

GREY TO GREEN RETFORD WALKING & CYCLING AUDIT



Technical Note





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1.0 Background

1.1 Overview

- 1.1.1 This report forms a study of the existing cycling and walking networks in place across Retford. It considers the quality of the infrastructure in place, missing links in the respective networks and priorities for intervention, in terms of the provision of new links or works to improve the existing offer. The study will inform the emerging Bassetlaw Local Plan in terms of what infrastructure improvements are recommended for the proposed large development allocations. It also provides the necessary information for the application of other delivery mechanisms such as investment and external funding outside the Local Plan process.
- 1.1.2 It concludes with a high-level programme of schemes, with their associated indicative costs.
- 1.1.3 The study aligns with Government guidance on the audit of cycling and walking routes, not least Local Transport Note 1/20 Cycling Infrastructure Design, published in July 2020, which seeks to significantly raise the bar in terms of the quality of cycling infrastructure in place across the country. It also contributes towards 'heathy place-making' as part of the Government's aim to create places that encourage increased physical activity.

1.2 Structure of the Report

1.2.1 The structure of the study is as follows:

• Chapter 2 – Government Guidance

Provides a summary of Government Guidance on the audit of cycling and walking networks and the standards sought to be achieved through new investment.

• Chapter 3 – Methodology

Details the methodology through which the audits have been undertaken and the priorities for network improvements established.

Chapter 4 – The Cycle Network in Retford
 Details the findings from the audit and focuses on the cohesion, directness, safety and comfort and
 attractiveness of the network.

• Chapter 5 – The Walking Network in Retford

Presents the findings of the audit of pedestrian links in the town including those along key radial routes into the town centre.

• Chapter 6 – Key Findings & Recommendations

Draws out the key findings from the audits, in terms of trends or themes in provision and where improvements are required and suggests priorities for investment in the town, together with high level indicative costs of bringing the cycling and walking networks up to the standards expected by Central Government.

1.3 More Information

1.3.1 If more information is required on any of the content of this Report, please contact Planning Policy at Bassetlaw District Council.





2.0 Government Guidance & Local Policy

2.1 Overview

2.1.1 The approach to the audit of the cycling and walking networks in Retford has been based upon Government guidance to ensure that existing provision is evaluated against the latest standards expected of active travel infrastructure. The award of funding for cycling and walking schemes is conditional on provision adhering to national standards and the most relevant guidance is therefore detailed herein to underpin the study.

2.2 Local Cycling and Walking Infrastructure Plans

- 2.2.1 The Technical Guidance on Local Cycling and Walking Infrastructure Plans (LCWIPs) was produced by the Department for Transport (DfT) in April 2017. It details the need for local authorities to develop a network of walking and cycling links in their area, a prioritised programme of infrastructure improvements for investment and evidence and analysis to support it.
- 2.2.2 The core design principles for both walking and cycling networks and their composite links which the guidance focuses on are:
 - **Coherent:** Routes that are connected, simple to navigate and are of a consistently high quality.
 - Direct: Routes should be at least, if not more direct, than those for general traffic.
 - **Safe:** Routes should be safe and perceived to be safe.
 - **Comfortable:** Routes should have good quality, smooth surfaces, and adequate width, with minimal stopping and avoiding steep gradients.
 - **Attractive:** Routes should help to deliver public spaces that are well designed and attractive where people want to spend their time.
- 2.2.3 The Guidance also details a series of tests as part of a route selection tools for both pedestrians and cyclists when looking to address any gaps in the existing networks. The Walking Route Audit Tool (WRAT) has formed the basis to the assessment of pedestrian links within Retford.

2.3 Local Transport Note 1/20 – Cycling Infrastructure Design

- 2.3.1 Local Transport Note (LTN) 1/20 on Cycling Infrastructure Design was published by the Department for Transport (DfT) in July 2020. It forms the latest guidance on the audit and implementation of new and existing cycle infrastructure from understanding the strategic coverage of a network in terms of the density of the network, through to detailed design and route treatment. It states that "...the quality of existing cycling infrastructure must sharply improve...".
- 2.3.2 The LTN reflects the emphasis of the LCWIP in drawing out the requirements through which to ensure that the cycle network is coherent, direct, safe, comfortable and attractive the core design principles to adhere to when considering cycle provision. A further 22 'summary principles' are also detailed in the guidance.

Network Planning

- 2.3.3 In terms of network planning, the LTN states that a cycle network will feature many different components based around:
 - Dedicated space for cyclists within highways
 - Quiet mixed traffic streets
 - Traffic free routes
 - Cycle parking at origins and destinations





- 2.3.4 It also highlights how a route hierarchy should be structured and the component parts of that hierarchy, based upon:
 - Primary routes between major trip generators
 - Secondary routes connections into local centres
 - Local access to streets and attractors
 - Long distance and leisure routes
- 2.3.5 It states how 'Mess Density Analysis' can be used to plan networks, a concept based upon the length of the cycle network in any given 1km square. Colouring coding is sued and with the lighter the colour indicating potential gaps in the network. The tool can be manipulated to reflect actual communities and local geography, but the same principle will still apply.

Design Principles & Processes

- 2.3.6 A key theme running through the guidance, and the five core design principles, is the need for segregation: segregation between cyclists and general traffic, and between cyclists and pedestrians. This is based upon the concept that cyclists should be treated as vehicles and the decrease in safety and comfort levels and overall attractiveness of cycling when mixing with other traffic.
- 2.3.7 The level of segregation, and therefore protection, that cyclists are afforded are driven by a combination of traffic volume and speed. <u>Table 2.1</u> below is reproduced from the LTN and indicates the respective levels of intervention now advised by the DfT.

Speed	Traffic Flow	Protected Space for Cyclists			Cycle Lane	Mixed
Limit	(24 hr)	Fully Kerbed	Stepped	Light	(Mandatory /	Traffic
		Cycle Track ¹	Cycle Track ²	Segregation ³	Advisory)	
20mph	0					
	2,000					
	4,000					
	6,000+					
30mph	0					
	2,000					
	4,000					
	6,000+					
40mph	Any					
50mph+	Any					

Table 21.	Advised	Levels	٥f	Protection	for	Cyclists
1 abie 2.1.	Auviseu	LEVEIS	ΟI	TIOLECTION	101	Cychists

Key:

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

- 2.3.8 The hierarchy of protections referred to in the table are defined as follows:
 - **Fully kerbed cycle tracks** Protected from the carriageway by a full-height kerb, preferably with some buffer between the cycle track and carriageway.
 - **Stepped cycle tracks** Set below footway level, typically protected from the carriageway by a lower level height kerb and usually directly next to it.
 - Light segregation (protected mandatory cycle lane) Can be hazardous for motor vehicles at high speeds, particularly powered two wheelers. Adds some protection to a cycle lane. Relatively cheap. However low-level light segregation can create a tripping hazard for pedestrians and shouldn't be used on pedestrian desire lines.





- 2.3.9 In terms of headline messages from the LTN in respect of the degree of segregation:
 - Protected space for cycling will enable the most people to cycle regardless of the volume of traffic.
 - Although there may be fewer pedestrians and cyclists, the requirement for segregation still applies in rural areas.
 - A reduction in the volume and speed of traffic can create conditions where on carriageway cycling can be acceptable.
 - Cycle lanes on carriageways can be appropriate on less busy roads but do not provide protection from vehicles and so do not adequately meet the needs of most people on busier and faster roads.

Design Specifications

- 2.3.10 The LTN provides detailed guidance on the specifications of every aspect of the design of a new cycle link. The salient points when considering the development of the network from a strategic perspective are as follows:
 - Urban cycling speeds average between 10-15mph but will typically vary from 5mph on an uphill gradient to 40mph on a prolonged downhill gradient.
 - More space should be provided on uphill and downhill routes to reflect this.
 - Generally, the geometry of the infrastructure should be able to cater for cyclists travelling at 20mph.
 - The typical space required for a standard bicycle is 1m width, to reflect average width of a person plus the lateral movements associated with balancing.
 - At slower speeds more room is needed to balance and so widths of cycle paths should reflect this.
 - Cyclists travelling side by side need 1m each plus 0.5m separation between them. Additional space is required on top of this to negotiate drainage and uneven surfaces for example.

Route Type	Direction	Peak Hour Cycle Flow	Desirable Minimum Width (m)	Absolute Minimum Width (m)
	1 way	00	2.0	1.5
Duatastad Chases		200-800	2.2	2.0
Via Sograppid		>800	2.5	2.0
(I.e. Seyreyateu	2 way	<300	3.0	2.0
Cycle Hack)		>300-1,000	3.0	2.5
		>1,000	4.0	3.0
Cycle Lanes	1 way	All	2.0	1.5

- 2.3.11 It is recognised by the LTN that there will be less need for segregation on quiet and mixed traffic streets and lanes. In some residential areas it may also be more appropriate to reduce the volume or speed of vehicles than segregating cyclists from general traffic. This can be achieved through speed reduction features in the carriageway or modal filters for example.
- 2.3.12 In principle however, it is stated that most people won't feel comfortable cycling on roads where the vehicle flow is in excess of 2,500 vehicles per day and speeds are more than 20mph. These are upper limits for the promotion of cycling in the carriageway (for a Quiet Lane designation flows should be below 1,000 vehicles per day).

Approach to Auditing the Cycle Network

2.3.13 The LTN provides a detailed approach to the auditing of a cycle network within the "Cycling Level of Service Tool". It details the individual aspects of the network which should be appraised in relation to the five core design principles. <u>Table 2.3</u> details the audit requirements of the guidance.





Requirement	Factor	Design Principle	Indicators
	Connections	 Cyclists should be able to join and navigate along different sections of the same route and between different routes in the network easily and safely. 	 Ability to leave / join the route safely and easily. Consider left / right turns.
Cohesion	Continuity and wayfinding	 Routes should be complete with no gaps in provision. Cyclists should not be abandoned particularly at junctions. 	2. Provision for cyclists throughout the whole length of the route.
	Density of network	Cycle networks should provide a mess or grid across a town.	 Density of routes based upon mesh width distances, i.e. between primary and secondary routes within the network.
	Distance	Routes should follow the shortest option available.	 Deviation of route – the deviation factor is calculated by dividing the distance along the route by the distance the crow flies.
	Time: Frequency of required stops or give ways	The number of times a cyclist has to stop or loses right of way on a route should be minimised.	5. Stopping and give way frequency.
Directness	Time: Delay at junctions	The length of delay caused by junctions should be minimised. This includes the impact of multiple or single stage crossings.	6. Delay at junctions.
	Time: Delay on links	The length of delay caused by not being able to bypass slow moving traffic.	 Ability to maintain own speed on links.
	Gradients	Should avoid steep gradients where possible.	8. Gradient.
	Reduce/remove speed differences where cyclists are sharing the	The key to reducing the severity of collisions is reducing the speed of vehicles. This is particularly	 Speed of traffic on approach to junctions where cyclists are sharing the carriageway.
	carriageway	important where there is greater risk (i.e. at junctions).	 Traffic speed on sections of shared carriageway.
	 Avoid high volumes of traffic where cyclists are sharing the carriageway 	 Cyclists should not be expected to share the carriageway with high volumes of traffic. This is particularly important where there is greater risk (i.e. at junctions). 	 Traffic volume on sections of shared carriageway (expressed as vehicles per hour).
	Risk of collision	Degree of separation between cyclists and general traffic.	12. Segregation to reduce risk of collision alongside or from behind.
Safety		A high proportion of collisions involving cyclists occur at junctions. Treatments could include minor/side road priority for cyclists, separation of cyclists from general traffic through junctions.	13. Conflicting movements at junctions.
	Avoid complex design	 Avoid complex design where users have to process large amounts of information. Good design should be self- explanatory. 	14. Legible road markings and layout.
	Consider and reduce risk from kerb side activity	 Routes should be assessed in terms of the multi-functional use of streets including car parking and bus stops. 	15. Conflict with kerb side activity.
	Reduce severity of collisions where they do occur.	 Where possible routes should include evasion room (such as grass verges) and avoid unnecessary hazards (such as guardrails and build outs) to reduce the severity of a collision if they happen. 	16. Evasion room and unnecessary hazards.

Table 2.3: Cycling Level of Service Tool – Audit Criteria





Requirement	Factor	Design Principle	Indicators		
	Surface quality	Density of defects including non- cycle friendly iron works.	17. Major and minor defects.		
		Pavement or carriageway construction providing smooth and level surfaces.	18. Surface type.		
Comfort	Effective width without conflict	 Should be able to comfortably cycle without risk of conflict with other uses both on and off road. 	 Desirable minimum widths according to the volume of cyclists and the route type (where cyclists are separate from general traffic). 		
	Wayfinding	Non-local cyclists should be able to navigate the routes without the need to refer to maps.	20. Signing.		
	Social safety and perceived vulnerability	• Routes should be appealing and be perceived as safe and usable.	21. Lighting.		
	of user	Well used, well lit, maintained and overlooked routes are more attractive.	22. Isolation.		
Attractiveness	 Impact on pedestrians including people with disabilities. 	 Footways are not suitable for shared use and introducing cyclists onto footpaths may reduce the quality of provision for both users. 	23. Impact on pedestrians' comfort level (see Pedestrian Comfort Guide for London).		
	Minimise street clutter.	Signing required to support street layout.	24. Signs informative and consistent but not overbearing or of inappropriate size.		
	Secure cycle parking.	Ease of access to secure cycle parking within businesses and on street.	25. Evidence of bicycles parked to street furniture or cycle stands.		

2.3.14 The tool awards a score of 0-2 depending on the performance of any given link against each of the criteria, with a 'critical' option also available which immediately classifies the route as unsuitable for cycling. The audit and scoring of the Retford cycle network is based upon this framework.

2.4 Nottinghamshire Cycling Strategy Delivery Plan

- 2.4.1 Nottinghamshire County Council's Cycling Strategy Delivery Plan was produced in 2016 and sets out how the authority will be the aspirations for cycling across the county¹. It focuses upon:
 - Raising awareness of all aspects of cycling throughout the Council.
 - Developing and providing a prioritised, high quality, joined up, safe, well connected cycle network.
 - Encouraging more people to cycle more often.
 - Cycling safety.
 - Ensuring that the needs of cyclists are considered in all new and improved highway infrastructure schemes.
 - Providing for the integration of cycling with other longer distance passenger transport modes.
 - The maintenance, repair and upgrade of existing cycle routes and other facilities.
 - Securing and allocating funding for cycle improvements.

2.5 Nottinghamshire Rights of Way Management Plan

2.5.1 The Rights of Way Management Plan for Nottinghamshire was published in late 2018². Published in accordance with the Countryside and Rights of Way Act 2000, it assesses Nottinghamshire's current path network (totally almost 2,800 km) and its ability to cope with future needs. It sets out a series of actions designed to improve the path network for residents and visitors.

¹ <u>https://www.nottinghamshire.gov.uk/media/112613/executive-summary-cycling-strategy-delivery-plan-march-2016-2.pdf</u>

² <u>https://www.nottinghamshire.gov.uk/planning-and-environment/walking-cycling-and-rights-of-way/rights-of-way/rights-of-way-plan</u>





- 2.5.2 Pertinent policies in relation to the audit of the walking network in and around Retford are as follows:
 - **Policy A1-4 (Maintenance):** Maintenance and improvement works will be prioritised according to the level of danger to members of the public. Prioritisation will also consider frequency of use, harassment and intimidating behaviour / notices, needs of the disabled and promotional status.
 - **Policy A1-5 (Signage):** The County Council will continue to ensure that all paths are signed with their correct legal status from metalled roads, and where appropriate, signs will be placed at other locations where there is an identified need.
 - **Policy A1-6 (Wayfinding):** The County Council aims to provide waymarking wherever there is difficulty in identifying the route of a right of way. Nottinghamshire County Council will proactively seek to waymark definitive public rights of way in a structured and standardised approach. Waymarking will only be used where the route is unclear, as an aid to users and land managers, to reduce signage clutter and prevent 'urbanisation' of the network.
 - **Policy A1-7 (Surfacing):** The Council will carry out surface improvements and maintenance in accordance with relevant and current government guidance. When specifying surfacing materials, the Council will place the needs of the legal public user first. Where appropriate the Council will consult with local stakeholders such as conservationists, landowners, and user groups. Surfacing will only be considered where budget constraints allow, alternative remedies have failed, and patterns of use justify expenditure.
 - **Policy A1-8 (Surfacing):** The Authority will seek to maintain the surface of public rights of way to a standard appropriate with their ordinary legal public use with regard to both the current and possible future use of the path.
 - Policy A1-11 (Development): The County Council will seek improvements, at an early stage, to the
 rights of way network affected by development. The County Council will work with developers and local
 planning authorities to achieve the maximum benefit for the rights of way network and support wider
 economic growth.
 - **Policy A5-8 (New Paths):** Where there is a clear public need, the County Council will seek to create a new path in the first instance by agreement. Where an agreement fails and there are substantial public benefits to be gained and the benefits are relative to the expected costs, the County Council will consider exerting its power in accordance with the relevant available guidance and where resources allow.
- 2.5.3 The County Council normally requires that there shall be a minimum width of 2m for footpaths and 4m for bridleways, except where a path is fenced on one or both sides, when the full available width should be recorded as the legal width. The Council encourage partner authorities to consider this standard and will normally object to public path orders made by other authorities in Nottinghamshire where they create routes which are less than the minimum width.

2.6 Pedestrian Comfort Guide for London

- 2.6.1 The Pedestrian Comfort Guide for London is widely regarded as best practice when it comes to considering the needs of pedestrians³ in urban areas. Produced by Transport for London in 2010, and updated in 2019, it provides guidance on those factors to be incorporated into street design to make them comfortable and attractive. Whilst bespoke to London and containing many features unique to the capital, it nevertheless establishes principles to be adhered to in other parts of the country.
- 2.6.2 The basis for the guide is the assessment of both footways and pedestrian crossing points to ensure that the full pedestrian environment is assessed and reviewed. Recommended footway widths, dependent upon the level of use, as illustrated in <u>Table 2.4</u> below.

Level of Flow (People per Hour)	Desirable Width (m)
Low Flow (<600 pph)	2.9m
Medium Flow (600 – 1,200 pph)	4.2m
High Flow (>1,200 pph)	5.3m

Table 2.4: Recommended	Footway Widths
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³ <u>http://content.tfl.gov.uk/pedestrian-comfort-guidance-technical-guide.pdf</u>





3.0 Methodology

3.1 Overview

3.1.1 This chapter details the approach taken through which the respective cycling and waling networks have been audited and how the findings of the audit generated a list of priority routes and costed schemes.

3.2 Cycle Network Coverage

- 3.2.1 There is no promoted cycle network in place which covers Retford. As such the audit has been based upon the assessment of a combination of radial routes into the town, distributor roads within the surrounding residential areas, and off-road routes along the river and canal, as highlighted in Figure 3.1.
- 3.2.2 In this respect it reflects what a comprehensive cycle network for the town could look like and has been verified against routes generated through the Department for Transport's 'Propensity to Cycle Tool'⁴.
- 3.2.3 In total it covers a total length of 47km, which was audited during November and December 2020.

3.3 Audit Criteria for Cycling Infrastructure

- 3.3.1 <u>Appendix A</u> details the approach to applying the audit criteria recommended in the Local Transport Note 1/20 on Cycle Infrastructure Design⁵. The nature of the guidance is such that it lends itself to the detailed consideration of issues associated with the development a new cycle route/options, as opposed to a town wide audit of existing provision.
- 3.3.2 As such seven of the 25 criteria are omitted from the appraisal, a further seven have been combined to form three more all-encompassing criteria, and in two instances we have adhered to the spirit of the guidance, but applied professional judgement, as opposed to gathering detailed evidence of traffic volumes, speeds and gradients for example.
- 3.3.3 Each criterion has been assessed using a Red/Amber/Green approach and assigned a score of 0/1/2 accordingly, in line with 'Cycling Level of Service Tool' in the LTN. A total score out of 28 was then awarded (based upon 14 criteria x maximum score of 2 per criteria) to help inform a prioritised list of future interventions.
- 3.3.4 A series of additional characteristics were recorded to provide the context for the individual sections/scores as follows:
 - Individual route reference number
 - Route category
 - Section (named roads incorporated in the given route).
 - Length (in metres)
 - Route treatment (understanding of the current treatment i.e. on/off road, no treatment etc)
 - Route Character (town centre, residential, rural, etc)
 - Method of Survey
 - Comments (general observations of the section of route).
- 3.3.5 This Report contains a summary of the findings of the audit. An inter-active online map containing the data and images of the routes is available via this link:

https://wyg.maps.arcgis.com/apps/webappviewer/index.html?id=68f6122d85e24a7fae0b3379fafe4f43

⁴ <u>https://www.pct.bike/m/?r=nottinghamshire</u>

⁵ <u>https://www.gov.uk/government/publications/cycle-infrastructure-design-ltn-120</u>





3.4 Quality Rating

3.4.1 Each of the criteria audited was assessed using a Red/Amber/Green approach and assigned a score of 0-2 accordingly, in line with 'Cycling Level of Service Tool' in the LTN. A total score out of 28 was then awarded (based upon 14 criteria x maximum score of 2 per criteria) to help inform the categorisation of the routes in terms of the overall 'quality', as highlighted in <u>Table 3.1</u>.

Tabla 2 1.	Cotogoriootion	of Pouto	\cap uolity	hu	Audit	Cooroo
	Categorisation	or noute	Quality	Dy	Auuit	Scores

Quality Rating	Audit Score Thresholds
1 - Very Poor	0-15
2 – Poor	15-17
3 – Acceptable	16-21
4 – Good	20-24
5 – Very Good	23-28

3.4.2 Whilst the overall quality of a link is not assigned a rating in the LTN, it provides a useful basis upon which to understand relative need when seeking to understand the priorities following a town wide audit. It should also be noted that the score awarded as part of the audit hasn't automatically determined the overall rating, but helped informed the grading, hence the degree of overlap. This is to account for relative performance against more critical features which have a greater bearing than others on the overall user experience.

3.5 Strategic Importance of the Cycle Network

- 3.5.1 The LTN details four tiers of cycle links within any given network, notably:
 - Primary routes between major trip generators
 - Secondary routes connections into local centres
 - Local access to streets and attractors
 - Long distance and leisure routes
- 3.5.2 For the purposes of this audit, the long distance / leisure route designation was omitted from the analysis on the basis that there could be several areas of overlap with routes also being classified as primary or secondary.

3.6 Prioritisation of Cycle Improvements

- 3.6.1 Based upon the assessment of the quality of the network (and the associated score awarded out of 38) and the strategic importance of the individual routes and sections, a prioritisation ranking system was developed to enable future interventions to be targeted in the most cost-effective areas.
- 3.6.2 It draws out those sections of the network the authority should prioritise for investment in the short term, those which should be considered as more medium-term priorities, and those to be delivered in the longer term. It also highlights those sections where no intervention is required, as illustrated in <u>Table 3.2</u> below.

	Strategic Importance				
Quality/Score	Primary	Secondary	Local		
1 - Very Poor	Short Term	Short Term	Medium Term		
2 – Poor	Short Term	Medium Term	Medium Term		
3 – Acceptable	Medium Term	Medium Term	Long Term		
4 – Good	Long Term	Long Term	Long Term		
5 – Verv Good	Not needed	Not needed	Not needed		

Table 3.2 Determination of Network Priorities

3.6.3 Whilst these overall quality rankings do not feature in the LTN, they nevertheless provide an effective format through which to assess the relative need for investment in the network across Retford.





3.7 Missing Links

- 3.7.1 Following the audit of the network, a "Mess Analysis" was undertaken to highlight the density of the cycle offer within Retford. The approach taken reflects that set out in the LTN guidance.
- 3.7.2 Overlaid with the main trip generators and destinations within the town, and only featuring those sections of the cycle network deemed to be of a reasonable standard, it provides an effective tool for identifying missing links and where investment in new provision should be targeted from a strategic perspective.

3.8 Walking Network Coverage

- 3.8.1 A targeted assessment of the walking network, totalling 11.5km, has been undertaken focusing on the main links between potential development sites and key trip attractors, notably the town centre, schools, local shops and healthcare provision, as highlighted in Figure 3.2.
- 3.8.2 Desire lines have been identified which present the most direct route options together whilst the network targeted also reflects what are considered to be realistic walking distances, as set out in various publications including 'Guidelines for Journeys and Foot' and 'Buses in Urban Developments'.

3.9 Walking Audit Criteria

3.9.1 The Walking Route Selection Tool (WRAT) is contained within the Technical Guidance for the production of Local Cycling and Walking Infrastructure Plans and forms the basis to the audit of walking routes within Retford. It mirrors the approach applied to the assessment of cycling links in terms of the focusing on the five core design principles of: (1) Attractiveness, (2) Comfort, (3) Directness, (4) Safety and (5) Coherence.

J.J.Z THE SPECIFIC INVICATORS assessed are summarised in <u>Table J</u>	3.9.2	The specific indicators assess	sed are summarised in	Table 3.3.
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Design Category	Areas of Assessment
Attractiveness	 Maintenance Fear of crime Traffic noise and pollution Other (i.e. excessive use of guard railing, poor lighting etc)
Comfort	 Condition (trip hazards) Footway width Width on staggered crossings / refuges Footway parking Gradient Other (i.e. poor drainage, bus shelters, gates/barriers etc)
Directness	 Footway provision Location of crossings in relation to desire lines Gaps in traffic Impact of controlled crossings on journey times / Green Man time Other (i.e. steps, confusing layouts for pedestrians etc)
Safety	 Traffic volume Traffic speed Visibility
Coherence	 Dropped kerbs and tactile paving

Table 3.3: Walking Audit Criteria

3.9.3 On the basis of the assessment undertaken, high level recommendations will be made in terms of priorities which could see improvements in provision for pedestrians on the network audited.





3.10 Summary

- 3.10.1 The approaches employed in the audit of the cycling and walking networks within Retford reflect the best practice detailed within Government guidance, notably the Local Transport Note on Cycling Infrastructure Design and the Technical Guidance for Local authorities on Local Cycling and Walking Infrastructure Plans. This provides confidence in the findings and will enable consistency in comparison with data from elsewhere.
- 3.10.2 As one of the objectives of the study is to identify potential areas of investment for future schemes, the approach takes the data a step further. By aligning the findings with the strategic importance of each cycling and walking link, prioritised lists of routes can be generated to enable Bassetlaw District Council to target those areas in most need of intervention and improvement.







4.0 The Cycle Network in Retford

4.1 Overview of the Network

- 4.1.1 Retford has the key attributes to be an attractive town to cycle around. The urban area is less than 4km from north to south and less than 3km from east to west, which coupled with the generally flat topography ensures that all major trip generators are within easy reach.
- 4.1.2 The corridors formed by the river and canal provide fantastic opportunities to travel across the town without coming into conflict with general traffic, giving Retford significant potential to make cycling the mode of choice for all trips to access employment, education, healthcare and leisure facilities provided locally.
- 4.1.3 However, at present, the coverage and quality of infrastructure to support and encourage cyclists falls below modern standards, both in terms of on-road and off-road routes in place, including those along the canal and river. Where attractive links are provided, they are often undermined by a lack of continuity and the absence of safety features at major junctions.
- 4.1.4 Overall, some 9% of the network audited was considered to be of 'good' or 'very good' quality, with 59% poor or very poor. A summary of the quality of network provision is provided in <u>Table 4.1</u> below.

Score	Km	%	Examples
5 – Very Good	1.8	4%	River Idle (from West Street bridge to Morrison's).Babworth Road (shared use path).
4 – Good	2.1	5%	 North Road (Retford Park Avenue to Silverdale Close) London Road (shared use path).
3 – Acceptable	13.0	32%	Hallcroft Road.Ollerton Road (from West Carr Road to West Hill Road)
2 – Poor	9.2	23%	Goosemoor Lane (with a 30mph limit).Grove Street.
1 – Very Poor	14.6	36%	Chesterfield Canal (north of Hospital Road)Arlington Way.
Total	40.7km	100%	

Table 4:.1 Quality of Cycle Network Provision in Retford

- 4.1.5 These findings indicate that the overall quality of the cycle network in the town falls below the standards now expected of cycle provision, as detailed within the Local Transport Note on Cycling Infrastructure Design, published in July 2020 (LTN 1/20).
- 4.1.6 Many of the main radial routes into the town centre have no dedicated cycle facilities in place, and where they are provided, they do not offer sufficient segregation to likely to be attractive and comfortable to most potential users.

4.2 Cohesion

- 4.2.1 The coherence of the network is a reflection of routes that are connected, simple to navigate and are of a consistently high quality. <u>Figure 4.1</u> illustrates the mess density of routes within Retford which have been assessed as 'Good' or 'Very Good'. This mess density analysis reflects the approach to network planning set out in LTN 1/20, to draw out those areas well served by cycle infrastructure and those which lack provision.
- 4.2.2 However, the technique is more effective when applied to much larger areas (such as the whole of Bassetlaw) as opposed to a compact town such as Retford, given that density is assessed in terms of provision within 1km squares. It is therefore hard to draw any real conclusions from this assessment.



High View	Legend
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78"	
	Contains Ordnance Survey data © Crown copyright and database right 2020.
Grove	Dient: Bassetlaw District Council
*	
1	SENEVA BUILDING LAKE VIEW DRIVE SHERWOOD BUSINESS PARK NOTTINGHAM NG15 0ED
Six Oaks	TEL: +44 (0)1623 684 550 e-mail: nottingham@wyg.com
	Figure 4.1: Mess Density of the Cycle Network (Good & Very Good Routes)
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	roject No. Office Type Drawing No. Revision B024731 35 18 002 -
	C WYG Group Ltd.





4.3 Directness

4.3.1 Cycle routes should be at least, if not more direct, than those for general traffic and cyclists should be given priority on links and at junctions to give them a competitive edge in terms of maximising its attractiveness as a mode choice.

Delay and Safety at Junctions

- 4.3.2 The frequency at which cyclists have to stop at junctions and give way to other traffic impacts upon journey times and the overall effort required to cycle between two points, given the loss of momentum and the need to get back up to speed.
- 4.3.3 In addition, the ability for cyclists to maintain their speed and travel at a speed which suits them, avoiding unnecessary hold ups and delay further reflects the directness of a cycle link, and enhances the competitiveness of cycling as a modal choice when compared to a car.
- 4.3.4 The safety of cyclists is a further dimension to the pivotal role junctions play as nodal points on the cycle network with the overall quality of offer across Retford is highlighted in <u>Table 4.2</u>.

	Km	%
High – Frequent delays and inadequate safety features.	7.6	19%
Medium – Some delays but generally safe.	7.4	18%
Low – Cyclists bypass or at prioritised at junctions and are safety accommodated.	25.7	63%
Total	40.7 km	100%

Table 4.2: Quality of Junction Provision for Cyclists

- 4.3.5 The generally positive results in <u>Table 4.2</u> reflect the direct routes cyclists can generally utilise across Retford, albeit often alongside general traffic. What does not come across through this assessment is the lack of priority given to cyclists at any junction in the town, and the lack of supporting infrastructure to improve the safety of crossing points at key intersections.
- 4.3.6 Too often safe and attractive routes are undermined by a lack of provision. The starkest example of this are the cycle paths on the banks of the River Idle. Cyclists are forced to cross Bridgegate without any support to continue northwards towards Morrison's (see Figure 4.2).

Delay on Links

4.3.7 <u>Table 4.3</u> illustrates the degree to which cyclists are delayed by general traffic or other cyclists across the network within the town. Where delays occur, it is generally as a result of narrow carriageways or shared use paths hampering progress and is a problem particularly acute along the Chesterfield Canal.

Table 4.3: Ability to Maintain Speed

	Km	%
Restricted – Cyclists travel at speed of slowest vehicle	6.3	15%
Moderate Limitations – Cyclists can usually pass slow traffic and other cyclists	4.6	11%
Free Flow – Cyclists can choose appropriate speed	29.9	73%
Total	40.7 km	100%









Lack of prioritisation at roundabout













Gradient

4.3.8 The topography of Retford lends itself to cycling, the flat valley of the River Idle ensuring that there are no hills of note for cyclists to overcome, as illustrated in <u>Table 4.4</u>. This helps to minimise the effort cyclists have to put in to get around the town, making travel time guicker and cycling more attractive.

Table 4.4:	Topography	of the	Cvcle	Network
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	Km	%
Steep	0.0	0%
Moderately Hilly	3.5	9%
Flat	37.2	91%
Total	40.7 km	100%

Summary

- 4.3.9 The nature of the town in terms of its flat topography, coupled with the size of the urban area (all of the surrounding residential areas are within 2km of the town centre), suggest that cycling could form the natural choice for a significant proportion of internalised trips.
- 4.3.10 As such, it has significant potential to develop as an attractive cycling town. In this respect parallels can be drawn with both Cambridge and York, cities with rivers running through their centres, surrounded by predominantly flat hinterlands where cycling is very popular.
- 4.3.11 However, whilst the geography of the town lends itself to direct, fast and competitive journey times in comparison to car-based travel, the supporting infrastructure undermines the ability of cyclists to have a competitive edge. The lack of priority at junctions highlights a need for a rethink of road user priorities in the town.

4.4 Safety

4.4.1 Routes should be safe and perceived to be safe, principles assessed through a series of criteria in the audit. The most pertinent findings of the assessment of the safety of the network in Retford are detailed below.

Segregation of Cyclists

4.4.2 The effective segregation of cyclists from general traffic and pedestrians is at the heart of creating a safe network. However, in Retford, the majority of the links audited did not provide segregation from general traffic, and where segregation is in place, it falls below the national standards set out in LTN 1/20, as illustrated in Table 4.5.

	Km	%
None – On-Road (No physical segregation from general traffic, cycle lanes less than 1.8m wide)	29.0	71%
Some – On-Road (Cycle lanes great than 1.8m wide and traffic speeds less than 30mph)	0.9	2%
Full – Full physical segregation from traffic (including use of kerbs and off-road routes)	10.8	27%
Total	40.7 km	100%

Table 4.5: Degree of Segregation on Links

4.4.3 In those instances where cyclists are segregated from general traffic, they are accommodated on shared use paths, in some cases alongside pedestrians, denoted by a solid white line, and in others without any form of designation. This creates its own problems where the shared path is narrow, but on sections of Babworth Road for example, where pedestrian footfall is usually fairly light, both modes can be accommodated successfully.





Speed of Traffic

4.4.4 Where not physically segregated from general traffic, the speed of vehicles has a significant impact on the actual and perceived safety of cyclists. Almost 30km of the network audited requires cyclists to share the carriageway with general traffic. <u>Table 4.6</u> highlights that in the vast majority of cases, traffic is travelling above what is considered safe for unsegregated cycle provision.

Table / 6.	Snood	l imite (on tha	On-Road	Notwork
Table 4.0.	Speed		JILUIE	UII-RUau	NELWOIK

	Km	%
40mph or over	8.6	29%
30mph	18.7	63%
20mph	2.6	8%
Total	29.9 km	100%

4.4.5 Only 2.6km (or 8% of the network surveyed) benefits from 20mph speed limits within which it is generally considered safe for cyclists to share the carriageway with general traffic.

Volume of Traffic

- 4.4.6 Data is not available on the volume of traffic for the entirety of the network audited. As a proxy, the characteristics of the routes were determined through an understanding of the likely volume of traffic associated with roads of different characteristics, namely busy radial or town centre routes, moderately trafficked streets such as distributor roads in residential areas, and local neighbourhood routes with the likelihood of little traffic throughout the day.
- 4.4.7 <u>Table 4.7</u> provides a breakdown of the character of those routes within Retford where cyclists share the carriageway. It highlights a mixed picture with a relatively even spread of cases in which cyclists share quiet residential streets, busier suburban links, and busy primary roads through the town.

Table	4.7:	Route	Character
rubic	T ./.	nouto	Unaracter

	Km	%
Busy – Main radial route or key link within the town centre.	11.3	38%
Moderate – Distributor routes within residential areas.	11.3	38%
Quiet – Lightly trafficked residential streets or rural roads.	7.3	24%
Total	29.9 km	100%

4.4.8 It should be noted, that in the absence of a promoted network upon which to base the audit, a decision was taken to focus on the main radial links into the town centre, together with the routes along the river and canal. The results in this instance may therefore not be fully reflective of other popular cycle links within quieter residential areas.

Summary

- 4.4.9 The overall level of safety of the cycle network is considered reasonably poor in terms of its performance against the criteria presented above. Cyclists must share over 10km of the network with general traffic on what are considered busy routes and share the carriageway for over 7km with very fast moving traffic.
- 4.4.10 However, these concerns are not borne out in terms of the actual numbers of cycle casualties in the Retford area in the 10-year period between 2010 and 2019. An analysis of data provided by Crash Map⁶ highlighted one fatal accident involving a cyclist on London Road in that period, with isolated incidents involved slight or serious injuries elsewhere on the network. The location of these casualties is provided in <u>Figure 4.3</u>.

⁶ https://www.crashmap.co.uk/Search







4.4.11 Further areas of assessment associated with the safety of the network, focusing on the legibility of the road markings in place, conflict with kerbside activity and evasion room and unnecessary hazards is contained within Appendix B. A tabulated breakdown of all cycle casualties is also provided.

4.5 Comfort

4.5.1 If cycling is not a smooth, comfortable experience, it will reduce its attractiveness to all but the most committed cyclists. The respective comfort of the network in Retford is detailed below.

Surface Quality

- 4.5.2 Routes with prevalent potholes, cracked paving and other features reflecting poor maintenance will unsettle the rider and be uncomfortable, reducing potential usage and the overall attractiveness of cycling.
- 4.5.3 In addition to defects in the provision, the type of surfacing can also influence the comfort of the ride and the directness or speed of the journey, smooth tarmac providing less friction than a gravelled track for example. The combination of these factors has informed a quality assessment of the surfacing of the routes in Retford as highlighted in <u>Table 4.8</u>.

	Km	%
Low – Uneven surfacing and/or numerous minor defects or many major defects.	6.7	16%
Moderate – Minor or occasional defects.	2.5	6%
High – Smooth surface with no defects.	31.5	77%
Total	40.7 km	100%

Table 4.8: Quality of Surfacing

- 4.5.4 In general, the surfacing of the audited network was of a high standard. This should be countered by the fact that a significant proportion of the network utilises the general carriageway. When the off-road cycle tracks are considered separately, the proportion deemed to be of high-quality drops to only 42%.
- 4.5.5 Issues associated with the surfacing of the off-road links are particularly apparent on those routes alongside the canal and river, where a lack of hard surfacing or sub-standard treatment makes them unsafe and unusable in places, as illustrated in Figure 4.4.

Signage

4.5.6 Signage provides reassurance to cyclists, particularly infrequent cyclists and those not from the local area, that they are travelling in the right direction. However, <u>Table 4.9</u> indicates a general lack of provision across the town. Where signage is provided and destination are listed, they are not accompanied by supporting information on distances in either kilometres or travel time.

Table 4.9:	Quality	of Signage
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	Km	%
Poor – Poor quality or no signing	31.8	78%
Moderate – Gaps in signing which could be improved.	6.7	16%
Good – Route is well signed including at decision points (junctions)	2.2	5%
Total	40.7 km	100%

4.5.7 The result of this is that the network is only navigable to regular cyclists and those who know the local area and the routes in place.





Figure 4.4: Examples of Surfacing

Co Land Land

Poor quality surfacing on canal













Summary

- 4.5.8 The comfort and feel of the cycle network in Retford has significant room for improvement. Where there are potentially extremely attractive routes, which could entice many cyclists of all abilities, particularly along the Chesterfield Canal and River Idle, they are fundamentally undermined by no or poor-quality surfacing and the narrowness of the paths.
- 4.5.9 The reliance on cyclists travelling within the main carriageway alongside general traffic also fundamentally undermines the comfort of the network with those less confident or novice cyclists dissuaded due to safety concerns.

4.6 Attractiveness

4.6.1 Routes should help to deliver public spaces that are well designed and attractive where people want to spend their time. the factors which contribute towards this are detailed below.

Lighting

4.6.2 The presence of street lighting has an important role to play from a road safety and personal security perspective. <u>Table 4.10</u> highlights the quality and extent of lighting on the cycle network in the town.

Table 4.10: Quality of Lighting Provision

	Km	%
Poor – Most of the route is unlit.	13.1	32%
Moderate – Short / infrequent unlit sections.	1.8	4%
Good – Lit to highway standard throughout.	25.9	64%
Total	40.7 km	100%

4.6.3 As the majority of the network audited forms part of the general highway network, lighting is generally of a good standard. However, on the more rural links into the town and the off-road routes alongside the canal and river, the absence of any lighting reduces their attractiveness and increases safety concerns.

Isolation

4.6.4 The isolation of a route, away from properties and natural surveillance and cause personal security concerns for some potential users, dissuading them from cycling, particularly in the dark and/or winter months. <u>Table 4.11</u> highlights the level of isolation on the routes surveyed in Retford.

Table 4.11: Extent of Isolation on the Cycle Network

	Km	%
Poor – Route is away from activity	15.0	37%
Moderate – Route is mainly overlooked	3.4	8%
Good – Route is overlooked throughout	22.3	55%
Total	40.7 km	100%

Summary

4.6.5 The length of unlit and/or isolated routes in Retford is relatively low, reflecting the focus of the audit on routes in the urban area. Nevertheless, despite their attractiveness as cycling routes during the day however, the links along the canal and river do present issues in terms of a lack of lighting and natural surveillance in the evening for example. That said, the overall feel of the network from a personal security perspective is broadly positive.





4.7 Conclusions

- 4.7.1 Retford is not dissimilar to many other towns in having a somewhat disjointed cycle network in place. Whilst elements of the provision form attractive, relatively safe, direct and comfortable routes, too often it is punctuated by poor quality infrastructure or no provision at all, particularly at vital locations, such as major junctions approaching the town centre. This undermines the overall user experience and will result in many novice or occasional cyclists being dissuaded to cycle around the town.
- 4.7.2 <u>Figure 4.5</u> provides an overview of the changes in the quality of provision along the individual routes and links in the town, whilst <u>Figure 4.6</u> includes images of some of the distinctive features of the cycle network in place.
- 4.7.3 It should be noted that whilst much of the infrastructure in place now falls below the standards set out in the Local Transport Note 1/20 on Cycling Infrastructure Design, this guidance has significantly raised the bar in terms of what the public should expect from the cycle network.
- 4.7.4 However, it is also unrealistic to expect towns such as Retford, with an historic, tight urban form and narrow carriageways to be able to accommodate some of the recommended approaches within the guidance. It should therefore be treated as such, and the design principles applied to Retford where feasible.





















5.0 The Walking Network in Retford

5.1 Overview of the Network

- 5.1.1 Journeys on foot are the second most popular form of transport after the car for most journey purposes within Retford and so it is important that the quality of the network reflects the demands placed upon it on a daily basis.
- 5.1.2 Walking can often also form part of longer journeys by bus or rail and the attractiveness of the public realm has a significant bearing on the vitality and vibrancy of the town.
- 5.1.3 The focus of the audit of pedestrian links within Retford has concentrated on the routes between potential development allocations in the Local Plan and the main trip generators such as the town centre, hospital, schools and local shops.
- 5.1.4 The findings are summarised in relation to the five overarching factors of attractiveness, comfort, safety, directness and coherence deemed necessary to provide high quality provision.

5.2 Attractiveness

- 5.2.1 The walking environment for pedestrians within Retford is generally attractive and links are well maintained throughout. In terms of fear of crime, such a concept differs greatly between individuals, but is often driven by isolated routes with a lack of natural surveillance and activity. Sections on several routes audited suffer in this respect.
- 5.2.2 Traffic noise and pollution is also an issue where the footpaths run alongside the main routes into and through the town centre. All routes are generally well lit, but none benefit from dedicated lighting footway lighting which is considered best practice.

5.3 Comfort

- 5.3.1 Retford is a comfortable town to walk around. Footways are usually of sufficient width to accommodate demand. There are instances where shared use paths are provided however, and these do not meet the current standards of cycle infrastructure design. This could lead to conflict between pedestrians and cyclists on occasions.
- 5.3.2 Where pedestrian refuges are provided on wider crossings, particularly along Arlington Road, they are often too small to be comfortable, certainly for someone in a wheelchair or with a pushchair.
- 5.3.3 A further factor which can severely undermine the comfort of pedestrian links is the extent of cars parked on the footway. This is a national issue and there are currently proposals for the practice to be made illegal. At its worse it can force individuals onto the carriageway increasing safety concerns.
- 5.3.4 In terms of the routes audited, most were free on footway parking. It is more commonly occurring on residential streets where off-street parking provision is insufficient to meet demand. Century Road and Albert Road are both areas for concern in this regard.
- 5.3.5 Finally, street furniture can form an importance, albeit relatively small-scale intervention through which the comfort of the network can be improved. Away from the town centre and Kings Park, the lack of signage make it hard to navigate for those not local to the area, whilst the absence of seating will dissuade more elderly pedestrians or those with limited mobility from walking, given the lack of resting points.





5.4 Directness

- 5.4.1 There are several barriers which inhibit the directness of pedestrian connectivity across Retford as a whole. The two rail lines and the two watercourses – the Chesterfield Canal and River Idle – all sever movements to some extent.
- 5.4.2 The issue is most apparent when considering the directness of step-free pedestrian access between Ordsall and Retford, with the East Coast Mainline resulting in long detours for those wishing to access Kings Park from Ordsall Park Road for example.
- 5.4.3 At a more local level, there is a need to respect pedestrian desire lines along a corridor, avoiding the provision of off-set junctions and dropped kerbs. Too often this is not the case in Retford including on Amcott Way and Arlington Road and at the Hallcroft roundabout. In some instances, pedestrians must cross two arms of a junction as opposed to being able to cross directly in line with their desire line.

5.5 Safety

- 5.5.1 From a road safety perspective there are no major concerns with the provision for pedestrians in Retford. In some instances, more formal and informal crossing points could be provided, but at the major junctions assessed, such as the Hallcroft roundabout, and the Arlington Road / Amcott Way / Moorgate junction, there is dedicated provision for pedestrians.
- 5.5.2 The number of pedestrian's involved in accidents in the 10-year period between 2010 and 2019 is highlighted in <u>Table 5.1</u> whilst their location is illustrated in <u>Figure 5.1</u>.

Year	Killed	Serious	Slight
2010	-	2	6
2011	-	1	5
2012	-	2	2
2013	-	-	1
2014	-	2	9
2015	-	1	2
2016	-	1	2
2017	-	-	6
2018	1	1	4
2019	-	2	5
Total	1	12	42

Table 5.1: Number of Pedestrian Casualties between 2010 and 2019

5.6 Coherence

- 5.6.1 The Walking Route Selection Tool uses the prevalence of dropped kerbs and tactile paving as an indicator of the coherence of a walking network. The audit of the pedestrian corridors highlighted in <u>Figure 5.1</u>, highlighted that dropped kerbs are in place in the majority of locations, although accompanying tactile paving is patchier in its provision.
- 5.6.2 The access to the town centre and the station from the south is also reliant on the use of a subway underneath the Sheffield to Lincoln line.
- 5.6.3 Whilst this is well surfaced and well lit, and forms an important connection in the overall network, it does not fully meet the needs of those with more limited mobility given the gradient of the access ramp from the north, or enhance the legibility of the town due to the lack of signage to promote its existence.





5.7 Summary

- 5.7.1 The 11.5km of footways audited highlighted a predominantly safe and accessible network of pedestrian links in the town. However, there are areas where the cumulative impact of several marginal improvements could see tangible benefits in the overall quality of the public realm and attractiveness of walking as a travel option throughout the town.
- 5.7.2 <u>Figure 5.2</u> highlights the variations in standard of current provision, whilst <u>Figure 5.3</u> illustrates some of the examples of where improvements could be targeted in the town.





















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6.0 Key Findings & Recommendations

6.1 Overview

6.1.1 Retford is an attractive town and can be enjoyed both on foot and by bike if investment is targeted in the right areas. It is clear that there has been investment in the cycle network, but that it has been piecemeal over an extended period of time. Any future expenditure should therefore be based upon a coherent and consistent framework and design principles, to establish a more connected and convival user experience.

6.2 Town Wide Improvements

- 6.2.1 There are several generic areas of improvement which should be considered across the town:
 - **Coverage** The extent of the dedicated cycle network is extremely limited. A large proportion requires cyclists to share the carriageway with general traffic. Efforts should be made to increase the length of dedicated, segregated, and continuous cycle links, particularly on the key corridors into the town centre from new developments.
 - **Junctions** Better connectivity is required between the sections of good quality provision in place. This requires dedicated provision for cyclists at junctions to improve the speed and safety of movement.
 - Prioritisation Cyclists should be given greater priority at junctions but also in terms of the space allocated to them within the carriageway. The use of advisory cycle lanes sees parked cars force cyclists into the centre of the road. Converting these to mandatory cycle lanes would be a quick and (relatively) easy step in improving conditions for cyclists where this is the case.
 - **Surfacing** The river and canal provide the basis for an extremely attractive off-road cycle network that could attract commuting and leisure trips. To do so, the surfacing of the corridors needs to be smooth and well maintained.
 - **Signage** The legibility of the network could be improved through better signage, highlighting destinations and the distances to get there (preferably in minutes travel time). This would instil more confidence in occasional cyclists and those not from the local area.
 - **Parking** There are very few obvious examples of high-quality cycle parking in place across the town. This can help increase the comfort and overall user experience for cyclists.
- 6.2.2 Where dedicated cycle tracks are not possible or appropriate, the use of modal filters to reduce the volume of traffic, or speed reduction measures such as narrowing the carriageway, surface treatment or safety cushions, could see improvements in the comfort and safety of the cycle network.
- 6.2.3 Investment in any new infrastructure should also be supported by a co-ordinated marketing campaign to raise awareness of provision, potentially alongside nation campaigns such as Cycle to Work Week. The development of a town wide brand may assist in this regard, and the concept of 'Green Carpets' is one which could gain some traction.

6.3 Priority Routes for Cycle Improvements

- 6.3.1 Priorities for future investment within Retford have been calculated based upon a combination of the strategic importance of each link (applying the route hierarchy from the LTN), together with the quality and suitability of existing provision (the respective performance against the audit criteria).
- 6.3.2 Sections on the primary network deemed to be of poor or very poor quality have been considered as shortterm priorities, whilst those sections on the local network of better standard, are considered longer term aspirations.
- 6.3.3 <u>Table 6.1</u> details the total length of the audited network which is deemed to be in urgent need of intervention (and as such represent high priorities to be addressed in the short term), those more medium-term priorities, those which are considered to be low priority, and the extent of the network which doesn't require any investment.





Table 6.1: Priorities for Investment

Score	Km	% of the Network
Short Term	11.3	28%
Medium Term	20.0	49%
Long Term	7.5	18%
Not Needed	1.9	5%
Total	40.7 km	100%

6.3.4 In terms route priorities, <u>Table 6.2</u> provides a list of those sections considered to be a high priority for investment in the short term.

Section	Strategic Importance	Current Rating	Priority
North Road: between Sutton Lane crossroads and Randall Way.	Primary	Very Poor	Short Term
Welham Road: after 60mph speed limit change to before 40mph Speed Limit marking Welham.	Primary	Very Poor	Short Term
Babworth Road: from the Babworth Road / Mansfield Road junction to the speed limit change (to 40mph speed limit).	Primary	Very Poor	Short Term
Babworth Road: from the speed limit change (to 40mph) to a second speed limit change (to 30mph).	Primary	Very Poor	Short Term
Arlington Way: between Spital Hill and 30mph Speed Limit Change.	Primary	Very Poor	Short Term
Chesterfield Canal: from Hospital Road bridge to lock adjacent to Retford Little Theatre.	Secondary	Very Poor	Short Term
North Road: between Randall Way and Redford Park Avenue.	Primary	Poor	Short Term
Amcott Way: between Hallcroft Roundabout and 30mph speed limit change.	Primary	Poor	Short Term
Moorgate into Welham Road before 40mph speed limit change.	Primary	Poor	Short Term
Welham Road: after 40mph speed limit change and before 60mph speed limit change.	Primary	Poor	Short Term
London Road: from Carolgate / A638 / London Road / Albert Road junction to start of on-road cycle lane.	Primary	Poor	Short Term
London Road: from start of on-road cycle lane to 40mph speed limit change.	Primary	Poor	Short Term
London Road: from 40mph speed limit change to off-road cycle track change.	Primary	Poor	Short Term
London Road: from New Court Gardens / London Road junction to just before London Road North / London Road South / Whitehouses Road roundabout.	Primary	Poor	Short Term
Babworth Road: from the speed limit change (to 30mph) to the beginning of the off-road cycle provision.	Primary	Poor	Short Term
After the St Joseph's Roman Catholic Church access road Junction to the Hospital Road / Hallcroft Roundabout.	Primary	Poor	Short Term
Bridgegate: from Market Place North East / Market Place South East / The Square / Bridgegate Roundabout to Hallcroft Roundabout.	Primary	Poor	Short Term
Grove Street: from the Beardsall's Row / Grove Street Junction to Market Place North East / Market Place South East / The Square / Bridgegate Roundabout.	Primary	Poor	Short Term
Grove Street: from the Arlington Way North / Grove Street East / Arlington Way South / Grove Street West junction to just before Beardsall's Row / Grove Street Junction.	Primary	Poor	Short Term
Victoria Road & Albert Road: between Station Road / Victoria Road Junction and along Albert Road to Arlington Way / London Road / Albert Road / Carolgate traffic signalled junction.	Primary	Poor	Short Term
Queen Street & Station Road: to Train Station Car Park.	Primary	Poor	Short Term
Carolgate: between Canal Path and New Street.	Primary	Poor	Short Term
Carolgate: between Market Place and New Street.	Primary	Poor	Short Term
Arlington Way: after 30mph Speed Limit change and before T-junction.	Primary	Poor	Short Term
Babworth Road Roundabout: Remaining area of Babworth Road Roundabout between Babworth Road north east arm to Babworth Road south west.	Primary	Poor	Short Term

Table 6.2: Short Term Priority Links

6.3.5 The nature of the interventions required on each of these links will be dependent on the characteristics of the current provision and the physical space for a reallocation of space to cyclists. More detailed analysis is needed in each instance to determine the most cost-effective investment.





6.4 Recommendations for the Local Plan

- 6.4.1 Although this audit has identified a number of issues with the current network of pedestrian and cycle routes in Retford, the Local Plan can only influence those that are directly impacted from its proposed growth. The proposed development allocations within Retford are well distributed and all connect to the network in some form. However, apart from three of the sites 1) Ordsall South, 2) Trinity Farm and 3) Fairygrove they're small in size and are unlikely to contribute anything meaningful to the existing network. Likewise these are unlikely to provide new routes as part of their implementation. Ordsall South, Fairygrove and Trinity Farm should provide on-site walking and cycling infrastructure and contributions towards improving the identified priorities to the existing network, where appropriate. The following recommendations for those potential development that are 50 dwellings or above. These recommendations represent potential priorities through which the levels of walking and cycling can be increased from the sites into the wider network. These sites should contribute positively towards improving local walking and cycle infrastructure and therefore encouraging the community to become more active and to promote active travel.
 - **Recommendation 1: Fairygrove** The development of 60 homes at Fairygrove off London Road provides an opportunity to link the site with the existing cycle route along London Road into the town centre. This route is a dedicated route alongside London Road and forms a direct route to local amenities. A new link should be provided directly on to London Road at the front of the site, but it that isn't feasible, then a link could be provided along Grove Road to connect to London Road. Appropriate signage, lighting and bike storage facilities would also help to encourage residents to walk or cycle. The small area and the need for onsite public open space and connectivity would make these recommendations highly deliverable.
 - Recommendation 2: Ordsall South the proposed development of at least 800 new homes to the south of Retford provides a good opportunity to improve local connections and walking and cycling infrastructure. Although there is a need for onsite walking and cycling infrastructure, the site should focus on how these could connect to existing links through Ordsall into Retford and out into the wider countryside. The connections between the sites west and east of Ollerton Road should also become a focus. It is important that the walking and cycling infrastructure is 'designed into the highway solution' for the access into the sites. This would involve providing a new footpath/cycle way along both sites of Ollerton Road to from the site. A new pedestrian crossing across Ollerton to help link the east and west parts of the site would also encourage integration and an increased network of connections available for residents. In addition, the provision of a new country park as part of the development provides an opportunity for a good network of onsite walking and cycling routes. These could differ in terms of their type so that they are attractive to different age groups. As part of the masterplan for the site, it is recommended that a movement strategy is included. This should focus on the hierarchy of streets, spaces and walking and cycling infrastructure. This should also demonstrate how the onsite infrastructure will link to the existing offsite routes particularly those existing routes into Ordsall, the countryside through the Golf Course and along the east of the site along the River Idle. Appropriate signage, lighting and bike storage facilities would also help to encourage residents to walk or cycle. The need for substantial onsite public open space and connectivity would make this recommendations highly deliverable.
 - Recommendation 3: Trinity Farm the development of 244 homes provides an opportunity to link
 the site with neighbouring development to the south of the site and local employment at Randall Way.
 The current walking and cycling access to the site is poor and the traffic along North Road provides
 increased safety issues, particularly due to increased HGV movements. There is a dedicated cycle lane
 along part of North Road where the safety of the infrastructure improves. The development of this site
 provides the opportunity to extend the existing cycleway and footpath north to cover the entire frontage
 of the site. An improved pedestrian crossing across North Road would also encourage walking and
 cycling through Randall Way and into the town centre via Hallcroft. Appropriate signage, lighting and
 bike storage facilities would also help to encourage residents to walk or cycle. The need for onsite public
 open space and connectivity would make these recommendations highly deliverable.





Other Recommendations for development

• **Reduce the Need to Travel** – the distance between the proposed development sites to Retford town centre is unlikely to deliver new or significantly improved pedestrian or cycle corridors.

Therefore, to ensure that as many trips as possible are undertaken on foot or by bike, the site allocations should seek to reduce the need to travel by providing local retail and services within a reasonable walking distance of the largest possible population, whether that be current or future residents.

• **Junction Improvements** – It is acknowledged that on major junctions approaching the town centre, that the needs of pedestrians have to be balanced against those of general traffic. However, it is on the more numerous and significantly less busy junctions wide side roads that marginal gains can be secured through which to improve the quality of the journey.

Reducing the width of the mouth of junctions, using raised platforms and placing dropped crossing and kerbs directly on the desire line (not set back some 3-4m) increase the safety of pedestrians and the directness of their journey.

- **Lighting** The routes audited all had reasonable lighting in place in that it illuminated the main carriageway as well as the footways running alongside. This provision could be enhanced on the more major routes such as Babworth Road, North Road and Arlington Way through the provision of lower level lighting specifically designed to serve pedestrians.
- Signage Improvements in signage would help the overall coherence and connectivity of the network, particularly for those unfamiliar with the area or unaware of more direct routes away from the main road network. Illustrating distances in time also acts as a useful tool in breaking down preconceptions which detract people from walking, highlighting the ease with which certain destinations can be reached.
- Street Furniture Car ownership amongst the elderly is lower than the rest of the population
 increasing their reliance on public transport and walking as means of transport. But due to mobility
 impairments, walking can prove difficult for many.

The provision of street furniture, particularly seating can greatly assist in this regard, reducing social exclusion and isolation. Seating also cause individuals to spend more time in the public realm and in turn provide more activity and natural surveillance, itself an important tool in addressing personal security concerns.

• **Surfacing** – Away from the main road network, the surfacing of off-road paths should also be improved. As previously discussed in terms of encouraging more cycling trips along the river and canal corridors, the provision of properly surfaced, well maintained tracks would encourage walking for leisure and open up the waterways as a destination in their own right.





6.5 Costs

6.5.1 It is not possible to determine the overall value of investment required to create a connected, consistent, coherent, and comfortable cycle network within the town. However high-level estimates associated with various elements of cycle infrastructure provision are detailed within <u>Table 6.3</u>

Table 6.3: High Level Cycle Infrastructure Costs

Scheme Type	Range of Costs	
Cycle Superhighway	£1.15-1.45m/km £0.74m/km	two-way physically segregated two-way light segregated
Mixed Strategic Cycle Route	£0.46-0.88m/km	
Resurfaced Cycle Route	£0.14-0.19m/km	canalside routes
Cycle Bridge	£0.10-0.50m/km	bridge upgrades not whole new bridges
20 mph zone	£10,000-15,000/km £2,000-3,000/km	including traffic calming measures without any traffic calming measures
Remodelled major junction	£1.56-1.61m £0.24m	cycling-specific schemes cycling piggybacking on traffic measures
Cycle crossing at major road	£0.14-0.41m	
Area-wide workplace cycle facilities	£0.20-0.75m £6,000-7,000	programme cost cost per workplace grant
Area-wide school and college cycle facilities	£0.22-1.16m £8,000-110,000	programme cost cost per school
Large-scale cycle parking	£2.5m £0.12-0.70m	for a very large bike park for 3,000 bikes for secure bike parks for 10-1000+ bikes, including changing and showers at the largest
Large-scale provision of bicycles	£1.41m £350	programme cost cost per bike provided
Comprehensive cycle route signage	£6,000/km	
Automatic cycle counters	£28,000 £6,000	programme cost for one cross-city route cost per counter

Source: LCWIP guidance





Appendix

Appendix A – Use of LTN Audit Criteria in Network Assessment





Appendix A – Use of LTN Audit Criteria in Network Assessment

Requirement	Factor	Design Principle	Indicators	Proposed Application in Audit
	Connections	Cyclists should be able to join and navigate along different sections of the same route and between different routes in the network easily and safely.	 Ability to leave / join the route safely and easily. Consider left / right turns. Dravision for evaluate throughout the 	 These factors are relevant to network wide audits, not looking at the provision on individual sections of route. We will use these criteria as part of an overview of the network coverage and cohesion following the individual
Cohesion	Continuity and wayfinding	 Routes should be complete with no gaps in provision. Cyclists should not be abandoned particularly at junctions. 	whole length of the route.	coverage on the face of it, but the quality of the routes which comprise the network could be very poor, so our
	Density of network	 Cycle networks should provide a mess or grid across a town. 	 Density of routes based upon mesh width distances, i.e. between primary and secondary routes within the network. 	assessment would extract those links not up to scratch before coming to a conclusion on cohesion.
	Distance	Routes should follow the shortest option available.	 Deviation of route – the deviation factor is calculated by dividing the distance along the route by the distance the crow flies. 	 When assessing a town wide network there are multiple destinations. In this respect it is hard to determine if a route is direct or deviates from a desire line. It is more appropriate to apply this when considering new alternative routes. Omitted from our assessment.
	Time: Frequency of required stops or give ways	 The number of times a cyclist has to stop or loses right of way on a route should be minimised. 	5. Stopping and give way frequency.	Combined into an overarching junction assessment criterion embracing junction safety and delay.
Directness	Time: Delay at junctions	 The length of delay caused by junctions should be minimised. This includes the impact of multiple or single stage crossings. 	6. Delay at junctions.	
	Time: Delay on links	The length of delay caused by not being able to bypass slow moving traffic.	7. Ability to maintain own speed on links.	Included
	Gradients	Should avoid steep gradients where possible.	8. Gradient.	 Included. It is difficult to determine the precise gradient of the entire cycle route network and therefore the criteria will be included but based upon our judgement.
Safety	Reduce/remove speed differences where cyclists are	The key to reducing the severity of collisions is reducing the speed of vehicles. This is particularly important	 Speed of traffic on approach to junctions where cyclists are sharing the carriageway. 	Included.





Requirement	Factor	Design Principle	Indicators	Proposed Application in Audit
	sharing the carriageway	aring the where there is greater risk (i.e. at riageway junctions). 10. Traffic speed of carriageway.	10. Traffic speed on sections of shared carriageway.	 Given the comprehensiveness of the network we are auditing we don't have details on traffic speeds on approaches to junctions or on many sections of carriageway (as with many of these criteria, they are more relevant to the detailed design of a new individual route as opposed to a network wide audit). We will therefore make a judgment on traffic speeds (and include it as a single criterion) based upon the assigned speed limit for a particular route. Off-road sections of the network will be given the maximum score to ensure consistency of evaluation across the whole network.
	Avoid high volumes of traffic where cyclists are sharing the carriageway	 Cyclists should not be expected to share the carriageway with high volumes of traffic. This is particularly important where there is greater risk (i.e. at junctions). 	 Traffic volume on sections of shared carriageway (expressed as vehicles per hour). 	 Included. Given the comprehensiveness of the network we are auditing we don't have details on traffic volume (as with many of these criteria, they are more relevant to the detailed design of a new individual route as opposed to a network wide audit). We will therefore make a professional judgment on the volume (based upon the route characteristics – i.e. is it a residential street or strategic road). Off-road sections of the network will be given the maximum score to ensure consistency of evaluation across the whole network.
	Risk of collision	 Degree of separation between cyclists and general traffic. A high proportion of collisions involving cyclists occur at junctions. Treatments could include minor/side road priority for cyclists, separation of cyclists from general traffic through junctions. 	 Segregation to reduce risk of collision alongside or from behind. Conflicting movements at junctions. 	 Included. Combined into an overarching junction assessment criterion embracing junction safety and delay.
	Avoid complex design	 Avoid complex design where users have to process large amounts of information. Good design should be self-explanatory. 	14. Legible road markings and layout.	• Included.
	Consider and reduce risk from kerb side activity	 Routes should be assessed in terms of the multi-functional use of streets including car parking and bus stops. 	15. Conflict with kerb side activity.	Included.





Requirement	Factor	Design Principle	Indicators	Proposed Application in Audit
	Reduce severity of collisions where they do occur.	 Where possible routes should include evasion room (such as grass verges) and avoid unnecessary hazards (such as guardrails and build outs) to reduce the severity of a collision if they happen. 	16. Evasion room and unnecessary hazards.	• Included.
Comfort	Surface quality	 Density of defects including non-cycle friendly iron works. Pavement or carriageway construction providing smooth and level surfaces. 	17. Major and minor defects.18. Surface type.	Included as one criterion.
	Effective width without conflict	Should be able to comfortably cycle without risk of conflict with other uses both on and off road.	 Desirable minimum widths according to the volume of cyclists and the route type (where cyclists are separate from general traffic). 	Included.
	Wayfinding	Non-local cyclists should be able to navigate the routes without the need to refer to maps.	20. Signing.	 Included. We will also include reference to the nature of the signing (i.e. are distances signed in km/time).
Attractiveness	Social safety and perceived	Routes should be appealing and be perceived as safe and usable. Well	21. Lighting.	Included
	vulnerability of user	used, well lit, maintained and overlooked routes are more attractive.	22. Isolation.	Included.
	Impact on pedestrians including people with disabilities.	Footways are not suitable for shared use and introducing cyclists onto footpaths may reduce the quality of provision for both users.	23. Impact on pedestrians' comfort level (see Pedestrian Comfort Guide for London).	• It is important to understand the impact on pedestrians when planning new routes, but when looking at the respective quality of existing provision it takes emphasis away from a focus on cycle safety.
	Minimise street clutter.	Signing required to support street layout.	24. Signs informative and consistent but not overbearing or of inappropriate size.	 Signage covered proportionately in (20) for the purposes of this study.
	Secure cycle parking.	 Ease of access to secure cycle parking within businesses and on street. 	25. Evidence of bicycles parked to street furniture or cycle stands.	Not overtly relevant to an audit of the network of links.

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