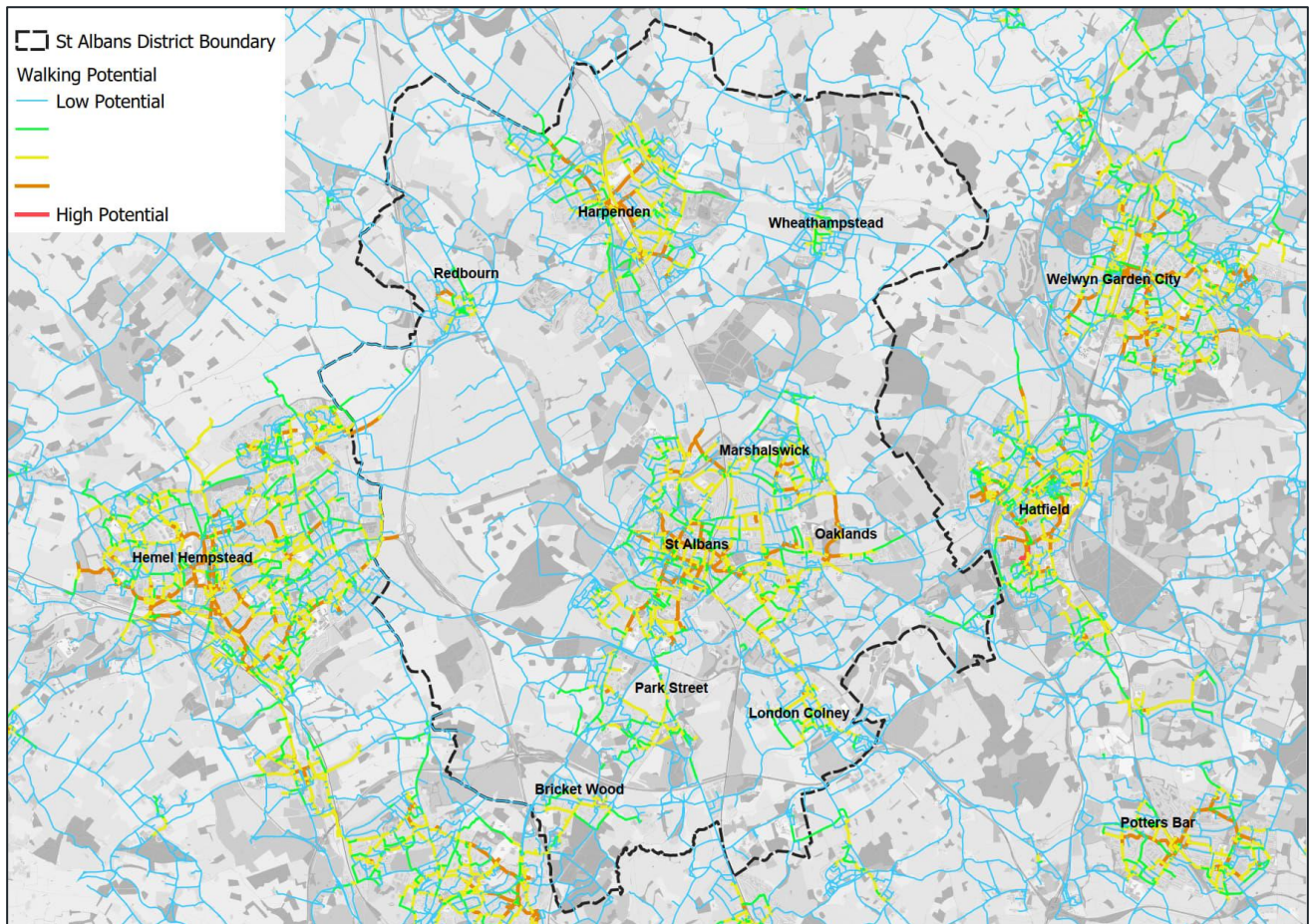
Figure 4-4 - LCWIP GIS Model - District-wide Cycling Outputs



GIS Model Walking Outputs

4.4.17. The model outputs for the walking model run are shown at a District-wide level in Figure 4-5. This can be found in greater resolution in separate document Appendix F.

Figure 4-5 – LCWIP GIS Model - District-wide Walking Outputs



Discussion

4.4.18. The effect of the different assumptions made in the two different models can clearly be seen when comparing the two outputs. The cycling model output, with the greater trip distance of up to 8km, shows inter-urban trips (e.g., between St Albans and Harpenden, St Albans and Redbourn, St Albans and Hatfield, Welwyn Garden City and Hemel Hempstead). By contrast, the walking model output shows demand concentrated more within the towns and villages. In future iterations of the LCWIP, there may be merit in looking at increasing the 8km limit for cycles to consider the potential for e-bikes helping to facilitate longer inter-urban journeys.

4.5 Rights of Way

4.5.1. Hertfordshire County Council provided a GIS database of the existing Rights of Way (ROW) across St Albans District. This database included three different classifications:

- Bridleway: a path where walking, cycling, and riding a horse is permitted. Motor vehicles are not permitted.
- Restricted byway: these have the same permissions and restrictions as bridleways but are often former byways/roads and so tend to be surfaced.
- Byway open to all traffic (BOAT): where there is a right of way for vehicular and all other traffic, but the way is used mainly by pedestrians and cyclists.

4.5.2. For the purpose of this LCWIP, these layers were combined and shown as a singular layer 'Rights of Way' (also sometimes referred to in the LCWIP as 'Rights of Way (Legally Cyclable)'). Based on the definitions above, it was assumed that all identified ROW included were legally accessible for pedestrians and cyclists, although it is acknowledged that many of these may not be fully accessible at all times of year and in all weather conditions and would therefore require specialist equipment for people to use (such as walking boots or specialist bikes). Furthermore, during consultation some stakeholders reported cycling bans on certain ROW.

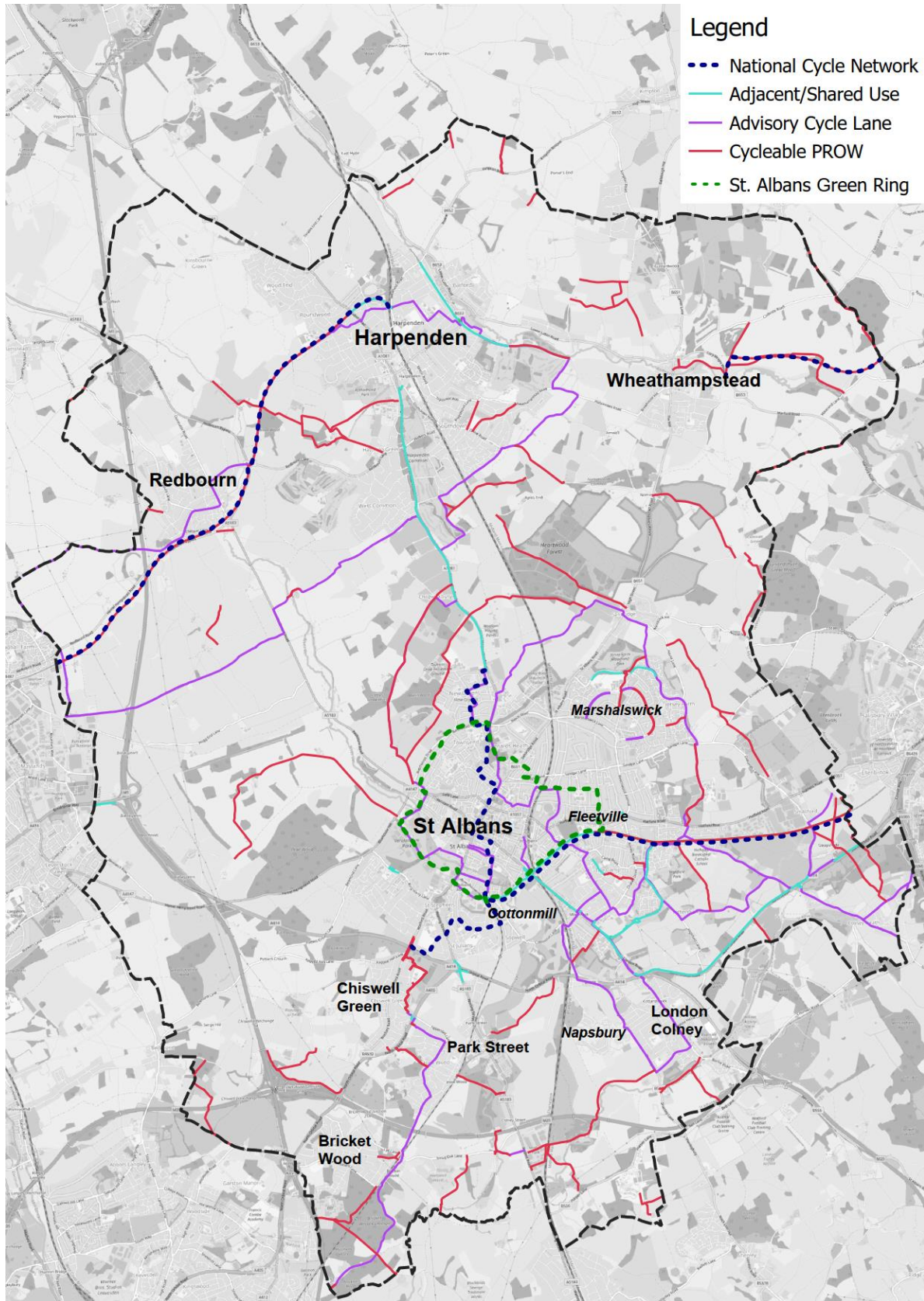
4.5.3. These ROW were considered when planning the walking and cycling networks – connectivity between the ROW and planned routes has been sought wherever possible. Some ROW were on routes which were visited and audited. Where these ROW were not fully accessible, improvements such as widening, and resurfacing have been suggested. More detail on the improvements proposed is available in Section 7.

4.5.4. It would be useful if, in future, information on surfacing, 'walkability' and 'cyclability' of these ROW could be logged.

4.6 Existing Cycle Facilities and Routes

4.6.1. In addition to the ROW layers, HCC also provided details of other existing cycle facilities. These include off-road cycle tracks (sometimes referred to as 'adjacent use'), shared footways and advisory cycle lanes. Figure 4-6 shows the location of the different types of existing cycle facilities and routes in St Albans.

Figure 4-6 – Existing Cycle Facilities in St Albans



- 4.6.2. Notable routes include the Alban Way (a route between St Albans and Hatfield for walkers, runners, and cyclists), the Nickey Line (a former disused railway line that provides a walking and off-road cycling route, linking Harpenden to Redbourn and Hemel Hempstead) and National Cycle Network (NCN) Routes 6, 57 and 61.
- 4.6.3. Another notable route is the St Albans Green Ring, which is a continuous walking and cycling route around central St Albans. The majority of the route is on shared cycle/walking paths, with only small parts of the route on public roads.
- 4.6.4. The St Albans Cycle Hub which was formed in May 2022 is located at the Cottonmill Community and Cycling Centre. This hub is a key attractor for cyclists, being a destination for cyclists to go to for bike servicing and repairs, cycle training and track booking. This is an important focus for the LCWIP as there is currently no cycling infrastructure near the hub (as shown in Figure 4-6). Ensuring the Cottonmill Community and Cycling Centre is connected via quality cycle infrastructure will help the St Albans Cycle Hub succeed and, given the Hub have the same aims as the LCWIP, this is an especially important connection.
- 4.6.5. It should be noted that WSP has not assessed each of these for suitability (only those which were on routes selected for audit). However, it is not expected that many are LTN 1/20 compliant, as LTN 1/20 discourages shared use footways and advisory cycle lanes and requires off-road cycle tracks to be wide and have priority crossings over side roads and major junctions. Where existing cycle routes have been audited, improvements such as converting advisory cycle lanes into segregated facilities and upgrading shared use footways to separate pedestrians from cyclists have been suggested. More detail on the improvements proposed is available in Section **Error! Reference source not found.**

4.7 Strategic Active Travel Routes and Connections

- 4.7.1. Specific strategic active travel routes mentioned in Section 3 (and shown in detail in separate document Appendix B) were mapped and considered when developing the draft walking and cycling networks:
- **Local Transport Plan 4**
 - Corridor 2: London – Watford – Luton – Milton Keynes (Abbey Line connection between St Albans and Watford, and commutes between Luton and St Albans)
 - Corridor 5: Hemel Hempstead & Watford – St Albans – Harlow

- **South Central Growth and Transport Plan**

- St Albans Road East/Hertford Road
- St Albans-Welwyn Garden City Connectivity
- St Albans City Centre Improvements
- St Albans Green Ring and Alban Way Improvements
- St Albans Abbey Station Accessibility
- St Albans City Station Accessibility
- Hatfield Road Corridor – St Albans
- London Road Corridor – St Albans
- A414 Highway Improvements (South of St Albans)
- London Colney Inter-Urban Strategic Public Transport Connectivity
- London Colney Inter-Urban Local Connectivity
- London Colney Internal Connectivity
- St Albans – Hatfield Local Connectivity
- Chiswell Green Corridor Active Travel Improvements
- Alban Way Improvements
- Luton-Wheathampstead – Hatfield and Welwyn Garden City

- **South-West Growth and Transport Plan**

- A1081 Harpenden town centre streetscape and walking/cycling improvements
- A1081 cycle corridor
- B653 Lower Luton Road pedestrian and cycle crossing
- Ox Lane-Sun Lane-Hollybush Lane-Westfield Road junction review
- Carlton Road-Sun Lane junction review
- Station Road-Carlton Road-Station eastern access road junction review
- A405 Cycleway

4.7.2. Furthermore, separate document Appendix A contains details of some ongoing additional work and projects other than this LCWIP which deal with wider active travel connectivity in St Albans District and the surrounding area (including some of those mentioned above). Separate document Appendix A has a special focus on rural connections.

5 Network Planning for Walking

5.1 Introduction

- 5.1.1. This section explains how the information gathered in section 4 was used to develop a draft network plan for walking, with core walking zones and key walking routes. It goes on to describe how this draft network was presented to stakeholders, amended, and then used to determine the relative importance of different routes and thus which routes to audit and develop infrastructure plans for.
- 5.1.2. A key goal at this stage was to determine where the greatest propensity for walking exists – where targeted infrastructure improvements could generate the newest walking trips.

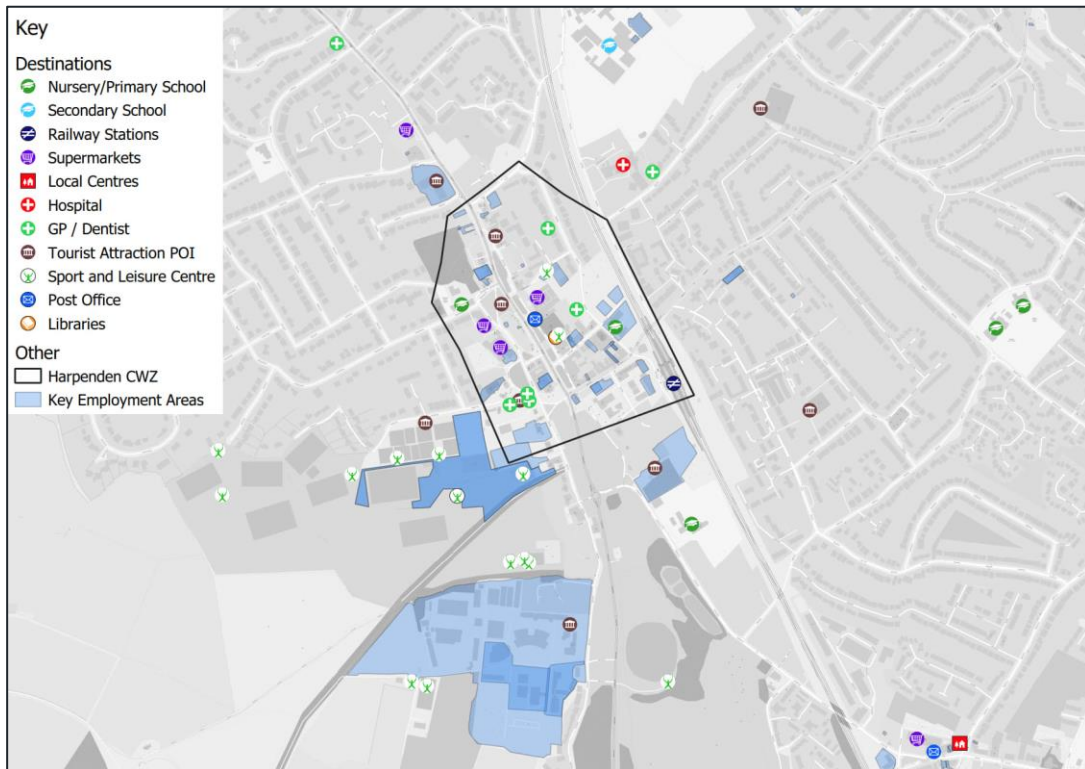
5.2 Identifying Core Walking Zones

- 5.2.1. Core Walking Zones (CWZs) are defined in the LCWIP guidance as areas consisting “of a number of walking trip generators that are located close together – such as a town centre or business parks”. It states that “within CWZs, all of the pedestrian infrastructure should be deemed to be important”, i.e., the pedestrian infrastructure within CWZs (and connections to surrounding areas) should be of a high standard to support and encourage more walking trips.
- 5.2.2. One CWZ was identified in St Albans town centre and another in Harpenden town centre. The extents of these CWZs are shown in Figure 5-1 and Figure 5-2 below.

Figure 5-1 - St Albans Core Walking Zone



Figure 5-2 - Harpenden Core Walking Zone



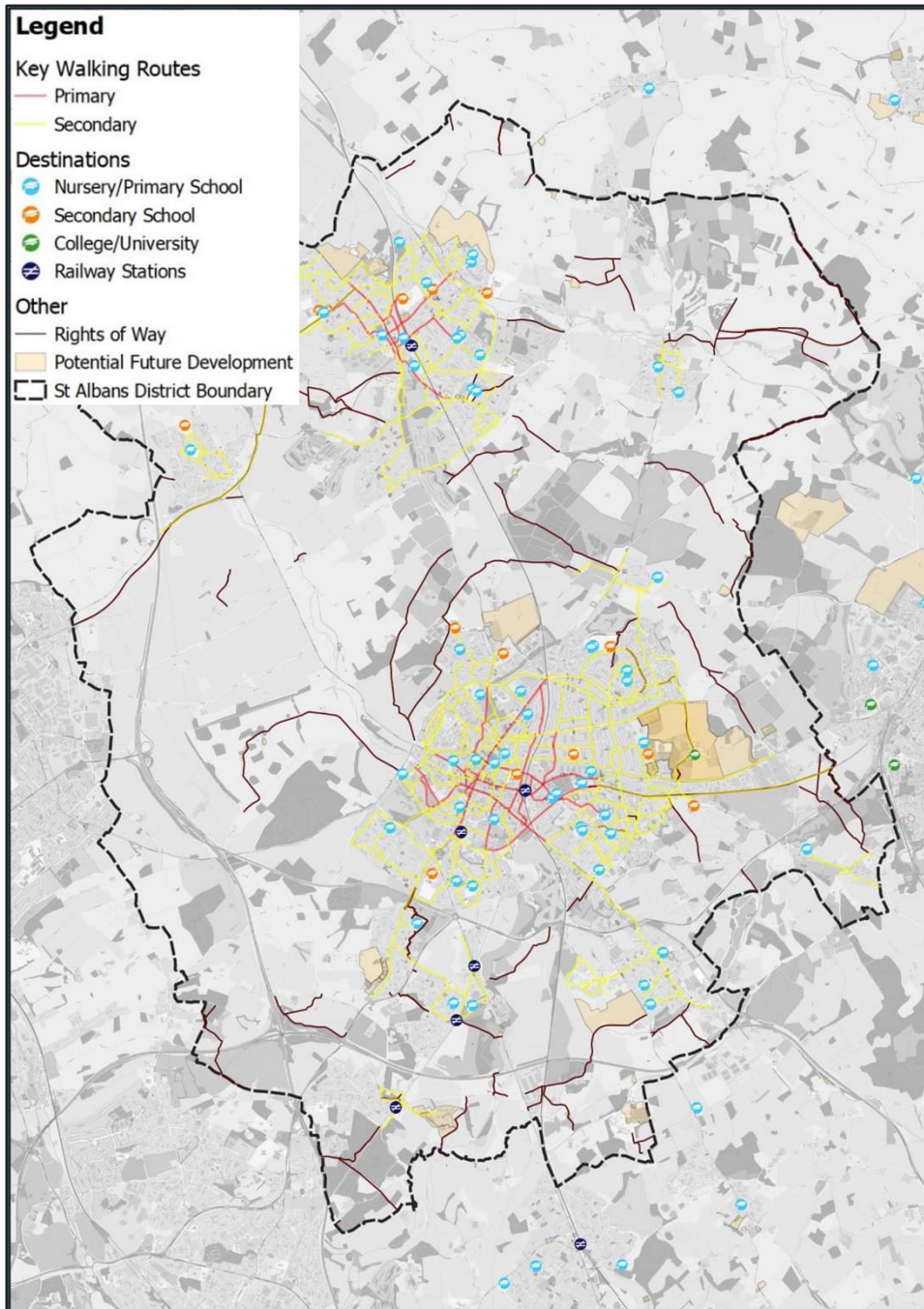
5.3 Identifying Key Walking Routes

- 5.3.1. The CWZs represent the focal points for pedestrian journeys within St Albans, and therefore the starting point for mapping walking routes is to identify those that serve these CWZs. For this first iteration of the LCWIP, primary routes were considered those main pedestrian routes within CWZs as well as routes connecting to the CWZ (up to 2km in length). Secondary routes (e.g., through local areas and connecting to primary routes) were added to increase the coverage in the urban areas. Secondary routes were also added within each of the key villages as identified in the scoping report.
- 5.3.2. The output of the LCWIP GIS model's walking run was mapped alongside the CWZs, ROW, strategic active travel routes and connections, potential future developments, key destinations (rail stations, schools, and key employment areas), and the outputs of the early-stage stakeholder engagement event for reference. The LCWIP project team used all these sources of information to help identify primary walking routes to (and between) the CWZs and secondary routes across the District.

5.4 Draft Network Plan for Walking

- 5.4.1. The draft network plan for walking can be seen in Figure 5-3 below. It is important to note that this is not the final network plan for walking, which is presented later in this report and in separate document Appendix G. This draft plan was presented to key stakeholders in a second round of engagement to gain feedback on the routes selected and identify any key routes that may have been omitted or misclassified. Stakeholders were also shown zoomed-in plans of St Albans and Harpenden which showed the locations of the Core Walking Zones alongside the draft primary and secondary routes. More information on this second round of stakeholder engagement is available in the following sub-section.

Figure 5-3 – Draft St Albans District Network Plan for Walking



5.5 Stakeholder Engagement

- 5.5.1. In the project’s second round of stakeholder engagement, key stakeholders were invited to virtual workshops where they were given the opportunity to provide feedback on the draft network plans for walking, to review the locations and extents of the CWZs, to review the trip attractors mapped in the data gathering process, and to identify any key origin and destination points that were missing from the plan.

- 5.5.2. Stakeholders were also shown plans of barriers (such as rail lines, rivers, and busy roads) causing severance between areas, alongside existing and potential future junctions and crossings providing connectivity over these barriers. This was to encourage stakeholders to consider connectivity between areas as well as along routes. Stakeholders were asked to consider whether the barriers shown were correct, whether any were missing, and where new crossings and junction improvements might help reduce severance.
- 5.5.3. Two virtual workshops were held. The first took place on 13 December 2021 with county and district councillors in attendance. The second was held on 16 December 2021 for wider stakeholders such as local walking and cycling groups and representatives from parish councils. Both virtual workshops began with a presentation given over Microsoft Teams. Following this, the online whiteboard tool 'Miro' was used to facilitate the interactive element of the workshop.
- 5.5.4. A wide range of organisations were invited to attend the workshops, and comments were left by representatives from:
- Hertfordshire County Council (councillors and officers)
 - St Albans District Council
 - St Albans Cycle Campaign
 - Wheathampstead Parish Council
 - St Stephen Parish Council
- 5.5.5. The Miro 'whiteboard' provided stakeholders with a way to comment on a map of the draft network. The whiteboard remained open and available for comment online for two weeks after the workshops. This allowed stakeholders who attended the workshops additional time to digest the draft network plan and comment in full. It also gave stakeholders who were unable to attend the virtual workshop a chance to view the material and comment in their own time.
- 5.5.6. Stakeholders were asked to provide feedback in relation to the draft walking network, including:
- Identifying where routes should connect to existing ROW
 - Reviewing and commenting on the locations and extents of the CWZs
 - Highlighting locations where footways are narrow and need maintenance

- Identifying areas where improved connectivity is needed (e.g., new crossings, new connections between existing routes)
- Identifying locations where crossings need improvement

5.5.7. Stakeholders were also given the option of receiving the plans via email and/or returning feedback via email. All email feedback from stakeholders came to a single dedicated address which was set up for the consultation.

5.5.8. Just under 140 comments relating to walking were left on the board, with comments distributed fairly evenly across the geography of the District. Extensive comments were received on the condition of the existing streets for walking, the status of rights of way, routes to schools, the suitability of the suggested routes and additional routes which should be added to the plan. Stakeholders also provided valuable feedback on the topics mentioned in paragraph 5.5.6, identifying:

- Locations where new or improved crossings would reduce severance
- Where better access points are needed to schools and rights of way
- Junctions which are currently unsafe for pedestrians

5.5.9. Following the stakeholder engagement, all comments were logged, reviewed and, where relevant, changes were made to the network plans. The updated network plans can be seen in section 7 and separate document Appendix G.

5.6 Route Auditing

5.6.1. Once the network plans were updated following stakeholder comments, all the finalised primary walking routes in St Albans and Harpenden were audited by the LCWIP project team. Due to resource limitations, secondary walking routes were not audited. It is noted that some non-audited routes are still the subject of other HCC work and will be looked at as part of other projects.

- 5.6.2. Audits were undertaken in January and February by trained WSP and HCC personnel visiting each route corridor on location using the DfT's Walking Route Audit Tool (WRAT). This tool assesses existing infrastructure on the routes against five core design outcomes for pedestrian infrastructure: attractiveness, comfort, directness, safety, and coherence. The WRAT process considers the needs of all users, including vulnerable pedestrians, such as those who are older; visually impaired; mobility impaired; hearing impaired; with learning difficulties; buggy users or children. The process of scoring routes against the criteria in the WRAT identified issues (e.g., lack of crossing points) which informed the identification of infrastructure solutions (e.g., new zebra or signalised crossings).
- 5.6.3. Audits took place at the same time as the WRAT audits, in January and February 2022.
- 5.6.4. Once route audits were complete, walking infrastructure improvements were identified in walking infrastructure improvement plans. These were combined with cycling infrastructure improvement plans. These plans are introduced and discussed in section 7 of this report.

5.7 Non-Audited Routes

- 5.7.1. As mentioned above, secondary walking routes were identified but not fully audited in this first iteration of the St Albans LCWIP. Generally, there are no infrastructure improvements proposed on most of these routes for this reason. However, in visiting the towns and engaging with stakeholders (especially in the early-stage stakeholder engagement), the LCWIP project team inevitably saw opportunities for active travel infrastructure improvements on routes that weren't formally audited. Many of these were included and presented to stakeholders in a third round of engagement discussed in Section 7 and additional suggestions were added after that engagement too. Therefore, some infrastructure improvements are included on some routes which weren't formally audited as part of this LCWIP. However, these suggestions were reviewed and discussed to ensure they were reasonable and feasible.
- 5.7.2. Where secondary walking routes were identified but not audited, these should be priorities for further investigation into active travel provision. This could be as part of a formal revision to this LCWIP or taken forward separately on a case-by-case basis. For example, where there are routes in the vicinity of proposed developments, Section 106 money could potentially be used to fund the auditing of these routes, the identification of infrastructure changes needed, and the design and construction of this infrastructure.



5.7.3. This subject is discussed more in sections 7.5 and 9, and separate document Appendix A.

6 Network Planning for Cycling

6.1 Introduction

- 6.1.1. This section explains how the information gathered in Section 4 was used to develop an initial draft cycle network. It goes on to explain how this draft network was presented to stakeholders, amended, and then used to determine the relative importance of different routes and thus which routes to audit and develop infrastructure plans for.
- 6.1.2. As with the network planning for walking, a key goal at this stage of the LCWIP was to determine where the greatest propensity exists – where targeted investment in infrastructure improvements could generate the newest cycling trips.

6.2 Identifying Key Cycling Routes

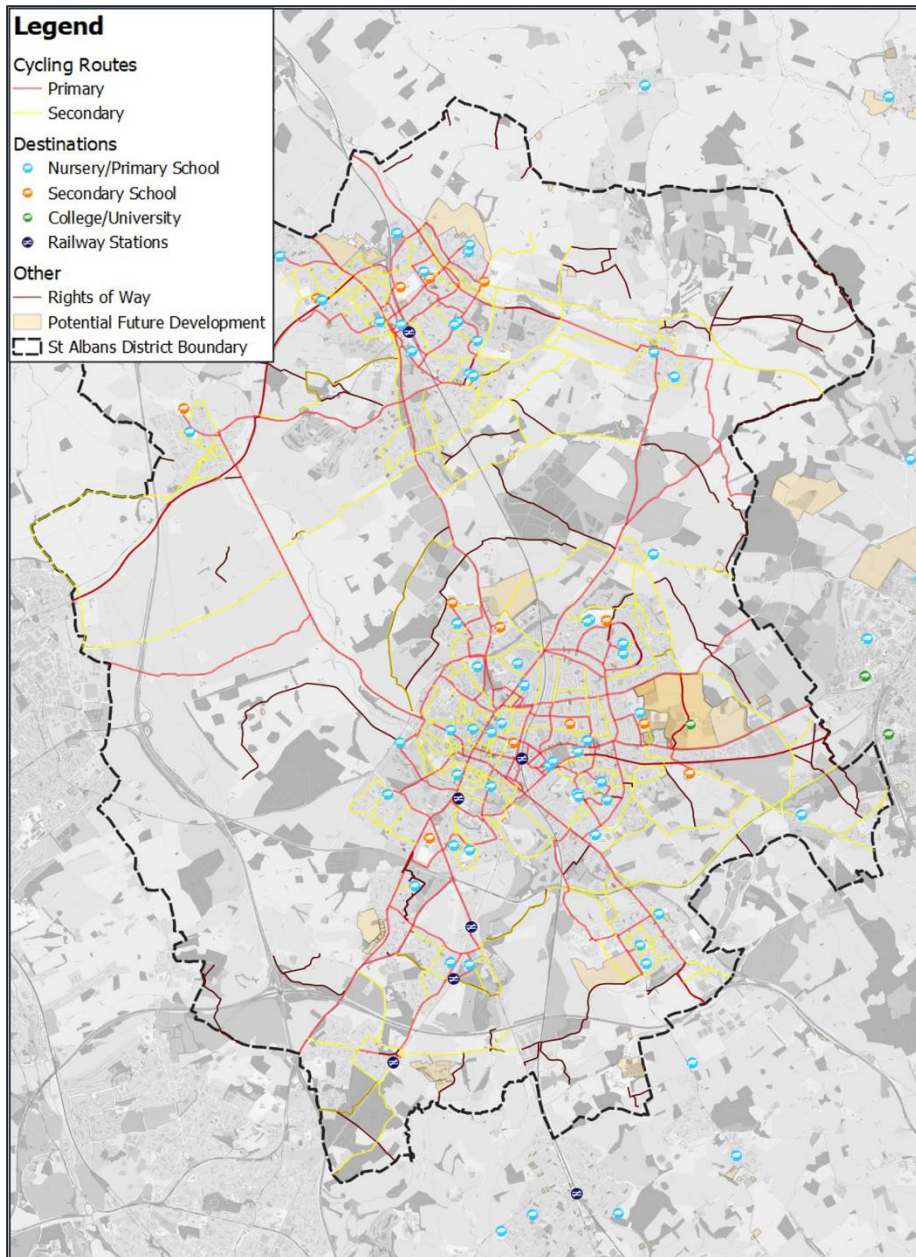
- 6.2.1. Model outputs, existing cycle facilities and strategic active travel routes and connections were mapped alongside potential future developments, key destinations (rail stations, schools, and key employment areas), and the outputs of the early-stage stakeholder engagement session for reference. The LCWIP project team used all these sources of information to determine ‘primary’ and ‘secondary’ cycle desire lines across St Albans.
- 6.2.2. Where the model outputs identified desire lines with greater potential demand (especially those connecting large residential areas with key destinations such as town centres), these were classed as primary desire lines / primary routes. Other routes, connecting to schools, colleges and employment sites were classed as secondary desire lines / secondary routes
- 6.2.3. The majority of primary routes were identified within (and between) the two key urban areas specified in the scoping report (St Albans and Harpenden). Some additional primary inter-urban cycle routes were identified, notably links between Wheathampstead, London Colney, Bricket Wood and Redbourn. Secondary routes were identified to connect the remaining neighbourhoods and smaller settlements to the network.

6.2.4. When identifying routes, the LCWIP project team also referred to the existing cycle facilities and routes, to ensure these were either considered as potential secondary or primary routes, or at least connected to the network. For example, the National Cycle Network (NCN) routes 6, 57 and 61 were identified as primary routes. Most county and district strategic routes and connections were backed up by the model outputs and therefore also catered for with secondary cycle routes as a minimum.

6.3 Draft Network Plan for Cycling

6.3.1. The draft network plan for cycling was developed and can be seen in Figure 6-1 below. It is important to note that this is not the final network plan for cycling, which is presented later in this report and in separate document Appendix G. This draft plan was presented to key stakeholders (also as part of the second round of engagement) to gain feedback on the routes selected and identify any key routes that may have been omitted or misclassified. More information on the second round of stakeholder engagement is available in the following sub-section.

Figure 6-1 – Draft St Albans District Network Plan for Cycling



6.4 Stakeholder Engagement

- 6.4.1. In the project’s second round of stakeholder engagement (first described in section 5.5), key stakeholders were also given the opportunity to provide feedback on the draft network plans for cycling, review the trip attractors mapped in the data gathering process and identify any key origin points, destination points and routes that were missing from the plan.

- 6.4.2. Stakeholders were also shown plans of barriers, junctions and crossings as described in paragraph 5.5.2 (one for St Albans and one for Harpenden). These plans referred to barriers for both pedestrians and cyclists and so stakeholders were encouraged to consider severance to cycle routes (as well as severance to walking routes), leaving the feedback together on the same plans.
- 6.4.3. This stakeholder engagement began at the same virtual workshops described in Section 5.5 and also used the 'Miro' whiteboard (please see section 5.5 for the stakeholder attendance list). Again, stakeholders could comment on the walking plans on the Miro board for up to two weeks after the session.
- 6.4.4. Stakeholders provided valuable feedback in relation to the draft cycling network, including:
- Identifying cycle routes that need integrating into the network plan
 - Highlighting areas that are currently dangerous for cyclists and need safety improvements
 - Pointing out alternative adjacent routes that are more popular among residents
 - Noting routes that should be considered as primary in the cycle network
 - Highlighting where cycle routes are missing within the district
- 6.4.5. As described in paragraph 5.5.7, stakeholders were also given the option of receiving the plans and returning feedback via email.
- 6.4.6. Just under 300 comments relating to cycling were left on the board, with comments distributed mainly in the vicinity of St Albans City. Extensive comments were received on the condition of the existing streets for cycling, the suitability of the suggested routes and finally additional routes which should be added to the plan.
- 6.4.7. Following the stakeholder engagement, all comments were logged, reviewed and, where relevant, changes were made to the network plans. The updated network plans can be seen in section 7 and separate document Appendix G.

6.5 Route Auditing

- 6.5.1. Once the network plans were updated following stakeholder comments, the final selection of primary routes were considered for auditing. As there were more primary routes than could be audited with the resources available, a sub-set of primary was selected for audit based on stakeholder feedback and discussions between WSP, HCC and SADC. This included the vast majority of primary routes in St Albans and Harpenden as well as a links to London Colney from St Albans and to Hatfield from St Albans.
- 6.5.2. Audits were undertaken by trained WSP and HCC personnel visiting each route corridor on location using the Department for Transport's Route Selection Tool (RST). The tool was used to assess the suitability of a route in its existing condition against the core design outcomes of directness, gradient, safety, connectivity, and comfort. The process of scoring routes against the criteria in the RST identified issues (e.g., cyclists mixing with high volumes of traffic) which informed the identification of infrastructure solutions (e.g., segregated infrastructure). The RST also identified critical issues at junctions to be addressed. One route (the A4147 corridor from St Albans to Hemel Hempstead) was audited virtually using Google Streetview as there was no way of safely auditing this route in person due to the lack of footways and high traffic speeds.
- 6.5.3. Audits took place at the same time as the WRAT audits, in January and February 2022.
- 6.5.4. Once route audits were complete, infrastructure improvements were identified in cycle infrastructure improvement plans. These were combined with walking infrastructure improvement plans, which are introduced and discussed in Section 7 of this report.

6.6 Non-Audited Routes

- 6.6.1. As with the walking routes, there are many cycle routes which have been identified but have not been fully audited in this first iteration of the St Albans LCWIP. In the case of cycle routes, this includes some primary routes as well as some secondary routes. Generally, there are no infrastructure improvements proposed on most of these routes for this reason. However, as was the case with non-audited walking routes (described in section 5.7), opportunities for active travel infrastructure on non-audited routes were identified while visiting the towns and engaging with stakeholders. Many of these were included and presented to stakeholders in a third round of engagement discussed in the next section of this report, and additional suggestions were added after that additional engagement too. Therefore, some infrastructure improvements are included on some routes which weren't formally audited as part of this LCWIP. However, these suggestions were reviewed and discussed to ensure they were reasonable and feasible.
- 6.6.2. Again, as with the walking routes, where primary and secondary routes have been identified but not audited, these should be priorities for further investigation into active travel provision. This is described more in sections 5.7, 7.5, 9, and separate document Appendix A.
- 6.6.3. Some notable cycle routes which have not been audited in this first iteration of the LCWIP include:
- The B651 corridor from St Albans to Wheathampstead.
 - The A5183 corridor from St Albans to Redbourn.
 - The routes south of St Albans (including connections to Watford, Park Street and How Wood).
 - Routes between Harpenden and Wheathampstead.
- 6.6.4. Some of these routes are discussed in more detail in Appendix A as there is work underway outside of this LCWIP to provide active travel connections between them.

7 Walking and Cycling Infrastructure Improvements

7.1 Overview of Infrastructure Improvements

- 7.1.1. Following the route audits, auditors generated plans of the high-level infrastructure improvements that would be needed to enable significant mode shift to walking and cycling. This was originally done individually by auditors (i.e., walking infrastructure improvements were generated separately from cycling infrastructure improvements). The plans were then checked against one another (to ensure there were no contradictions where walking routes and cycling routes overlapped), then combined into two draft infrastructure plans, one for St Albans and one for Harpenden. The final versions of these plans can be seen in section 7.4 and separate document Appendix H.
- 7.1.2. The completed and detailed walking and cycling audit forms are not included in this report but have been retained by HCC for use when schemes are taken forward.
- 7.1.3. The completed walking audit forms (and associated documentation) contain the specific information on what specific footway improvements (e.g., widening, resurfacing, lighting) would be needed where in order to bring walking provisions in line with current best practice. The plans shown in section 7.4 and in separate document Appendix H do not go into this level of detail for footway improvements as this is simply too much information to convey in the report format. The plans in the report and appendices instead identify the locations where footway improvements are needed (without specifying precisely what these are), alongside the locations where there is a need for new/improved crossings and other relevant walking (and cycling) infrastructure.
- 7.1.4. In terms of cycle infrastructure, all the detail of the suggested improvements is contained in this report and its appendices. Certain specifics are not included (for example bus stop treatments where segregated cycleways are proposed) but general principles and assumptions are given where possible.
- 7.1.5. The infrastructure improvements identified in this section of the report have not been taken through feasibility design. Rather, they are concepts of the types of infrastructure which are believed possible, should be investigated further and, if implemented correctly and in appropriate packages, should bring about modal shift.

7.2 Intervention Types

7.2.1. Information on each type of intervention shown in the infrastructure plans is given below:

- **Minor junction improvement (side road):** where a need for minor junction improvements has been identified at side roads, this typically denotes a need to build out the footways (to tighten junction geometry, reduce turning speeds and shorten crossing distances) and add dropped kerbs and/or tactile paving where missing. In some cases, it might be good to consider additional measures, such as banned turns, raised tables, continuous footway or cycleway crossings or modal filters.
- **Minor junction improvement (mini roundabout):** where a need for minor junction improvements has been identified at junctions which are currently mini roundabouts, this denotes a review against LTN 1/20 guidance and potentially tightening of the junction geometry and/or improving the crossing facilities. In some cases, especially where there are double mini roundabouts it may be better to simply replace them with unsignalised priority T-junctions.
- **Medium junction improvement:** at mid-size junctions, improvements typically denote a need for pedestrian crossings and protected cycle infrastructure on all arms. In some cases, this might mean signalling the junction.
- **Large junction improvement:** at large junctions where a need for junction improvements has been identified, this typically denotes a need for pedestrian crossings and protected cycle infrastructure on all arms. At particularly large junctions this might mean a Dutch-style roundabout (with parallel crossings on each arm) or a signalised 'CYCLOPS' style junction (as have been installed in Manchester in recent years). Some large junctions which are roundabouts may need converting to signalised crossroads or other forms of signalised junction to be able to provide the required improvements to pedestrians and cyclists.

- **New / improved pedestrian crossing:** where these are included in the plans, this denotes providing new priority (controlled) crossings for pedestrians to reduce severance or improving existing crossings. In some cases, this might mean installing new zebra or signalised pedestrian crossings. In other cases, this may refer to improving an existing crossing, for example by increasing the green time available at signalised crossings or replacing informal traffic island crossings with zebra crossings. This has the added benefit of reducing pinch points on the carriageway for cyclists.
- **New / improved pedestrian + cyclist crossing:** where these are included in the plans, this denotes providing new priority (controlled) crossings for pedestrian and cyclists. In some cases, this might mean installing a new parallel crossing, or a new signalised pedestrian and cycle crossing (ideally not toucan crossings as these rely on shared use which is discouraged in LTN 1/20). In other cases, it might mean improving an existing crossing, for example by upgrading a zebra crossing to a parallel crossing which cyclists can also use.
- **Potential areas for traffic calming/filtering:** traffic calming denotes adding cycle-friendly traffic calming features to streets and/or reducing speed limits to safe levels for cyclists following LTN 1/20 guidance. Where traffic calming features are considered, these should be cycle friendly (e.g., narrowing traffic lanes and carriageways, removing centre lines, or raising tables). Traffic calming features such as speed cushions should be avoided. Additional measures could include parking restrictions, resurfacing and gulley cover replacement. Some traffic-calmed streets may also be suitable for contraflow cycling (either with or without cycle lanes/tracks) – this has been indicated on the plans where it may be especially useful for the cycle network. Areas in which traffic filtering is suggested are areas in which there's a need for reduced traffic volumes and/or speeds. Methods of implementing this include traffic filtering using modal filters, banned turns, or one-way systems.

- **Footway improvements:** this could refer to a number of different types of footway improvement. It could denote ensuring footways have 1.5m clear width to allow wheelchairs and buggies to pass, widening and/or relocation of permanent/temporary footway obstructions as necessary (including footway parking). It could also denote resurfacing to fix surface issues (patching, trenching, uneven surfaces, trip hazards), lighting improvements, and/or the removal of excess bollards, guard railing and vegetation.
- **Segregated cycleway:** this denotes the addition of LTN 1/20 compliant segregated cycle facilities such as kerb-segregated tracks, stepped cycle tracks, footway level tracks, off-road cycle tracks or lightly segregated cycle lanes (whichever is judged most suitable in feasibility design). It also includes the necessary traffic calming and speed limit changes need to make the route LTN 1/20 compliant, as well as bus stop redesign (i.e., to bus stop bypass or shared use bus border) resurfacing, wayfinding, and gully cover replacement as necessary. Generally, where this is shown on the plans, a single red line will refer to a one-way cycle facility on both sides of the road. In some cases, a two-way track on one side of the road may be preferable. Indications of where this may be the case have been given in text boxes on the plans in separate document **Error! Reference source not found.** but all options should remain open for investigation at the feasibility design stage.
- **Signalised shuttle system:** this denotes the installation of a signal-controlled system to alternate flows on a narrowed section of road. This is proposed where there are width constraints (e.g., under a rail bridge) and the street currently provides traffic lanes in both directions at the expense of having very narrow footways for pedestrians. By installing a shuttle system, footways can be widened making this a more appealing, comfortable, and safe route for pedestrians and cyclists.
- **New/Improved Pedestrian and Cycle Bridge:** these are shown on the plans where a long-term plan for a new pedestrian and cycle bridge or widening of an existing pedestrian and cycle bridge might bring benefit to the walking and cycle networks. These are accompanied by text boxes giving additional information.

7.2.2. Finally, the plans also show existing Rights of Way and National Cycle Network routes, and existing shared footways. In some cases, these are of a decent standard and upgrading them should not be an immediate priority (in favour of instead creating new infrastructure). In other cases, some improvements to these have been suggested on the plans (both through other infrastructure proposed and suggestions in the textboxes).

7.3 Stakeholder Engagement

7.3.1. The two draft infrastructure plans were presented to key stakeholders in a third and final round of stakeholder engagement in June 2022. Two virtual workshops were held: one for county and district councillors on 7 June 2022 and one for wider stakeholders held on 10 June 2022. The purpose of this third period of engagement was to inform the stakeholders about the infrastructure improvements identified and give stakeholders an opportunity to comment and provide additional improvements that could be considered. Stakeholders were also shown updated network plans which had changed following stakeholder feedback from the second period of engagement.

7.3.2. As with the second round of stakeholder engagement, feedback was primarily obtained using Miro, an online collaborative whiteboard platform that enabled the stakeholders to view the plans and provide location-specific comments and feedback. Access to the Miro board was available for two weeks after the workshop to ensure all stakeholders had an opportunity to review the materials. Stakeholders were also given the option to provide feedback via email.

7.3.3. A wide range of organisations were invited to attend the workshops, and comments were left by representatives from:

- Hertfordshire County Council (councillors and officers)
- St Albans District Council
- St Albans Cycle Campaign
- Herts Cycling
- 20's Plenty
- Colney Heath Parish Council
- London Colney Parish Council
- West Herts Ramblers

- Friends of the Nickey Line

7.3.4. Stakeholders provided valuable feedback in relation to the infrastructure plans, including:

- Whether they were supportive of particular infrastructure or not
- Potential issues and opportunities which might be associated with implementing the infrastructure
- Further issues and opportunities for active travel (some of which were not raised in the first period of engagement)
- Suggestions for additional routes and infrastructure

7.3.5. A number of valuable comments were also made with regards to infrastructure improvements in areas not included in the infrastructure plans. While these were not in scope for this iteration of the LCWIP as explained in paragraph 1.1.5, they will be passed on to the appropriate teams or projects to be actioned or stored for incorporation in the next iteration of the LCWIP.

7.4 Proposed Infrastructure Improvements

7.4.1. Following the third round of stakeholder engagement, final versions of the six infrastructure plans were developed. These are presented in full in separate document Appendix H. Previews of the plans are shown in this section of the report in Figure 7-1 and Figure 7-2 below.

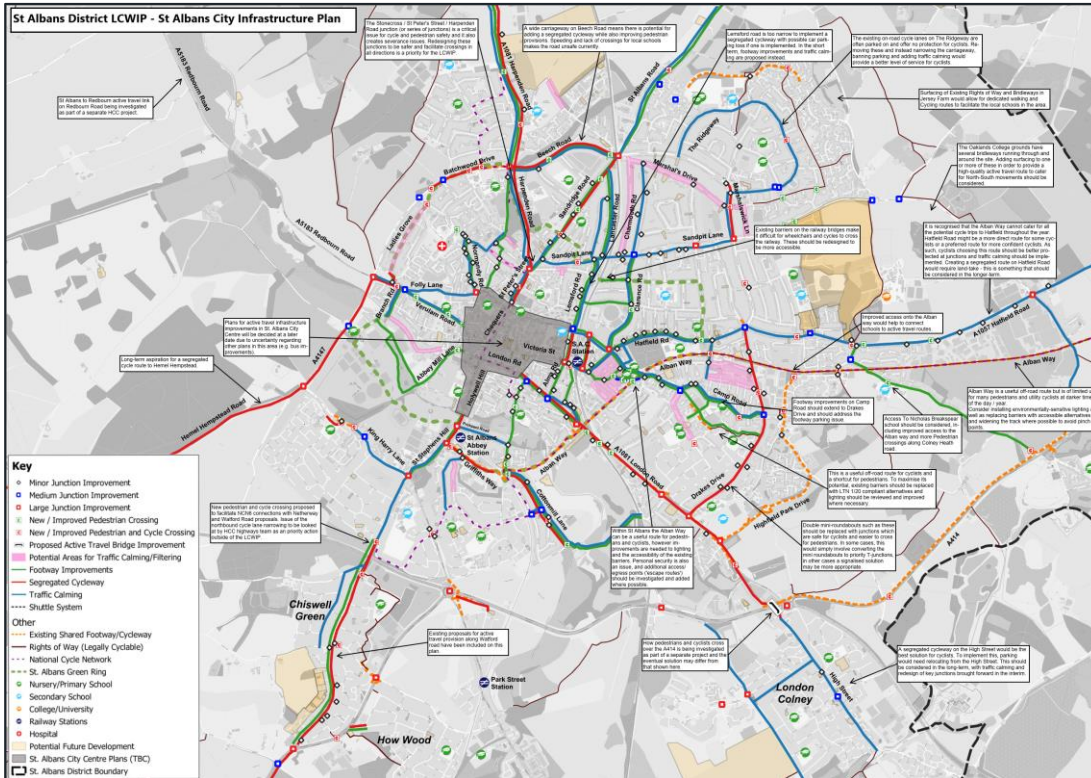
7.4.2. These final versions of the plans take into account the results of the early-stage stakeholder engagement session, all audits, relevant stakeholder comments from all periods of engagement and further internal discussions between HCC and SADC officers. It is important to note that where stakeholders expressed opposition to certain infrastructure, this has not necessarily resulted in removal of the infrastructure from the plans unless this opposition was informed by a particular technical or political constraint which could not feasibly be overcome. Moreover, any infrastructure identified in this LCWIP would go undergo additional stakeholder consultation as part of the standard design and development process – allowing a fuller picture of support/opposition to be developed.

St Albans

- 7.4.3. A key improvement needed in St Albans is junction improvements to reduce road danger for cyclists and allow more direct, comfortable, and coherent movements for all active modes. A key junction is the Stonecross / St Peter's Street / Harpenden Road junction which has been highlighted by multiple stakeholders and as part of our audits as being very dangerous for cyclists and pedestrians, as well as causing severance issues. Junction improvements are also proposed at several other large junctions where there are currently many risks for cyclists and pedestrians, particularly at the busy junctions near the two rail stations and on the A1081.
- 7.4.4. Infrastructure improvements in the central part of St Albans City centre have not been looked at this stage of the LCWIP due to uncertainty regarding other plans in this area, such as bus improvements. These will be reviewed at a later date once more information is known about plans for this area.
- 7.4.5. Segregated cycle facilities are proposed on many of the busier roads in St Albans. In some cases, this would mean improving existing facilities; in other cases, creating entirely new facilities. This could be achieved by reallocating roadspace or widening the carriageway using grass verges. This would enable cyclists to have safer cycling routes, with the added benefit in places of taking cyclists off footways, giving pedestrians their own dedicated space.
- 7.4.6. Footway improvements are proposed along most of the streets audited, ranging from widening footways to improving lighting. In some cases, such as the Alban Way (a key off-road walking and cycling track), improvements centre on security concerns due to a lack of lighting and access/egress points. The Alban Way is a key active route between St Albans and Hatfield, but as it is managed differently to other routes in St Albans, this LCWIP has focussed on other routes. Nevertheless, the Alban Way was audited and, from the perspective the LCWIP, key improvements there should include:
- Widening where possible, in line with widths for shared routes given in LTN 1/20
 - Removal of bollards which currently prevent non-standard cycles from passing
 - Better management of vegetation to improve visibility and space available
 - Adding environmentally sensitive lighting (e.g., solar powered uprights) and creating more access/egress 'escape' points to address personal security concerns

7.4.7. These types of improvements are not shown in the legend but are instead referred to in text boxes on the plans. This level of detail is likely not visible in Figure 7-1 but can be seen in separate document Appendix H.

Figure 7-1 - Proposed Walking and Cycling Interventions in St Albans



Harpenden

7.4.8. Many of the infrastructure improvements in Harpenden are focussed around the town centre area. Junction improvements are needed on the majority of junctions in this area to improve coherence and connectivity for both pedestrians and cyclists, as well as to improve safety. The potential for a quiet route for pedestrians and cyclists on Bowers Way, facilitated through traffic calming and/or filtering, has also been identified to create a more friendly and safe space for active movements.

7.4.9. Several new/improved pedestrian and cycle crossings are proposed across Harpenden to improve active connections to improve connections to key areas such as the hospital, schools, and main high street area.

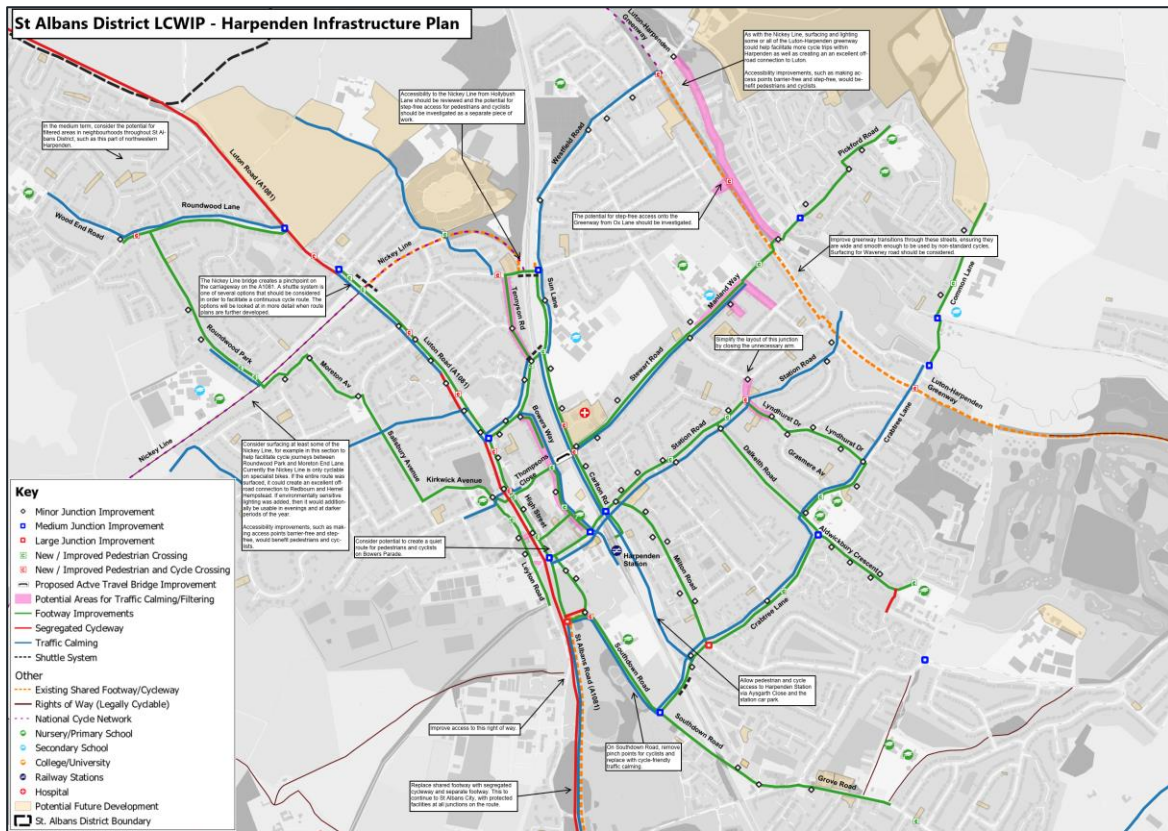
7.4.10. The Nickey Line is an off-road walking and cycling route. Whilst the Nickey Line was not audited as part of this LCWIP, it has been identified as a primary cycling route, and the following improvements have been suggested:

- Surface at least some of the Nickey Line to allow more types of bike journeys to be made
- Adding environmentally sensitive lighting (e.g., solar powered uplights) and creating more access/egress 'escape' points to address personal security concerns
- Remove barriers and steps at access points
- Consider a shuttle system under the Nickey Line Bridge to facilitate a continuous cycle route along the A1081.

7.4.11. The Luton-Harpenden Greenway is another key active travel route. It has the potential to create an excellent off-road connection to Luton. Whilst it was not audited as part of this LCWIP, it has been identified as a primary cycling route. It is recommended that surfacing and lighting the route would help to facilitate more cycle trips. Further, improving accessibility, by removing barriers and ensuring all access points are step-free, would benefit both pedestrians and cyclists.

7.4.12. Footway improvements are proposed along most of the streets audited, ranging from widening footways to improving lighting.

Figure 7-2 - Proposed Walking and Cycling Interventions in Harpenden



Other Infrastructure Improvements

- 7.4.13. During all engagement periods, stakeholders raised issues and suggested improvements in places which were not audited as part of the first iteration of this LCWIP. Many of these suggestions were reasonable and fit with the philosophy of the LCWIP. As most of these improvements were in St Albans, Harpenden, and their surrounding areas, they have been included on the same infrastructure plans shown above and in separate document Appendix H. These improvements include suggestions for crossings by schools and junction improvements to reduce severance – many of which were identified in the early-stage stakeholder engagement in November 2021.
- 7.4.14. Elsewhere in the district, stakeholders suggested a need for a segregated cycle route on the A4147, linking St Albans City with Hemel Hempstead and improvements for pedestrians and cyclists on the B651 and A5183. These are discussed in the next section (7.5).

7.5 Rural Connectivity

7.5.1. As discussed previously in this report, there are certain routes within the St Albans District that have not been audited as part of this stage of the LCWIP but are nonetheless key to active travel plans in the District. Many of these routes are in fact already undergoing some form of analysis and/or development as part of separate projects. For example, active travel connections between St Albans and Redbourn along the A5183 (Redbourn Road) are being looked at as part of a separate project. These connections and this other work are discussed in more detail in separate document Appendix A.

7.6 Final Network Plans for Walking and Cycling

- 7.6.1. During the third round of stakeholder engagement stakeholders were also shown updated district-wide network plans for walking and cycling. As well as showing stakeholders how primary and secondary route designations had changed following the workshops in the second round of engagement, these plans also identified which of the primary routes had been audited.
- 7.6.2. After the third round of engagement, these plans were again updated with routes added and/or reclassified following stakeholder feedback.
- 7.6.3. All rail stations, town centres and schools are connected to the networks with either primary or secondary routes.
- 7.6.4. The final network plans for both walking and cycling can be seen in Figure 7-3 and Figure 7-4 respectively. Higher resolution versions of these plans are shown in separate document Appendix G.

Figure 7-3 - St Albans District Network Plan for Walking

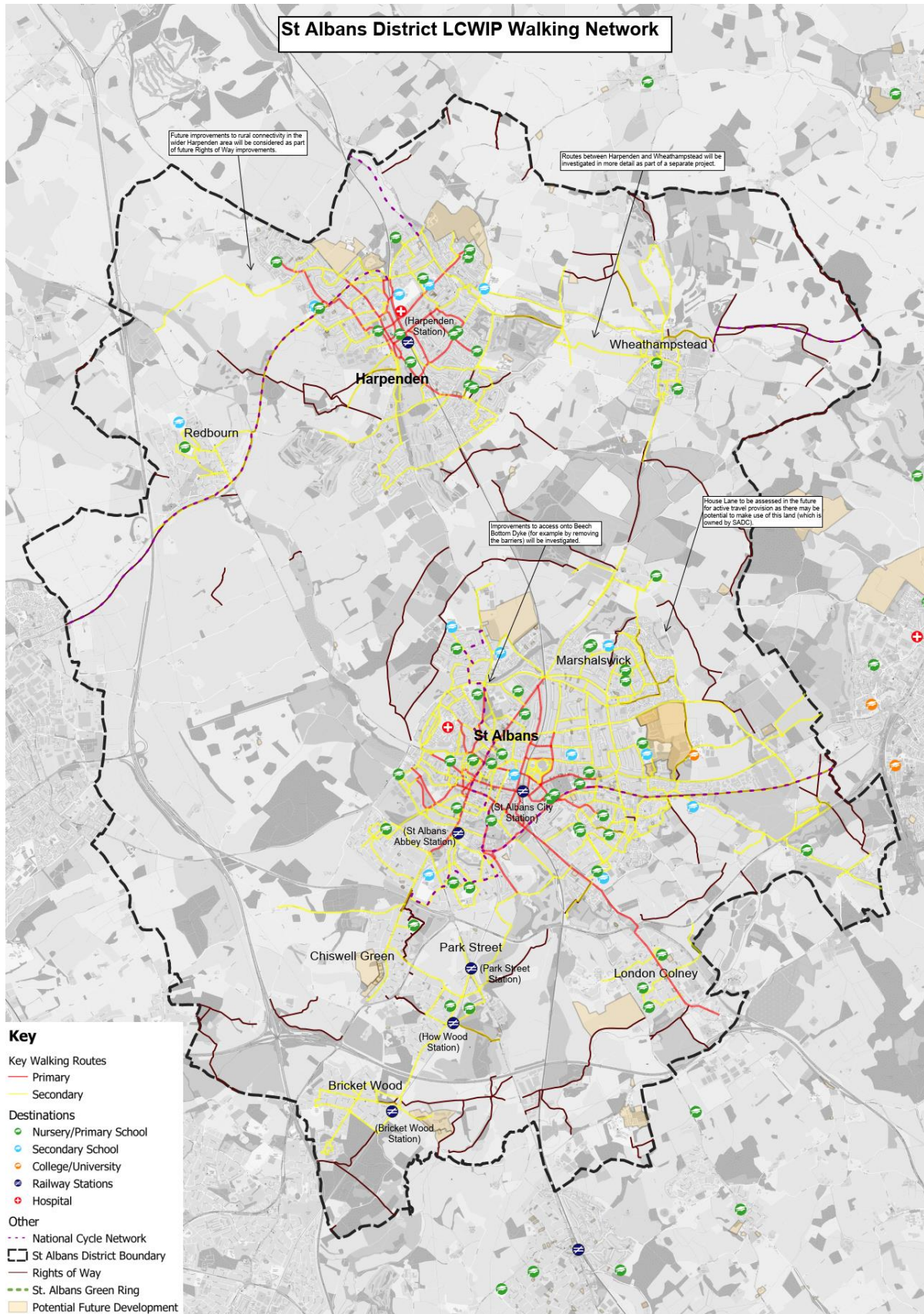
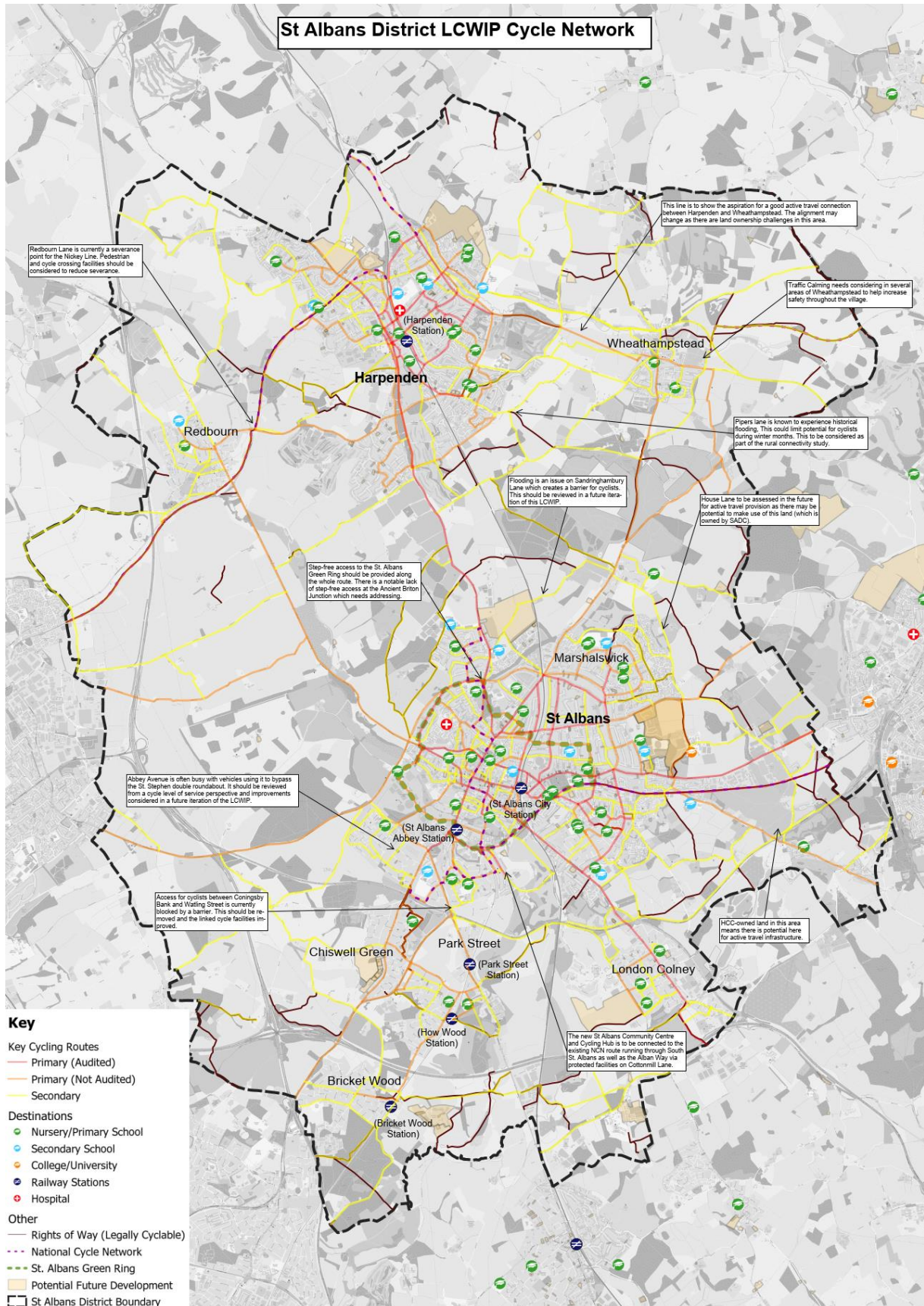


Figure 7-4 - St Albans District Network Plan for Cycling



8 Route Costing and Prioritisation

8.1 Approach to Route Costing

8.1.1. Each infrastructure improvement or 'scheme' was given a high-level costing estimate based on the type of infrastructure alone. Indicative costs were sourced from LCWIP guidance and reference schemes in Hertfordshire and nearby counties and are the same as those used in the North Herts and Welwyn Hatfield LCWIPs. They are given in Table 8-1.

Table 8-1 – High Level Cost Estimate by Infrastructure Type

Infrastructure	Cost
Segregated cycleway	£1,000 per metre
Traffic calming	£350 per metre
Footway improvements	£200 per metre
Large junction improvement	£1,580,000
Mid-size junction improvement	£500,000
Minor junction improvement	£30,000
Pedestrian crossing	£65,000
Pedestrian / cycle crossing	£65,000
Modal filter	£20,000
Signalised shuttle system	£750,000
New pedestrian and cycle bridge	£2,000,000

8.1.2. It is very important to note that these costs are high level approximations of construction costs only. They do not account for inflation and do not include design, risk, and contingency costs. They also do not account for optimism bias. Further feasibility design work accompanied by a more detailed costing process will be needed for any scheme which is being considered for funding or further development.

8.2 Approach to Route Prioritisation

- 8.2.1. Individual infrastructure improvements were grouped to form a selection of ‘prioritised routes’, which combine all the infrastructure improvements on an alignment – including both pedestrian and cycling improvements. (It should be noted that some ‘routes’ are not linear and are therefore referred to as ‘groups’ instead). Each route/group was considered in terms of its alignment and the infrastructure proposed and then scored in terms of:
- How likely walking and cycling trips are to increase in this location (based on the GIS model introduced in section 4.3)
 - How much of a difference the infrastructure proposed is likely to make
 - How well it fits with existing strategic priorities
 - Whether it supports new housing developments
 - Whether it supports access to jobs
 - How well it aligns with LTN 1/20
 - How technically feasible it is likely to be
 - Its dependency on other schemes and projects
- 8.2.2. The total scores of each were then used to rank the routes/groups in a prioritised list. Concurrently, the costs of individual infrastructure items were summed to create a total cost for each prioritised route/group, although cost has not factored into the prioritisation of routes/groups.
- 8.2.3. Likely level of stakeholder support was considered as a metric, but there isn’t enough information available at this stage to accurately quantify and score this. As such, likely level of stakeholder support has not fed into the prioritisation process. In any case, more stakeholder engagement will be required before any routes are taken forward through design and implementation.
- 8.2.4. The costed, prioritised list of routes can be seen in separate document Appendix I.

8.3 Scoring Criteria and Ranges

8.3.1. Different scoring ranges were given for the criteria listed in paragraph 8.2.1. based on their perceived relative importance. Details of the scoring ranges of the different criteria are outlined in Table 8-2, along with a commentary of how they were scored.

Table 8-2 - Scoring Criteria, Score Ranges and how infrastructure was scored

Criteria	Range	Description of How Scheme Was Scored
Increase in walking & cycling trips	0 to 2	Locations of proposed route were compared against the outputs from the relevant LCWIP GIS Model run (e.g., footway improvements were compared against the walking model output; segregated cycleways were compared against the cycling model outputs). Where outputs indicated higher potential for trips, higher scores were given.
Impact on active travel	-1 to 3	The type of infrastructure improvement and its role within the network was considered in these scores. For example, large junction improvements, segregated cycleways, modal filters, and crossings were considered high impact, and scored higher, compared to minor junction improvements and traffic calming.
Strategic fit	-1 to 1	Where routes were on or connected to existing or planned strategic connections, these were scored higher than routes which were far from any strategic routes.
Support for new housing	0 to 2	Where routes were on or connected to routes to potential future housing, these were scored higher than infrastructure improvements which were further away.
Access to jobs	0 to 2	Where routes were on or connected to routes to key employment areas, these were scored higher than infrastructure improvements which were further away.

Criteria	Range	Description of How Scheme Was Scored
LTN 1/20 compliance	-1 to 3	Where routes strongly supported the principles of LTN 1/20 (e.g., modal filters, segregated cycleways), these were scored higher than other infrastructure improvement types (e.g., traffic calming).
Technical feasibility	-2 to 1	Routes with no significant technical or land ownership obstacles were considered 'quick wins' and scored higher than those with such challenges.
Dependency	-1 to 1	Routes which could be implemented in isolation and would still bring benefit if implemented were scored higher than routes which were dependent on the implementation of other infrastructure for success.

8.3.2. The total number of points a proposed route could score was 15. Routes were then sorted by total score, creating a 'ranked order' of prioritised routes.

8.4 Commentary on the Prioritised List

8.4.1. A total of 72 routes were identified across St Albans and Harpenden. The 20 highest scoring routes are detailed in Table 8-3 below, with the full table available in Appendix I, along with tables showing the results for St Albans and Harpenden individually. Whilst the Nickey Line and Alban Way are not shown in the top 20 they are in the top half of the full list (which can be found in separate document Appendix I).

8.4.2. Separate document Appendix J contains plans showing where each route is located in St Albans and Harpenden.

Table 8-3 – Top-scoring Routes

Route / Area	Location	Total Cost	Total Score
Bowers Way and Links	Harpenden	£680,800.00	14
Griffiths Way & Doggetts Way	St Albans	£1,001,250.00	12
St. Albans Station Links	St Albans	£5,030,350.00	12

Route / Area	Location	Total Cost	Total Score
St Albans - Harpenden Link (A1081)	St Albans & Harpenden	£10,096,250.00	12
Ambrose Lane	Harpenden	£431,000.00	12
Luton Road (A1081)	Harpenden	£4,873,100.00	12
Watford Road	St Albans	£8,181,750.00	11
Avenue Road	St Albans	£20,000.00	11
Cottonmill Lane	St Albans	£3,450,900.00	11
London Road (A1081)	St Albans	£8,664,400.00	11
Harpenden High Street (A1081)	Harpenden	£1,033,000.00	11
Harpenden Rail Station Link	Harpenden	£786,800.00	11
Verulamium Park	St Albans	£466,400.00	10
Coldharbour Lane	Harpenden	£105,000.00	10
Beech Road	St Albans	£1,653,650.00	10
Marshal's Drive	St Albans	£80,000.00	10
St Albans - Hemel Hempstead Link (A4147)	St Albans	£6,080,000.00	10
St. Peters Street (A1081)	St Albans	£1,062,200.00	10
Manland Way	Harpenden	£770,000.00	10
King Harry Lane	St Albans	£1,037,550.00	9

8.4.3. Of the twenty highest scoring routes, 12 are in St Albans, 7 in Harpenden, and 1 links the two areas.

8.4.4. The top scoring route was Bowers Way & Links in Harpenden, which scored 14/15. This scheme scored highly due to its proximity to employment, retail, the hospital, and train station, being located on a key desire line (according to the GIS model) and being comprised of LTN 1/20 compliant interventions.

8.4.5. Many of the routes which had the highest scores included the following types of infrastructure improvement, which may reflect the higher 'impact on active travel' and 'LTN 1/20 compliance' scores these types of infrastructure received:

- Mid-size junction improvement
- Large junction improvement
- New parallel crossing
- New/improved signal crossing
- Modal filter
- Segregated cycleway

8.4.6. It is also important to note that there are some plans for active travel improvements in St Albans District being taken forward independently of this LCWIP that are not included in the costed, prioritised list. This is discussed more in separate document Appendix A.

8.4.7. In future revisions of the LCWIP, such plans should be included within the LCWIP so that it can become the single point of reference for walking and cycling schemes in the district. This process has begun with this LCWIP identifying schemes independently as well as identifying existing infrastructure and incorporating some existing plans including Active Travel Fund schemes. This provides a solid foundation for other plans to be added to in future revisions.

8.5 Benefits and Limitations of Packaging Infrastructure into Prioritised routes

8.5.1. Packaging infrastructure improvements into routes has many benefits. One principal benefit is that it fits with HCC's method of taking schemes forward and makes it easier to apply for funds, which are often deliberately targeted at corridor schemes (for example, requiring the use of the DfT's Active Mode Appraisal Toolkit). Another benefit is that it combines pedestrian and cycling improvements, to ensure that both modes of transport are catered for when plans are taken forward.

- 8.5.2. One limitation of this approach is that it can double, triple or even quadruple count junction improvements, as junctions often sit at the intersection of multiple routes. Therefore, summing the total cost of all improvements in this LCWIP would count junctions multiple times and therefore be inaccurate. Care must also be taken when schemes are taken forward that junctions are not just improved to facilitate the connection that is being made along the single linear corridor being developed.
- 8.5.3. Another limitation of packaging infrastructure into routes is that there are a number of schemes identified in this LCWIP that do not easily align with any particular routes, such as individual crossings by schools on streets which were not audited (or do not require other improvements). It is important that these infrastructure improvements are not forgotten about simply because they don't fit neatly into a linear route. Similarly, just because an infrastructure improvement (such as a crossing) has been packaged into a particular prioritised route doesn't mean that it can't or shouldn't be taken forward on an individual basis if there is a good opportunity to do so.

9 Next Steps

9.1 Integration with Transport Policy

- 9.1.1. This LCWIP has identified specific walking and cycling infrastructure schemes that can be incorporated into local transport policy and capital investment programmes.
- 9.1.2. St Albans District Council's new Local Plan and supporting Infrastructure Delivery Plan seeks to address the key issues facing St Albans District over the period from 2024-2041. This LCWIP supports these documents through providing a focus on where and why targeted investment in active travel infrastructure will be taken forward across the district.
- 9.1.3. The LCWIP will also support other local policy such as the Alban Way and Nickey Line Greenspace Action Plans.

9.2 Integration with Highways Delivery Programmes

- 9.2.1. Once some packages of routes/schemes to be delivered in the short-term have been identified and confirmed, these should be added into HCC's highways delivery programmes. This would then see schemes go through HCC's project validation process, have concept designs developed, undergo further stakeholder engagement and, if there are no major obstacles and funding is available, the schemes can then be designed in detail and delivered.
- 9.2.2. Highway improvement programmes separate from the LCWIP will continue to be delivered in the coming years but there are a few key steps that could be taken to align delivery of non-LCWIP highway schemes with the LCWIP, most of which would be covered by a firm commitment to following the principles of Gear Change and the design guidance contained in LTN 1/20 when delivering new highways infrastructure. Some important examples of this would be:
 - Minimising the delivery of shared footways on new schemes, and instead seeking to provide separate facilities for pedestrians and cyclists wherever possible.
 - Committing to avoiding speed cushions when adding traffic calming to streets, instead referring to LTN 1/20 for guidance on cycle-friendly traffic calming
 - Using cycle-friendly gulley covers (i.e., gulley covers which wheels can't get stuck in) and replacing dangerous gulley covers for cyclists

- 9.2.3. Consideration will also be given to the interaction of LCWIP schemes with other packages of works, such as the Bus Service Improvement Plan, where limited carriageway space may lead to competing or supporting proposals for road space reallocation for walking, cycling and bus priority measures. Whilst infrastructure proposals have already been omitted from the centre of the city for this reason (as set out in 7.4.4), similar uncertainties may emerge elsewhere, and further analysis will therefore be required as to how the greatest benefits for active and sustainable travel can be achieved within physical and technical constraints. These constraints and opportunities will be considering through ongoing transport planning discussions with key stakeholders, and as part of the project validation process.

9.3 Future Bids for External Funding

- 9.3.1. HCC will explore any opportunities to apply for funding from external sources, such as any future Government capital grants or funding competitions for active travel infrastructure such as future tranches of the active travel fund. In these instances, additional business case development may be undertaken on schemes outlined in this LCWIP to help form the basis for strong applications to secure funding for design and delivery.

9.4 Process of Review and Update

- 9.4.1. This LCWIP represents the culmination of a first round of developing cycling and walking networks and infrastructure improvement plans. While the initial focus has been on the urban areas of St Albans and Harpenden due their density and associated higher potential for more active travel trips, future iterations of this LCWIP should look to expand this process to other areas and routes, bringing the work discussed in separate document Appendix A into the LCWIP and building on it. In particular, plans for the B651 and A5183 corridors should be incorporated into the LCWIP as soon as is possible.
- 9.4.2. The next formal revision of the LCWIP should include audits of all primary routes which were not audited in this first iteration of the LCWIP. It should include further audits and infrastructure proposals for Bricket Wood, Chiswell Green, How Wood, London Colney, Park Street/Frogmore, Redbourn, Wheathampstead, Colney Heath and Sandridge.
- 9.4.3. Revisiting the LCWIP to include infrastructure improvement plans for these routes and areas will ensure a more inclusive district-wide approach to the LCWIP is taken over time, and one which maximises opportunities for active travel trips between St Albans District and its neighbouring authorities.



9.4.4. HCC and SADC will therefore review and update this LCWIP document going forward in response to new funding and delivery opportunities as a commitment to having an on-going and sustained investment plan for active travel infrastructure.



Appendices

Appendices are not included within this report but are listed below for information purposes.

Appendix A - Rural Connectivity

Appendix B - Policy Context

Appendix C - PCT Outputs

Appendix D - GIS Model Technical Note

Appendix E - LCWIP GIS Model: District Wide Cycling Outputs

Appendix F – LCWIP GIS Model: District Wide Walking Outputs

Appendix G - St Albans District Network Plans for Walking and Cycling

Appendix H - Detailed Infrastructure Plans

Appendix I - Prioritised Costed List of Infrastructure Improvements

Appendix J - Key for Prioritised Routes

Appendix K - List of Acronyms Used in Report