



Bedford Town Centre Transport Strategy

Issues and Opportunities Report

Final Report



Bedford Town Centre Transport Strategy

Issues and Opportunities Report

Final Report

JMP Consultants Ltd
Abacus House
33 Gutter Lane
London EC2V 8AS

T 020 3714 4400
F 020 3714 4404
E london@jmp.co.uk

www.jmp.co.uk

Job No. ST15226

Report No. 1

Prepared by AR/GR/TS/WA/DW

Verified JB

Approved by LEB

Status Final

Issue No. 4

Date 19 March 2015



Bedford Town Centre Transport Strategy

Issues and Opportunities Report

Report

Contents Amendments Record

This document has been issued and amended as follows:

Status/Revision	Revision description	Issue Number	Approved By	Date
Draft		1	LEB	18/09/2014
Draft Final	1	2	LEB	23/09/2014
Draft Final	2	3	LEB	23/10/2014
Final	1	4	LEB	19/03/2015

Contents

1	INTRODUCTION	1
	Context	1
	Study Aims.....	1
	Purpose	2
	Stages of the Study	2
	Issues and Opportunities Report.....	2
	Study Area	3
2	POLICY AND STRATEGY REVIEW	5
	National Policy and Strategies.....	5
	Local Policy and Strategies	6
3	DEVELOPMENT REVIEW	18
	Overview	18
	Existing land-use	18
	Committed and Potential Development.....	20
4	TRANSPORT INFRASTRUCTURE AND OPERATIONS	27
	Overview	27
	Highway Infrastructure.....	27
	Parking Infrastructure	28
	Freight Operations	33
	Rail Infrastructure and Operations	35
	Bus Infrastructure and Operations	36
	Park & Ride Infrastructure and Operations	39
	Taxis Infrastructure and Operations	40
	Waterways	42
	Walking & Cycling Infrastructure	42
	Signage & Navigation Infrastructure.....	53
5	TRAVEL PATTERNS AND DEMAND	57
	Overview	57
	Travel to Work Data.....	57
	Sub-regional Travel	59
	Highway Movements	61
	Road Safety.....	72
	Parking Demand	82
	Freight Movements.....	84
	Bus Movements	87
	Taxi Demand	87
	Cycling Movements	87

6	ACCESSIBILITY	90
	Overview	90
	Bus Accessibility	90
	Walking & Cycling Accessibility	92
7	ISSUES AND OPPORTUNITIES	96
	Overview	96
	Overarching Themes	96
	Issues and Opportunities Matrix	96
	Defining the Strategy Objectives	102
8	NEXT STEPS	104
	Phase 1	104
	Phase 2	104
	Phase 3 and 4	104

Tables and Figures

Table 2.1	Growth Plan objectives and actions	7
Table 2.2	Sustainable Community Strategy goals and aims	13
Table 2.3	Area Action Plan policies	15
Table 2.4	Core Strategy policies	17
Table 4.1	Road Classification	42
Table 5.1	Traffic Volume Vehicles AM	61
Table 5.2	Clapham Road/Manton Lane/Shakespeare Road	65
Table 5.3	Shakespeare Road/Bromham Road/Ashburnham Road	66
Table 5.4	Midland Road/ Prebend Street/Ford End Road	67
Table 5.5	Prebend Street/Cauldwell Street	68
Table 5.6	Cauldwell Street/Britannia Road/Kempston Road	69
Table 5.7	Ampthill Road/Britannia Road	70
Table 5.8	St. John's Street/Rope Walk/London Road/Ampthill Road	71
Table 5.9	Casualties in the study area	73
Table 5.10	Casualties at key junctions	74
Table 5.11	Casualties in corridors	76
Table 5.12	Casualties along each corridor	78
Table 5.13	Traffic Volume HGV Inbound AM	84
Table 8.1	Issues and Opportunities Matrix	97
Figure 1.1	Town Centre Study Area	4
Figure 3.1	Existing Land Use	19
Figure 3.2	Planned or potential town centre development	21
Figure 4.1	Council car parks locations	28
Figure 4.2	Council car park fees and opening times	29
Figure 4.3	Queuing for Lidl car park	30
Figure 4.4	River Street MSCP	30
Figure 4.5	Allhallows MSCP	31
Figure 4.6	Bedford Local Recycle Sites	34
Figure 4.7	Bus stop accessibility catchment (400m)	37
Figure 4.8	Town centre taxi ranks	40
Figure 4.9	Taxi Rank Bedford Station	40
Figure 4.10	Pedestrian Audit Route	43

Figure 4.11 Cycling route audit	44
Figure 4.12 Town Centre Signage & Wayfinding	53
Figure 5.1 Method of travel to work, workplace population	58
Figure 5.2 Distance travelled to work, workplace population	59
Figure 5.3 Top inflow/outflow destinations for Bedford	60
Figure 5.4 Traffic Volume Vehicles AM Peak	62
Figure 5.5 Pinch Points	64
Figure 5.6 Clapham Road/Manton Lane/Shakespeare Road	65
Figure 5.7 Shakespeare Road/Bromham Road/Ashburnham Road	66
Figure 5.8 Midland Road/Prebend Street/Ford End Road	67
Figure 5.9 Prebend Street/Cauldwell Street	68
Figure 5.10 Cauldwell Street/Britannia Road/Kempston Road	69
Figure 5.11 Ampthill Road/Britannia Road	70
Figure 5.12 St. John's Street/Rope Walk/London Road/Ampthill Road	71
Figure 5.13 Casualties in the study area	72
Figure 5.15 Key junctions within study area	74
Figure 5.14 Slight and serious casualties in the study area	73
Figure 5.16 Casualties at key junctions	74
Figure 5.17 Casualties at junctions over time	75
Figure 5.18 Casualties in corridors	76
Figure 5.20 Casualties along each corridor	77
Figure 1.7 Slight and serious casualties in corridors	77
Figure 5.21 Corridor H accidents	79
Figure 5.22 Casualties along main corridors	80
Figure 5.23 Casualties along corridors by user	80
Figure 5.24 Corridor K accidents (cyclists marked with a red C)	81
Figure 5.25 Traffic Volume HGV AM Peak	85
Figure 5.26 Survey of cycle routes to Bedford station	88
Figure 7.1 Bus Accessibility (30 minute journey time catchment)	91
Figure 7.2 Pedestrian Accessibility	93
Figure 7.3 Cycle Accessibility	94

Appendices

APPENDIX A PERS Audit Criteria and Weightings

1 Introduction

Context

- 1.1 JMP Consultants Ltd has been commissioned to undertake the development of a Town Centre Transport Strategy for Bedford. Our initial commission represents the first package of work to formulate the transport strategy, with separate commissions developing the strategic and micro-simulation transport model development, and strategy business case.
- 1.2 The overall deliverables for the combined packages of work are:
- A transport strategy setting out the rationale and detailed changes;
 - An assessment of economic and regeneration impacts of changes;
 - Suite of modelling tools and outputs; and
 - A business case for the strategy ready to be used to obtain funding.
- 1.3 This initial element of work focuses on the first two of these deliverables

Study Aims

- 1.4 The overall aims and objectives of the transport strategy are as follows:
- **Enhance economic activity.** Supporting the economic growth and prosperity of the town is a key objective for the transport strategy. To achieve this requires a balance between improving the urban realm and reducing the dominance of vehicular movements, whilst still permitting good access for freight deliveries, market traders and visitors.
 - **Enhance culture and heritage.** As an old market town, Bedford has a range of cultural and heritage sites that it should be able to benefit from to attract tourists. To do so, however, requires the creation of an environment that encourages movement between different attractions, as well as to retail and restaurant areas. This requires both an easily navigable town centre, by both road and foot, and a balance in the priorities for road users.
 - **Enhance High Street.** The urban realm around the High Street has suffered as a result of its cramped and congested environment, which has arguably led to the town's retail offer falling behind other centres in the region. Reducing traffic along the High Street and improving the urban realm is a key element of facilitating improvement to the retail centre of the town. This could form part of a wider enhancement to the urban environment around the town centre, reconnecting the river to the town for pedestrians and cyclist and reducing the dominance of motorised vehicles.
 - **Improve cross-town travel.** The structure of the local economy and key amenities results many people having to make cross-town movements. The location of a major employment corridor and retail corridor along the A421 is one of these factors. The limited river crossings also add to the difficulty of cross-town movements, with all traffic funnelled into the two crossing points, causing significant congestion. Managing overall demand for cross-town movements as well as traffic routing is important to improve general levels of accessibility across the town.
 - **Reduce congestion.** The completion of the western bypass represents the culmination of a series of highway projects to remove trunk road traffic from the town centre. Whilst this has benefited the town, much of the released road space has simply been replaced by more local

movements. There is a requirement to manage these local traffic movements more effectively in order to create a better town centre environment.

- **Improve air quality.** Closely associated with the issue of congestion is the problem of local air quality. With significant areas of slow moving or stationary traffic, there can be significant localised build up in pollutants. Improving air quality within the core town centre, particularly in areas with high pedestrian footfall, is of key importance.

Purpose

1.5 The purpose of the strategy is to determine:

- How transport network changes can be used to enhance the heritage, cultural and economic regeneration in the town centre;
- The justification, role and benefits of completing the town centre road network through the construction of a new road bridge;
- The potential for removing unnecessary traffic from the High Street and making the area more pedestrian friendly;
- Junction and other capacity improvements required to facilitate efficient cross town movements and reduce congestion;
- Potential public transport improvements (bus and rail), attractive networks for pedestrians and cyclists and improvements to the public realm; and
- Ensure adequate access for traders and freight.

Stages of the Study

1.6 The strategy development process has been broken down into four phases:

- Phase 1: Information gathering and initial option development;
- Phase 2: Option screening and assessment;
- Phase 3: Option development and appraisal; and
- Phase 4: Recommended strategy.

1.7 The anticipated date of this work is by the end of December 2014.

Issues and Opportunities Report

1.8 This report represents the culmination of the Phase 1 information gathering process. It incorporates a review of policy and baseline assessment of transport conditions in the town centre. It highlights the overarching policy and strategy issues and summarises existing and on-going land-use and transport developments.

1.9 An assessment of existing transport provision is presented in and around the Town Centre, incorporating highways, parking, public transport, walking and cycling, freight, and signage. In addition, all available data on travel patterns across the study area is presented, although this is limited in nature.

- 1.10 The baseline assessment also considers issues of existing safety and personal security, as well as ease of navigation and Wayfinding across the area.
- 1.11 The key outputs of the report are the issues and opportunities for enhancements in access and movement that will provide the basis for the overarching objectives of the strategy development.

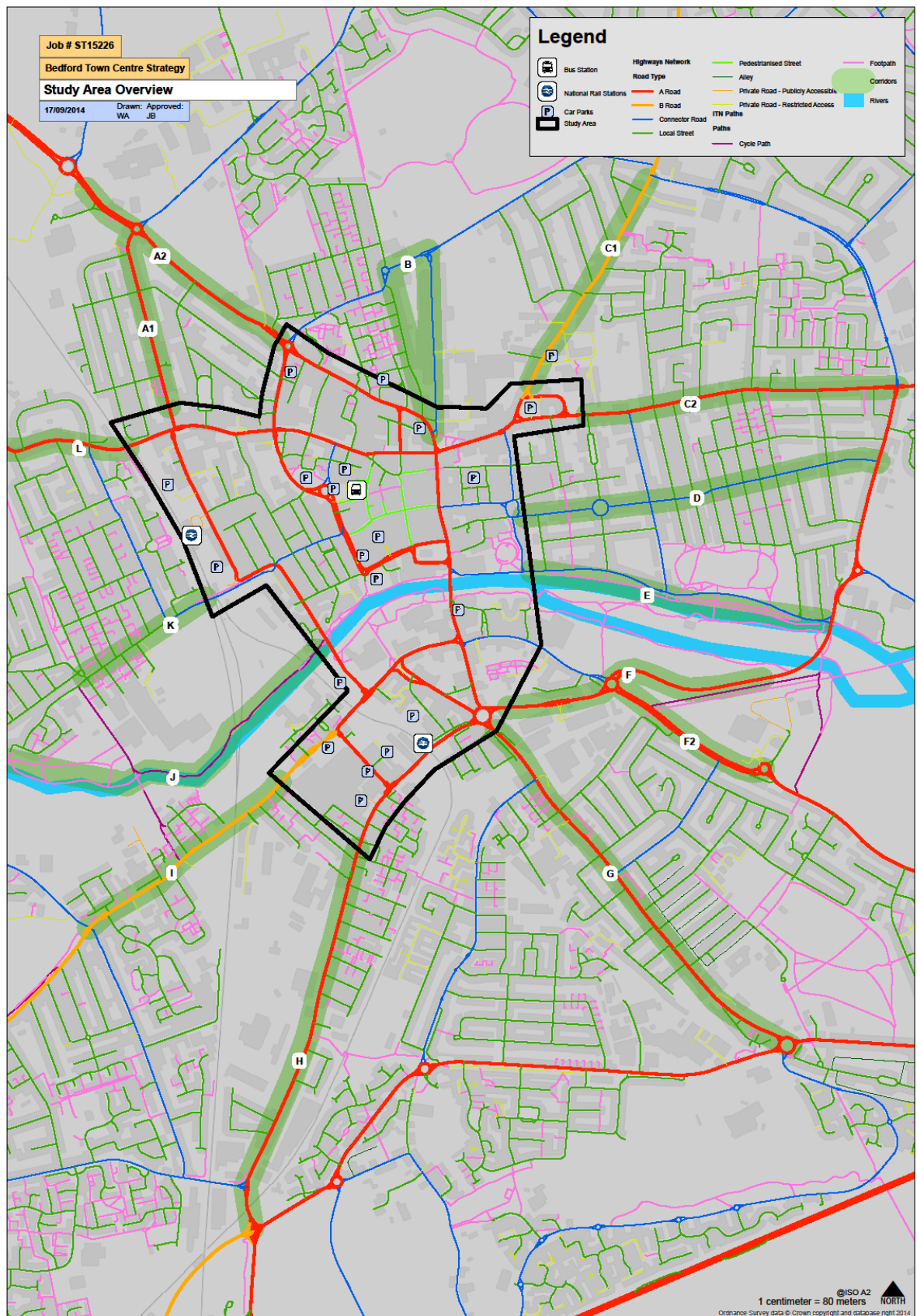
Structure

- 1.12 The report is structured as follows:
- **Section 2: Policy and Strategy Review.** This section reviews local policies impacting development and growth in and around Bedford town centre, with a focus on policies and strategies created by Bedford Borough Council.
 - **Section 3: Development Review.** This section considers current and planned land use within Bedford town centre and summarises the potential economic and transport impact of proposed and potential future development.
 - **Section 4: Transport Infrastructure.** This section accounts for the current provision of highway, parking, freight, public transport, cycling, and walking infrastructure and considers the issues and opportunities present for each.
 - **Section 5: Travel Patterns.** This section analyses 2011 Census travel to work patterns to show the relationships between Bedford and surrounding local authorities in terms of workforce flows. It also looks at general vehicle and HGV flows as output from the VISSIM model.
 - **Section 6: Accessibility.** This section provides GIS accessibility mapping for walking and cycling journeys.
 - **Section 7: Issues and Opportunities.** This section considers the issues presented in the previous sections and draws out opportunities for Bedford Borough Council to improve town centre access, appeal, and vitality.
 - **Section 8: Next Steps.** This section provides a suggested list of actions to follow this report.
- 1.13 This Issues and Opportunities report forms the first stage of the commission.

Study Area

- 1.14 A core study area has been defined within Bedford Town Centre for the focus of the transport strategy. The boundaries of the study area were informed by assessment of key junctions, corridors, and amenities within the town centre as well as consultation with Bedford Borough Council. The key corridors leading into the study area also form part of the assessment.
- 1.15 The resulting boundary takes in the area from Tavistock Street in the north to Ampthill Road in the south and Ashburnham Road in the west to Newnham Road in the east.
- 1.16 **Figure 1.1** provides an overview of the core town centre study area, along with the wider area of assessment incorporating key transport corridors into the town centre.

Figure 1.1 Town Centre Study Area



2 Policy and Strategy Review

National Policy and Strategies

Overview

National Planning Policy Framework (NPPF) March 2012

- 2.1 The NPPF was published on 27th March 2012. It came into effect immediately superseding the 2011 draft and all other planning policy guidance (except on waste).
- 2.2 The NPPF sets out the Government's expectations and requirements from the planning system. It is meant as high level guidance for local councils to use when defining their own personal local and neighbourhood plans. This approach allows the planning system to be tailored to reflect the needs and priorities of individual communities.
- 2.3 The NPPF defines the delivery of sustainable development through three roles:
1. Planning for prosperity (an economic role);
 2. Planning for people (a social role); and
 3. Planning for places (an environmental role).
- 2.4 It notes that to achieve sustainable development, these roles should be sought jointly and simultaneously through the planning system.
- 2.5 At the heart of the NPPF is a presumption in favour of sustainable development which 'should be seen as a golden thread running through both plan making and decision taking.'(para 14). In paragraph 15, it goes on to say that: 'Policies in Local Plans should follow the approach of the presumption in favour of sustainable development so that it is clear that development which is sustainable can be approved without delay.'
- 2.6 NPPF recognises that transport policies have an important role to play in wider sustainability and health objectives as well as their direct influence on development. It seeks to ensure that the transport system is balanced in favour of sustainable transport modes giving people a real choice about how the travel.
- 2.7 Paragraph 32 states that all developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment. It goes on to mention that plans and decisions should take account of whether:
- i. 'The opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major transport infrastructure;
 - ii. safe and suitable access to the site can be achieved for all people; and
 - iii. Improvements can be undertaken within the transport network that cost effectively limit the significant impacts of the development. Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe.'
- 2.8 Paragraph 34 seeks to ensure that: 'developments that generate significant movement are located where the need to travel will be minimised and the use of sustainable transport modes can be maximised.'

- 2.9 It notes, however, that this needs to take account of policies set out elsewhere in this Framework, particularly in rural areas. It goes on to mention that: 'Plans should protect and exploit opportunities for the use of sustainable transport modes for the movement of goods or people.' Therefore, developments should be located and designed where practical to:
- i. 'Give priority to pedestrian and cycle movements, and have access to high quality public transport facilities;
 - ii. create safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians, avoiding street clutter and where appropriate establishing home zones;
 - iii. incorporate facilities for charging plug-in and other ultra-low emission vehicles; and
 - iv. consider the needs of people with disabilities by all modes of transport.'
- 2.10 Paragraph 39 of the NPPF sets out the criteria for setting local parking standards. It states that local planning authorities should take into account:
- i. 'The accessibility of the development;
 - ii. the type, mix and use of development;
 - iii. the availability of and opportunities for public transport;
 - iv. local car ownership levels; and
 - v. an overall need to reduce the use of high emission vehicles.'
- 2.11 The Strategic Transport Assessment takes needs into account this policy direction with particular regard to the support of sustainable transport measures in the context of the City as whole and for the identified proposed development areas.

Local Policy and Strategies

Overview

- 2.12 Bedford has a large number of policies and strategies which are currently used to guide local development. The following documents are reviewed in this section:
- Bedford's Growth Plan: Stimulating Economic Growth, 2014
 - Local Transport Plan 3, 2011–2021
 - Economic Development: Shaping Bedford Borough's Economy, 2011–2014
 - Bedford Waterspace Study, 2011
 - A Strategy for Bedford High Street, 2010
 - A Local Economic Assessment for Bedford, 2010
 - Bedford Borough's Sustainable Community Strategy, 2009–2021
 - Bedford Town Centre Area Action Plan, 2008
 - Core Strategy & Rural Issues Plan, 2008

Bedford's Growth Plan: Stimulating Economic Growth, 2014

- 2.13 This document provides a Growth Plan to inform the retention and expansion of business and economy throughout Bedford. The plan aims to support local businesses, expedite delivery of new

employment sites, promote vitality of the town centre, and regenerate older industrial estates (para 3.2).

- 2.14 The Growth Plan consists of five objectives and 30 actions for delivery. Objectives and actions relating to transport in the town centre are summarised in **Table 2.1**.

Table 2.1 Growth Plan objectives and actions

Objective	Actions
Promote key infrastructure to support job growth delivery across Bedford	A2: Bedford bypass link road A3: town centre bus station improvements A4: Blackcat roundabout improvements A5: Re-modelled Bedford rail station
Create a distinctive, attractive, and multi-functional town centre for the future	A25: improve car parking provision and review charging structure, with refurbishments for Allhallows car park, a new 135 space surface car park, increased night time availability of at least one multi-storey car park, and improved payment mechanisms A27: improve traffic management to create a better connected and more accessible town centre. This will include modelling and testing options to improve circulation, including along the High Street. It will also include improvements to public transport services and signage for wayfinding. A28: improve the public realm, including street furniture and signage

Local Transport Plan 3, 2011–2021

- 2.15 The vision of LTP3 is to create a transport system in which walking, cycling and public transport are the natural choices of travel for the majority of journeys because they are affordable, healthy, convenient and safe alternatives to the private car (para 1.1.2).
- 2.16 Town centre regeneration is a main priority for Bedford and there are some key developments within the town centre that will affect transport. These include the redevelopment of the High Street, Riverside north, Town Centre West, and the Station Quarter.
- 2.17 LTP3 contains individual documents relating to specific aspects of transport in Bedford. Key policies of these documents are summarised below.

Active Travel

- 2.18 This document notes that from the 1980s a network of approx 75km of cycle routes was created in Bedford, which forms a 'sound basis from which to encourage more cycling' (para 3.5.3). Furthermore, 86% households in urban area within 400m of a quarter hourly bus service, so there is potential to combine active travel with public transport (para 3.8.1).
- 2.19 The active travel vision is to create an environment and culture in which cycling and walking are seen as the natural choices of travelling because they are convenient, safe, comfortable, healthy and attractive (para 4.1).
- 2.20 There are three approaches to increasing active travel: promotion/marketing/information provision, developing a quality built environment, and ensuring integration of public transport with active travel (para 4.2).

- 2.21 An increase in active travel trips will be delivered through measures such as education, signage, travel planning, developing a cycling network to provide continuity and good access to amenities/services, providing cyclist facilities particularly in town centre, and improving integration between active and public transport (para 5.2).

Freight

- 2.22 The freight strategy aims to identify and understand the nature and requirements of local freight activity, establish a preferred freight route network, and agree how to reduce negative impacts of freight without shifting the problem elsewhere.
- 2.23 A key task to understanding freight circulation is to produce a town centre and key freight generator map (para 6.4).
- 2.24 This can be done through collaborative actions such as ensuring town centre businesses provide good directional information to delivery drivers (para 5.1.1), working with local businesses to improve loading/parking facilities (para 5.1.6), or working with Business Improvement District members with fleets to engage in freight strategies (Action 8.2).
- 2.25 The local government has restrictive powers available to reduce freight on specific roads but such actions must be considered carefully to not negatively impact the local economy (para 5.1.2). At the time of writing the LTP3 document, Harpur Street was subject to time-related delivery restrictions (para 5.1.4).
- 2.26 Consideration for freight is a requirement of planning applications for town centre developments to ensure good management practices are in place upon occupation (para 5.1.5).

Network Management

- 2.27 The Network Management Strategy intends to demonstrate effective management of statutory duties placed on the council while delivering LTP objectives. In achieving the latter, the strategy contains numerous objectives, of which the following are of particular relevance to the town centre:
- Obj. 2: to consider the needs of all road users, providing a safe highway network that contributes to the carbon reduction agenda
 - Obj. 7: to monitor and manage the existing network and anticipate future demands
 - Obj. 8: to work with stakeholders to ensure efficient network operation
- 2.28 These objectives are supported by actions such as defining the road network hierarchy, developing strategies for street lighting and urban traffic management control, reviewing traffic accident data, installing number plate recognition systems to facilitate origin/destination analysis, and carrying out satisfaction surveys with stakeholders on highways issues.

Parking

- 2.29 The LTP3 recognises that prioritising short stay parking is important for making parking in the town centre more efficient and accessible (para 4.4).
- 2.30 The Action Plan for parking includes tasks such as setting and enforcing parking standards for new developments, reviewing parking payment methods/systems, reviewing controlled parking zone coverage, reviewing the existing parking supply against the expected 2021 demand, and providing a new park and ride facility north of town.

Passenger Transport

- 2.31 The key objectives for improving public transport in the town centre are to develop the public transport network to provide better integration of services and modes and to offer better quality of facilities and services.
- 2.32 Actions to fulfil these tasks will be to deliver bus priority measures where possible, invest in public transport facilities, and provide a park and ride facility north of town.

Road Safety

- 2.33 This document acknowledges that congestion and the health agenda appear to be contributing to more use of active travel in Bedford (para 4.2). However, road safety remains a priority for the LTP3, with key approaches to achieving this including a focus on road user behaviour, clear messaging throughout the streetscape on hazards and safe behaviours, and enforcement.
- 2.34 These objectives will be delivered through actions such as working with communities to deliver road safety campaigns, reduce casualties through engineering improvements, and install 20mph zones where appropriate.

Travel to Schools

- 2.35 This strategy looks to encourage sustainable travel as the natural choice for travel to schools and colleges (para 6.3). Actions to support this objective include promoting 20mph zones, creating environments around educational facilities that provide safe routes for sustainable travel, encouraging schools and colleges to maintain travel plans, revise school bus services, provide cycle training to students, motivate children to cycle, and provide cycle parking as per Bedford's design guidance.

Transport Asset Management Plan

- 2.36 The Asset Management Plan seeks to maintain an inventory of transport assets throughout Bedford. This will be supplemented with performance data, targets, and tools to calculate costs of asset management (para 4). Key assets include amenities such as road signs, bus stops, and cycle paths (para 8.3).

Economic Development: Shaping Bedford Borough's Economy, 2011–2014

- 2.37 This document details the economic vision and strategy for Bedford across this three year period. The strategic focus during this time is to raise Bedford's profile as a desirable business location through building a skilled workforce and upgrading the town centre (Page 1).
- 2.38 The vision for economic and employment growth is: 'A thriving Borough with a stronger local economy delivering higher levels of sustainable growth and employment for the benefit of the Borough's existing and future residents.' (Page 11).
- 2.39 The document notes that although Bedford weathered the recent economic downturn better than other areas, it is rated as 'average' compared to nearby Milton Keynes and Cambridge which achieve a 'quality' rating for their town centre retail offerings (Page 5).
- 2.40 Traffic and transportation are a key issue that needs to be resolved as part of the town centre revitalisation. It is acknowledged that the removal of the A6 designation for the High Street offers an opportunity to de-traffic the high Street (Page 5).

2.41 The document includes a strategic priority relating to the town centre, which is to ‘improve the town centre by delivering new investment and maximising its townscape and heritage quality’ (Page 16). Key transport-related actions to support this priority include (Page 20):

- Redeveloping key sites to improve commercial offerings and transport
- Improving traffic management and car parking provision and promoting alternative transport options

2.42 Transformational projects and milestones relating to transport include (Page 23–24):

- A new bus station and retail provision in Bedford Town Centre West
- Restoration and de-trafficking of the High Street
- Bedford rail station platform extensions and station redevelopment
- Final phase of Bedford bypass

Bedford Waterspace Study, 2011

2.43 Bedford Council and the Environment Agency commissioned this study in October 2010 to provide a framework for promoting river related projects which will support local regeneration activities.

2.44 The Waterspace study contains a wide-ranging approach to address issues and opportunities presented by the river. Transport and town centre related objectives of this approach include:

- To act as a catalyst and focus for area regeneration
- To promote access to the river for canoeists, walkers, and cyclists
- To aid flood risk management through improvement to adjacent river spaces, sustainable transport, and climate change adaptation
- To prepare for the Bedford and Milton Keynes Waterway Link’s impact on the local economy and community
- To support and complement land-based activities
- To provide public access on the river with a well designed and stimulating environment

2.45 Six priority themes have been identified for waterspace development. The themes and connections to the town centre and transport are listed below.

1. The river as a destination: providing attractive amenities along the riverside and access to water-based services and recreation
2. Riverside communities: local communities should engage with the river by encouraging use and development of footpaths, cycle routes, and river amenities
3. Access opportunities: integrate the river within the green infrastructure plan through improving connections with cycle routes, access points, connections, and signage
4. ‘Welcome Ashore’: improved accessibility for boaters to the town centre
5. Waterspace for everyone: opening the river to a range of users and activities
6. Navigational improvements: ensuring wayfinding amenities are provided to aid navigation of boaters

A Strategy for Bedford High Street, 2010

- 2.46 The High Street Strategy was adopted as a Supplementary Planning Document in July 2010, forming part of the Bedford Development Framework.
- 2.47 The strategy provides a planning framework for the regeneration of Bedford town centre and the creation of new town centre 'quarters'.
- 2.48 The strategy acknowledges that the development of Bedford Town Centre West as a shopping district has caused a shift in activity to that area from the High Street. The High Street is characterised by poor quality public spaces, streets dominated by traffic, and narrow, cluttered pavements which restrict pedestrian movement and opportunities for streetside activities (para 7.9).
- 2.49 A major barrier to de-trafficking is the lack of rear access to most High Street units, requiring servicing and deliveries to occur from the High Street itself. Furthermore, existing loading areas are sometimes used as informal drop off points and short stay parking, and some delivery vehicles stop along the High Street outside of designated areas. Mill Street has a weight limit which restricts options for redirecting vehicles (para 8.3).
- 2.50 Key transport-related actions to improve the High Street and public realm include (para 7.10–7.11):
- Developing St Paul's Square as a key activity hub along with the eastern end of Silver Street
 - Temporarily closing the High Street during events to broaden its use
 - Considering options for addressing the balance of pedestrians and space by increasing pavement width and removing restrictions to movement
- 2.51 Transport-related objectives for the High Street include:
- Improving the quality of pedestrian passages and key routes (para 8.19)
 - Ensuring the High Street is accessible from public transport (para 8.23)
 - Anticipating the future High Street as host to a two-way route for cyclists (para 8.27)

A Local Economic Assessment for Bedford, 2010

- 2.52 This document fulfils the requirement for Bedford to provide an LEA as part of the Local Democracy, Economic Development and Construction Act 2009.
- 2.53 The LEA considers Bedford's infrastructure as follows (Page 9):
- The most to be made of transport infrastructure improvements during a time of public spending restrictions
 - Businesses are significantly positive about local road networks and like their locations and local areas
 - The Town Centre West quarter is a business priority
- 2.54 The LEA also acknowledges that businesses must make a major contribution to deliver CO2 reduction targets (Page 10).
- 2.55 Bedford's economy is significantly self-contained in terms of travel to work, business relationships, and retail catchment (para 3.17). A retail study calculated that Bedford had a high market share from its core catchment of 73.2%, with Milton Keynes taking 11% from Bedford's core catchment (para 5.10).

- 2.56 A survey carried out with Bedford businesses in 2010 discovered that one of the most common restraints to growth was transport costs, cited by 43% of respondents (para 4.20). Furthermore, when seeking business premises, 12% of respondents expected to be close to transport links (para 8.13). When respondents rated their business location as 'good', the best thing ascribed to their location was good transport links (10%), followed by being along a main road, easy access, and good parking, which each captured 4% of responses (para 8.19).
- 2.57 Transport investment in recent years has benefited new park and ride services, a new bypass, and cycling schemes. Renovations to Bedford rail station and the western bypass are acknowledged as committed investments. Planned future investments include: a new bus station, Batts Ford bridge, High Street pedestrianisation, bus service improvements, east-west rail link, electric vehicle charge points, and cycle schemes (para 12.20). These schemes will benefit the local economy (para 12.21).
- 2.58 Bedford is noted as having worse congestion than the regional and national average (para 12.22). Delivery/servicing vehicle parking, sustainable business travel, and sustainable commuting are also considered key business transport issues (para 12.24).
- 2.59 Improvements to bus, rail, and cycling services and facilities could have a significant impact on town centre travel (para 12.26).
- 2.60 As Bedford town centre is a designated Air Quality Management Area, it is integral that new business development does not contribute to air quality deterioration. It is important that businesses adopt travel plans to reduce private car use (para 13.50).

Bedford Borough's Sustainable Community Strategy, 2009–2021

- 2.61 The Sustainable Community Strategy was developed through the Bedford Borough Partnership, a confederation of organisations and bodies working to improve Bedford. This includes organisations such as the council, police, NHS, schools, and businesses.
- 2.62 The Strategy contains goals around seven themes: economy, environment, youth and education, health, safety, social inclusivity, and community growth. Goals and aims relating to transport and the town centre are outlined in **Table 2.2**.

Table 2.2 Sustainable Community Strategy goals and aims

Theme/goal	Aim
A Thriving Borough: A stronger local economy delivering sustainable growth	2: Create an attractive town centre with a range of activities and facilities 6: Improve supply and quality of infrastructure and services to improve business environment
A Greener Borough: A high quality environment encouraging biodiversity and supporting a low carbon community capable of adapting to climate change	1: Focus on transport, businesses, and homes to minimise emissions 3: Develop a green infrastructure network consisting of assets such as heritage sites, green spaces, and paths 6: Reduce dependence on fossil fuels
A Growing Borough: Housing and transport capable of supporting the population	1: Promote energy efficiency in new homes, transport, and infrastructure 2: Improve transport, community, and public infrastructure 3: Improve housing and transport for vulnerable people 4: Maintain and improve the condition of existing housing and transport 5: Tackle air quality issues

Bedford Town Centre Area Action Plan, 2008

- 2.63 The Action Plan document provides objectives and actions up to 2021 and forms part of the Bedford Development Framework.
- 2.64 Key transport objectives are to improve the highway network, provide a new Batts Ford river crossing, develop new public transport interchanges, enhance walking and cycling routes, expand park and ride services, and manage town centre car parking to favour short stay parking.
- 2.65 The Action Plan vision regarding transport seeks to improve traffic circulation following the western bypass and to provide an interconnected transport system comprising park and ride, buses, rail, and cycling (para 2.6).
- 2.66 A variety of town centre 'quarters' are listed in the Action Plan. It is intended that each quarter will be developed for a specific use or with a specific mix of buildings.
- 2.67 Objectives are provided for various transport aspects as follows:

Highway network (para 5.1)

- 2.68 The highway network will benefit from general improvements with a particular focus on junctions, with considerations given to priority for non-car modes. A new river crossing will be provided and the High Street and St Paul's Square will be de-trafficked.
- 2.69 Sustainable travel will be encouraged on the highway network through new bus/rail stations and interchanges, public transport priority, improved bus routing, expanded park and ride services, east-west and north-south cycle routes, and new pedestrian/cyclist river crossings.
- 2.70 Parking will be managed through a payment system which favours short stay parking and existing facilities will be improved to 'gold standard'.

Bus services (para 5.3)

- 2.71 Bus services will be improved through bus station upgrades, quality interchanges, bus priority routes on key approach corridors which will be linked with park and ride services where practical, real time information, and upgrades to bus stops.

Highways (para 5.4–5.8)

- 2.72 The local highway network is not robust enough to deal with current traffic levels. A new river crossing and improvements to highways and junctions in particular may mitigate this.

Active travel (para 5.9–5.11)

- 2.73 Improvements for pedestrians will be achieved through quality design of new developments and upgrades to the existing public realm. For example, pedestrian areas around St Paul's Square can be extended northwards.
- 2.74 For cyclists, new east-west and north-south routes are proposed. New developments and upgrades to the existing public realm will take into account cyclist needs, including cycle storage.

Taxis (para 5.13)

- 2.75 Taxi provision must be retained at rail/bus interchanges and along the High Street.

Parking (para 5.14–5.17)

- 2.76 Redevelopment arising from the action plan is not expected to reduce off-street parking spaces. It is anticipated that the current 3,928 spaces in the town centre will increase by approximately 120 spaces. Although some surface parking may be lost, improvements to existing multi-storey car parks will result in a net parking gain.
- 2.77 Park and ride services will be considered for Biddenham Loop, the land north of Bromham Road, and Biddenham and Cardington Cross.
- 2.78 The action plan also lists numerous policies relating to transport in the town centre quarters and specific transport modes. These are summarised in **Table 2.3**.

Table 2.3 Area Action Plan policies

Policy	Relevant details
TC7 Bedford Town Centre West	iv. Revised access arrangements linking River Street and Bromham Road, with appropriate provision for other modes to be able to access the area or drop off/pick up passengers v. Development of a new bus station vii. Provision of car and cycle parking
TC9 Cultural Quarter to Castle Lane	iii. Highway improvements iv. Creation of a pedestrian friendly environment with links to the High Street and river
TC11 Riverside Square	ii. Revised access to this area via Horne Lane iv. Provision of new bridges v. New footpaths and cycle routes to connect with town centre routes vi. Provision of cycle parking
TC12 Riverside at Shire Hall and Bank Building	vi. Revised access to this area via St Paul's Square vii. Safeguarding footpaths and cycle routes along the river viii. Provision of cycle parking
TC13 Station Quarter	iii. Revised access via Ashburnham Road with allowances for buses and taxis to pick up/drop off passengers and access for pedestrians and cyclists v. Highway improvements, including park and ride drop off points vi. Provision of car and cycle parking
TC14 St Mary's Quarter	Proposed bridges will provide better integration with the town centre for pedestrians, cyclists, and vehicles
TC15 Kingsway Quarter	vii. Improve pedestrian and cyclist connections to the town centre and St John's rail station ix. Provision of cycle parking
TC16 Lime Street	iii. A new residential development at this site will require vehicular access from Harpur Street
TC17 Progress Ford	ii. Revised access via Balsall Street East iii. Highway improvements v. Enhance the adjoining public realm
TC18 Network improvements to 2011	It was anticipated that network improvements would occur across key streets and junctions, along with town centre traffic management and control, up to 2011
TC19 Network improvements from 2011	Provision of a new river crossing, further improvements to key junctions, and bus priority on the highway network
TC21 Walking and cycling routes	Pedestrian routes should reflect desire lines and cycle routes should connect existing sections to provide a joined-up network Priority routes include Midland Road, a north-south spine linking the bus station to Kingsway Quarter, the River Street corridor, riverside routes, an east-west route to Town Centre West, the High Street corridor, and The Grove/Newnham Street to Castle Lane

Policy	Relevant details
TC22 Pedestrian connections	Pedestrian connections will be improved within the town centre, around Castle Lane, in Town Centre West Connections improved between town centre and river corridor with new bridges, and between town centre and rail station
TC23 Public transport	Provide a new bus station at/near the existing facility with reduced layover facilities Improve bus/rail interchanges with park and ride drop off/pick up points, waiting facilities, and revised bus routes Improve bus routing through the town centre Provide bus priority routes on key approach corridors Expand park and ride services Review and improve town centre bus stops Provide RTI on routes into town; improve bus stops Provide cycle parking at public transport interchanges Use new river crossing to simplify bus routes and provide bus priority
TC24 Parking	Promote park and ride Manage existing parking stock Consider extending controlled parking zones Allocate sufficient disabled/other parking facilities for shops

Core Strategy & Rural Issues Plan, 2008

- 2.79 The Core Strategy sets out the spatial vision for Bedford with objectives and policies to refine and achieve this vision. The document forms part of the Bedford Development Framework.
- 2.80 The vision is to develop a successful economy and sustainably community with better social and transport infrastructure, alongside a revitalisation of the town centre to catalyse growth and increase Bedford's regional role (Page 11).
- 2.81 Regarding the town centre specifically, the vision is to help Bedford reclaim its role as the county town, create a prosperous mixed neighbourhood with a better range of services and facilities, and redevelop key town centre areas to increase the town centre's capacity for living, working, and leisure spaces (para 3.9).
- 2.82 Bedford town centre is considered to have good public transport accessibility and good development potential for retail, leisure, entertainment, offices, and arts/culture uses (para 4.64). Improvements to the town centre have occurred in recent years. However, Bedford has lagged behind other regional town centres (para 4.65).
- 2.83 Furthermore, Bedford has poor connections to the wider regional strategic network and suffers congestion. The lack of connectivity makes it difficult to generate investment and economic growth (para 4.107).
- 2.84 It is important to note that the majority of commuting distances within Bedford's urban wards are less than 5km. Most Bedford residents work and live in the borough (para 2.5). These journeys could be suited to other modes than the car.

- 2.85 It is recognised that the most popular mode of travel to work is the car, although car use does decline in urban wards with more people walking and cycling. Car ownership is also lower in Bedford's urban wards (para 2.7). This gives opportunities to support other modes of travel.
- 2.86 Key transport-related objectives for the town centre are (para 4.69):
- Improving access through new public transport interchanges and priority routes, new park and ride facilities, and better facilities for pedestrians, cyclists, and private hire vehicles. New highway infrastructure will also be developed, although highway capacity increases have lower priority than providing improvements for more sustainable modes of travel than private cars.
 - Improving connections within the town centre and among the town centre, rail station, and river.
- 2.87 The Core Strategy sets out a number of policies to guide spatial development. Key policies with relevance to transport and the town centre are summarised in **Table 2.4**. Note that the Core Strategy was developed prior to the Local Transport Plan 3 and Bedford High Street Strategy, which provide more up to date details on town centre strategy and policy.

Table 2.4 Core Strategy policies

Policy	Relevant details
CP2 Sustainable Development Principles	vii. Public transport, walking, and cycling is encouraged and car use minimised
CP22 Green Infrastructure	The creation of a Bedford to Milton Keynes canal will be supported, which will contribute to vitality of the town centre
CP27 Strategic Transport Infrastructure	Support provision of key infrastructure schemes including Great Barford bypass, A421 improvements, Thameslink 2000, east-west rail scheme, and national cycle network routes
CP28 Local Transport Plan	Supporting the strategy within LTP2, of which key projects are the western bypass, park and ride expansion, and town centre improvements including a new river crossing Supporting developer-led initiatives of A6 realignment, Wixams rail station, and re-provision of Bedford rail station
CP29 Accessibility	Encourage sustainable modes of transport and reduce reliance on the car by locating and designing new developments to provide convenient access by sustainable modes

3 Development Review

Overview

- 3.1 This section considers existing land uses within the study area and highlights key proposed and potential development opportunities.
- 3.2 It is recognised that any development in the town centre will have impacts on the local demography, economy, and transport network. The issues arising from the proposed and potential development will be discussed here, along with opportunities to improve the transport network as a result of these developments.

Existing land-use

- 3.3 The study area contains a variety of land uses, including office, retail, cultural, health, education, and residential. In addition, there are a variety of key landmark buildings and trip attractors that draw people into the town centre.

Development 'Quarters'

- 3.4 The Bedford Town Centre Area Action Plan identified a series of development 'quarters' within the town centre that provide a focal point. These 'quarters' provide a useful mechanism for describing the varying characteristics of the town centre area. The 'quarters' are shown in **Figure 3.1** and described below.

Station district

- 3.5 The area around the station is used predominantly as a transport hub, with little retail amenity aside from cafes and shops within the station.

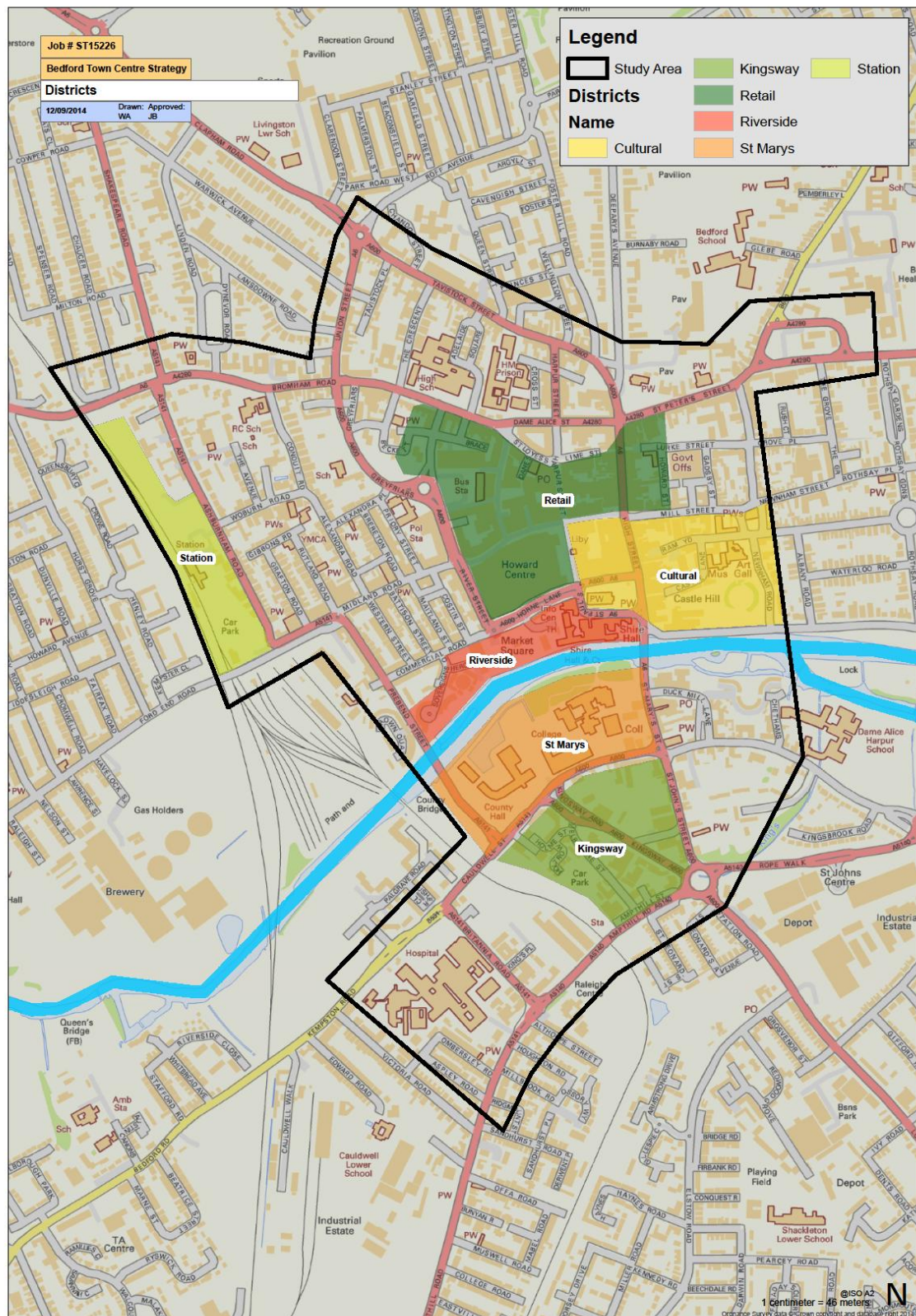
Retail district

- 3.6 The retail district takes in the High Street, Howard Centre, Mill Street, and pedestrianised areas within the town centre. As the name suggests, land use here is retail-oriented, with shops along most frontages.

Cultural district

- 3.7 This area is east of the High Street. The Cultural district contains amenities such as Higgins Art Gallery and Museum, John Bunyan Museum, and Bedford Castle Mound. West of the High Street, the Cultural district contains St Paul's Square, Bedford Corn Exchange, and Bedford Central Library.
- 3.8 This area is also referred to locally as Castle Quay or the Castle quarter.
- 3.9 Castle Lane and Castle Road accommodate numerous restaurants and shops.

Figure 3.1 Existing Land Use



Riverside

- 3.10 The Riverside area extends from Prebend Street in the west to the High Street in the east.
- 3.11 At the eastern end of this district sits Shire Hall and the tourist information centre. The western end of the district is due to be developed within the next 18 months to house a cinema and restaurants as part of the Riverside North scheme.
- 3.12 The land use mix of this area is therefore currently office oriented, particularly government administration. Upon completion of Riverside North the area will contain a mix uses, including government, retail, hotel, and residential.

St Marys

- 3.13 To the south of the river, the St Marys district hosts the council offices at County Hall and Bedford College, thereby providing government and education land uses.

Kingsway

- 3.14 As per the Bedford Town Centre Area Action Plan, the Kingsway district was initially primed for a mix of office and residential use.
- 3.15 A large number of offices in this district are likely to be converted for residential use in coming months. The future land use of this area is likely to skew towards residential rather than office. This will change the character and off peak transport needs in the area.
- 3.16 Similarly, the 'Town Centre West' district (which is not shown on the map but would be located between the retail and station districts) was predominantly office and retail use. However, it is uncertain as to what extent Bedford can support further retail development in this district. The council has commissioned a study into the viability of town centre retail areas which will help determine the future land use for this area. It is likely that if retail/office space is not viable for this area, it will be prioritised for residential development.

Schools and Education

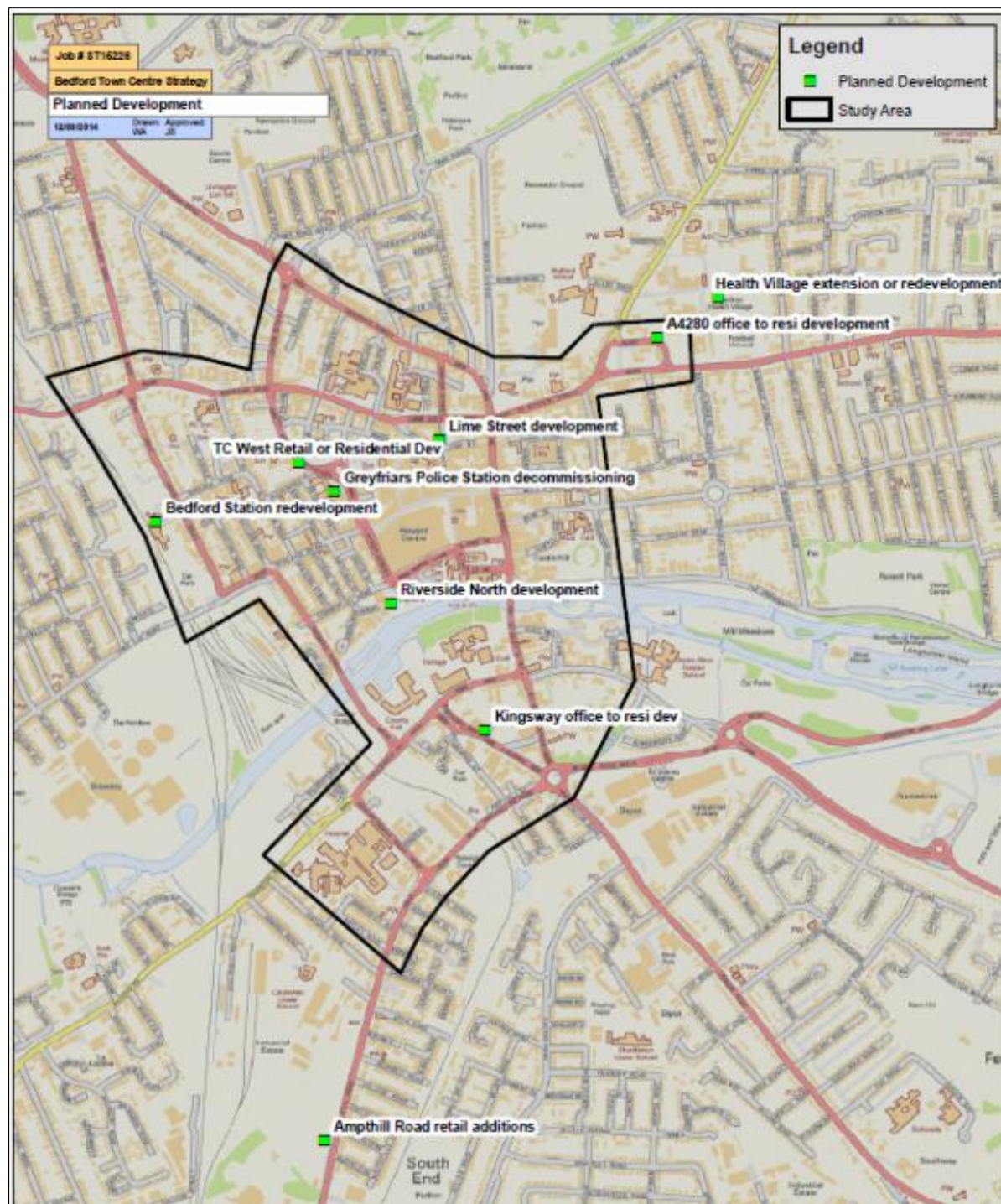
- 3.17 There are four schools and one HE/FE school within the proposed study area boundary and one school on the periphery of the project border. In addition, Bedford Collage is located within the St. Mary's Quarter and has grown significantly over recent times. The University of Bedfordshire also has a campus site to the northeast of the study area, along the A4280 Goldington Road.
- 3.18 School traffic is considered to contribute to overall congestion and traffic flow throughout the town centre during term time. The schools within the town centre tend to be aware of their impact on local traffic and have made some efforts to bus in children. However, some parents continue to drive their children to school.

Committed and Potential Development

- 3.19 This section identifies recent and upcoming or potential developments in and around Bedford town centre and assesses the impact these may have on the local transport network and economy.
- 3.20 Many of the proposed and potential developments are oriented towards residential uses. The council has seen a high number of applications to convert office to residential space.
- 3.21 These developments have implications for the local economy as they will bring more commercial and residential space to the town centre over the coming decade.

- 3.22 They will also impact the transport network by bringing a greater population base to the town centre and providing more amenities that will attract inbound traffic from other areas.
- 3.23 Revitalising the town centre economy, opening up the town centre to more nightlife, and focusing on High Street accessibility are key goals for Bedford Borough Council.
- 3.24 The key committed and potential developments are shown in **Figure 3.2** and described below.

Figure 3.2 Planned or potential town centre development



Recent/ongoing developments

Ampthill Road retail area

- 3.25 To the south of the project area, Ampthill Road has recently seen the completion of a new Morrisons. In coming months, this area will also host a garden/DIY centre, 130 bed hotel and office complex, and 170 residential units.
- 3.26 The Morrisons was completed in 2013 and has had a notable impact on the local area. Morrisons provides a local shopping option for residents of Kingsway.
- 3.27 Although many residents live within walking distance of this retail area, it will also attract car traffic from surrounding areas whose residents do not live within walking distance, increasing traffic and congestion along Ampthill Road.
- 3.28 The development of residential units near Morrisons will bring greater density to the area and put more residents within walking distance (less than 30 minutes) of the town centre. This proximity may help reduce car use for town centre journeys.

Great Denham & West of Kempston

- 3.29 Great Denham is bound by Bedford Golf Club to the north, Queens Park to the east, the Great Ouse to the south, and the newly opened A421/A428 Bedford Western bypass to the west.
- 3.30 The land west of Kempston is on the south side of the Great Ouse, bound by the bypass to the west, the A421 to the south, and the edge of Kempston to the east.
- 3.31 Development has begun at these sites, which will provide over 2700 homes and over 7700m² of commercial space upon completion.
- 3.32 These developments will likely impact the road network in Bedford as their residents will be located at least two miles out of the town centre and more likely to travel in by car.
- 3.33 This can be mitigated by ensuring cycling and public transport links and hubs in the town centre are high quality and provide clear connections to these neighbourhoods.

Short/medium term developments

Riverside North

- 3.34 As noted previously, the Riverside North development area is located west of St Paul's Square, bound by Horne Lane/Commercial Road to the north, the Great Ouse to the south, and Prebend Street to the west. This area is proposed to provide residential, hotel, restaurants and a cinema within the next 18 months.
- 3.35 Provision of a cinema and restaurants will help ignite a night time economy for Bedford town centre. These amenities will attract people to the town centre after the usual daytime shopping hours and provide people with a reason to stay in the town centre after the retail areas close.
- 3.36 Currently Bedford's only cinema is located at Aspects Leisure Park in the east of Bedford, outside of the town centre. Aspects Leisure Park contains a Cineworld, McDonald's, Pizza Hut, Fitness First, and bingo hall.
- 3.37 In January 2014 Aspects Leisure Park was granted permission to redevelop parts of the site, including an extension to the Cineworld, provision of more restaurant space, and better connections to the riverside.

- 3.38 Although Riverside North may be seen as a competitor to Aspects Leisure Park, the two will likely serve a different clientele as Riverside North can attract those living within the town centre, who can easily walk to the development, as well as those living west of the town centre, as it will be closer than Aspects and likely more accessible.
- 3.39 Improved pedestrian access with a more attractive pedestrian environment along Horne Lane will help create an important connection between Riverside North and St Paul's Square/High Street.
- 3.40 In the longer term, pending development of Batts Ford Bridge, Riverside North will provide an additional connection across the river to the Kingsway/St Marys Quarter. This will bring greater accessibility between the north and south halves of the town centre, particularly if the bridge is designed with high quality pedestrian and cyclist infrastructure which connect to existing links on either side of the river.

Greyfriars Police Station

- 3.41 Greyfriars Police Station is located at the Greyfriars/Hassett Street roundabout.
- 3.42 It is due to be decommissioned with an alternative town centre base still to be identified. Some of the functions of the Greyfriars building, including custody, have been transferred to the new North Bedfordshire police HQ building at Woburn Road, Kempston.
- 3.43 Following a safety inspection of the Greyfriars building, it was determined that the building needs significant upgrades to be brought in line with national standards. The building may therefore be demolished and replaced, although no concrete plans exist as of September 2014.
- 3.44 The Greyfriars building is well located for Bedford bus station and is within a short walking distance of both the town centre and rail station.
- 3.45 Demolition of the building would open a fairly large space for development that would benefit from good sustainable travel options. Residential development at this site would fit in with the existing residential areas to the west and north and allow residents to take advantage of the good transport links and town centre location.

Kingsway Quarter

- 3.46 As noted previously, the Bedford Town Centre Area Action Plan highlighted the potential for Kingsway to become a mixed use area with office space and housing, including affordable housing. Development would be high density, with buildings of four to six storeys.
- 3.47 As highlighted in the Issues and Opportunities Workshop with Bedford Council officers in August 2014, the council is currently receiving a large number of applications for the conversion of office space to residential space in Kingsway.
- 3.48 This suggests that developers are taking advantage of the recent national policy direction of developing residential units from redundant office space to support meeting the national housing targets.
- 3.49 Converting office space to housing in Kingsway will further increase the local population which can help support the town centre economy. Being within walking distance of the town centre and new amenities such as the Morrisons retail park may also reduce the need for residents to travel by car, thereby reducing demand on the network.

- 3.50 Housing development in Kingsway will also allow the council to provide more affordable housing as per the Area Action Plan. This will have the benefit of bringing lower income residents within easier travelling distance of jobs and amenities in the town centre.

High Street & St Paul's Square

- 3.51 The High Street and St Paul's Square are identified as key areas for development, both by Bedford council and local residents, who wish to see improvements to these spaces.
- 3.52 The council's aim for the High Street is not to achieve full pedestrianisation, as this is considered detrimental to the vitality of the area. However, the council is considering reducing the High Street to one lane of traffic and other 'de-trafficking' measures. As per the Area Action Plan, the goal is to achieve 'pedestrian friendly' areas.
- 3.53 The north side of St Paul's Square is also identified as an area in need of improvement to be more 'pedestrian friendly'. Currently, this street is dominated by buses and traffic from Horne Lane trying to access the High Street.
- 3.54 The High Street at St Paul's Square is a key focal area for the town centre. Improving access to this area for pedestrians is important for ensuring this focal area maintains its relevance and increases its daily usage.
- 3.55 A high quality pedestrian environment may also improve patronage of St Paul's Square markets, which will improve the market economies and perhaps attract additional stallholders to the site.
- 3.56 Along with other retail offerings in the area, the markets and other festivities at St Paul's Square are also important for attracting a weekend population to the town centre.

Lime Street (Vacant Land Behind Dame Alice Street)

- 3.57 The land at the corner of Harpur Street and Lime Street is currently used as a surface parking area.
- 3.58 This is acknowledged as a site for development in the Area Action Plan: "A section of the Lime Street block has scope for redevelopment providing new offices, urban living space, retail and perhaps leisure uses taking advantage of the recent street improvements."
- 3.59 The Area Action Plan stresses that development at this site must safeguard the pedestrian nature of the surrounding streets.
- 3.60 As the site is fairly small, it is unlikely that development here would accommodate much (if any) parking. The site would therefore benefit from development that does not require or rely on parking provision.
- 3.61 This will also ensure that development at this area does not result in an increase of traffic within the town centre.

A4280 Gyratory

- 3.62 As seen in Kingsway, the council has received applications to convert office space around the A4280 gyratory to residential use.
- 3.63 This area is somewhat cut off from the town centre by a lack of signalised crossing points along Goldington Road. Additionally, the advisory cycle route along Goldington Road would also benefit from improvement, as the cycle stencils denoting the route are infrequent and paint in some areas is faded.

- 3.64 Residential development in this area should therefore be accompanied by planning agreements to improve the surrounding public realm for pedestrian and cyclist use in order to discourage car travel to the town centre.

Medium/long term developments

Bedford Rail Station

- 3.65 The council aims to upgrade and refurbish Bedford rail station. This will involve creating better links with other modes of transport, such as bus and taxi drop off areas.
- 3.66 The upgrade may include a western access point which would provide quicker access to the station for the Ford End/Queens Park neighbourhood.
- 3.67 Cycle parking at the station is well used and would benefit from expansion, especially within a more secure part of the station, such as behind ticket barriers.
- 3.68 Improving accessibility to the station by all modes of travel will encourage greater use of rail to and from Bedford.

Town Centre West

- 3.69 The Area Action Plan designates the 'Town Centre West' area—that is, west of the town centre and east of Bedford station—as a quarter for retail and office space.
- 3.70 However, retail use in this area may be untenable due to competing retail space in the town centre and Howard Centre.
- 3.71 The council has commissioned a study to provide further insight into the level of demand for retail accommodation, which will include consideration of Town Centre West.
- 3.72 The area could be considered for residential development if it cannot be proven that further retail offerings in this area can be viable.

College

- 3.73 Whilst there are no definitive plans at this stage, there are general aspirations for the expansion of the college to provide more educational services.

Schools

- 3.74 Increasing population pressures, related to the residential development occurring around Bedford, will inevitably lead to higher demand for schools and will itself put pressure on school expansion.

Bedford Health Village

- 3.75 Bedford Health Village is outside of the town centre along Kimbolton Road. It provides assessment and treatment for mental health issues and has inpatient units for long term care.
- 3.76 This facility has been highlighted by the council as an area for possible future redevelopment or expansion.

Key Issues: Development-related

- 3.77 **PD-1:** As much of the development within the town centre may be residential, the demography and population of the town centre is likely to change. With this growth in population will come a growth in demand on the transport network. In particular, if measures are not taken to improve access to

and within the town centre by a variety of modes, new residents will continue to rely on cars to travel around Bedford.

- 3.78 **PD-2:** The Riverside North development will provide a change in dynamic of the night-time economy creating a second axis of activity along from the high Street. The vitality of this night time economy will, again, depend upon the level of accessibility to the town centre. For example, improvements to way finding and lighting will be required to encourage residents to travel to and around the town centre on foot after dark, and taxis will have to be strategically placed to reduce reliance on cars.
- 3.79 **PD-3:** The committed and potential development along Ampthill Road is likely to cause increased traffic and congestion along this route if interventions are not made to reduce demand for car use.
- 3.80 **PD-4:** The potential development of the college would create further pressures on accessing the site, which is in a critical part of the transport network. It will be particularly important to manage increased highway trips to the site.
- 3.81 **PD5:** Population growth, as a result of expected town centre residential development, is likely to put further pressure on town centre schools in coming years with the potential for further development of these facilities. This is likely to put further pressure on the highway network and may cause further congestion if measures are not taken to reduce journeys to school by car.

Key Opportunities: Development-related

- 3.82 Require all new developments and redevelopments requiring planning permission to carry out Transport Assessments and Travel Plans to reduce car use and encourage sustainable modes of travel.
- 3.83 Investigate the feasibility of developing town centre-specific maximum car parking and minimum cycle parking standards for all new developments or significant redevelopments.
- 3.84 Provide well signposted, accessible taxi ranks at locations with high demand, including near the Riverside North development and ensure sufficient supply of taxis to meet demand.
- 3.85 Provide high quality lighting and Wayfinding that will aid residents and visitors in travelling around the town centre after hours.
- 3.86 Require public educational facilities to develop and implement travel plans to address student and staff travel to school and ensuring new students are provided with 'welcome packs' containing clear travel information.
- 3.87 Encourage private schools to develop school travel plans voluntarily and require school travel plans as part of planning permissions for any school extensions or redevelopments.
- 3.88 Investigate funding options to offer grants and assistance to schools implementing travel plans, for example to help with installing cycle/scooter parking, showers, bespoke maps, and other travel-related information.

4 Transport Infrastructure and Operations

Overview

- 4.1 This section reviews the existing transport infrastructure throughout the study area. Infrastructure relating to all modes of travel has been taken into account, including highways, parking, public transport, cycling, and walking.

Highway Infrastructure

- 4.2 Bedford town centre hosts a number of key east-west and north-south routes. The backbone of the town centre is the former A6, now the A600 through the urban area. The A6 extends to Kettering in the north and Luton in the south. It also provides a connection to the A421 for the M1 and A1.
- 4.3 Within the town centre, the A600/High Street runs on a north-south access, providing one of two town centre routes traversing the river. The High Street comprises two lanes of southbound traffic. The High Street is a 20mph zone, which is designated upon entrance to the High Street near its junction with the A4280.
- 4.4 The second north-south route through the town centre is Prebend Street/the A5141. Prebend Street has one lane of traffic in each direction. The A5141 continues northwards, becoming Ashburnham Road near Bedford station and remaining two lanes of two-way traffic. From Ashburnham Road it is possible to connect to Bromham Road/A4280, which leads to Northampton to the west and the A421 to the east.
- 4.5 The A4280/Bromham Road/Dame Alice Street/Goldington Road runs along the northern part of the study area. Most of this road is two lanes for two-way traffic, aside from the stretch between Harpur Street and the High Street, where there are two lanes of westbound traffic.
- 4.6 In the southern half of the study area, Caudwell Street/the A5141 passes along Bedford Hospital. This road connects to the High Street to the east and to the A428 to the west. Within the study area, this road has three to four lanes of two-way traffic until the Kingsway junction, when it becomes two lanes of one-way traffic eastbound.
- 4.7 As noted above, many of these key routes feature one-way systems for some length of the road. This is also the case for many local roads within the study area, for example the St Paul's Square gyratory, A4280 gyratory, Horne Lane, and River Street.

Key Issues: Highway Infrastructure

- 4.8 **HI-1:** The one-way system is difficult to navigate, particularly for visitors who are unfamiliar with the layout and flow of Bedford's streets. This may result in unnecessary detours, and associated congestion and pollution, as visitors try to navigate around the centre.
- 4.9 **HI-2:** There are a limited number of river crossings, with only Prebend Street and the High Street bringing vehicles from north to south and vice versa. This restricts a range of cross-town movements.
- 4.10 **HI-3:** Although the High Street is designated as a 20mph zone, its two-lane, one-way design results in traffic conditions that are inconsistent with a town centre retail core. Whilst signalised crossing facilities provide some safe crossing provision they also result in vehicles accelerating down the street resulting in a poor environment for ad hoc pedestrian crossing.

Key opportunities: Highways Infrastructure

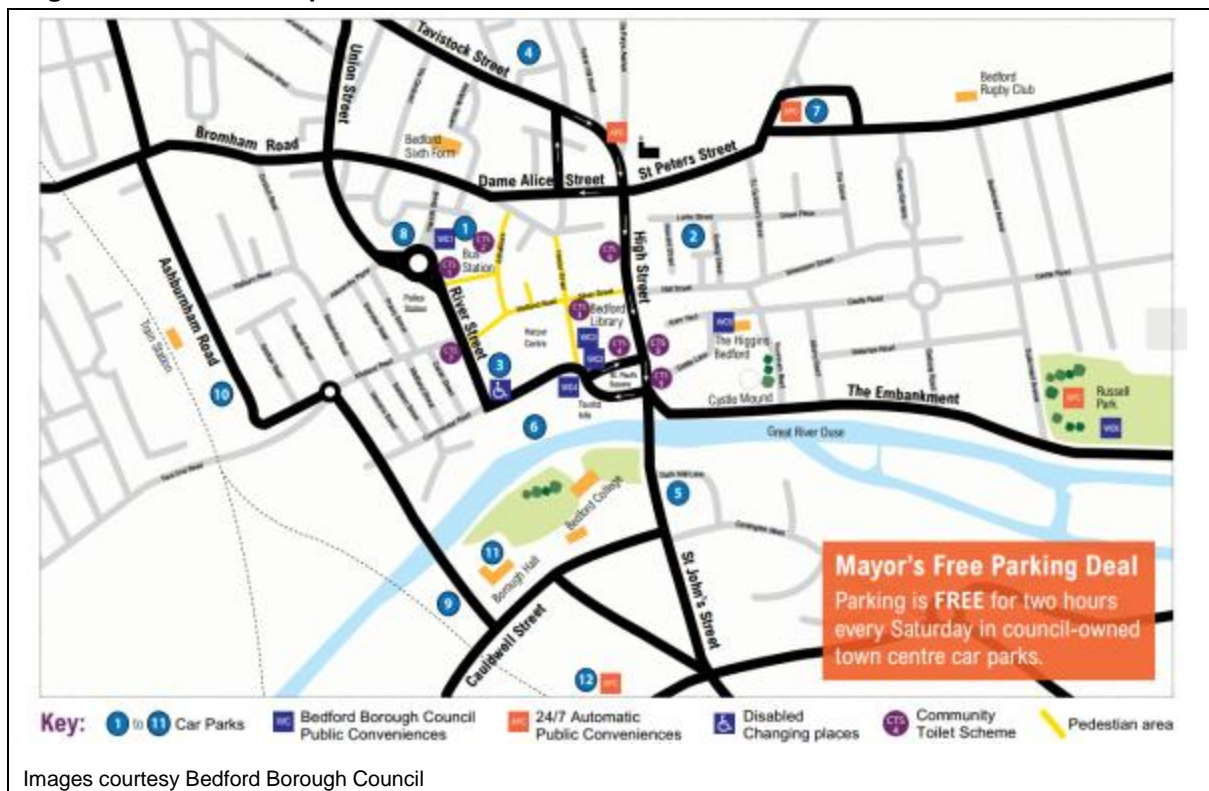
- 4.11 The Bedford bypass will provide an opportunity to consider de-trafficking the High Street. This includes reducing the highway carriageway and providing extending footway widths.
- 4.12 Opportunities to revise one-way streets system should be considered in order to improve navigation and accessibility.
- 4.13 The opportunity to develop an additional road bridge over the river to help reduce congestion on existing river bridges and form part of a wider strategy to re-route town centre traffic, enhancing vehicle circulation.
- 4.14 Clear signage of local amenities, attractions, and key junctions can help reduce confusion for drivers.
- 4.15 Producing town centre accessibility maps for visitors showing key/preferred driving routes, which could be available from the council website and websites of local attractions, will assist visitors with Wayfinding and journey planning.

Parking Infrastructure

Off-street Car Parks

- 4.16 A map showing council owned and operated car parks in the town centre is provided in **Figure 4.1**.

Figure 4.1 Council car parks locations



- 4.17 Bedford Borough Council has four chargeable multi-storey car parks and nine chargeable surface car parks within the town centre. The Borough Hall car park is also available to the public on weekends.

- 4.18 There are two privately run car parks at Bedford station and the Howard Centre. Parking is free for Blue Badge holders and for two hours on Saturdays for the general public.
- 4.19 **Figure 4.2** provides a summary of the car park fees and opening times.

Figure 4.2 Council car park fees and opening times

Car Park	Costs (Monday to Friday)								Opening Times	
	Up to 1 Hr	Up to 2 Hrs	First 2 Hrs on Saturdays	Up to 3 Hrs	Up to 4 Hrs	Over 4 Hrs	Up to 5 Hrs	Over 5 Hrs	Monday to Saturday Chargeable	Sunday
1 Allhallows MK40 1LX	£1.10	£1.60	FREE	£3.00	£3.70	£7.00			7am-6pm free after 6.30pm	£1 (9am to 6pm)
2 Lurke St MK40 3HZ	£1.10	£1.60	FREE	£2.50	£3.30		£4.00	£6.20	Open 24/7	£1 (9am to 6pm)
3 River St MK40 1PX	£1.10	£1.60	FREE	£3.00	£3.70	£7.00			Open 24/7	£1 (9am to 6pm)
4 Queen St MK40 2HA	£0.70	£1.00	FREE	£1.60	£2.30	£3.40			7am-6pm	£1
5 Duckmill La MK42 0AU		£1.40	FREE						8am-6pm free after 6pm	free 24hrs
6 Riverside Sq MK40 1PY		£1.60	FREE						8am-6pm free after 6pm	free 24hrs
7 St Peters St MK40 2PR	£1.10	£1.50	FREE		£2.80	£5.50			7am-6pm free after 6pm	free 24hrs
8 Greyfriars MK40 1AN		£1.60	FREE						8am-6pm free after 6pm	free 24hrs
9 Prebend Street MK42 9BX		£1.60			£3.70	£8.00			7am-11.59pm	£1.60 (7am-11.59pm)
10 Ashburnham Rd MK40 1DS	£7 Daily (06:00 to 23:59) £3.50 Daily Off-Peak (10:00 to 23:59) £2.50 Weekends (06:00 to 23:59)									
11 Borough Hall MK42 9AP									Open Saturday and Sunday only	£1 all day
12 Melbourne St MK42 9AN		£1.00			£2.40	£3.50			7am-6pm free after 6pm	free 24hrs

Images courtesy Bedford Borough Council

Multi-storey Car Parks (MSCP)

- 4.20 The biggest multi storey car park is located on **Lurke Street**. It contains 790 spaces over 10 floors, including 14 disabled spaces and 16 Parent & Child spaces within the first three floors.
- 4.21 The car park is open to the public 24/7. It operates with a pay on foot system. One hour parking costs £1.10 while the maximum charge for a day is £6.20. It is also possible to rent long term spaces. The car park is patrolled by security personnel and has won a Safer Parking Award.
- 4.22 The car park has accessibility features such as lifts, which provide access to Lurke Street, Duke Street and Howard Street.
- 4.23 During on-site observations, it was noted that many drivers prefer to park at the Lidl car park next to the Lurke Street MSCP as parking is free for up to 1 hour; it appeared that this isn't monitored by the supermarket. The Lidl car park was, therefore, oversubscribed with the waiting drivers forming a queue in Lurke Street (**Figure 4.3**).

Figure 4.3 Queuing for Lidl car park



- 4.24 The second largest multi storey car park is located at **Queen Street** north of the city centre. The 640 car spaces are located over 10 floors, including 12 disabled spaces and Parent & Child parking across the lowest two levels.
- 4.25 The opening times are 07:00 to 20:00, Monday to Saturday; the car park is closed on Sundays. It operates with a pay on foot system. The fee is 70p per hour up to a maximum of £3.40 per day, with long term parking also offered. The car park has won a Safer Parking Award for its periodical safety patrols. There are four lifts allowing access to Wellington Street and Derby Palace.
- 4.26 Nearby, the **River Street** MSCP is located 600m south of Queen Street MSCP. This has 465 car spaces on 7 floors. There are 19 spaces reserved for Blue Badge Holders and eight spaces for Parent & Child parking on the ground floor.
- 4.27 The car park is open to the public 24h every day. The car park is patrolled by security personnel. The hourly parking fee is £1.10. The daily maximum is £7.00. On Sundays parking costs £1.00 regardless of the duration. Long term parking is also available. Three lifts allow access to the Howard Shopping Centre. The building can be seen in **Figure 4.4**.

Figure 4.4 River Street MSCP



- 4.28 The fourth and smallest MSCP is **Allhallows**, situated between the Queen Street and River Street MSCPs next to Bedford Bus Station.
- 4.29 The car park has 440 spaces, including 10 disabled spaces on the first of its eight floors. The car park is open Monday to Saturday from 7am to 8pm and from 9am to 6pm on Sundays.
- 4.30 The car park uses a pay on foot system. The charges are £1.10 for 1 hour and £1.60 for 2 hours parking. The maximum fee is £7.00 a day. Sundays are charged at £1.00 per day. Long term parking spaces are available to rent.
- 4.31 Security staff undertakes regular patrols. There are three lifts providing access to Greenhill Street and Hassett Street (except Sundays). The MSCP is shown in **Figure 4.5** below.

Figure 4.5 Allhallows MSCP



- 4.32 In comparison, the MSCPs listed above have similar prices for parking. Queen Street customers pay the lowest fares, which are nearly half of those at the other car parks.

Public surface car parks

- 4.33 The largest surface car park is located at **Prebend Street** with 284 spaces, including seven spaces for blue badge holders. It is open 24/7; parking is charged between 07:00 to midnight. The car park uses pay and display with a maximum parking period of 24 hours.
- 4.34 A pay and display car park is located near Bedford station on **Ashburnham Road**. The car park has 200 spaces. It is open 24/7 with a chargeable time between 06:00 and midnight. The maximum stay is 24 hours.
- 4.35 A car park with 197 spaces is situated on **Melbourne Street**. The pay and display system is used between 07:00 and 18:00 from Monday to Saturday. Parking overnight is not permitted but the car park is open 24 hours. Parking on Sundays is free of charge. The maximum stay is 24 hours.
- 4.36 The **Greyfriars** car park consists of 143 spaces including eight spaces for blue badge holders. It is open 24 hours with chargeable time between 08:00 and 18:00 Monday to Saturday; within these times the maximum stay is 2 hours. Pay and display is used. The maximum parking period is 24 hours.

- 4.37 **The Riverside Square** car park contains 140 spaces, including six spaces for blue badge holders. Customers use pay and display between 08:00 and 18:00 Monday to Saturday. The car park is open 24 hours with a maximum stay of 24 hours.
- 4.38 **St. Peters Street** has a car park with 113 spaces, including three spaces allocated to blue badge holders. The chargeable hours are 07:00 to 18:00 Monday to Saturday. The car park is open 24 hours and uses pay and display.
- 4.39 Another 66 spaces, including four spaces for blue badge holders, can be found in the car park at **Forster Hill Road**. It is open 24 hours with a maximum stay of 24 hours. The chargeable time is between 08:00 and 18:00 with 3 hours free parking Monday to Friday and up to 5 hours free parking at the weekend. The car park is pay and display even for free parking.
- 4.40 **Robinson Pool** car park consists of 34 spaces, including three spaces allocated to blue badge holders. It is opened between 06:00 and 22:00 with a maximum stay of 24 hours. Up to 3 hours free parking is provided Monday to Friday and up to 5 hours free parking is provided on weekends.
- 4.41 A small car park with 12 spaces is located on **Duck Mill Lane**. Customers pay between 07:00 and 18:00 with a maximum stay of 24 hours. It uses a pay and display system.
- 4.42 There is a weekend car park **Borough Hall** in Cauldwell Street. All day parking costs £1.

Private surface car parks

- 4.43 A private car park is located at **Howard Centre**. It consists of 97 spaces with free parking on Sundays.
- 4.44 Since 14th September APCOA Parking Limited operates a car park at **Bedford Station** on behalf of Govia Thameslink Railway which replaced First Capital Connect as train operator for the Great Northern and Thameslink Routes. The car park is open 24 hours with a chargeable time throughout the whole day. It consists of 702 car parking spaces and 526 cycle parking spaces. The car park operates with an ANPR (automatic number plate recognition) system for cars. Cycle parking is free.

On-Street Parking/Controlled Parking Zones

- 4.45 Controlled Parking Zones (CPZ) exist in Bedford to control parking capacity and provision. These consist of designated parking bays and several public car parks that are based in the town centre.
- 4.46 There are 13 CPZs within the study area. The CPZs roughly cover the following areas of the town centre:
- Zone A: Retail district and Riverside North
 - Zone B: Town Centre West area
 - Zone C: Area north of Bromham Road to Clapham Road, bound by the High Street
 - Zone D: Area north of Dame Alice Street to Roff Avenue, bound by the High Street and De Parys Avenue
 - Zone E: Cultural district and residential areas east of this
 - Zone F: Oaklands Road
 - Zone G: Glebe Road
 - Zone H: Pemberley Avenue

- Zone J: Beverley Crescent
- Zone K: residential streets near Livingston Lower School
- Zone L: Ellis Road
- Zone M: Kingsbrook Road
- Zone N: Around the southern Hospital Site.

Key Issues: Car parking

- 4.47 **CPIO-1:** There are a large number of car parks within the town centre offering various tariffs and lengths of stay. Managing the utilisation of each car park, both now and in the future, will influence town centre traffic circulation.
- 4.48 **CPIO-2:** Access into individual car parks is restricted through the one-way system. This affects decisions relating to choice of car parking location.
- 4.49 **CPIO-3:** Observations indicate that the free parking available at Lidl results in drivers parking who do not intend to use Lidl itself. This causes congestion along Lurke Street and unnecessary localised pollution as vehicles queue for the car park.
- 4.50 **CPIO-4:** Two hours of free parking on Saturdays encourages shoppers into the town centre but it is important to understand the impact this has upon wider mode choice and overall level of vehicular activity in the town centre.

Key Opportunities: Car Parking

- 4.51 Utilise parking tariffs to encourage short-stay parking in the core town centre are with longer term parking within easy walking distances
- 4.52 Consider car park access as part of wider changes to town centre highway circulation
- 4.53 Consider future development proposals and the impact this will have upon the supply and demand for town centre parking.
- 4.54 Consider the free/discounted parking arrangements on Saturdays and Sundays as part of wider town centre access strategy.
- 4.55 Work with Lidl to address queuing along Lurke Street and investigate options for providing occasional patrols of the car park to reduce abuse of this facility.

Freight Operations

- 4.56 Freight movements are currently relatively unrestricted within the town centre highway network. Key delivery routes include the High Street and Horne Lane, the latter of which serves the Harpur Centre. These areas are affected by the one-way system.

Current Restrictions

- 4.57 Access and loading is forbidden between 10:30am and 3:30pm in the pedestrianised area in the city centre.
- 4.58 There is a weight restriction on Mill Street for vehicles over 7.5 tonnes, except for loading.



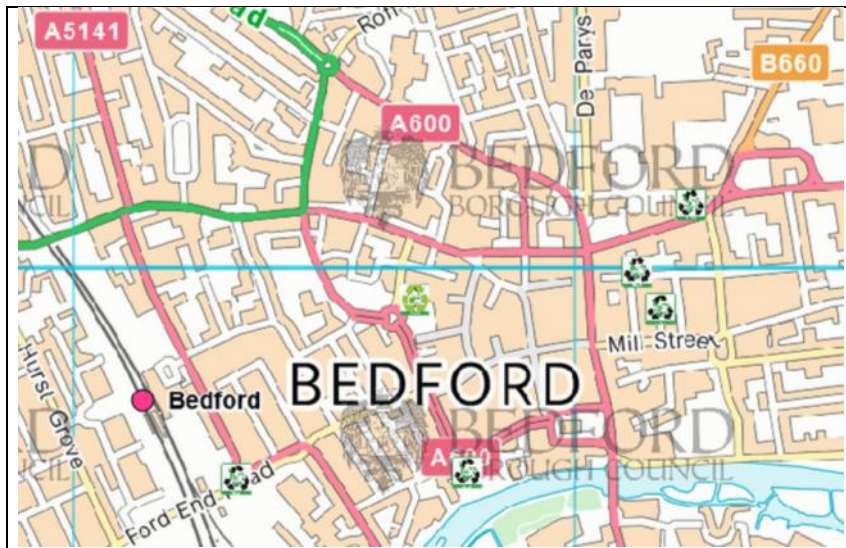
- 4.59 There is a height restriction (3.8m) located under the railway arch on Elstow Road in the south of the city. Larger vehicles can cross the railway tracks at Bedford Road.
- 4.60 Access to and from the Harpur Centre for freight is restricted to right turn in / left turn out movements onto Horne Lane. This can result in additional freight movements around St. Paul's Square for vehicles that wish to egress via River Street.

Waste and Recycling

Facilities

- 4.61 There is a Household Waste Recycling Centre located outside of the town centre on Barkers Lane
- 4.62 Residential refuse is collected on a fortnightly basis. The waste collection fleet consists of low carbon vehicles. The fuel efficient vehicles also provide in-cab computers and vehicle tracking for more efficient rounds and reduced recalls to missed bins.
- 4.63 The town centre has recycling sites at the locations shown in **Figure 4.6**.

Figure 4.6 Bedford Local Recycle Sites



Bedford Borough Council

Freight Infrastructure: Key Issues

- 4.64 **FRO-1:** Unrestricted HGV access to High Street permits through traffic movements to utilise this route.
- 4.65 **FRO-2:** Access and egress arrangements for the Harpur Centre are currently restrictive, resulting in unwanted ad hoc unloading within the bus stop on Horne Lane.

Freight Infrastructure: Key Opportunities

- 4.66 Consider option to restrict freight movements by time of day, once the bypass is complete, to improve air quality.
- 4.67 Ensure amenities such as footpaths and bus stops are not impeded by deliveries/servicing vehicles (whether freight or otherwise) through improved street design and allocation of suitable loading bay areas near key delivery recipients (e.g. retail areas).

Rail Infrastructure and Operations

- 4.68 Bedford is the main station in the town and is the northern terminus for Thameslink train services, providing direct links with Luton, London and Brighton. The station is also served by East Midlands Trains' services, with trains to/from the east midlands and the hourly Marston Vale branch line linking through to Bletchley.
- 4.69 The Bedford to Brighton section of the line is currently undergoing a major upgrade as part of the Thameslink Programme. £6.5bn is being used to transform north-south 'cross London' travel with station upgrades, increased capacity and new rolling stock. It is envisaged therefore that following the upgrade, the resulting reduced journey times and increased capacity on the network will make Bedford a more appealing place to commute from.
- 4.70 In addition, there are also plans for a new East West Rail route and services. This will connect Bedford directly to Bletchley/Milton Keynes/Oxford in the west and Cambridge in the east. The link from Bedford to Bletchley forms part of Phase 2 of the project, which is committed for delivery in Network Rail's five year spending plan leading up to 2019. The eastern section to Cambridge is currently at a development phase only.
- 4.71 As outlined in Section 3 of the report, there are also long term proposals for the redevelopment of Bedford Station and regeneration of the surrounding area.
- 4.72 The main rail station is located a relatively short walk from the town centre and bus station (about 5 minutes), although this is along residential roads.
- 4.73 Few buses directly serve the railway station; the 40/41 services to/from Milton Keynes and Northampton each provide an hourly service, and at peak times, town service 6 runs via the station.
- 4.74 Bedford station has accessibility features such as lifts and ramps for step-free access to all train services. Waiting rooms, benches, toilets, and help points are also provided.
- 4.75 Bedford St John's is the second rail station within the town. Access to the station is along Amptill Road approximately halfway between the A6/A5140 roundabout and Bedford Hospital. This station is managed by London Midland and provides services between Bedford and Bletchley. The station has step free access and sheltered waiting areas.

Rail Infrastructure & Operations: Key Issues

- 4.76 **RIO-1:** The current layout of the rail station forecourt give large prominence to vehicular activity, specifically taxis creating a dominance of vehicular movements.
- 4.77 **RIO-2:** Immediate and longer term changes to rail operations will alter the level and profile of passenger flows both to and within the station.

Rail Infrastructure & Operations: Key Opportunities

- 4.78 There are a range of potential enhancements to rail provision, both in terms of new rail services (e.g. Thameslink and East –West Rail), as well as infrastructure through the redevelopment of the station and surrounding area that provide significant opportunities to enhance provision.
- 4.79 Consider opportunities to revise station forecourt to create a 'gateway' to the town.

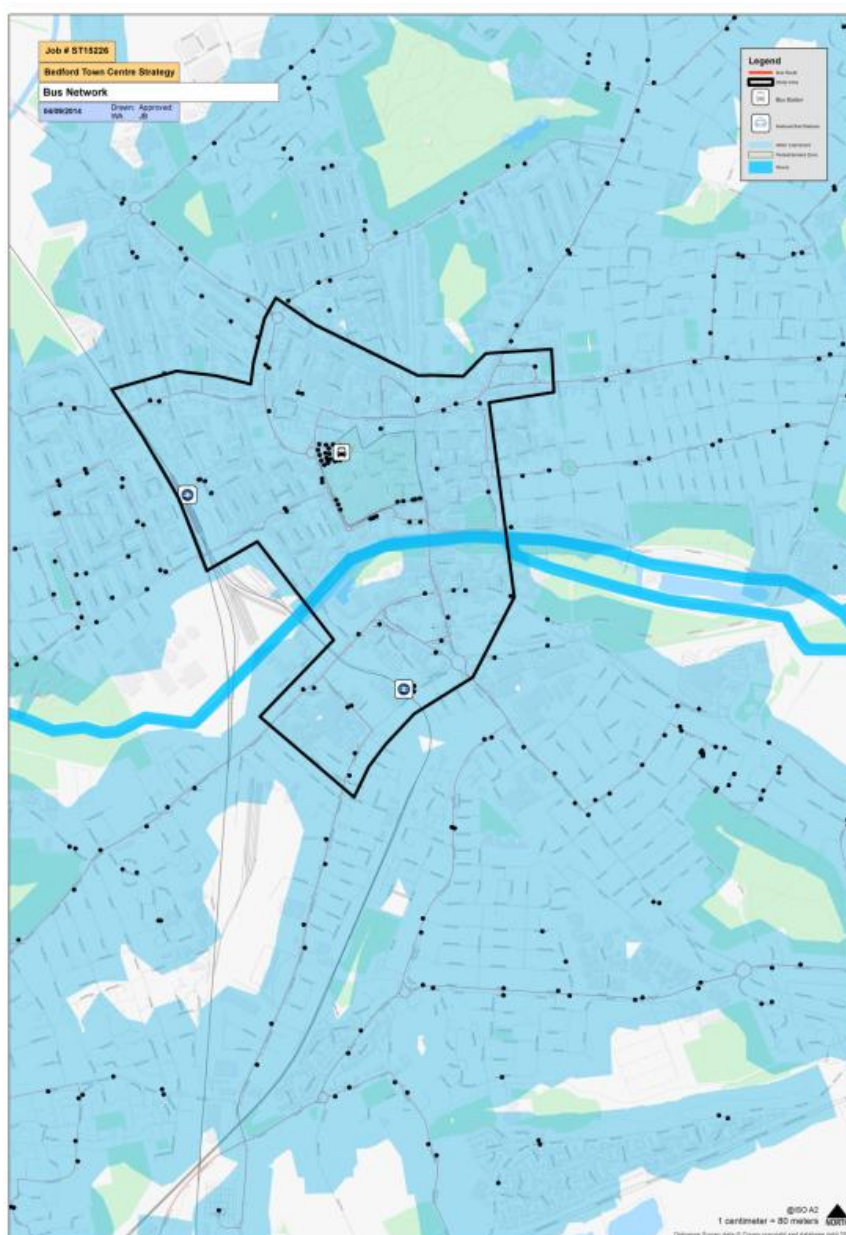
Bus Infrastructure and Operations

Network

- 4.80 Bedford is served by a comprehensive, well-established and relatively stable network of bus services. This consists of an internal network of town services, supplemented by a series of inter-urban and rural services radiating from Bedford. Most services are provided by Stagecoach, with a number of rural/inter-urban services provided by Grant Palmer.
- 4.81 All the town services terminate in the town centre at the bus station. This has been the case since the 1990s, prior to which most services operated cross-town. The change occurred to help maintain reliability of the services.
- 4.82 The town services fall into two groups:
- Key town services (1 Kempston; 2 Ampthill Road; 5 Queens Dr/Elms Farm; 6 Brickhill; 9 Shortstown)
 - Other town services (3 Fenlake; 4 Goldington; 7 Woodside; 8 Queens Park/Great Denham; 10 Putnoe/Goldington)
- 4.83 The former group runs every 12 minutes during the main daytime period, with hourly evening and Sunday services (service 1 running half hourly on Sunday). The latter group run every 20 minutes, with hourly evening and Sunday services.
- 4.84 Services commence reasonably early in the morning to cater for workers and commuters accessing the railway station. This latter group has over the years been the subject of support from the local authority, such as the provision of new Optare Solo buses at one stage.
- 4.85 The network represents a reasonably strong commercial offer by Stagecoach. At deregulation in 1986, evening and Sunday town services were only provided because they were supported by the Council. Over the years, evening and Sunday town services have been absorbed into the commercial network.
- 4.86 Services 20/21 are limited infill town services supported by the Council. Service 22 operates on certain days of the week providing specific links from sheltered housing units and other areas of older, less mobile residents to supermarkets or the town centre.
- 4.87 Bedford has seen significant development around its periphery, including Great Denham, Wixams and Marsh Leys. Where possible these have been served by extending or amending existing services. The Marsh Leys business park was initially served by the Bedford DART, a flexible demand responsive minibus service that was able to cater for shift workers. However, usage and revenue were insufficient to sustain it and it was withdrawn, being replaced in a more modest way by extensions / diversions to other existing services.
- 4.88 Bedford is a central hub for a number of inter-urban services that provide a mix of hourly or half hourly services to surrounding towns including Northampton, Kettering, Biggleswade, Hitchin, Luton and Dunstable.
- 4.89 Bedford is also on the flagship X5 service from Oxford and Milton Keynes to Cambridge. Given its strategic location as an interchange point, it is fitting that the bus station in the town centre is currently being rebuilt to provide a much improved passenger experience and to improve the image of public transport in the town.

- 4.90 In more recent years, the importance of public transport to providing access to education has been recognised. This has seen new services introduced, such as the C1 (operated by UNO) linking Bedford, Cranfield University and Milton Keynes, which is available for public use. This supplements the longstanding Stagecoach service between Bedford and Cranfield.
- 4.91 The University of Bedfordshire runs a free half hourly shuttle bus between its Goldington campus and Bedford town centre and railway station, for the benefit of staff and students.
- 4.92 In recent years, Bedford Borough Council, in partnership with bus operators, has introduced passenger real time information, with real time displays fitted to a number of bus shelters. This helps provide greater confidence for passengers.
- 4.93 With the introduction of new ticket machines, Stagecoach provides smart ticketing products.
- 4.94 A map with the bus routes and catchment areas of Bedford's bus stops is shown in **Figure 4.7**.

Figure 4.7 Bus stop accessibility catchment (400m)



- 4.95 The mapping demonstrates that, in general, Bedford has a good distribution of bus services with a large proportion of the populous within the 400m catchment of a bus stop. Whilst this doesn't necessarily mean that the level of bus services is sufficient, it at least demonstrates that the network is comprehensive from an infrastructure viewpoint.

Bus Lanes

- 4.96 There is limited provision of bus lanes around the town centre, with the following key locations:
- Greyfriars / River Street southbound
 - Horne Lane eastbound
 - Kingsway northbound

Bus Infrastructure: Key Issues

- 4.97 **BIO-1:** Standard bus infrastructure provision is considered to be reasonably comprehensive, however, bus movements are restricted in the same manner as general traffic on cross-town movements due to highway network constraints.
- 4.98 **BIO-2:** Nearly all bus services run into the town centre on arterial routes and terminate at the bus station. Cross-town journey by bus, therefore, require interchange.
- 4.99 **BIO-3:** Bus fares are considered to be relatively expensive for short journeys into town, particularly in comparison to other modes. This is particularly the case when compared to the two hours of free town centre parking on Saturdays.

Bus Infrastructure: Key Opportunities

- 4.100 Investigate opportunities to provide priority lanes for buses along key cross-town routes in order to ensure that buses do not get caught in the same delays as general traffic.
- 4.101 Work with operators to encourage cross town services as part of wider improvements to the highway network reliability and resilience.
- 4.102 Provide improved wayfinding between the bus and rail stations to enable quick and safe transfers between modes. In the longer term, work with bus operators to find opportunities to reroute bus services to connect the town centre, bus station, and rail station more effectively.
- 4.103 Identify key bus stops/interchange hubs within the town centre and provide a full suite of waiting facilities to include easily identifiable shelters, plentiful seating, maps, lighting and real-time information.
- 4.104 Build upon the recent development in education-related bus services to encourage further travel to these establishments by public transport.
- 4.105 Work with operators to promote the perceived competitiveness of bus in terms of all round accessibility and cost, including the provision of attractive fare offers, linked with smart ticketing, to encourage more travel by bus.

Park & Ride Infrastructure and Operations

- 4.106 Bedford has one Park and Ride service which operates from Elstow to Bedford bus station via Ampthill Road and St Paul's Square.
- 4.107 The site has capacity for over 400 vehicles and there is CCTV on site, a waiting room with toilets, confectionery and coffee machines plus real time information that informs passengers of the arrival of the next bus.
- 4.108 Parking is free, with charges applying for bus travel. An Adult Day Return is currently £2.30, whilst a weekly ticket starts from £10. This pricing structure is likely to incentivise single-occupancy vehicle drivers to utilise the service, as opposed to multi-occupancy vehicles users, although a family Day Ticket is available for £6.00. Concessionary bus passes can be used, subject to national scheme rules, making it a potentially attractive scheme for this category of travellers.
- 4.109 The Park and Ride service was originally a separate dedicated service. A few years ago this was revised, with service 2 routed to serve the park and ride site to remove the need for a separate service and significantly reduce the cost of providing the park and ride facility. Buses run every 12 minutes, Monday to Saturday, and hourly on Sunday.

Park & Ride: Key Issues

- 4.110 **P&RIO-1:** P&R is only currently provided on a single corridor.
- 4.111 **P&RIO-2:** The existing park & ride scheme was unable to support a dedicated bus service.

Park & Ride: Key Opportunities

- 4.112 Investigate opportunities to provide additional Park and Ride sites, particularly where these could make use of bus priority lanes if these are implemented as per the above.
- 4.113 Investigate whether there is the potential for the P&R scheme to support its own bus service once the area has been developed with additional housing and retail

Taxis Infrastructure and Operations

4.114 There are a number of taxi ranks located within Bedford city centre as shown in **Figure 4.8**.

Figure 4.8 Town centre taxi ranks



Images courtesy Bedford Borough Council

All Day Taxi Ranks

4.115 The largest taxi rank is located in the car park at Bedford station. The official number of taxis allowed to wait there is 14. However, during site visits it was observed that the taxi rank was exceeding this limit. The taxi rank itself was generally unmanaged with taxis parked in an ad hoc fashion as shown in **Figure 4.9**.

Figure 4.9 Taxi Rank Bedford Station



4.116 The map shows a second taxi rank near Bedford station adjacent to the Royal Mail delivery office within the freight traffic section of the railway station. However, this taxi rank was used by private hire taxis only on the day of the site visit.

4.117 Three 24 hour taxi ranks can be found along Greyfriars/River Street: Bedford bus station (4 taxis), Greyfriars between Greyfriars roundabout and the junction with Midland Road (7 taxis), and River Street in front of the Tesco Superstore (12 taxis).

- 4.118 From 2012 the taxi rank at the bus station has been relocated due to the refurbishment of the station. The taxis now wait at the new residential car park next to Greyfriars roundabout; taxis were also observed to be waiting on Hasset Street on the approach to the roundabout.

Night Time Taxi Ranks

- 4.119 After 21:30 (and up to 04:30) the number of taxi ranks increases significantly. A rank providing space for 10 taxis can be found near the junction of Broadway and De Parys Avenue. There are a further two taxi ranks on the High Street: one located in front of Lloyds Bank (with a maximum capacity of four taxis) and the second situated a few meters north in front of Tesco Express (with a maximum capacity of three taxis).
- 4.120 A taxi rank with a maximum capacity of four taxis is located on Midland Road between Grafton Hotel and the roundabout linking Midland Road, Prebend Street and Ford End Road. Two other taxi ranks are situated in front of the night clubs 'Elements' in Mill Street (five taxis) and 'Saints' in St. Peter's Street (11 taxis). A taxi rank is located outside of the Gunn's Bakery at St. Pauls Square. This is open between 23:00 and 04:30 for a maximum of 11 taxis.
- 4.121 Unless specified otherwise, the taxi ranks above are provided on street and designated with on road/painted markings.

Vehicles

- 4.122 Hackney carriages and private hire taxis operate within Bedford. The hackney carriages fleet consists of different types of cars lacquered white. All hackney carriages in Bedford are required to be wheelchair friendly.
- 4.123 The number of licences for hackney carriages is fixed for the next four years. Bedford Borough Council has no power to limit the number of private hire vehicles.

Prices

- 4.124 The standard fare is £3.20 plus 20p per 220 yards, if the distance exceeds three quarters of a mile. Between 22:00 and 06.30 on Sundays and on Bank Holidays (excluding Christmas and Boxing Days) a surcharge of £1 is added. Additionally, there are several extra fees for things such as cycle transport or a fifth passenger.
- 4.125 Slightly over 100 taxis are registered at the Bedford Borough Council website. The white taxis comprise about 70% of all registered taxis in Bedford.

Taxi/Private Hire Issues

- 4.126 **TPHIO-1:** The number of taxis queuing outside of Bedford station regularly exceeds the maximum number allowed in that area. This causes an unpleasant environment for pedestrians and makes for a visually unappealing vista upon exit of the station. Where drivers idle instead of turning off their engines, this also contributes to local air quality issues.

Taxi/Private Hire Opportunities

- 4.127 Examine opportunities to limit the number of taxis waiting in front of the station by working with Network Rail to repurpose some of the surface parking area, for example by adding additional cycle parking or landscaping.
- 4.128 Examine opportunities for additional ranking facilities within the town centre to support the aspirations to develop the night-time economy.

Waterways

- 4.129 The River Great Ouse provides a central feature of the town centre, running predominantly west-east to the south of the core retail town centre. Whilst it may provide a natural barrier to land-based movement, the river provides a valuable asset to the town and has been described as the Jewel in the Crown.
- 4.130 The river pathways are an important route into the town (as described in the walking, cycling, and way-finding sections) but the river itself has limited use by waterborne traffic. The Bedford & Milton Keynes Waterway trust operate the John Bunyan Community Boat that seeks to engage young people to learn about and utilise the waterway. This is part of a wider vision to connect the Great Ouse River at Bedford, with the Union Canal at Milton Keynes, to create Britain's first major waterway in a century.
- 4.131 Within the town centre there are some mooring and quayside facilities but these could be expanded further to encourage greater waterborne activity.

Waterway Issues

- 4.132 **WW-1:** Currently underutilised as a natural resource in the heart of the town.

Waterway Opportunities

- 4.133 Expanded facilities could encourage greater use of the waterway and further 'activate' the waterfront.

Walking & Cycling Infrastructure

- 4.134 JMP undertook an assessment of the study area's walking and cycling infrastructure and connectivity in August 2014. The audits highlight a number of areas where the pedestrian and cyclist infrastructure could be improved.
- 4.135 On Wednesday 20th August and Friday 22nd August 2014 JMP undertook a site visit to evaluate pedestrian and cycle routes. The evaluation area was defined and then an audit checklist was created. For pedestrian and cycle routes the checklist is divided into 5 Cs:
1. Convenience;
 2. Connectivity;
 3. Conviviality;
 4. Coherence; and
 5. Conspicuity.
- 4.136 There were several sub-categories for each of these categories, which in turn carry their own weight depending on the importance to pedestrians and cyclists. The categorisation and the weights adapted from the PERS manual can be found in **Appendix A**.
- 4.137 During the site visit each link was evaluated against the sub-categories with a rating that had the following range between -3 (very poor/not existing) and +3 (perfect).
- 4.138 This has been adapted from the PERS manual. The traffic volume and speed were determined by road categories as shown in **Table 4.1**.

Table 4.1 Road Classification

Road Category	Traffic Volume	Traffic Speed
A Road	-3	-2
B Road	-2	-2
Connector Road	-1	-1
Local Street	2	2
Pedestrianised Street	3	3
Alley	3	3
Private Road – public access	2	2

- 4.139 For each link an average score was determined and multiplied by the weighted value. In line with PERS guidance ratings of +1 and higher, a value of 1 was added to the rating before multiplying with the weighted value. This was done to emphasize the positive aspects.
- 4.140 Maps of the town centre have been created to show the quality of the links for pedestrians and cyclists. Links shown in red are in a poor condition and need improving. Links shown in green are in a good condition and are fit for purpose. Yellow highlighted links are acceptable and without major issues but could be upgraded to increase the comfort of the user.
- 4.141 The results of the walking audit are shown **Figure 4.10** and the cycling audit in **Figure 4.11**.

Figure 4.10 Pedestrian Audit Route

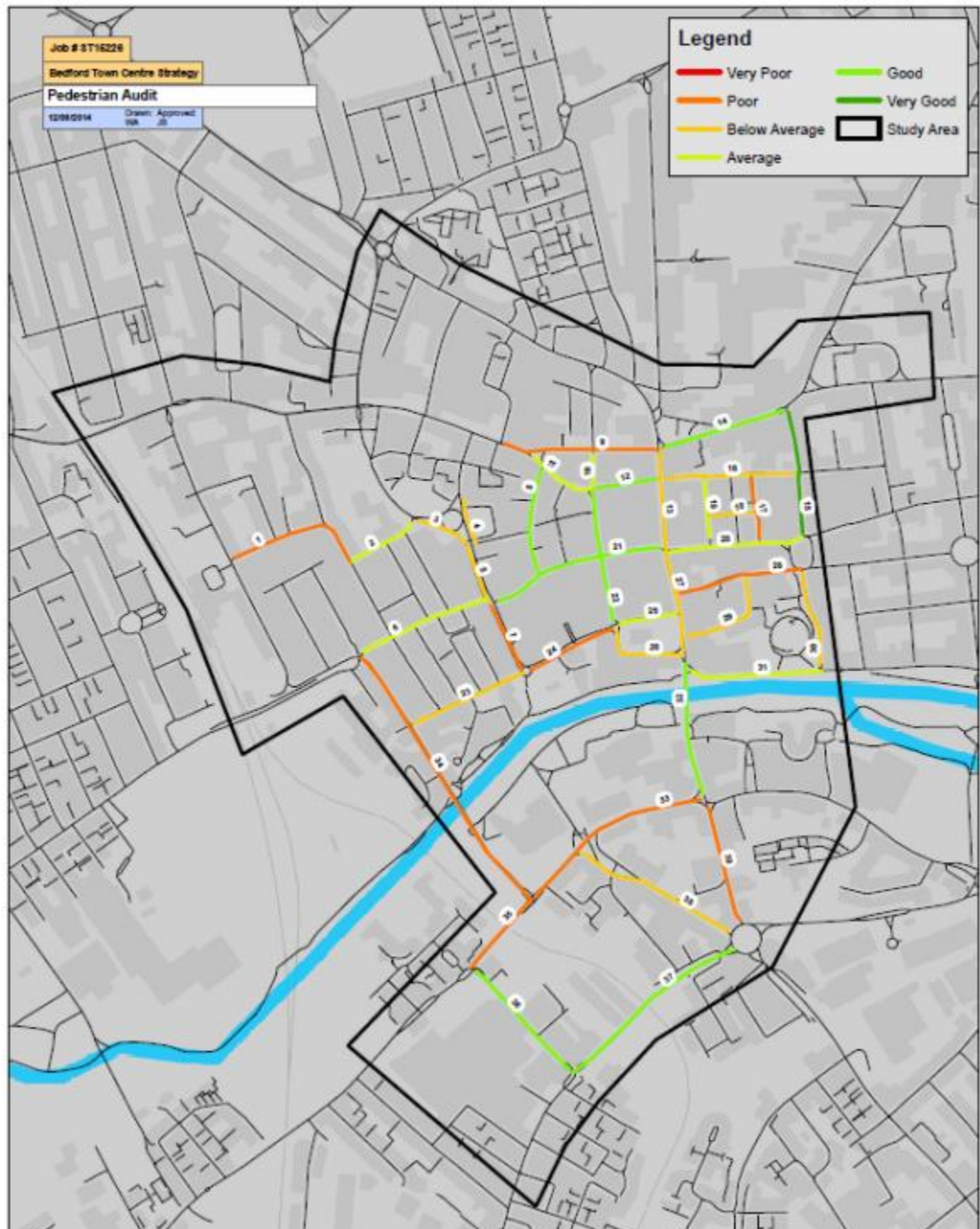
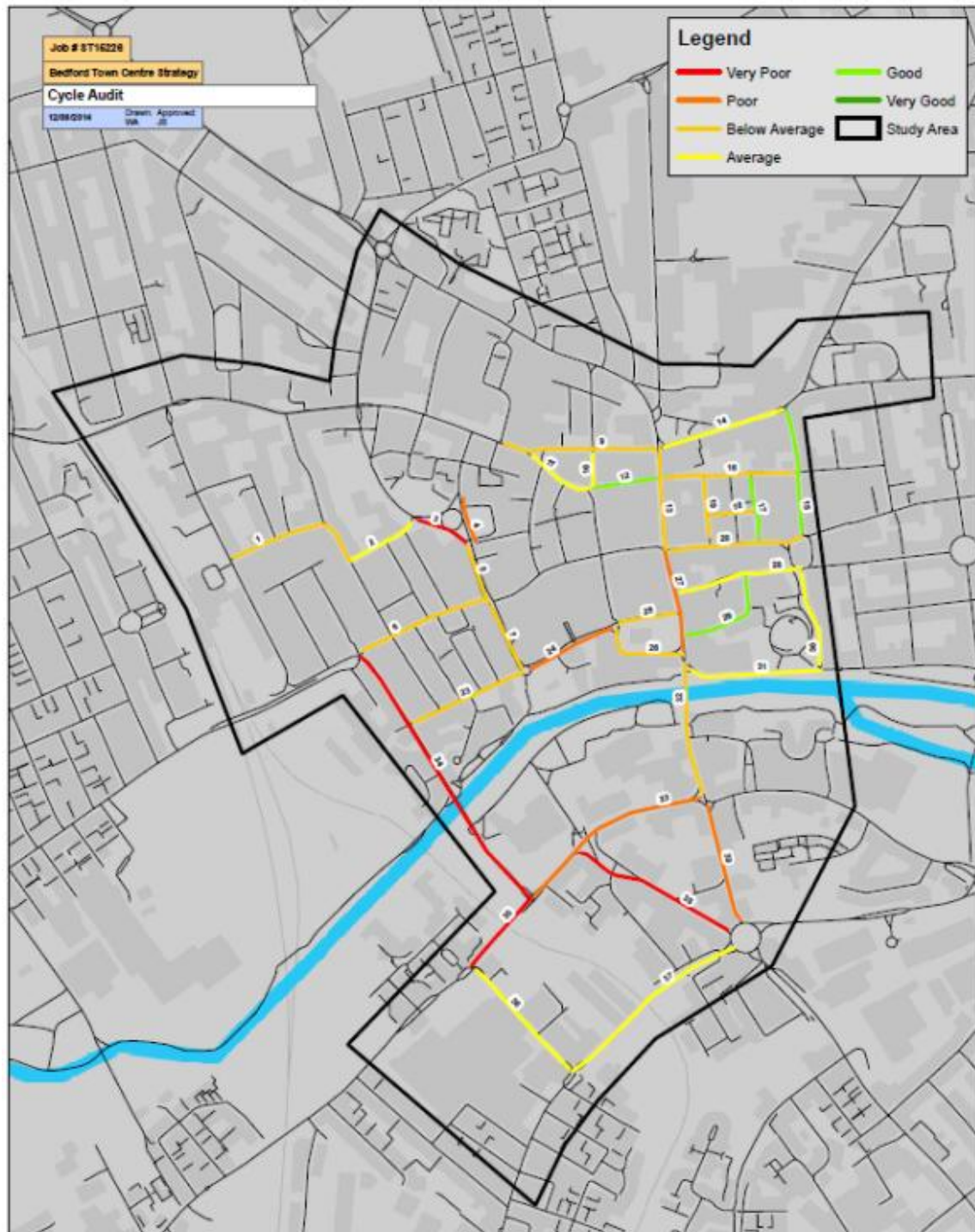


Figure 4.11 Cycling route audit



4.142 As a result of these audits, six key areas have been identified as key walking and cycling corridors requiring more in-depth assessment. The six corridors are:

- St Paul's Square,
- the High Street,
- Prebend Street,
- Riverside,
- Midland Road, and
- Woburn Road.

4.143 Details of the issues and opportunities within each area are provided below.

St Paul's Square Area

4.144 St Paul's Square forms a key link between the retail district to the west, the cultural district to the east and the river to the south, with the following characteristics:

- St Paul's Square is surrounded by a one way gyratory which links to Horne Lane and the High Street.
- There are a number of highly frequented bus stops on the northern side of the carriageway, with the traditional Bedford Market on the south carriageway directly outside the church.
- The area directly outside the Harpur Centre is a well maintained urban plaza with benches and attractive public art.
- The area along the embankment is pleasant and well maintained. The embankment is well lit with benches and well maintained pavement. St Mary's Bridge provides an interesting architectural perspective both towards and on the bridge itself.
- The river benefits from daily activity due to the number of rowing clubs utilising it.
- There are a number of flower planters at the junction with the High Street, along with an outdoor cafe which is situated on the public square, providing activity and interest to the street scene.

4.145 The following related key issues for walking & cycling have been identified for this area:

- The Churchyard and marketplace have, effectively, become an island surrounded by high volumes of traffic. The junction with High Street at the southeast corner of the Square is particularly poor and difficult for pedestrians to cross.
- The Tourist Information Centre, which should be a key town centre feature in an accessible location, is currently suffering from severance between the gyratory system and the river.
- Areas of the square have not been maintained to a high standard. In particular, the space alongside the High Street has a combination of permanent and temporary guard railings, whilst the paving on both sides is of poor standard.
- The junction between High Street and Embankment is also poor with cars turning left from the High Street at speed into an area of pedestrians. The High Street is signed as a 20mph Zone, although speeds are observed to be higher than the restriction.

4.146 The following related key opportunities for walking & cycling have been identified for this area:

- The Swan Hotel is a handsome 18th Century building, which along with a statue, forms a gateway point to the cultural district.
- The northern side of St Paul's Square could be reduced to one lane of traffic. This would allow the footpaths to be widened, providing better connectivity between St Paul's Square and the High Street. In particular, using even paving with different paving types to differentiate between the traffic lane and footpath will create a more pedestrian-oriented, shared space style environment. This will also facilitate easier access to buses stopping along this route.
- Opportunities to provide better visibility and connectivity to the Information Centre at the south end of the Square should be investigated.
- The link from St Paul's Square to the embankment could be improved by altering the southern junction at the High Street to provide better alignment between these two east-west routes and more direct access for pedestrians and cyclists.

High Street

4.147 The A6 High Street runs on a north/south axis and forms the eastern boundary of the core of the retail district, with the following characteristics:

- The High Street forms a key link between the northern part of the Town Centre to the riverside via the main pedestrian shopping area of Silver Street/Debenhams.
- The junction at Mill Street/High Street/Silver Street is a key node linking east/west movements with north/south. This area has recently had a number of upgrades including a piece of public art called 'Reflections of Bedford' by Rick Kirby. This provides a great landmark in the town centre. At the time of the site audit, this was observed to be used for children running around, a meeting point location and a photograph location.
- The retail mix is characterised by pubs, some with recessed buildings with outside areas for example at Yates'. The buildings are generally a mixture, with a combination of Victorian brick buildings, timber framed buildings and pre/post war infill plots which creates a generally attractive row aesthetic.
- Of particular note are the buildings on the eastern side of the road, which are of historical significance; however the shop hoardings are irregular, incoherent and inappropriate for their historic setting.
- The High Street has two sections: the area south of Silver Street and the area north of Silver Street to Dame Alice Street. Both sections benefit from pleasant side streets and alleyways, although it is difficult to establish what is contained within them due to a lack of Wayfinding.

4.148 The following related key issues for walking & cycling have been identified for this area:

- The area south of Silver Street is of poor quality. The pedestrian crossing at the junction of St Paul's Road and Silver Street is particularly poor given its position as a key node within the Town Centre, and features old guard railings which channel and restrict pedestrian movement.
- Paving on both sides of High Street is narrow and do not create an environment conducive for pedestrian movement in an area with high pedestrian usage. This problem is exacerbated for those with prams or in wheelchairs/mobility scooters.
- The crossings along High Street are in poor condition with excessive guard railing which is currently used to fly park cycles and distracts from the surrounding public realm. In particular, the junction at High Street/Mill Street is visually busy with a number of intrusions such as guard rails and rubbish bins.
- There are also a number of pinch points, for example loading bays located outside Lloyds TSB, which could potentially be built to widen the pavement and allow for loading.
- It is difficult to establish what is located within these areas, streets and alleyways due to a lack of Wayfinding mechanisms.
- There is clear signage for those entering the High Street from the north that the area is subject to a 20mph speed limit. However, it is clear that vehicles travel at substantially quicker speeds along this street. There is also an excessive amount of guard railing here.

4.149 The following related key opportunities for walking & cycling have been identified for this area:

- The High Street suffers from excessive clutter and guard railing which has been effectively added to over time, creating a disjointed public realm. This clutter should be minimised and

consolidated onto lamp columns where appropriate to provide a more coherent route. The number of advertising 'A' boards should also be reduced.

- Reducing the High Street to one lane of southbound traffic would allow footpaths to be widened to better accommodate pedestrian flows.
- The buildings on the eastern side of the High Street are of architectural interest and would benefit from improved shop fronts facades which would create a more cohesive environment with a strong sense of identity.
- The southern section of the High Street hosts a number of pubs and restaurants and would form an integral part of Bedford's nighttime economy. A lighting strategy could be developed here to improve the perception of safety in this area as well as aesthetically enhance the surrounding buildings.
- The junctions along the High Street should also be upgraded by means of wide, flush crossings which will further facilitate pedestrian movement in the area.
- Additional cycle parking should be provided at the Silver Street/Mill Road junction as the high number of fly-parked bicycles suggests current cycle parking provision on Silver Street is inadequate.
- Raised tables on pedestrian crossings would also assist in reducing traffic speeds to 20mph.
- There are opportunities for pinch points to be reduced, for example by providing loading bays in key areas which could potentially be built to widen the pavement and allow for loading.

Prebend Street Corridor

4.150 Prebend Street forms part of the A5141. This is a major strategic route which runs on a north/south axis and crosses the river, with the following characteristics:

- The north side approach to the bridge is characterised by a new large new residential townhouse development. The south side approach is landmarked by the Hospital to the eastern side, and County Hall/Bedford College to the west.
- Local residential areas are well signposted from here for pedestrians and cyclists.
- Footpaths over the bridge are wide and paving is in a good state of repair.
- On the northern side, access to the riverside is well signposted for cyclists and pedestrians.

4.151 The following related key issues for walking & cycling have been identified for this area:

- The southern side of the riverside also has access points on the bridge. One is via a set of stairs and the other access point goes through an unlit woodland area. This access point is also signposted as a route to Borough Hall, although it appears poorly lit and lacks maintenance.
- The area around the signalised pedestrian crossing close to the Borough Hall entrance is unpleasant. Traffic lanes on the southbound carriageway widen to become two lanes immediately after the crossing, with high vehicular flows and speeds leading to the perception of pedestrian movement being unsafe. To the immediate south of the crossing is a large car park, the entrance to which pedestrians on the western footway are required to cross. The car park entrance is overly large; however there are dropped kerbs and tactile information to facilitate pedestrian movement.

- Once this is crossed, pedestrians and cyclists join an off-street designated pedestrian and cycle route. This is delineated though green tarmac and pavement. However, the quality of the surfaces is poor.
- The footpath on the eastern side of the road is narrow and appears less used.
- The junction of Cauldwell Street has two east/west pedestrian crossings with a refuge island in the middle. These are heavily guard railed.
- There are four advertising hoardings to the southwest which affect pedestrian sight lines and are visually intrusive.
- As Prebend Street turns into Cauldwell Street to the west of the junction, the segregated cycle lane temporarily breaks at the location of the pedestrian crossing, and resumes on Cauldwell Street some 20 metres away. The road is fully guard railed and there are two advertising hoardings on the northern side of Cauldwell Street, which can block pedestrian views.

4.152 The following related key opportunities for walking & cycling have been identified for this area:

- Signposting to the hospital from the north side and the bridge is poor/non-existent. There are a number of cycle signposts with details of local residential areas but none to the hospital. Hospital signage should be provided at pedestrian/cyclist level.
- The pedestrian and cycle environment could be improved through upgrading street surfacing and removing excess guard rails.
- There is potential to remove large advertising hoardings to improve the ambience.

Riverside Corridor

4.153 The River Great Ouse is a navigable river which runs roughly east-west through the centre of Bedford and forms an informal southern boundary to the town centre. The river, which is well used by local rowing clubs, offers an attractive retreat in the heart of the town and affords large areas of green space with pedestrian paths along both its northern and southern banks.

4.154 The river forms an integral traffic-free east-west link for the town centre and its surroundings, which are connected via a series of north-south routes. It also benefits from an array of buildings of architectural merit along its route, as well as offering long-reaching vistas for pedestrians and cyclists.

4.155 There are currently two main vehicular and pedestrian crossing points over the river: one on the A5141 Prebend Street (County Bridge) and one on the A6 High Street. An additional, more recent pedestrian and cycling bridge (Britannia Bridge) is located to the west of County Bridge, connecting the river path on the north with large scale residential development on the southern side.

4.156 The following related key issues for walking & cycling have been identified for this area:

- The river paths are an important pedestrian and cycle link through the centre of Bedford, and provide great opportunities for leisure activities along the riverbanks. However, the river path is not entirely continual in nature, and requires either deviating from the path (for example at bridges where pedestrians are required to use steps to access street level) or exiting the river path entirely where it stops abruptly. This is particularly the case on the southern side of the river where the path stops at the Council Offices/County Bridge with limited further westerly connection.

- The river has benefited from a new pedestrian crossing to the west of County Bridge. However, connections for pedestrians and cyclists over the river remain relatively poor. There are large gaps between crossing points which are themselves not particularly accessible for those using the river path.
- Wayfinding along the river path is patchy, with some signage elements near bridges (primarily aimed at cyclists) and the occasional information board; however, these are not directed at wayfinding. This is particularly acute at locations such as the northern side of the Britannia Bridge where pedestrians and cyclists have no indication as to which way to turn when they are presented with a blank boundary fence. The same is evident for the new large scale bridges near the railway line/sidings. Unless travellers are aware of the bridge's ultimate destination, they would be unsure as to where it leads.
- One particular point along the northern bank path has a very low head height underneath an existing railway bridge. Whilst very little can be done about this due to the scale of the infrastructure, it is currently unsatisfactory that cyclists should have to dismount and walk their bicycle under the railway bridge.
- The path along the southern side of the river is set within large expanses of green space which creates an attractive and tranquil environment. This open green space is not presented on the northern side of the river however, with the exception of an area east of County Bridge, and a further area east of the Embankment/Albany Road junction where the space becomes less formalised and green space opens out onto the river.
- Despite the river being one of Bedford's greatest assets, it is a result of previous planning decisions which have resulted in many blank facades/gable ends and rear of buildings facing directly onto it. Areas where (historical) buildings afford facades facing directly onto the river include Bedford Rowing Club, The Swan, Bedford Magistrates Court, 'The Embankment' public house and residential period properties east of Albany Road.
- The town centre immediately abuts the river on its northern side; however, there are limited access points between the two. Additionally, where connections do exist, they are poorly signed and would not appear as attractive routes to pedestrians who are new to the area. At some locations, the public realm on the link between the river and the town centre is very poor and does not create a perception of safety and security, which is exacerbated by multiple blank facades and rear aspects of buildings.

4.157 The following related key opportunities for walking & cycling have been identified for this area:

- Consideration should be given to ensuring that, where feasible, the river paths on both the northern and southern sides of the river remain continuous, with the minimum number of breaks and diversions from the path as possible. This may only be achieved through successful integration with future development sites along the river's edge.
- Cycling provision along the river path could also be enhanced through quality lighting, maintenance of paths, improved connections to advisory town centre cycle routes, and ensuring paths are wide enough to accommodate both cyclists and pedestrians.
- Investigations should be undertaken into potential new river crossings in order to better facilitate movement on foot and cycle. Consideration should be given to a new bridge midway between Bedford Bridge and County Bridge, which will connect in with the existing pathway between the river and the Commercial Road/Horne Lane roundabout junction.

- A comprehensive linear wayfinding strategy should be developed for the river, and integrated fully with a wider town centre wayfinding scheme.
- Opportunities should be investigated for opening up the river path with more green space, particularly on the northern side where space allows, as part of an integrated approach to development along the river.
- Furthermore, future development should have frontages onto the river where possible in order to create more attractive places to live as well as adding activity and 'eyes' onto the river path.
- Enhancements should be made to connections between the river and the town centre through improved wayfinding signage, better quality footway, clearer routes and better lighting. Currently there are missed opportunities to improve shortcuts between the two areas, with one example including a children's play park which could be integrated better with the river path to increase the patronage and available leisure activities.
- The pedestrian environment around Horne Lane is sufficient along the Howard Centre, but the footpath narrows significantly at the car park and there is no crossing provided to access the south side of the road. As this will eventually become a key route between the High Street and Riverside North, it is imperative that the route is improved for pedestrian and cyclist access. This can be done by providing better lighting, installing a pedestrian crossing outside the Howard Centre, looking at opportunities to remove clutter within the road to expand footpaths, and providing aesthetic amenities such as trees and planting.

Midland Road Corridor

- 4.158 Midland Road runs on an east/west axis through the centre of the town centre, connecting Ashburnham Road in the west with Harpur Street in the east. East of Greyfriars/River Street, the road forms part of the pedestrianised town centre. To the west of the junction with Greyfriars and River Street, Midland Road becomes a standard yet busy thoroughfare highway.
- 4.159 The following related key issues for walking & cycling have been identified along this corridor:
- The far western end of Midland Road consists of a roundabout which links Ashburnham Road, the access to the station car park and train presentation depot. The junction itself is formed of a mini roundabout with an island of approximately 2m width which can be overrun by larger vehicles. The overall width of this junction is approximately 25m, resulting in the appearance of the roundabout being oversized for purpose.
 - Heading south along Ashburnham Road, road-users are presented with a blank facade as a result of Ford End Road and a footbridge which are elevated in order to cross the railway line.
 - To the immediate east of the junction is a zebra crossing which provides a safe crossing for pedestrians, along with access to the aforementioned footbridge. The footway adjacent to Ford End Road footbridge is unattractive to pedestrians as it is incredibly narrow and wedged between the rising footbridge and high traffic flows. The footway on the northern side has an acceptable width and surface with some flush dropped kerbs with tactile information on side streets such as Grafton Street.
 - The following junction to the west connects Midland Road, Ford End Road, Rutland Road and Prebend Street. The junction is unusual in that it includes a side street (Rutland Road) set off of a large, oversized roundabout with approximately the same dimensions as the one described previously. Additionally, due to its size, the roundabout is difficult for drivers to see in its entirety and is extremely difficult for pedestrians to cross easily. The opportunity for pedestrians to

cross Midland Road is given in form of a zebra crossing approximately 20m east of the roundabout.

- Continuing westwards towards town centre, the footways remain at a similar width despite the increased pedestrian movement. At the junction with Brereton Road is the Catholic Church of the Holy Child and St. Joseph. The church currently has no garden or resting area for pedestrians. A further zebra crossing is located close to the junction of Midland Road and Priory Street which enables north-south pedestrian movement across the road.
- The transition from the standard highway layout to the pedestrianised area of Midland Road takes place at the signalised junction with Greyfriars and River Street. The junction is particularly large, and handles considerable levels of vehicular and pedestrian traffic. Sightlines through the junction for pedestrians is currently poor, and this is amplified through the use of excessive guard railing. The confusion at the junction is further compounded for pedestrian movement due to the combination of zebra crossing over the bus lane and the signalised crossings, which could be dangerous for visibly impaired persons. Furthermore, there are a number of obstacles which pedestrians are required to navigate both on the approach to, and on the crossings themselves.

4.160 The following related key opportunities for walking & cycling have been identified for this area:

- The eastern section of Midland Road needs requires limited improvement, as together with Harpur Street, Allhallows and Lime Street it creates an attractive town centre environment with good opportunities to walk, shop and socialise.
- The western section beyond Greyfriars/River Street requires significant improvement. A greater degree of planting should be encouraged along Midland Road, as currently only a single tree stands within the entire street, creating a predominantly hard environment.
- Consideration should be given to widening of footways and providing better lighting, with renewed shop fronts helping to improve the aesthetics of the street.
- The blank brick facade of Ford End Road at the junction of Prebend Street and Midland Road could be painted with a Wayfinding mural directing pedestrians and cyclists to the town centre, riverside, County Hall, and hospital.
- Investigations should be undertaken to review whether there is potential for reducing the traffic volumes along Midland Road through re-routing on other suitable highways. This would enable Midland Road to become more of an attractive and defined link between the town centre and Bedford station.
- The junction of Midland Road/Prebend Street/Ford End Road has limited provisions for pedestrians and may be improved by signalling this area with clear pedestrian crossings.

Woburn Road Corridor

4.161 Woburn Road provides part of the link from Bedford Station to the Bus Station and Town Centre, with the following characteristics:

- Bedford station is located along the A5141 Ashburnham Road approximately 500m to the west of Bedford town centre.
- There is a zebra crossing linking Bedford station to Woburn Road.
- Woburn Road is a quiet residential street with pavements that are narrow in parts; however there appears to have been some previous pedestrian build outs with flush surfacing/minimum

kerbs in the mid section which acts to improve pedestrian movement as well as reducing vehicle speeds.

- Woburn Road also forms part of a marked cycle lane westbound.
- The route from the station to the town centre via Woburn Road encompasses Alexandra Road, Alexandra Place, and the Greyfriars roundabout.
- There was generally observed to be more activity on Alexandra Road than Woburn Road, and there are also a number of social clubs/bars located at the corner of Alexandra Road and Alexandra Place.
- Alexandra Place is a quiet residential side street. There appear to have been traffic calming measures undertaken here previously with the aim of making the environment for accessible for pedestrians, particularly at its northern end close to its junction with Greyfriars.

4.162 The following related key issues for walking & cycling have been identified for this area:

- Information and signposting from the railway station to the town centre is currently poor. Visitors are given no indication how far the town centre is from the station. The signposting which does exist along the route is limited to occasional 'traditional style' fingerposts, some of which have been damaged.
- As a result, the taxi rank at the station is constantly full and carries a large number of passengers between the station and town centre.
- Currently the footway surfacing along Woburn Road is of varying styles and ages which creates an incoherent public realm for pedestrians as well as being less attractive than a single set palette.
- Streetlights are also incoherent, with many older style lamps which would fail to emit satisfactory levels of light onto the footway in the evenings.
- There is a single signpost at the junction of Woburn Road/Ashburton Road; however, it is small, painted black, and quite tall, therefore becoming concealed under low hanging branches and foliage.
- There are a number of issues regarding large trees and overhanging foliage on this route. At ground level there are many examples of roots protruding through pavements, which make it hazardous for pedestrians, particularly those with mobility or sight impairments. The bases of numerous large trees are also unkempt and overgrown. Additionally, overhanging tree branches reduces pedestrian sightlines and also reduces the perception of safety through reduced light.
- Alexandra Road is a continuation of Woburn Road as it bears to the right. Houses are in a poorer state of repair. There are also a number of wheelie bins on narrow pavements which reduces the available width for pedestrians, particularly those in wheelchairs or with prams. The quality of the footway is generally poor on Alexandra Road, and as with Woburn Road there are overhanging trees reducing sightlines and light penetration.
- There is currently a single directional signpost at the corner of Alexandra Road and Alexandra place in the same style as previously, together with a small area of green space. However, the green space is poorly maintained and not of any significance to the public realm.

- There is a single directional signpost at the junction of Alexandra Place and Greyfriars. This has been damaged and no longer directs pedestrians towards the town centre and other destinations, thereby making it unclear which way to go at the junction.
- Greyfriars forms part of the A6 strategic route around Bedford town centre. It's a dual carriageway with a roundabout located in front of the entrance to the bus station and town centre, forming a visual barrier between Greyfriars and the town centre.
- There is a pedestrian route across the roundabout in the form of dropped kerbs with tactile paving; however it is not signalised and traffic volumes and speeds are high.

4.163 The following related key opportunities for walking & cycling have been identified for this area:

- There is potential to improve the link between Bedford station and the town centre by providing enhanced signage and lighting along the Woburn Road to Greyfriars route. New lighting using a white light spectrum would add to the perception of safety on this key link.
- The pedestrian environment along the route should be enhanced through better paving materials, wider footways where possible and a coherent street furniture palette.
- The route suffers from excessive clutter, particularly on Alexandra Street, including trees and temporary bins which could be minimised to provide a more coherent route through enhanced visibility and longer reaching views.
- There is potential for using a large gable end terrace at Alexandra Place for innovative Wayfinding opportunities. The green space in this area could also be developed into a local 'pocket park'.
- As a result of being faced with the rear sides of many buildings at the Greyfriars roundabout, the town centre is not immediately visible from this point. However, the main vista is multi-storey car park which has been recently rendered in blue glass and could form a new, primary landmark for the town centre.

Key Issues: Cycling & Walking

- 4.164 The section below brings together all of the individual identified issues from each spatial area into overarching themes where improvements are required in walking & cycling infrastructure provision
- 4.165 **C&WI-1** Traffic volumes and speeds create negative impacts on cycling and pedestrian routes around the town centre. This is particularly prevalent around the one-way system.
- 4.166 **C&WI-2** Severance caused by the local highway network, the river and rail lines restricts natural pedestrian and cycling desire lines. In addition, there are a number of areas where there are either incomplete routes or poor connectivity.
- 4.167 **C&WI-3** The provision of pedestrian and cycling facilities/prioritises at junctions is limited in some areas, as are dedicated crossing facilities.
- 4.168 **C&WI-4** There are a number of locations, particularly around the one-way system, where narrow pavements and pinch-points impair pedestrian movements. There are also a number of locations where excessive street clutter, guard rail and physical intrusions have a negative impact upon pedestrian movements.
- 4.169 **C&WI-5** The quality, consistency and maintenance of some routes is poor, including both footway conditions, as well as trees and foliage. There are some routes where issues of personal safety are a concern due to conditions, including a lack of the lighting provision.

- 4.170 **C&WI-6** There are a number of locations around the town centre where the 'sense of place' created through the interaction of building facades is not being maximised.

Key Opportunities: Cycling & Walking

- 4.171 A range of specific opportunities have been identified for enhancement to walking & cycling within each of the six priority areas discussed in the sections above. These revolve around creating a better walking & cycling environment, through direct, dedicated, well-designed and maintained infrastructure provision.
- 4.172 The identified opportunities seek to enhance connection with key buildings and services around the town centre in order to promote activity and increase dwell times within the centre.

Signage & Navigation Infrastructure

- 4.173 Wayfinding in Bedford Town Centre is currently achieved primarily through wrought iron 'finger post' directional signage which points out services, infrastructure/amenities, and visitor attractions.
- 4.174 Whilst this traditional wayfinding method provides direction to limited key locations in areas where it is present, it often is either not seen by pedestrians, has been vandalised, or does not reflect modern, best practice methods of encouraging people to travel by foot.
- 4.175 An audit of town centre way-finding infrastructure was carried out in August 2014. The findings presented below correspond to the map shown in **Figure 4.12**.

Figure 4.12 Town Centre Signage & Wayfinding



- a. **Bedford Station to Woburn Road:** Limited, basic signage directs pedestrians towards the Town Centre, however, due to the route having to cross a car park/sheltered walkway and then over main road, it does not feel a particularly safe, welcoming or direct route to access the Town Centre.
- b. **Greyfriars to Ashburnham Road:** This route is convoluted and does not present itself as an attractive and safe walking route. The route suffers from overhanging vegetation, lack of street activity and poor lighting. Wayfinding is also limited, with fingerposts at a couple of locations to provide the pedestrian with the reassurance that they are headed in the right location. More should be done to reinforce this route as the key link to the Town Centre.
- c. **Alexandra Drive and Greyfriars:** This is a key node for pedestrians walking between the Station and the Town Centre. However, its single fingerpost has had its 'fingers' vandalised and broken off. New wayfinding measures should be added to this location, including reviewing the opportunity of using the large gable end of an adjacent property for wayfinding art.
- d. **Midland Road/River Street junction:** This is a key node and wayfinding decision point for pedestrians, particularly those looking to walk into the pedestrianised centre and those looking to access local bus services. At present, no wayfinding mechanisms exist here. However, there are opportunities to use the space around this junction to create a Town Centre 'wayfinding gateway' which would aid in pedestrian navigation.
- e. **Prebend Street:** This is a very busy vehicular street which leads to County Bridge, one of only two river crossings in the Town Centre area, and therefore also serves an important pedestrian movement function. There is no wayfinding along Prebend Street other than generic highway signage aimed at car drivers, and pedestrians would be entirely unaware of the link that connects with the Town Centre via Commercial Road.
- f. **Midland Road/Prebend Street roundabout:** This is a very busy vehicular junction as well as the convergence point of three main roads used by pedestrians. There are no wayfinding elements at this roundabout. However, opportunities exist both on the roundabout itself and around the edges for signage specifically aimed at directing pedestrians towards the key town centre facilities.
- g. **Footbridge (north):** A new pedestrian and cycle bridge over the Great Ouse has created a new connection and way of accessing the Town Centre and other local amenities on both sides of the river. However, whilst the new connection is a great, much needed addition, it is not backed up by suitable wayfinding measures. This is particularly acute at the northern side of the bridge, where pedestrians are presented with a fence and no idea as to which way is which.
- h. **North river path (west of Prebend Street):** The northern side of the river path lacks directional signage, leaving pedestrians unsure as to exactly where they are or of their relationship to nearby attractions. This is particularly acute where a new bridge spans the railway yard with access from the river path, as there is no signage to state where these bridges go.
- i. **Footbridge (south):** Further work should be considered on the south side, as it is not clearly evident that the new bridge exists at that location from Cauldwell Street/Kempston Road/Hospital. A great archway of the former Britannia Ironworks Foundry forms a great landmark for the area, however, the route beyond the arch is unclear and poorly signed to the new bridge.

- j. **Prebend Street/Cauldwell Street junction:** This is a very busy, multiple lane junction which forms one of the gateways to the Town Centre. It is highly traffic dominated, and currently the only signage relates to vehicular movement. No pedestrian-level signage exists at this key node.
- k. **Borough Hall:** Connections for pedestrians accessing Borough Hall are particularly poor from Prebend Street, with a small gap in the wall forming the entrance point, after which pedestrians are presented with an older style fingerpost sign directing to various departments. New wayfinding measures should be explored at this location, as well as opening up of the brick wall to create a less concealed and more welcoming entrance to the Council offices.
- l. **Great Ouse River:** The river is one of Bedford's finest assets, but currently access to the river path is not well promoted or signposted. Cycle signage exists on Prebend Street to direct cyclists to the river path, however there are no further wayfinding measures at this point to show the route along the river, attractions that can be accessed from the river path, and the wider Bedford Town Centre area. These key locations would benefit from wayfinding 'plinths' (or similar) with maps and distances to other destinations in order to encourage pedestrian movement along the river's edge.
- m. **River to town centre:** Linkage between the river path and the Town Centre is not currently well considered, and various routes exist that connect the two without adequate signage. One such route provides a link towards the Town Centre via a small public park with children's play facilities, and consideration should be given to directing pedestrians through this route, subject to enhancement of the spaces which form the link.
- n. **Horne Lane:** The route along Horne Lane forms a main east-west link along the southern edge of the Town Centre; however, it suffers from a poor public realm (rear of the Howard Centre), and is also a highly vehicle dominated environment. Wayfinding along Horne Lane is poor, with few opportunities for pedestrians to understand their surroundings and links to other town centre areas. Linear wayfinding opportunities should be explored alongside public realm enhancements to Horne Lane.
- o. **High Street/St Paul's Square/Embankment junction:** The two junctions near the bridgefoot form the primary gateway to the Town Centre from the south and the historic bridge over the River Great Ouse. Despite this, wayfinding is minimal. However, there are a wealth of opportunities to provide dynamic signage in this area. Wayfinding at this location should be considered carefully to ensure that it forms part of a joined up approach and is sympathetic to the historic built form which surrounds it.

Wayfinding: Key Issues

- 4.176 **WF1:** A range of way-finding measures exist in the town centre, however there is an overarching need to ensure consistency and visibility of signage.
- 4.177 **WF2:** Some key routes through the town centre lack clear direction for pedestrians and cyclists, in particular. These routes include from Bedford station to the town centre, Bedford station to Borough Hall and Bedford College, and the Riverside to the town centre.
- 4.178 **WF3:** There are a number of possible routes from the station to the town centre and it is currently unclear for visitors which of these routes is preferable for use. The two main options are Prebend Street/Midland Road and Woburn Street/Alexandra Road.

Way-finding: Key Opportunities

- 4.179 **Figure 4.12** shows two shaded areas. The blue area along the river denotes a space where a comprehensive way-finding strategy should be developed for both sides of the river path.
- 4.180 The yellow shaded area would benefit from a locally distinctive wayfinding strategy. This would include signage around the pedestrianised streets around the Howard Centre, newly enhanced streets such as Lime Street, and the historic core around St Paul's Church, Castle Quay and the Museum/Art Gallery. A variety of measures could be implemented that relate specifically to the area in which they are located.
- 4.181 Investigate the opportunity to create a single direct, safer route from Bedford Station to the Town Centre
- 4.182 Investigate the opportunity to bring together all existing signage to provide an overall consistent strategy which ensures that signage provision is comprehensive across the town and is legible and easy to follow
- 4.183 Consider the signage strategy to and from key routes. The signage could be improved to ensure that pedestrians and cyclists have a clear route, obvious, unobstructed route

5 Travel Patterns and Demand

Overview

- 5.1 A variety of data have been used for this assessment, including modelling data from Bedford Borough Council, informal surveys with cyclists at Bedford station, and Census 2011 data.

Travel to Work Data

- 5.2 This section considers current statistics relating to the Bedford Local Authority as gathered from Nomis and the Office for National Statistics.
- 5.3 Data from Census 2001 and 2011 are used and compared where necessary.
- 5.4 As the figures below relate only to commuting, the mode shares may not be indicative of those for shopping, leisure, education, or personal journeys.

Workplace Population

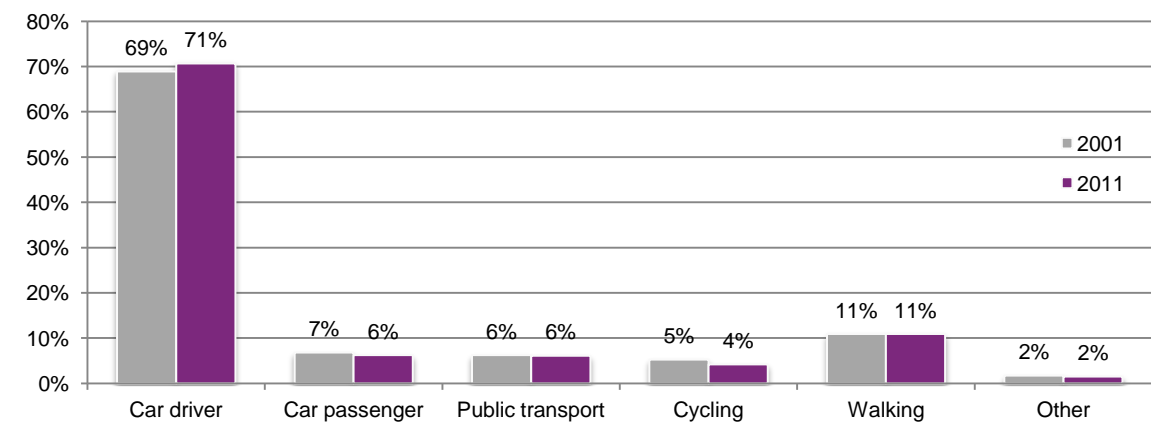
- 5.5 The workplace population is defined as: “The population whose usual place of work is in that local authority, including both individuals who live and work in the local authority and individuals who work in the local authority but commute from a home elsewhere within England or Wales.”
- 5.6 This differs slightly to the workday population, which also includes residents of a local authority who are not in work (including those under 16).
- 5.7 As of 2011, Bedford’s workplace population is 74,527. If excluding the 7921 people who work from home and thus do not commute, this figure is 66,606.

Method of travel to work

- 5.8 Among the 2011 workplace population who commute to work in Bedford (i.e. discounting those who work from home), car is the most common method of travel, used by 71% of the population (**Figure 5.1**). This is a slight increase of two percentage points from the 2001 modal share of 69%.
- 5.9 Walking is the second most frequently used mode of transport, accounting for 11% of journeys.
- 5.10 Local authority level modal shares have remained consistent since 2001.

Figure 5.1 Method of travel to work, workplace population

Note: graph excludes people who work from home.



Distance travelled to work

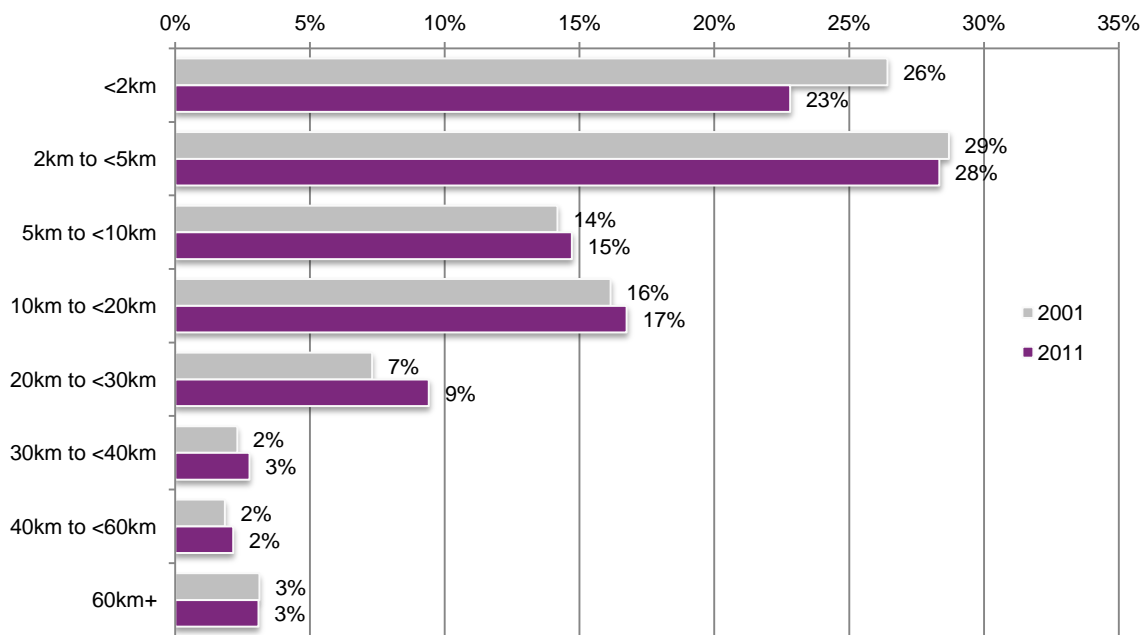
- 5.11 Between 2001 and 2011, Bedford's workplace population saw an increase in the length of its journeys. Local commutes of less than 5km, which accounted for 55% of work journeys in 2001, now account for 47% (**Figure 5.2**).
- 5.12 Longer distance travel has increased, with each distance bracket from 5km up to 60km seeing a one to two point percentage change increase.
- 5.13 This may have some impact locally if these new longer distance commutes are being undertaken largely by single occupancy vehicle.

Distances and modes

- 5.14 Of the 47% of Bedford's workplace population travelling less than 5km to work, 56% travel by car, despite distances of 5km often being accessible by bus, cycling, and walking.
- 5.15 In the less than 2km bracket, private vehicles are used for 43% of commutes. Less than 2km is a distance that can be easily walked for most able-bodied people, and 39% of the workplace population who commute less than 2km use this mode. Cycling has an 8% mode share within this bracket.
- 5.16 In the 2km to <5km bracket, private car is used by a majority of commuters (68%). Journeys on foot drop to an 8% mode share within this bracket, although cycling remains consistent at 7%.
- 5.17 Public transport has an 8% mode share in the 2km to <5km bracket. However, its usage and modal share within other brackets is generally low.
- 5.18 Although not all of these commuters will be heading towards Bedford town centre, as main centre of employment for the local authority it is likely that a large proportion of them will be based there.
- 5.19 It is therefore possible that many of the commuters currently travelling distances of less than 5km by car could travel by walking (for shorter journeys), cycling, and bus (for longer journeys). Commuters travelling longer distances by car may be able to use public transport or car sharing. However, any change in modal share will depend on the implementation of infrastructure and initiatives in the town centre to reduce car use while making other modes more accessible and practical.

Figure 5.2 Distance travelled to work, workplace population

Note: graph excludes people working from home or people with no fixed place of work.



Sub-regional Travel

Inbound/outbound totals

- 5.20 In Bedford's Core Strategy, paragraph 2.5 acknowledges that most residents both live and work within the borough, with most commutes within Bedford's urban wards being less than 5km. It also states that 29% of residents commute out of the borough, and inbound employees account for 26% of Bedford's workforce.
- 5.21 Data from Census 2011 indicates that Bedford's workplace population is 74,527. Origin-Destination data from nomisweb.co.uk, which has been updated to Census 2011 data, indicates that Bedford absorbs 21,410 commuters from nearby local authorities (**Figure 5.3**). This accounts for 29% of the workplace population.
- 5.22 The Origin-Destination data also shows that 22,699 Bedford residents commute to other Local Authorities. This equates to 30% of Bedford's employed residents, based on the local authority having 75,810 employed residents as of 2011.
- 5.23 Therefore, Bedford is now taking in more employees than in previous years while retaining its share of resident workers. This means there is likely additional stress on the network due to the slight increase of inbound traffic. This may also explain why travel distances, as shown in **Figure 5.2**, have increased slightly since 2001.

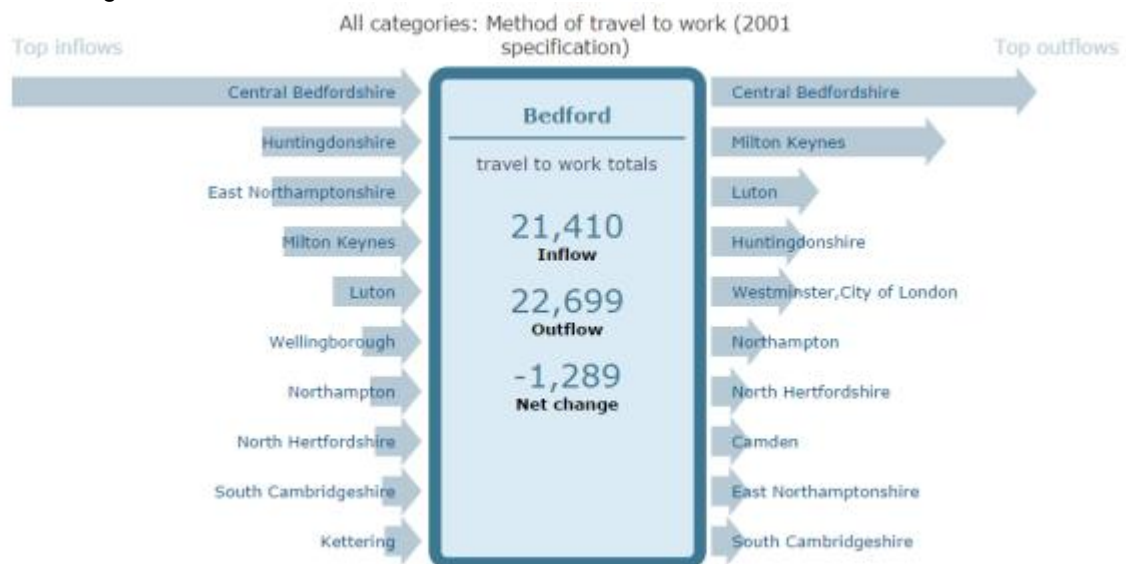
Giving/receiving local authorities

- 5.24 Central Bedfordshire is both the main inflow and outflow destination (**Figure 5.3**). This Local Authority provides an inflow of 6986 of its residents and takes an outflow of 5514 Bedford residents. 86% of arrivals from Central Bedfordshire are drivers.

- 5.25 Huntingdonshire provides the second highest inflow, with 2520 people arriving from that LA to work in Bedford (with 84% arriving as drivers). This is followed by East Northamptonshire (inflow 2344, 90% drivers) and Milton Keynes (inflow 2129, 86% drivers).
- 5.26 After Central Bedfordshire, Milton Keynes absorbs the second highest outflow of Bedford residents, at 3909. 84% of these commuters drive.
- 5.27 Luton provides an inflow of 1252 of its residents and takes 1682 Bedford residents. Car usage is slightly lower among Luton-Bedford commuters than between other areas, perhaps due to frequent rail services operating between these towns.
- 5.28 73% of inbound commuters drive to Bedford and 11% take the train. 82% of outbound commuters drive to Luton and 11% take the train. Improvements to Bedford rail station and better connectivity between bus and rail services may allow more commuters along this corridor to use the train instead of driving.

Figure 5.3 Top inflow/outflow destinations for Bedford

Note: image from nomisweb.co.uk



Travel to Work: Key Issues

- 5.29 **TTW-1:** Nearly half (47%) of Bedford's workforce population travel less than 5km to work. However, the majority (56%) of these journeys are made by car despite this distance generally being within cycling or public transport range. Among workers travelling less than 2km to work, 43% use a car, even though many of these journeys could likely be walked in 20 minutes or cycled within 10 minutes.

Travel to Work: Opportunities

- 5.30 Investigate the opportunity to provide a Personalised Travel Planning to areas of Bedford where short car distances are prevalent
- 5.31 Provide cycle parking near key employment locations and work with Bedford's largest employers to encourage installation of cycle parking and showers.
- 5.32 Work with bus operators to develop season ticket schemes for commuters to save money on the cost of long-term bus passes.

Highway Movements

Flows

- 5.33 Traffic volumes have been extracted from an existing VISSIM model of Bedford. The model was provided by Bedford Borough Council and converted into VISSIM 6 (from VISSIM 4.2).
- 5.34 A number of data collection points were inserted for several cross sections across the town. VISSIM calculated the weighted average of five runs for all vehicles and HGVs in the morning peak between 08:00 and 09:00.
- 5.35 The following list shows the main cross sections creating a cordon around the town for route accessing and egressing the central area:
- i. Clapham Road
 - ii. Roff Avenue
 - iii. De Parys Avenue
 - iv. Kimbolton Road
 - v. Goldington Road
 - vi. Castle Road
 - vii. The Embankment
 - viii. Longholme Way
 - ix. Cardington Road
 - x. London Road
 - xi. Ampthill Street
 - xii. Bedford Road/Kempston Road
 - xiii. Fore End Road
 - xiv. Bromham Road
 - xv. Shakespeare Road
- 5.36 A series of flows have also been identified around the town centre itself, including the two main road bridges.
- 5.37 The estimated flows at each of these locations, by direction, are presented in **Table 5.1**.

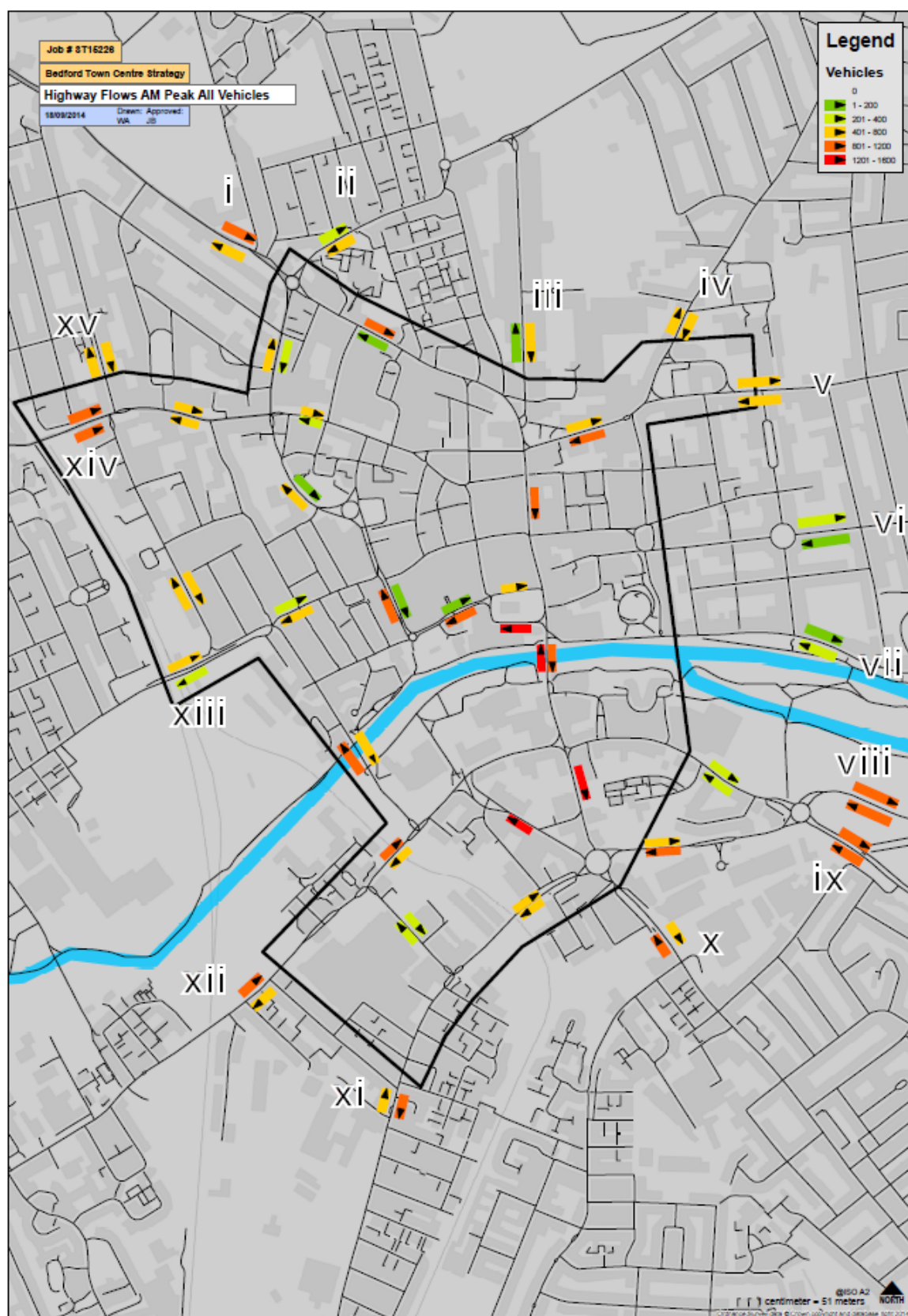
Table 5.1 Traffic Volume Vehicles AM

Point	Inbound Direction	Inbound Vehicle Flow	Outbound Direction	Outbound Vehicles Flow
i	SB	941	NB	665
ii	SB	483	NB	301
iii	SB	401	NB	36
iv	SB	515	NB	453
v	WB	625	EB	435
vi	WB	136	EB	213
vii	WB	277	EB	190
viii	WB	1,120	EB	1052
ix	WB	1,048	EB	802
x	NB	952	SB	501
xi	NB	776	SB	825
xii	NB	967	SB	582
xiii	EB	409	WB	330
xiv	EB	954	WB	988
xv	SB	465	NB	594
Cordon Total	Inbound	10,069	Outbound	7,967
Town Bridge	NB	1,205	SB	1,128
Prebend Bridge	NB	841	SB	797

am final converged100%.inp

5.38 A map illustrating the findings is shown in **Figure 5.4**.

Figure 5.4 Traffic Volume Vehicles AM Peak



Inbound vehicle volumes

- 5.39 The traffic volume at the main measuring points varies between 136 two-way vehicle movements on Castle Road and 1,120 inbound vehicle movements on Longholme Way. It is also noted that Cardington Road is heavily trafficked, with 1,048 inbound vehicle movements.
- 5.40 High flows (just under 1,000 inbound vehicle movements) also occur at Clapham Road, London Road, Bedford Road/Kempston Road and Bromham Road. These roads makeup the main connections to the west and the south of the town which accounts for the high vehicle numbers.
- 5.41 It is also noted that Ampthill Street (also connecting from the south) has a high flow of 776 inbound vehicle movements.
- 5.42 The approaches from the north east are not as busy; Kimbolton Road has a traffic volume of 515 inbound vehicle movements and Goldington Road 625 inbound vehicle movements.

Outbound vehicle flows

- 5.43 Similar to the inbound data, the highest traffic volume can be found in Longholme Way, with more than 1,000 outbound vehicle movements.
- 5.44 There are just under 1,000 outbound vehicle movements on Bromham Road, which leads to Northampton.
- 5.45 There are relatively few outbound movements on De Parys Avenue, the embankment, and Castle Road.
- 5.46 The outbound traffic volumes at Prebend Street bridge is very similar to that of the inbound volumes.

Flows within the town centre

- 5.47 Of the two bridges, the town bridge has the highest flows in each direction with over 2,300 two-movements in the AM peak. The flows in each direction are relatively balanced, with only marginally more northbound flows into the core town centre. Prebend Street bridge is relatively busy with a traffic volume of over 1,600 two-way vehicle movements.
- 5.48 Within the whole town centre study area the highest flows can be found around St. Paul's Square, on St. John's Street and Kingsway.

Congestion

- 5.49 Through traffic model outputs, on-site observations and discussions with Bedford Borough Council, a number of pinch points throughout the town centre were identified for further assessment.
- 5.50 Using a VISSIM model of Bedford, the average AM peak hour (08:00–09:00) flow at each pinch point has been calculated. The model was provided by Bedford Borough Council as a VISSIM 4.2 version file. After converting it into a VISSIM 6 version, data collection points were inserted for every approaching lane. Then VISSIM calculated the weighted average of 5 runs for all vehicles for the morning peak.
- 5.51 The pinch points are shown in **Figure 5.5** and an assessment of the delays at each is provided in the paragraphs beneath.

Figure 5.5 Pinch Points



Location S: Clapham Road/Manton Lane/Shakespeare Road

- 5.52 The roundabout is located in the north western corner of Bedford and links Clapham Road going east to west, Manton Lane from the north and Shakespeare Road from the south. The junction is shown in **Figure 5.6**.

Figure 5.6 Clapham Road/Manton Lane/Shakespeare Road



- 5.53 Manton Road has the smallest delay of all approaches with 12s. Clapham Road has 82s in the north approach and 137s in the south approach. Shakespeare Road is classified in the middle of these two with a delay of 105s.

Table 5.2 Clapham Road/Manton Lane/Shakespeare Road

Location	Approach	Delay [s]
Clapham Rd/Manton Ln/Shakespeare Rd	Clapham Rd N	82
	Manton Ln	12
	Clapham Rd S	137
	Shakespeare Rd	105

AM final converged100%.inp

Location T: Shakespeare Road/Bromham Road/Ashburnham Road

- 5.54 Further south Shakespeare Road intersects with Bromham Road and Ashburnham Road in the form of two mini roundabouts adjacent to each other. Bromham Road runs through east to west and Ashburnham Road to the south has an approaching lane for left/straight movements and one lane for right movements each. Shakespeare Road has only one approaching lane. All exits are built single lane as shown in **Figure 5.7**.

[illegible]

Source: EMI, *Billboard*, *GoEyes*, *Leaked*, *WUOL*, *WUOL*, *Ask*, *Shanghai*, *Academy*, *2014*, *152*, *Switzerland* and the *Old* *Use* *Community*.

Table 5.3 Shakespeare Road/Bromham Road/Ashburnham Road

Location	Approach	Delay [s]
Shakespeare Rd/ Bromham Rd/Ashburnham Rd	Shakespeare Rd	52
	Bromham Rd E left lane	117
	Bromham Rd E right lane	154
	Ashburnham Rd left lane	152
	Ashburnham Rd right lane	162
	Bromham Rd W left lane	95
	Bromham Rd W right lane	120

AM final converged100%.inp

Location U: Midland Road/Prebend Street/Ford End Road

This roundabout is located south of Bedford station. Midland Road and Ford End Road in the west run parallel before meeting at the roundabout. Midland Road west has two approaching lanes whilst the western approach only has one. The roundabout has a width of approximately 25m and the island in the middle has a width of 2m; the result is a very wide carriageway. In the south Prebend Street has two approaching lanes. Ruthland Road goes one way to the north only. The arrangement of the roundabout is shown in **Figure 5.8**.

[illegible]

- ### Table 5.4 Midland Road/ Prebend Street/Ford End Road

Location	Approach	Delay [s]
Midland Rd/ Prebend St/Ford End Rd	Midland Rd E	127
	Prebend St	173
	Ford End Rd	79
	Midland Rd W	35
	Ruthland Road (no input)	0

5.59 Wider evidence from the VISSIM model and on-site observation indicates that the delay that occurs at this junction has a knock-on effect at many other nearby junctions on the network. This is particularly the case for the delays on the Prebend Street arm, which queue back over the river bridge and as far back as Cauldwell Street. This is considered to be the root cause of the issues that are observed at the Prebend Street / Cauldwell Street junction and, in turn, this continues to have knock on effects at the other nearby junctions.

Location V: Prebend Street/Cauldwell Street

- 5.60 Prebend Street and Cauldwell Street form a T-Junction. Prebend Street comes from the north and meets Cauldwell Street south of the river. Prebend Street has one left lane and two right lanes. Cauldwell Street has one lane for each direction. The junction is shown in **Figure 5.9**.

Figure 5.9 Prebend Street/Cauldwell Street



- 1.2 For this junction the approaches were modelled as separate links for each lane. The delays range from 70s in Prebend Street to 135s in Cauldwell Street south approach.

Table 5.5 Prebend Street/Cauldwell Street

Location	Approaches	Delay [s]
Prebend St/Cauldwell St	Prebend St left lane	70
	Prebend St middle lane	82
	Prebend St right lane	97
	Cauldwell St N left lane	78
	Cauldwell St N right lane	106
	Cauldwell St S left lane	135
	Cauldwell St S right lane	102

AM final converged100%.inp

Location W: Cauldwell Street/Britannia Road/Kempston Road

- 5.61 Kempston Road has two lanes that lead straight ahead onto Cauldwell Street and one lane for turning right. Cauldwell Street has one lane in each direction and Britannia Road has one lane in total. The junction layout can be seen in **Figure 5.10**.

Figure 5.10 Cauldwell Street/Britannia Road/Kempston Road



- 5.62 Except for the right lane of Cauldwell Street, which has a delay of 110s, the delays in the approaching lanes are very similar at around 80s.

Table 5.6 Cauldwell Street/Britannia Road/Kempston Road

Location	Approach	Delay [s]
Cauldwell St/Britannia Rd/Kempston Rd	Cauldwell St left lane	82
	Cauldwell St right lane	110
	Britannia Rd	82
	Kempston Rd left lane	83
	Kempston Rd middle lane	80
	Kempston Rd right lane	77

AM final converged100%.inp

Location X: Ampthill Road/Britannia Road

- 5.63 There is a signalised T-junction where Britannia Road crosses Ampthill Road to the west of Bedford St. John's station. All approaches have one lane in each direction. This is shown in **Figure 5.11**.

Figure 5.11 Ampthill Road/Britannia Road



- 5.64 The highest delay occurs in Britannia Road with wait times of about one and a half minutes. The delay on Ampthill Road has an average maximum of 75s in the northern approach and 54s in the southern approach.

Table 5.7 Ampthill Road/Britannia Road

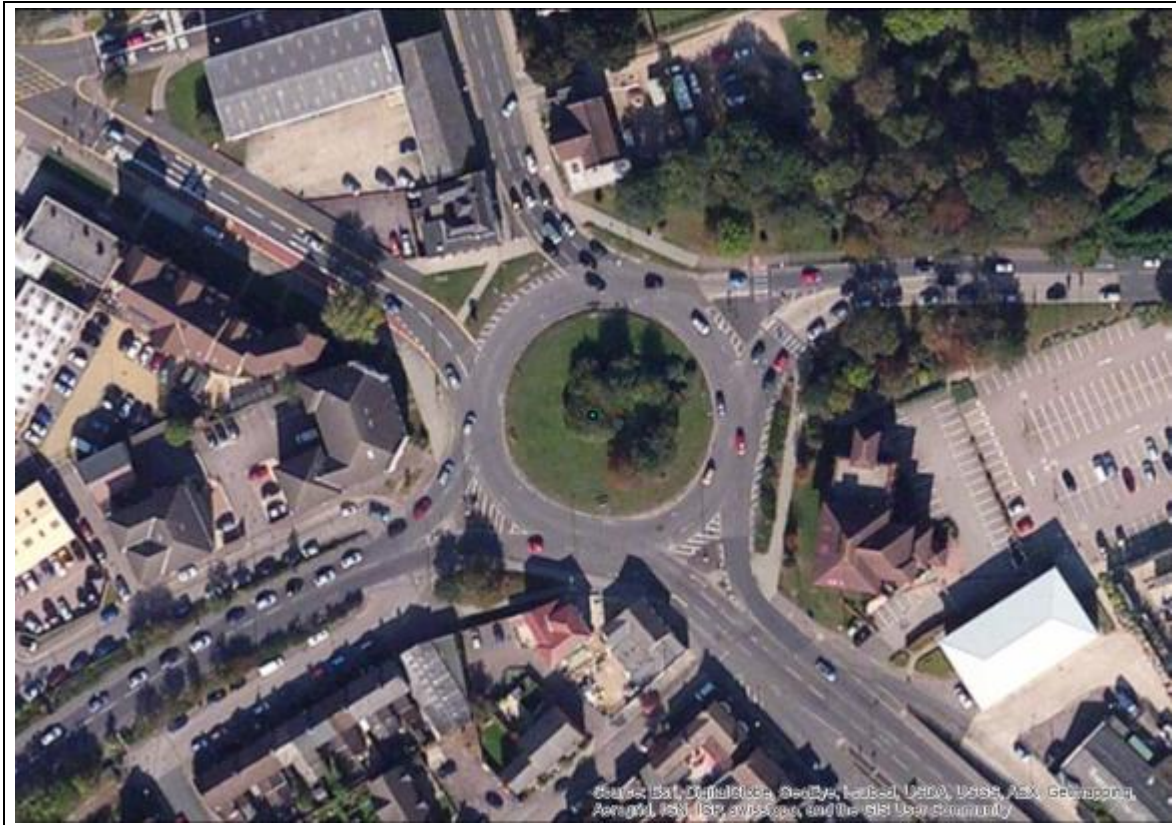
Location	Approach	Delay [s]
Ampthill Rd/Britannia Rd	Britannia Rd left lane	91
	Britannia Rd right lane	88
	Ampthill Rd N left lane	75
	Ampthill Rd N right lane	56
	Ampthill Rd S left lane	46
	Ampthill Rd S right lane	54

AM final converged100%.inp

Location Y: St. John's Street/Rope Walk/London Road/Amphill Road

- 5.65 East of Bedford St. John's station is a two lane roundabout with a 45m wide island. There is a slip lane for every right turn movement except from Amphill Road. Including the slip lane, Amphill Road has two western approaches. Kingsway consists of two exit lanes only. St. John's Street has three approaching lanes. London Road to the south has three approaching lanes, including the bypass. Rope Walk in the east is linked with two lanes. This arrangement is shown in **Figure 5.12**.

Figure 5.12 St. John's Street/Rope Walk/London Road/Amphill Road



- 5.66 The delays at this roundabout range from 28s in Rope Walk up to 89s in St. John's Street. Delays on Amphill Road are slightly more than one minute. On London Road the delay is 50s at the bypass and 61s and 83s at the other lanes.

Table 5.8 St. John's Street/Rope Walk/London Road/Amphill Road

Location	Approach	Delay [s]
St. John's St/ Rope Walk/London Rd/Amphill Rd	St. John's St	89
	Rope Walk left lane	61
	Rope Walk middle lane	43
	Rope Walk right lane	28
	London Rd left lane	50
	London Rd middle lane	83
	London Rd right lane	61
	Amphill Rd left lane	64
	Amphill Rd right lane	71

AM final converged100%.inp

Highway Flows: Key Issues

- 5.67 **HF-1:** Many of the main access points to the town centre and major junctions within the town centre suffer notable congestion during peak times, with the highest wait time recorded on Prebend Street with its junction at Midland Road/Ford End Road. The model outputs indicate that delays at this junction have considerable knock-on effects on other junctions to the south.
- 5.68 **HF-2:** Long wait times at junctions are costly in terms of local air quality, car ownership, and community. Idling on approach results in lower local air quality, higher petrol costs for drivers, and creates an unpleasant environment for pedestrians and cyclists. There are also issues associated with noise from high numbers of vehicles, particularly where they pass through residential areas.

Highway Flows: Key Opportunities

- 5.69 Signalising the junction at Prebend Street/Midland Road/Ford End Road may help regulate traffic flow and reduce queuing along Prebend Street. This will also benefit pedestrians navigating this area who currently lack sufficient crossing provision.
- 5.70 The double roundabout at Bromham Road/Shakespeare Road/Ashburnham Road is confusing and suffers delays at most of its arms which are among the highest of the junctions assessed. Improvements are needed for pedestrians and cyclists.
- 5.71 Develop a series of junction improvement schemes at the identified pinch-points across the network to be tested within a highway model in order to determine a package of measure to reduce congestion

Road Safety

Town Centre Analysis

- 5.72 This section presents the results of the analyses conducted on the accident data within the core town centre area (as presented in Figure 1.1) between 2011 and 2013.

Number of casualties (Town Centre)

- 5.73 The annual number of casualties in the town centre is shown in the column chart and table below. As well as total numbers, they show which road users are most vulnerable to accidents.

Figure 5.13 Casualties in the town centre area

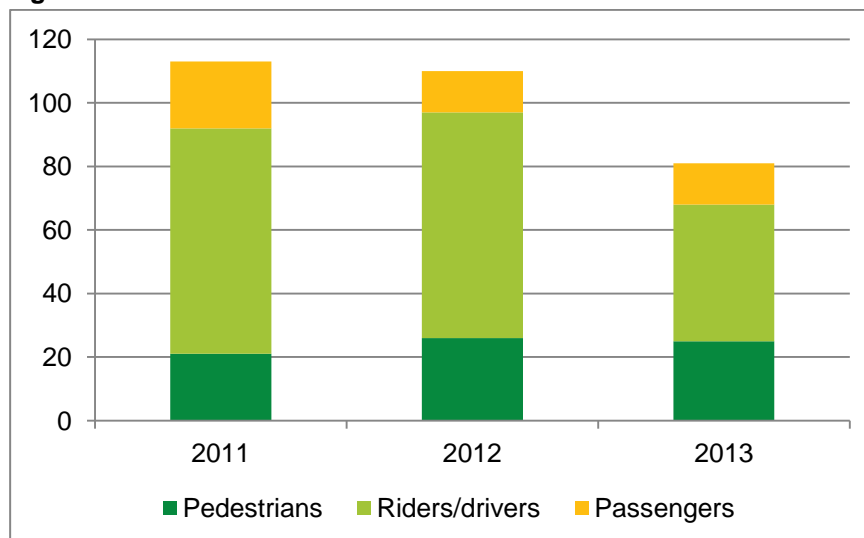
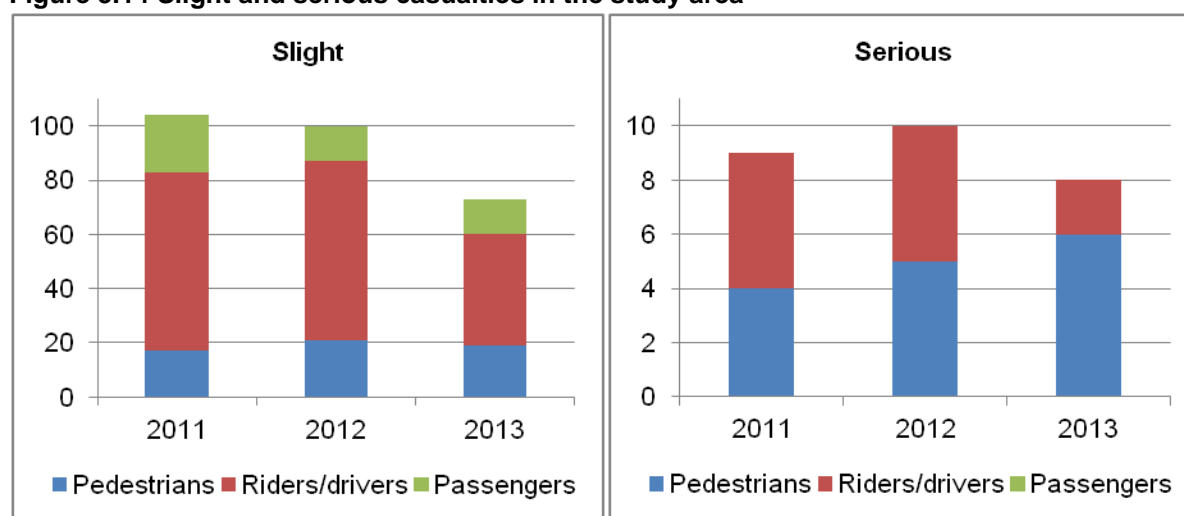


Table 5.9 Casualties in the town centre area

	Slight			Serious			Total			2011-13 Total
	2011	2012	2013	2011	2012	2013	2011	2012	2013	
Pedestrians	17	21	19	4	5	6	21	26	25	72
Drivers/Riders	66	66	41	5	5	2	71	71	43	185
Passengers	21	13	13	0	0	0	21	13	13	47
Total	104	100	73	9	10	8	113	110	81	304

- 5.74 The obvious encouraging trend emerging from the data is the decrease in the annual number of casualties. Although the decrease is negligible between 2011 and 2012 (-3%), the following year there was a 26% drop. This was almost entirely due to the 39% decrease in number of driver/rider casualties, which have consistently been the most vulnerable users, affected by 60% of accidents.
- 5.75 Whilst the overall accident rates are falling, it is not the case that all accident rates amongst user groups have fallen. In particular, there is a reported 19% increase in pedestrian casualties in the observed timeframe.
- 5.76 The vast majority of accidents are slight, with only 9% of casualties between 2011 and 2013 being classified as serious. The column charts below separate the slight and serious accident data.

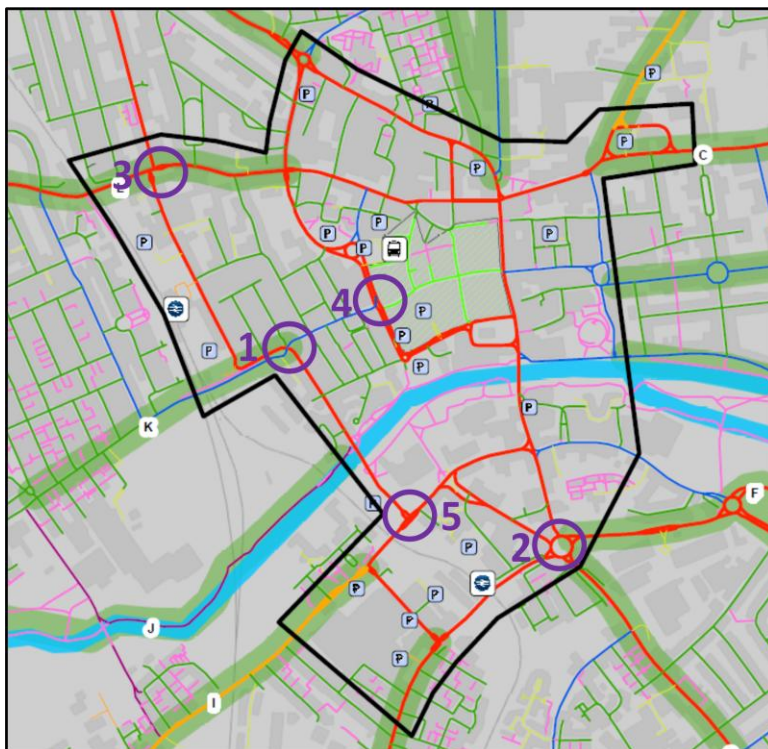
Figure 5.14 Slight and serious casualties in the study area

- 5.77 The most obvious observation that emerges from the data is that, although pedestrians are only injured in 18 to 31% of accidents, they are most vulnerable to serious accidents. In 2013, 75% of serious casualties were pedestrians. The second user group most affected by serious accidents is drivers/riders, with no serious damage inflicted to passengers over the observed period of time.

Key Junctions (town centre)

- 5.78 A spatial analysis was conducted regarding the spread of casualties within the study area. The data revealed two particular junctions (1 and 2 on Figure 5.15) with much higher than average accident rates. The map also highlights three other key junctions (3, 4, and 5) with high accident rates.

Figure 5.15 Key junctions within study area



5.79 The Figure 5.16 and Table 5.10 summarise casualty data at these five key junctions.

Figure 5.16 Casualties at key junctions

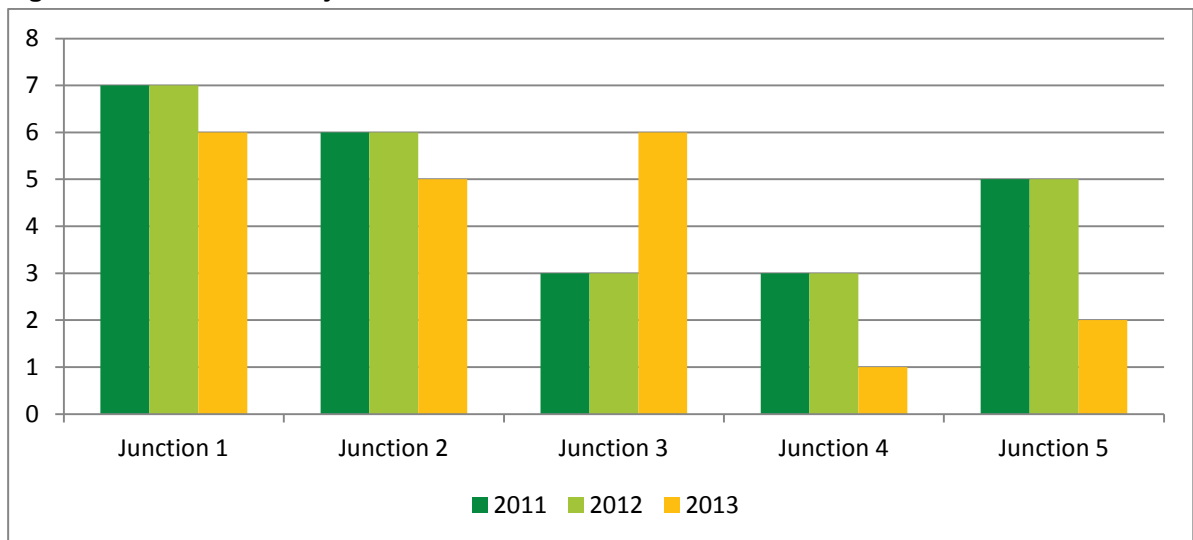


Table 5.10 Casualties at key junctions

	Slight			Serious			Total			2011-13 Total
	2011	2012	2013	2011	2012	2013	2011	2012	2013	
Junction 1	6	6	5	1	1	1	7	7	6	20
Junction 2	5	5	5	1	1	0	6	6	5	17
Junction 3	3	3	6	0	0	0	3	3	6	12
Junction 4	3	3	1	0	0	0	3	3	1	7
Junction 5	5	5	2	0	0	0	5	5	2	12

- 5.80 Junctions 1 and 2 have both the highest level of accidents and have the highest number of serious accidents over the observed timeframe (three at junction 1 and two at 2). Junction 3 and 5 both have 12 accidents recorded over the three year period, but for Junction 3, half of these occurred in the last year, suggesting a potential increase in safety risk, although none of these accidents were serious.
- 5.81 Figure 5.17 presents the same data but broken down by year to see the change over time. Junctions 5 and 6 appear to have improved over the observed period, whilst junction 3 has suffered an increase in accidents.

Figure 5.17 Casualties at junctions over time



Comparison to National Standards

- 5.82 Comparing the local accident data to the national one, available in Reported Road Casualties in Great Britain, the following observations can be made:
- National 4% decrease in casualties between 2011 and 2012 (2.7% in study area)
 - National 6% decrease in casualties between 2012 and 2013 (26.4% in study area)

Corridor Analysis

- 5.83 A similar analysis was performed on accident data along the major corridors leading into the Bedford town centre (as defined in Figure 1.1).

Number of casualties (corridors)

- 5.84 The total number of casualties between 2011 and 2013 is shown in Figure 5.18 and Table 5.11 below. The data also shows which road users are most vulnerable to accidents.

Figure 5.18 Casualties in corridors

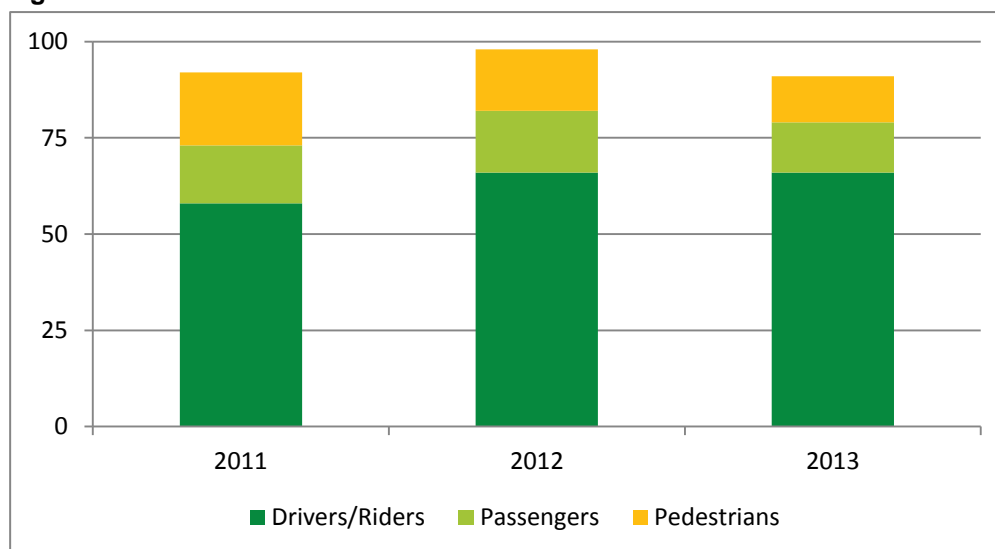
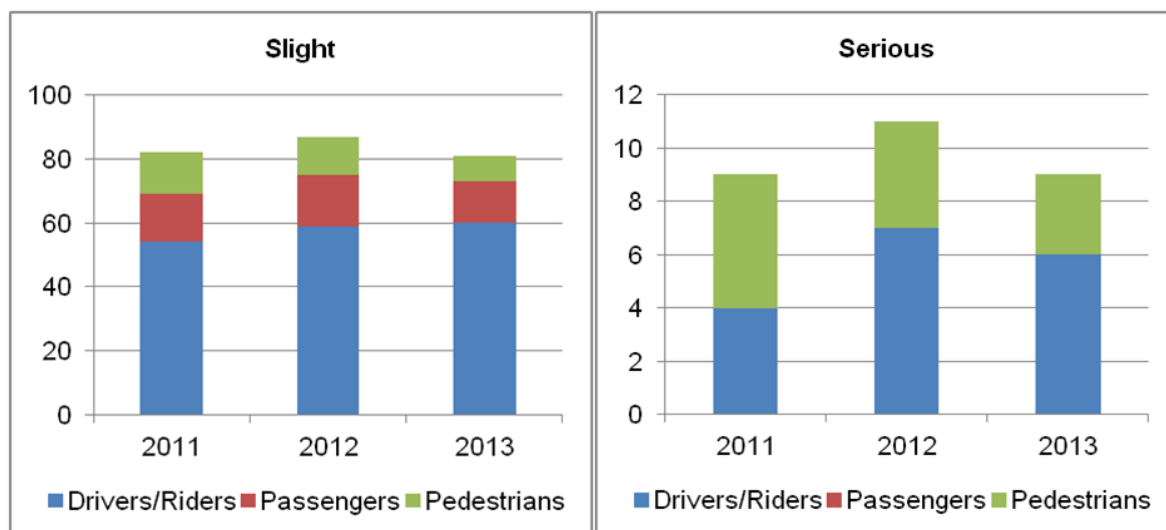


Table 5.11 Casualties in corridors

	Slight			Serious			Fatal			Total			2011-13 Total
	2011	2012	2013	11	12	13	11	12	13	11	12	13	
Pedestrians	13	12	8	5	4	3	1	0	1	19	16	12	47
Drivers/Riders	54	59	60	4	7	6	0	0	0	58	66	66	190
Passengers	15	16	13	0	0	0	0	0	0	15	16	13	44
Total	82	87	81	9	11	9	1	0	1	92	98	91	281

- 5.85 No clear trend emerges from the data regarding the annual number of casualties over time: the 91 casualties of 2013 are the least in the three-year period, but between 2011 and 2012 there was a 7% increase. Almost 68% of casualties are drivers and riders, of which cyclists account for 26% (three serious and 46 slight).
- 5.86 The number of driver/rider casualties increased by 14% between 2011 and 2012, but remained constant the following year. By contrast, the number of pedestrian casualties dropped by 16% in 2012 and 25% in 2013. Passenger casualties followed the overall trend, with a slight increase between 2011 and 2012, and a slight decrease in 2013.
- 5.87 The vast majority of accidents are slight, with only 10% of being classified as serious, and two fatal incidents (both victims being pedestrians). Figure 5.19 presents breakdown by slight and serious casualties.

Figure 5.19 Slight and serious casualties in corridors



5.88 The most obvious fact that emerges from the data is that, although pedestrians only account for 13 to 21% of casualties each year, they are the ones most vulnerable to serious accidents. In 2013, 67% of serious casualties were pedestrians, with two pedestrians killed. The second user group most affected by serious accidents is drivers/riders, with no serious passenger casualties over the observed time period.

Spatial Analysis (corridors)

- 5.89 A spatial analysis was conducted regarding the spread of casualties across the corridors leading into the core town centre study area.
- 5.90 The Figure 5.20 and Table 5.12 show casualties along each of the corridors (as presented in Figure 1.1).

Figure 5.20 Casualties along each corridor

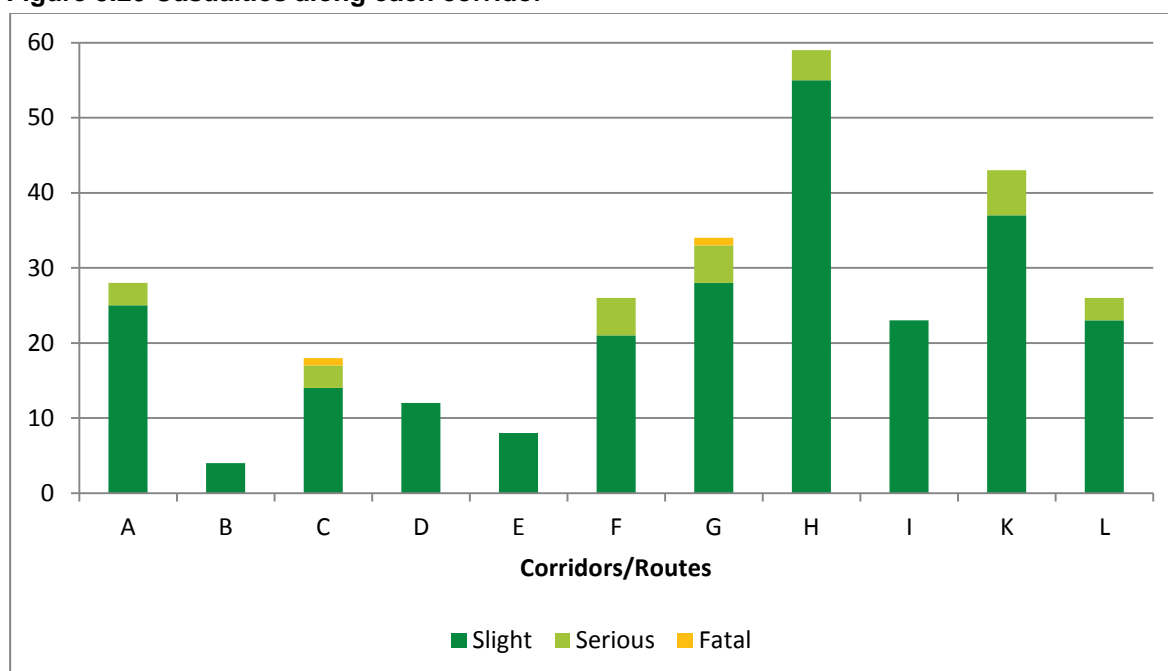
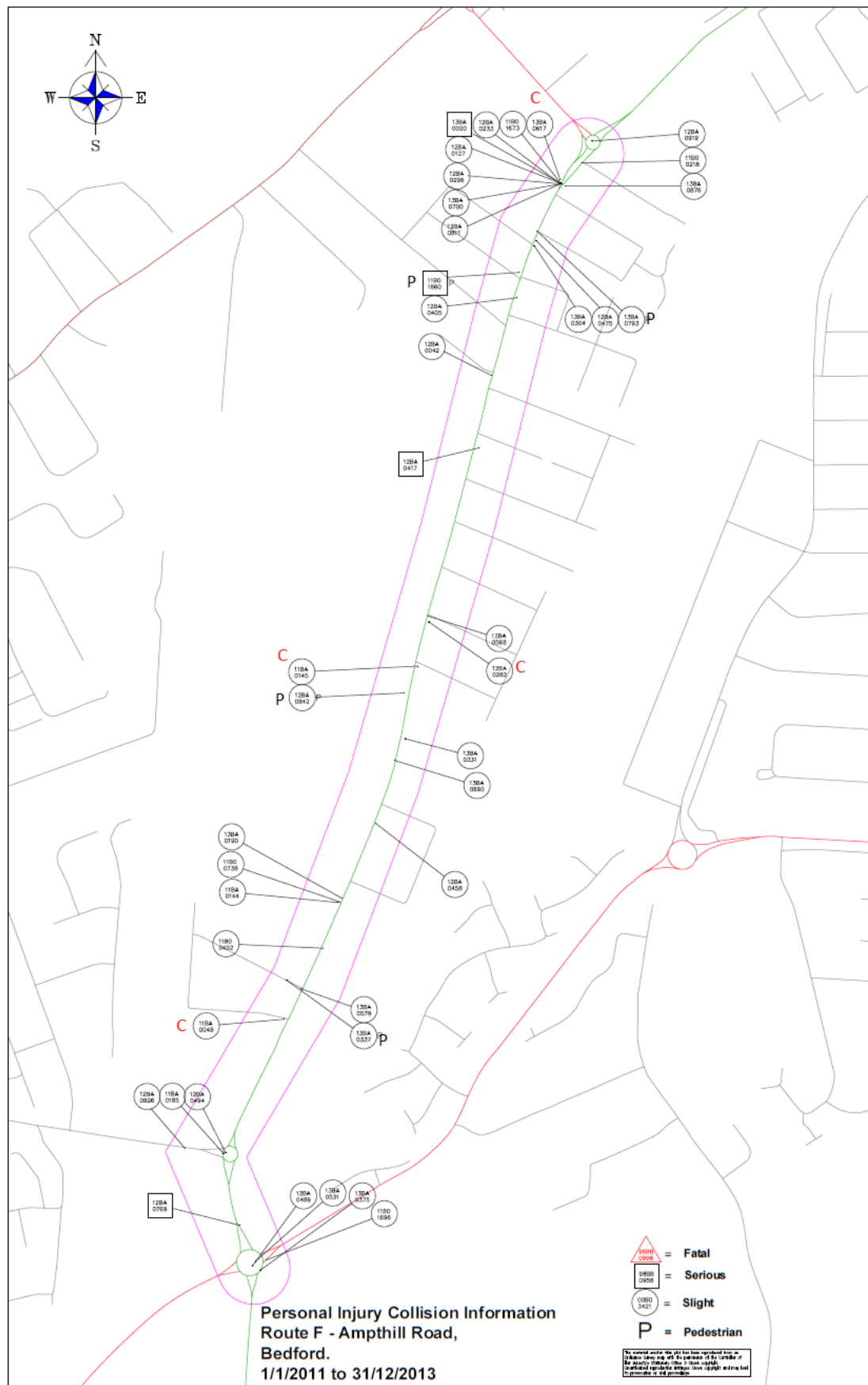


Table 5.12 Casualties along each corridor

	Slight			Serious & Fatal			Total			2011-13 Total
	2011	2012	2013	2011	2012	2013	2011	2012	2013	
Route A	10	3	12	2	1	0	12	4	12	28
Route B	1	2	1	0	0	0	1	2	1	4
Route C	2	7	5	0	1	3	2	8	8	18
Route D	6	3	3	0	0	0	6	3	3	12
Route E	4	0	4	0	0	0	4	0	4	8
Route F	9	5	7	1	3	1	10	8	8	26
Route G	13	5	10	2	1	3	15	6	13	34
Route H	10	29	16	1	2	1	11	31	17	59
Route I	5	12	6	0	0	0	5	12	6	23
Route K	15	14	8	3	1	2	18	15	10	43
Route L	7	7	9	1	2	0	8	9	9	26

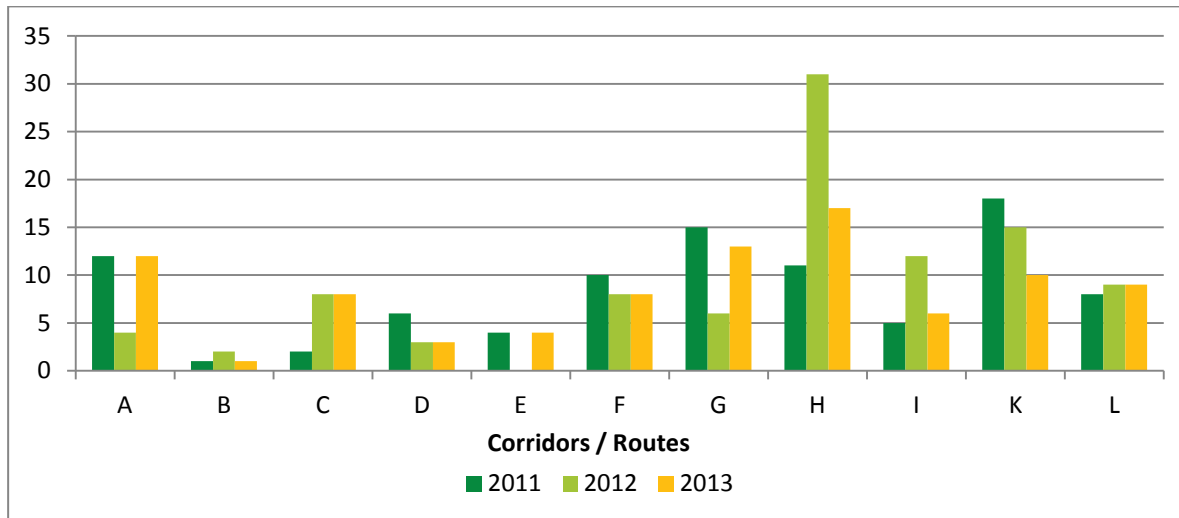
- 5.91 It is clear from the data that corridor H suffers the highest overall number of accidents (twenty casualties per year), followed by K and G (fourteen and ten respectively). The two latter corridors also have the highest number of serious casualties, with six apiece. The two fatal accidents took place along corridors C and G.
- 5.92 Figure 5.21 below shows the spatial distribution of the accidents along corridor H. It is clear that the main accident 'hotspot' is the junction at the northern end of the route, in proximity to Bedford Hospital, with nine accidents taking place over the three years. Six of these involved southbound vehicles turning right into A&E, across two lanes of northbound traffic. Two collisions were right turns out of hospital grounds, whilst the last accident was a car that hit a cyclist on the pedestrian crossing whilst turning left into A&E. None of these accidents involved ambulances or other hospital vehicles.
- 5.93 The other accidents along the route follow a relatively even distribution, with a slight clustering observed at the two southern roundabouts. All of the three cyclist casualties on the southern part of the corridor have been caused by right hooking, with cars trying to turn off Ampthill Road.
- 5.94 Three accidents took place at the junction with Technology House, on the western side of Ampthill Road. These incidents were very different in nature: one caused by a vehicle turning left, another by a vehicle that suddenly stopped to let an emergency vehicle cross the road, and the last by a vehicle entering the road from his property.

Figure 5.21 Corridor H accidents



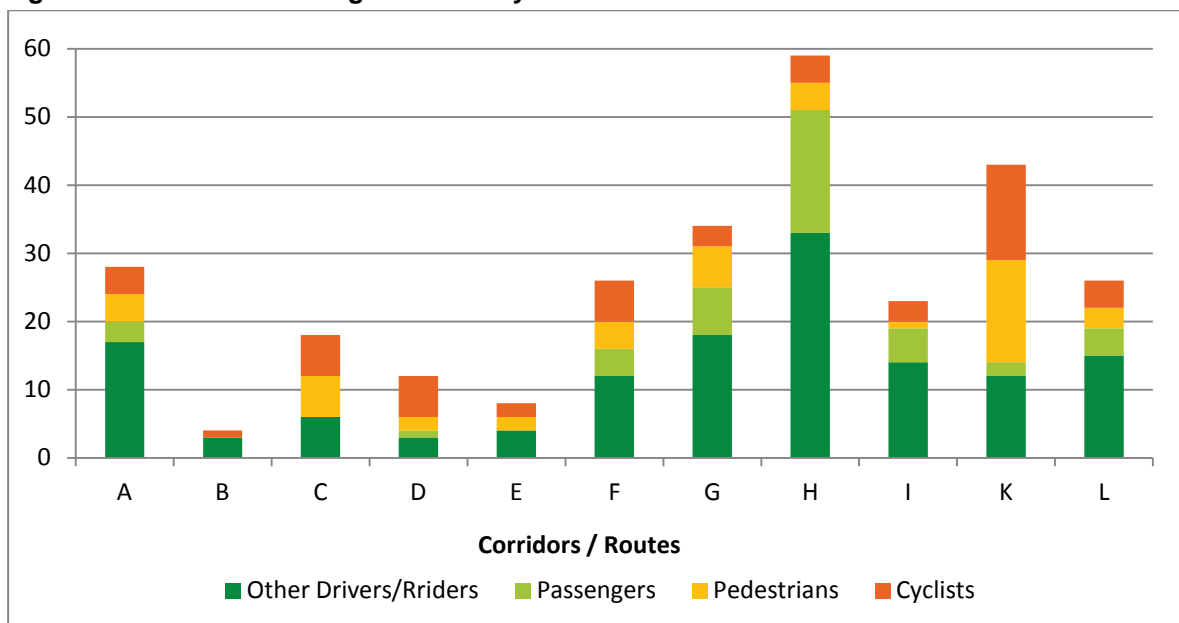
5.95 Figure 5.22 shows that, along most corridors, there are no clear trends over time. The exceptions to this are corridor K, which has consistently improved.

Figure 5.22 Casualties along main corridors



5.96 Figure 5.33 shows which users are the most vulnerable along the various corridors. For the purpose of analysis, we have separated cyclists from other drivers/riders.

Figure 5.23 Casualties along corridors by user

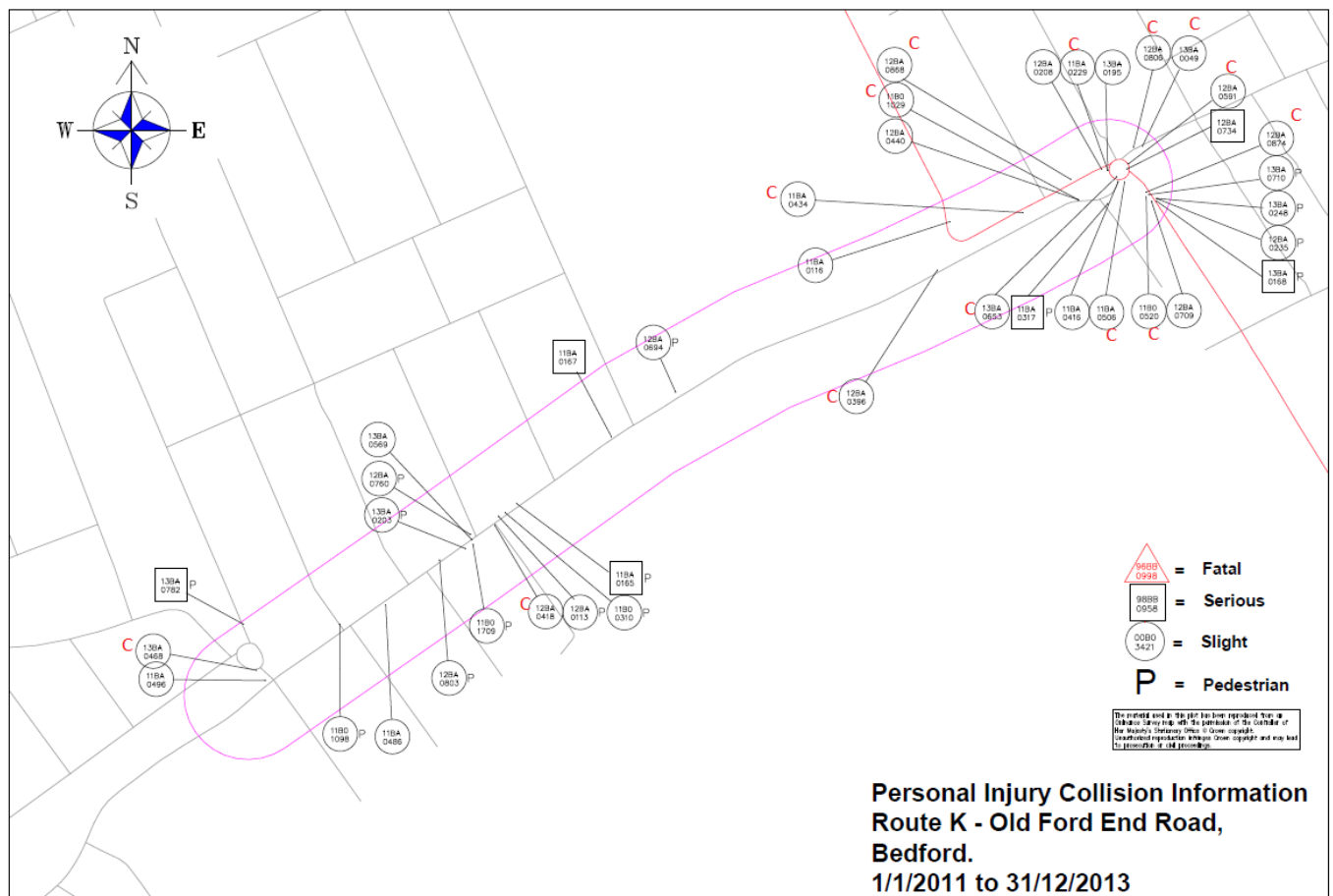


5.97 At most junctions, the majority of casualties are other drivers/drivers, in line with the overall trend previously discussed. The exceptions to this trend are at junctions:

- C: pedestrians and cyclists each account for 33% of casualties
- D: cyclists account for 50% of casualties
- K: pedestrians account for 28%, cyclists for 33%

5.98 The corridor of main concern is K, because of the high number of pedestrian and cyclist casualties (29 over three years). Looking at the spatial distribution of these accidents (see Figure 5.24 overleaf), it is clear that the vast majority of them take place at the Prebend St roundabout.

Figure 5.24 Corridor K accidents (cyclists marked with a red C)



5.99 Although most accidents are deemed to be caused by behaviour of drivers/riders and pedestrian, the density of the cluster suggests that design aspects may be a contributor factor:

- In the approach to the roundabout from Ford End Road, there are two instances of side swipe on a cyclist, one by an HGV and the other by a car
- In the approach to the roundabout from Ford End Road, a car turned into the post office, colliding with a pedestrian
- Within the roundabout itself, on two occasions a cyclist was struck by a car that did not give way
- In other two cases a car suddenly left the roundabout cutting across the path of the bicycle
- On the pedestrian crossing of Prebend Street, one cyclist and four pedestrians have been hit whilst on the zebra crossing. In one instance the pedestrian was blamed for not looking and suddenly crossing, whilst in all other occasions the car driver was at fault
- On the pedestrian crossing of Midland Road (north-east), two cyclists were hit (one of which crossed at speed without looking)
- The stationary vehicles on the side of the road have also caused two accidents with cyclists: along Prebend Road a car tried to merge with traffic but hit the approaching cyclist, whilst on Midland Road the driver opened the door and hit the cyclist.

5.100 Along the rest of the corridor there have been:

- Two right-hook accidents, with cars leaving the main road and hitting bicycles on the nearside
- One incident in which a car hit a bicycle on a zebra crossing (Midland Road)
- Seven accidents on Ford End Road (between Coventry Road and Fairfax Road) in which a pedestrian was hit when trying to cross the road. Although several of these were due to pedestrians running across the road and putting themselves at risk, it is an indication that a zebra crossing is required in the area.

Road Safety: Issues

5.101 **RS-1:** Accident levels at the Prebend Street / Midland Road Junction

5.102 **RS-2:** Accident levels at the roundabout of Kingsway/St John's Street/Rope Walk/London Road/Amphill Road

5.103 **RS-3:** Accident levels on Amphill Road around the access to the Hospital

5.104 **RS-4:** General accident levels along the Amphill Road corridor

5.105 **RS-5:** General accident levels along the Fore End Road corridor

Parking Demand

On-street CPZ surveys

5.106 Demand survey data is available for Zone A, B, and E and are summarised below.

Zone A

5.107 CPZ A consists of 12 streets with 192 parking spaces in total. In July 2013 this had 203 spaces. The number of permits of all types given was 223.

5.108 During the three days, 38 vehicles were recorded without a ticket displayed during the regulated times. However, these drivers could have used pay by phone or park without permit. Another 154 cars not displaying permission were found after the regulated times.

- On Wednesday the peak occupancy was 68% and the average was 66%. Gadsby Street, Ram Yard and Duke Street had occupancy of nearly 100%.
- On Thursday the average occupancy was 71% with a peak of 77%. Only Gadsby Street was noted to suffer overcrowding.
- On Saturday the peak occupancy was 69% with an average of 66%. Parking places were available in all streets throughout the survey.

5.109 The survey results appear to indicate that the CPZ is generally effectively controlling on-street parking levels in this area, although Gadsby Street, Ram Yard and Duke Street have the highest parking pressures.

Zone B

- 5.110 CPZ B consists of 13 streets with 325 parking spaces in total. In July 2013 it contained 342 spaces. The number of permits given of all types was 302.
- 5.111 During the three days, 51 vehicles were recorded without a ticket displayed during the regulated times. These drivers could have used pay by phone or park without permit. Another 264 cars without a permission were found after the regulated times.
- On Wednesday the peak occupancy was 75% and the average was 67%. In the early evening, Alexandra Place had 100% occupancy and in the late evening Roise Street had 100% occupancy.
 - On Thursday the average occupancy was 69% with a peak of 75%. In the early evening Alexandra Place was full as there was a function in a nearby hall.
 - On Saturday the peak occupancy was given with 82% by an average of 77%. In the early evening Alexandra Place was full again.
- 5.112 The survey results suggest relatively high levels of occupancy, in particularly in Alexandra Place. This is certainly the case in the evening period, outside of the control periods.

Zone E

- 5.113 CPZ E consists of 12 streets with 610 parking spaces in total. During the three days, 127 vehicles were recorded without a ticket displayed during the regulated times. These drivers could have used pay by phone or park without permit. Another 332 cars without permission were found after the regulated times.
- On Wednesday the peak occupancy was 71% and the average was 64%. In the early evening a part of Newnham Street was oversubscribed by one car and in the late evening Castle Road and a part of Albany Road was oversubscribed.
 - On Thursday the average occupancy was 63% with a peak of 69%. In the late evening Castle Road and Rothsay Place had an occupancy of 100%.
 - On Saturday the peak occupancy was given with 77% by an average of 70%. In the early evening Albany Road and in the late evening Castle Road were oversubscribed.
- 5.114 The survey results appear to indicate that the CPZ is generally effectively at controlling on-street parking levels in this area, with Newnham Street, Castle Road and Rothsay having the highest parking pressures in the evening periods outside of the control periods.

Parking Demand: Issues

- 5.115 **PD-1:** The close proximity of the residential on-street parking to the retail town centre mean it is important to maintain and effectively enforce the CPZ restrictions to prevent non-resident parking.

Parking Demand: Opportunities

- 5.116 Whilst the town centre has a plentiful provision of town centre car parking it is important that this is effectively managed, with a focus on encouraging short-stay high turnover parking provision in central retail town centre areas and longer-stay parking towards the outskirts of the town.
- 5.117 Ensuring an integrated parking strategy that incorporates the use of park & ride can ensure the most effective use of parking resources.
- 5.118 Investigate whether the CPZ should be extended to ensure that resident parking is protected

Freight Movements

5.119 Whilst no specific count data is available on freight flows within the town centre, the traffic models provide indicative data on flows into and out of the town centre. The following list shows the main cross sections creating a cordon around the town for route accessing and egressing the central area:

- | | |
|----------------------|---------------------------------|
| i. Clapham Road | ix. Cardington Road |
| ii. Roff Avenue | x. London Road |
| iii. De Parys Avenue | xi. Ampthill Street |
| iv. Kimbolton Road | xii. Bedford Road/Kempston Road |
| v. Goldington Road | xiii. Fore End Road |
| vi. Castle Road | xiv. Bromham Road |
| vii. The Embankment | xv. Shakespeare Road |
| viii. Longholme Way | |

5.120 **Table 5.13** provides a summary of the flows.

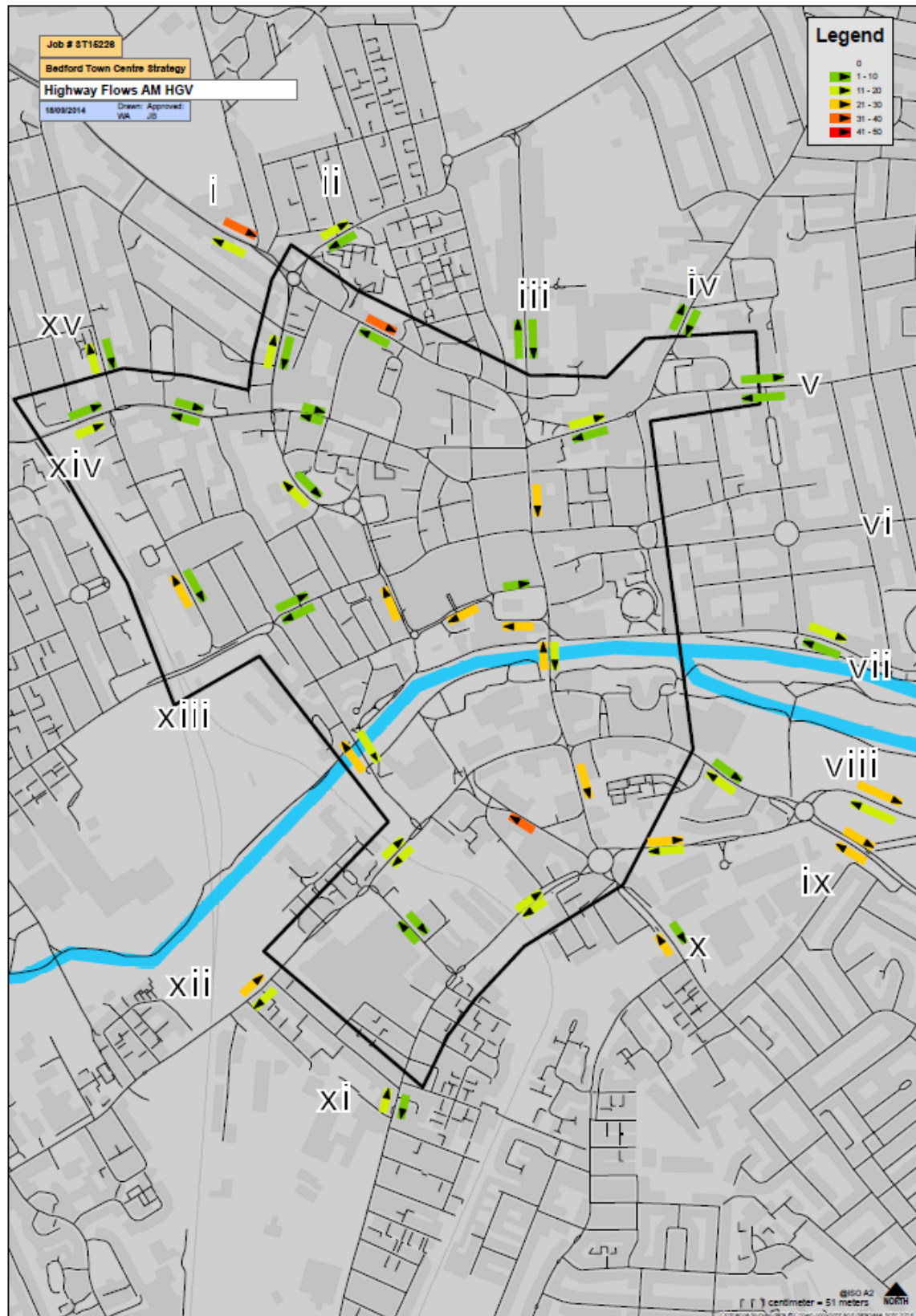
Table 5.13 Traffic Volume HGV Inbound AM

Point	Inbound Direction	Inbound HGV Flow	Outbound Direction	Outbound HGV Flow
i	SB	38	NB	20
ii	SB	5	NB	16
iii	SB	1	NB	2
iv	SB	1	NB	6
v	WB	8	EB	8
vi	WB	0	EB	0
vii	WB	5	EB	19
viii	WB	18	EB	27
ix	WB	27	EB	24
x	NB	23	SB	10
xi	NB	14	SB	9
xii	NB	22	SB	17
xiii	EB	n/a	WB	n/a
xiv	EB	7	WB	14
xv	SB	9	NB	16

am final converged100%.inp

5.121 A map illustrating the flows is shown in **Figure 5.25**.

Figure 5.25 Traffic Volume HGV AM Peak



Inbound HGV flows

- 5.122 The highest HGV flow can be found at Clapham Road, with a total of 38 HGVS traversing this cross section in the morning peak.
- 5.123 Between 20 and 30 HGV using Cardington Road, London Road, and Bedford Road/Kempston Road.

Outbound HGV flows

- 5.124 Longholme Way has the highest level of HGV inbound movements (27) in the peak hour. There are also relatively high levels of HGV movements on Cardington Road (24) and Clapham Road (20).
- 5.125 There are high levels of HGV traffic entering the town centre via Clapham Road and leaving via Cardington Road. This would imply that a high proportion of HGVs are routing through the town centre via St. Mary's Street bridge.

Flows within the town centre

- 5.126 The data demonstrates that there are relatively heavy HGV flows heading southbound along the High Street, as well as northbound around Horne Lane/River Street.

General Access

- 5.127 Most buildings on the High Street can be accessed from the back by servicing/delivery vehicles, although for those with no rear access vehicles park along the High Street itself.
- 5.128 High Street businesses are not reported to have many complaints about service access to their units. However, deliveries/services for the Harpur and Howard Centres often cause and suffer from congestion and have to use local bus stop for deliveries. There have also been issues reported with local bakery deliveries.
- 5.129 HGVs are able to use the High Street and regularly do so, although it is expected that most of these will be diverted once the bypass is complete. The bypass is not expected to have a major impact on general town centre traffic but may remove half of the current volume of HGVs from the town centre.

Freight Deliveries: Key Issues

- 5.130 **FRD-1:** Whilst some High Street buildings can be accessed from the rear, those that cannot require vehicles to park along High Street. This can cause congestion and create an unpleasant environment for pedestrians.

Freight Deliveries: Key Opportunities

- 5.131 Investigate opportunities to actively manage delivery times to ensure that freight movements do not conflict with shoppers and help create an improved town centre environment.
- 5.132 Ensure that new developments in the Town Centre have facilities for delivery and servicing to be made off-street.
- 5.133 The opportunity to establish a Freight Quality Partnership would help to coordinate freight movements within the town centre and act as a forum to resolve localised issues.
- 5.134 Removing highway network pinch-points around St. Paul's Square will improve freight deliver access times.

Bus Movements

- 5.135 During school term times, Bedford experiences traffic congestion that affects bus services. Some bus service timetables allow up to 10 minutes extra time in the morning peak for buses to reach the town centre. Particular difficulties arise for services coming in from the Clapham, Bromham and Kempston directions. Despite bus priority measures being provided in some locations (such as Ampthill Road), buses experience delays at junctions where priority cannot be provided, such as Britannia Road, and the junctions at either end of it, Kempston Road and Wilmer's Corner (the junction between Ampthill Road, Kingsway, St John's Street, Rope Walk and London Road).

Bus Movements: Key Issues

- 5.136 **BM-1:** Traffic congestion affects bus reliability and subsequently affects the route choices that bus operators are prepared to service.

Bus Movements: Key Opportunities

- 5.137 General enhancements to traffic movements will improve bus reliability. Specific bus-related measures, such as bus priority, can ensure provide a reliable and attractive bus network.

Taxi Demand

- 5.138 Informal information from the council and taxi drivers suggests that many of the taxi journeys that originate from Bedford Station relate to travel into the town centre. This is a relatively short distance but the orientation of the town centre from the station creates the perception that the two areas are remote.
- 5.139 Whilst these short-distance trips will always remain a requirement for some travellers, they do add to town centre vehicle circulation, congestion and air pollution. Given the issues of congestion along Ashburnham Road, reducing unnecessary taxi trips could help to alleviate traffic delays.

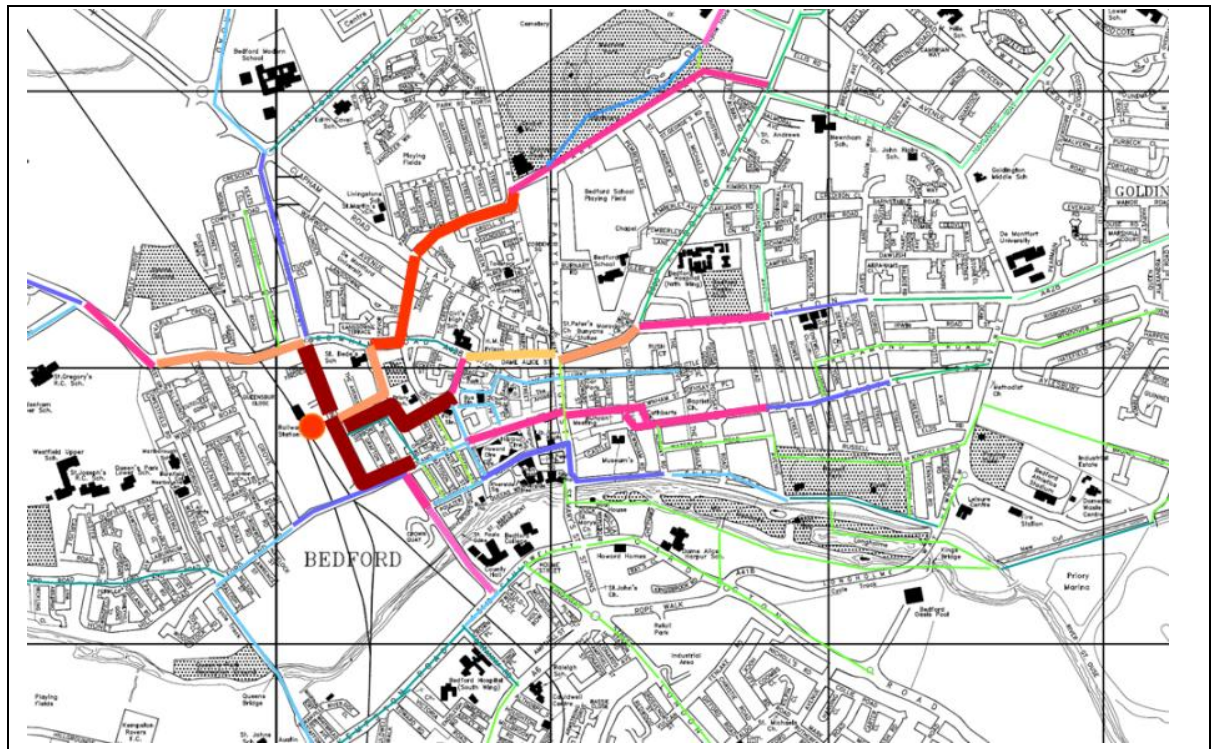
Taxi Demand: Key Issues

- 5.140 **TPHD-1:** There is a significant demand for taxi journeys between Bedford Rail Station and the town centre. This adds to existing congestion along the Ashburnham Road and air quality issues.

Cycling Movements

- 5.141 An informal survey of cyclists at Bedford was carried out in 2013 to understand their routes to the station and problem junctions for cyclists.
- 5.142 The resulting map of cycle routes **Figure 5.14** shows that the majority of cyclist traffic arrives from north of the river, particularly along Bromham Road and Union Street/Roff Avenue where there are on-road cycle lanes marked out for parts of the journeys.

Figure 5.26 Survey of cycle routes to Bedford station



- 5.143 Prebend Street is the main north-south crossing point for cyclists, with relatively few using the crossing at Ford End or the High Street.
- 5.144 Very few cyclists use the High Street or riverside routes.
- 5.145 A noticeable number of cyclists travel along Castle Road, Mill Street, and Silver Street on the way to the station. However, it is unclear if cyclists dismount at Silver Street as they are instructed or if they continue cycling through the pedestrian zone.

Cycling Travel Patterns: Key Issues

- 5.146 **CTP-1:** Although Bedford station attracts a large number of cyclists, they tend to arrive largely from neighbourhoods in the north half of Bedford. This suggests residents in the south half of the town feel too cut off, or do not know of appropriate routes, to cycle to the station.
- 5.147 **CTP-2:** Some 'desire lines' highlighted by the survey, such as that along Roff Avenue and Castle Road/Mill Street, currently lack marked cycle lanes.

Cycling Travel Patterns: Key Opportunities

- 5.148 The creation of a current, clear Bedford cycling map, which could be distributed at the station and other key sites throughout the town centre as well as online, would promote cycling across the town.
- 5.149 Consideration could be given to adding marked/painted cycle lanes on Roff Avenue and Mill Street and adding bicycle stencils to Castle Road to designate space for cyclists.
- 5.150 The river paths offer good potential to aid cyclists in east-west travel as they offer fairly direct, unimpeded cycling. However, it appears these paths are underused. Uptake may be improved by

providing lighting, clear and simple access points to the river path from the town centre and neighbourhoods along the river path, wayfinding features, and path maintenance.

- 5.151 Similarly, the High Street could potentially be a straightforward cycling route once this road is reduced and de-trafficked. Consideration should be given to allowing cycling in both directions on the High Street to give cyclists direct options through the town.

6 Accessibility

Overview

- 6.1 The baseline public transport, cycling, and walking accessibility of Bedford Town Centre has been assessed via GIS network analysis of the road and path network. This identifies areas that are isolated or accessible from the Town Centre allows for a greater understanding of where to direct future transport strategy.

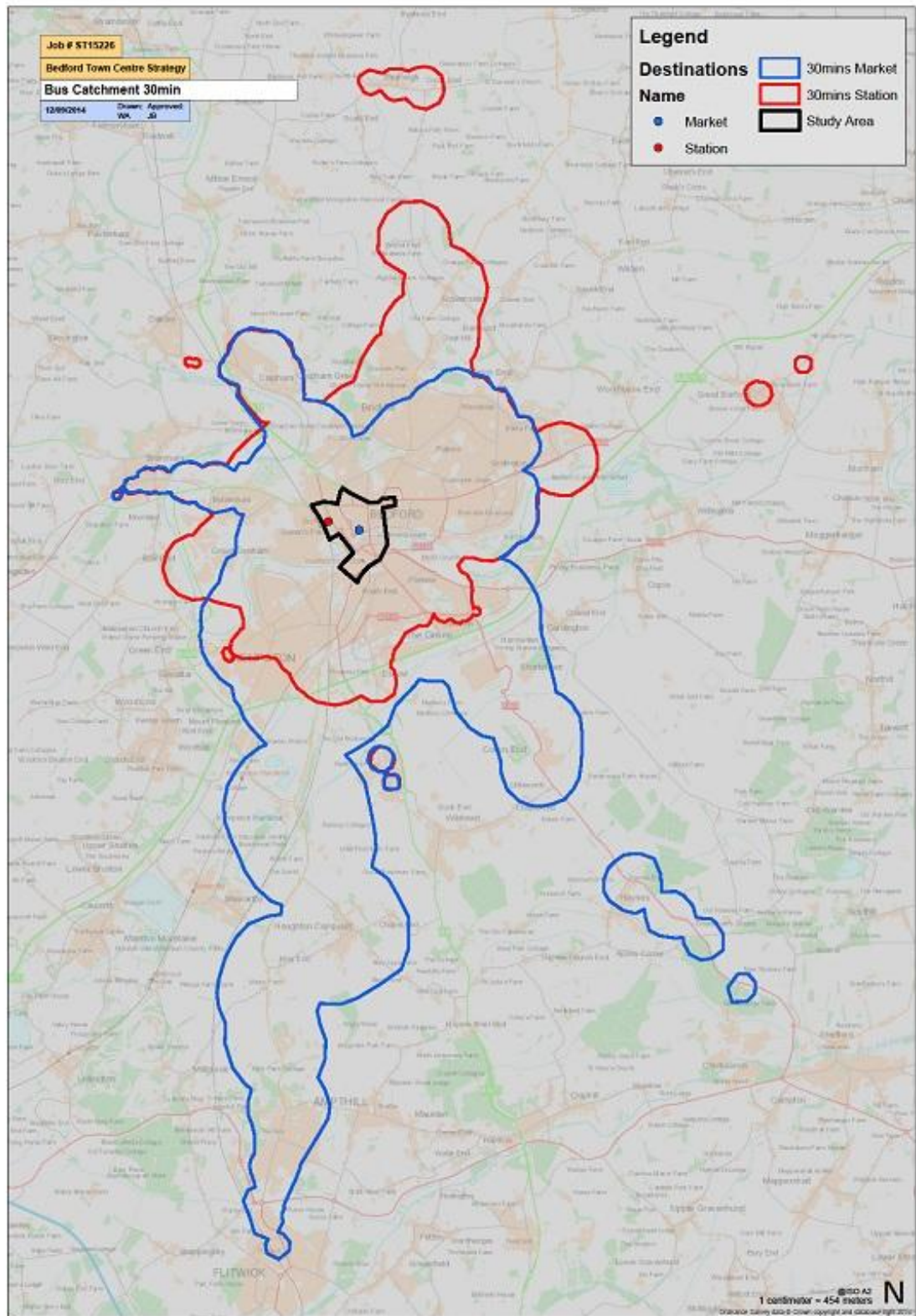
Bus Accessibility

- 6.2 Figure 4.8 in Section 4 presents the level of bus stop accessibility across Bedford. A distance catchment was plotted with the origins at all bus stop locations in Bedford. The stops are based on NAPTAN transport stop data. The catchment outlines the 400m distance catchment around each bus stop. The plot uses OS Mastermap ITN road and path networks to calculate distances from each bus stop. The base map is the OpenStreetMap transport layer, showing bus routes.
- 6.3 In general, the majority of the built up areas fall within 400 metres of a bus stop, suggesting that the bus network is accessible from a network coverage and layout point of view.
- 6.4 In order to provide a more comprehensive assessment of bus accessibility, a GIS Accession model is being developed that will incorporate bus timetable data in order to determine accurate journey time catchments to key town centre locations. This process is currently on-going.
- 6.5 In advance of the detailed GIS outputs, a high level assessment of journey time catchments to Bedford Town Centre has been considered.

Bus Accessibility – 30 minutes

- 6.6 A distance catchment was plotted with the origin at the Town Centre Market and Bedford Rail station locations. The network is based on National Transport Data Store (NTDS) timetable data. The journey start time is 0900 on a weekday from all points.
- 6.7 The catchment outlines the area reachable within 30 minutes of the locations. The plot assumes an ideal circular catchment around bus stops for walking and does not account for local walking accessibility. This has considered two locations, the Market and the Rail Station. **Figure 7.1** presents the separate 30 minute bus journey time catchment areas.
- 6.8 The outputs demonstrate the relative inaccessibility of the rail station by bus, in particularly from the south of Bedford. This is due to the limited number of direct services, with passengers having to disembark at the Bus Station and walk through to the Rail Station. In contrast, the Market in St. Paul's Square has a relatively high number of direct services, particularly from the south.
- 6.9 Route 42, a rural service, serves people living south of Bedford towards Flitwick and provides them access to the town centre within half an hour.
- 6.10 Route 28 provides services from northern suburbs of Bedford including Wood End.
- 6.11 The 71/72 rural services provide access from Haynes and intermediate areas to the town centre.

Figure 6.1 Bus Accessibility (30 minute journey time catchment)



Bus Accessibility: Key Issues

- 6.12 **BA-1:** The majority of bus services come into Bedford on a radial route and then terminate at Bedford Bus Station. This makes cross-town movements by bus uncompetitive against private car trips.
- 6.13 **BA-2:** The rail station has limited bus service connections, reducing accessibility. Way-finding between the bus and rail station is limited for those wishing to transfer from one mode to the other.

Bus Accessibility: Key opportunities

- 6.14 Investigate the opportunity for cross town bus services. These services could tie into major new developments to help assist with funding and patronage
- 6.15 Consider the providing improved wayfinding between the bus and rail stations to enable quick and safe transfers between modes. In the longer term, work with bus operators to find opportunities to reroute bus services to connect the town centre, bus station, and rail station more effectively.
- 6.16 Also, identify key bus stops/interchange hubs within the town centre and provide a full suite of waiting facilities to include easily identifiable shelters, plentiful seating, maps, lighting and real-time information.

Walking & Cycling Accessibility

- 6.17 A distance catchment was plotted with the origin at the Town Centre Market location. The network consists of OS Mastermap ITN data and consists of both highways and cycle and footpaths. This has been translated into indicative walk and cycle journey times through the application of the following assumed average speeds:
- Average walk speed = 4.8 km/hr
 - Average cycle speed = 10 km/hr
- 6.18 **Figure 7.2** presents the walk catchment map. This demonstrates that a significant proportion of the Bedford built up area is within 40 minutes walk distance of the town centre.
- 6.19 **Figure 7.3** presents the cycle catchment map. This demonstrates that all of the Bedford built up area is within 30 minutes cycle distance of the town centre. Cycling accessibility to the Town Centre is therefore good from a network layout point of view. It is noted, however that this does not take into account the cycle infrastructure capacity or the quality of the infrastructure.

Figure 6.2 Pedestrian Accessibility

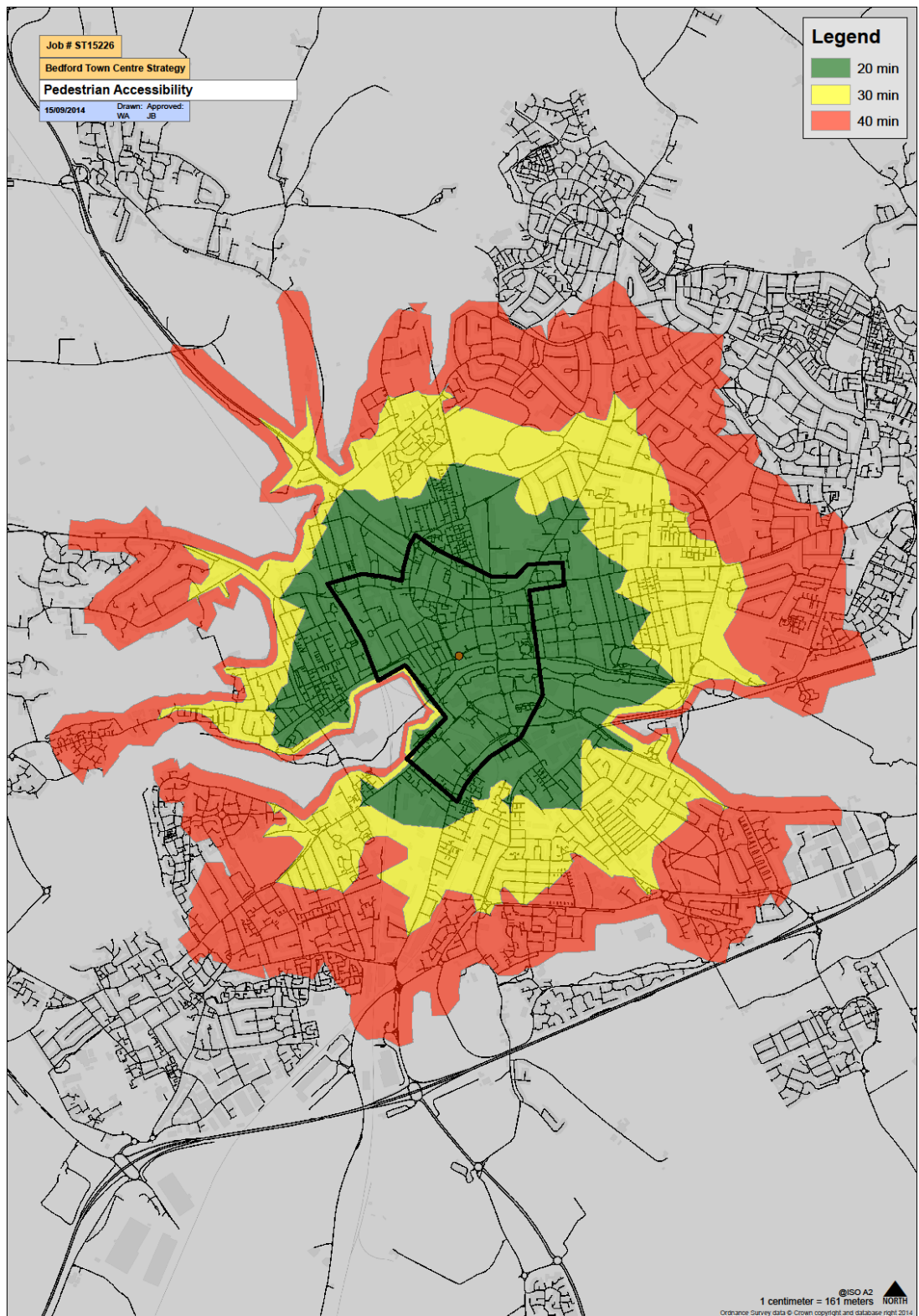
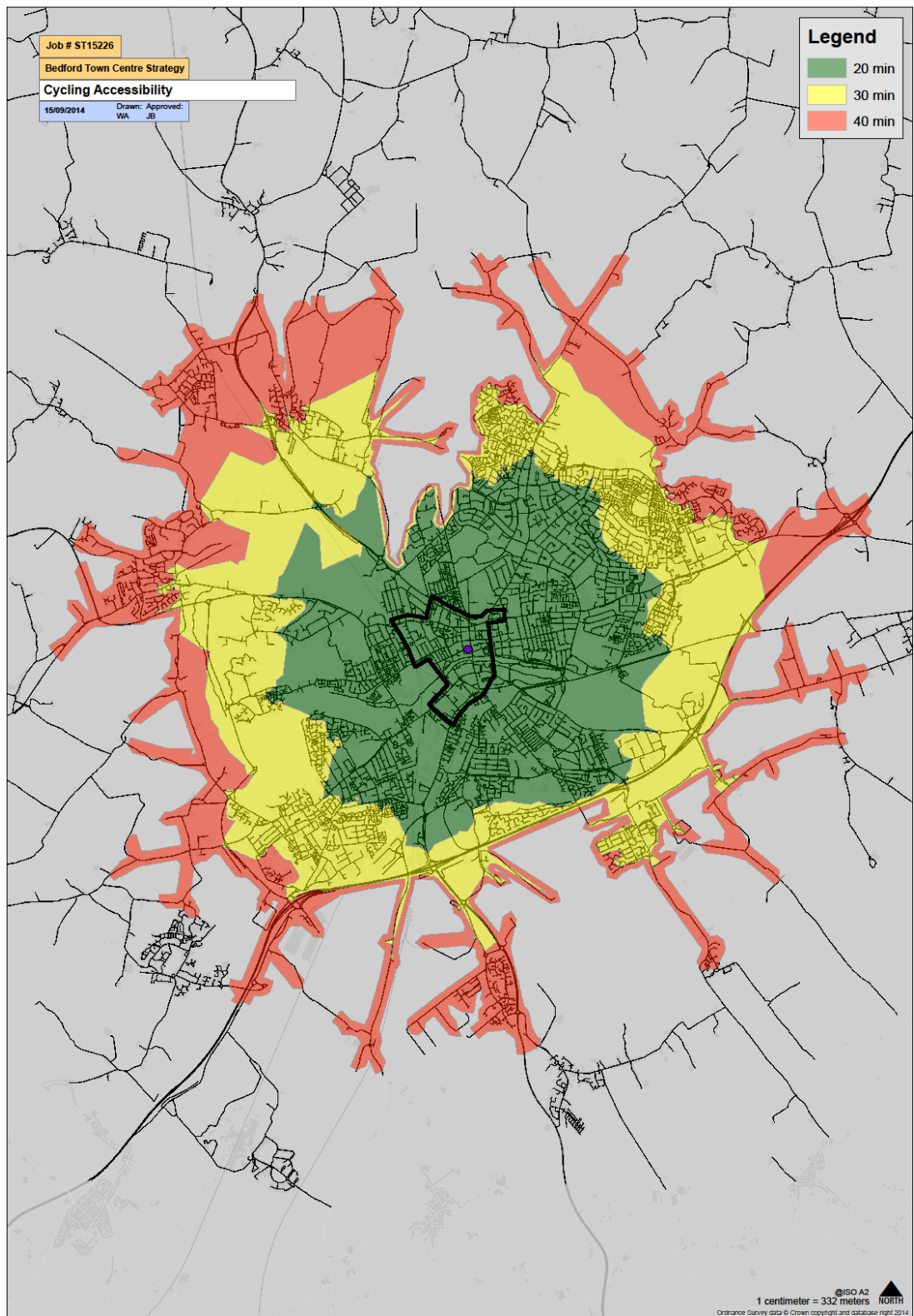


Figure 6.3 Cycle Accessibility



Walking & Cycling Accessibility: Key Issues

- 6.20 **W&C-1:** The potential catchment area for walking and cycling access into the town centre offers significant potential to increase these modes of travel.

Walking & Cycling Accessibility: Key Opportunities

There is a significant opportunity to increase the level of walking and, in particular, cycle trips into the town centre through improved, direct, safe walking and cycling routes. Further opportunities for the development of dedicated walking and cycling networks should be considered.

7 Issues and Opportunities

Overview

- 7.1 This section seeks to draw together the range of issues and opportunities relating to transport and movement into and around Bedford Town Centre.
- 7.2 To establish the context in which these issues and opportunities relate, a series of overarching themes for the transport strategy are identified.
- 7.3 An evaluation matrix is then presented linking issues and opportunities to spatial areas and modes of transport.

Overarching Themes

- 7.4 Six key themes have been identified that will form the basis upon which the emerging transport strategy will be developed, these are as follows:
- Business (promoting economic activity)
 - Visitor Economy (supporting Culture, Heritage & Leisure markets)
 - Retail (enhancing commercial offer of the town centre)
 - Education (supporting the Schools, College and University and those who use them)
 - Environment (protecting the physical environment and reducing air quality)
 - Access (enhancing Town Centre permeability)
- 7.5 In considering all of the transport related issues and opportunities, it is the impact that they have upon these 'themes' that is critical in determining the importance and, eventuality, the requirement to develop mitigating solutions.

Issues and Opportunities Matrix

- 7.6 The matrix below in Table 8.1 summarises the key issues and associated opportunities for enhancement that have been identified across the Bedford Town Centre transport network and corridors leading into the town centre.
- 7.7 The issues are separated into five themes, as set out in the overall report structure:
- Planning related;
 - Infrastructure provision;
 - Operational issues;
 - Travel patterns and demand for travel; and
 - Accessibility

Table 7.1 Issues and Opportunities Matrix

Identified Issue	Designation	Location	Mode	Associated Opportunity
PD-1: As much of the development within the town centre may be residential, the demography and population of the town centre is likely to change. With this growth in population will come a growth in demand on the transport network. In particular, if measures are not taken to improve access to and within the town centre by a variety of modes, new residents will continue to rely on cars to travel around Bedford	Planning	Town Centre	All Modes	<p>Consider Transport Assessments and Travel Plans to reduce car use and encourage sustainable modes of travel for all new developments and redevelopments requiring planning permission.</p> <p>Consider town centre-specific maximum car parking and minimum cycle parking standards for all new developments or significant redevelopments.</p>
PD-2: The Riverside North development will provide a change in dynamic of the night-time economy creating a second axis of activity along from the high Street. The vitality of this night time economy will, again, depend upon the level of accessibility to the town centre. For example, improvements to way finding and lighting will be required to encourage residents to travel to and around the town centre on foot after dark, and taxis will have to be strategically placed to reduce reliance on cars	Planning	Town Centre	All Modes (specifically taxis)	<p>Provide well signposted, accessible taxi ranks at locations with high demand, including near the Riverside North development, and ensure sufficient supply of taxis to meet demand.</p> <p>Provide high quality lighting and wayfinding that will aid residents and visitors in travelling around the town centre after hours.</p>
PD-3: The committed and potential development along Ampthill Road is likely to cause increased traffic and congestion along this route if interventions are not made to reduce demand for car use	Planning	Ampthill Road Corridor	All Vehicles	Provide and promote sustainable access to new or existing developments along the corridor
PD-4: The potential development of the college would create further pressures on accessing the site, which is in a critical part of the transport network. It will be particularly important to manage increased highway trips to the site	Planning	St Mary's Quarter	Private Car	Promote sustainable travel plans for the college site
PD5: Population growth, as a result of expected town centre residential development, is likely to put further pressure on town centre schools in coming years with the potential for further development of these facilities. This is likely to put further pressure on the highway network and may cause further congestion if measures are not taken to reduce journeys to school by car.	Planning	Town Centre and Wider Bedford Area	Private Car	<p>Consider requiring all state schools to develop and implement travel plans to address student and staff travel to school and ensuring new students are provided with 'welcome packs' containing clear travel information.</p> <p>Encourage private schools to develop school travel plans voluntarily and require school travel plans as part of planning permissions for any school extensions or redevelopments.</p> <p>Investigate funding options to offer grants and assistance to schools implementing travel plans, for example to help with installing cycle/scooter parking, showers, bespoke maps, and other travel-related information.</p>
HI-1: The one-way system is difficult to navigate, particularly for visitors who are unfamiliar with the layout and flow of Bedford's streets. This may result in unnecessary detours, and associated congestion and pollution, as visitors try to navigate around the centre.	Infrastructure	Town Centre	All Vehicles	<p>Clear signage of local amenities, attractions, and key junctions can help reduce confusion for drivers.</p> <p>Producing town centre accessibility maps for visitors showing key/preferred driving routes, which could be available from the council website and websites of local attractions, will assist visitors with wayfinding and journey planning.</p> <p>Investigate opportunities to revise one-way streets system in order to improve navigation and accessibility.</p>
HI-2: There are a limited number of river crossings, with only Prebend Street and the High Street bringing vehicles from north to south and vice versa. This restricts a range of cross-town movements.	Infrastructure	River Crossing	All Modes	Consider opportunities and locations for additional road bridges over the river to help reduce congestion on existing river bridges.

Identified Issue	Designation	Location	Mode	Associated Opportunity
HI-3: Although the High Street is designated as a 20mph zone, its two-lane, one-way design results in traffic conditions that are inconsistent with a town centre retail core. Whilst signalised crossing facilities provide some safe crossing provision they also result in vehicles accelerating down the street resulting in a poor environment for ad hoc pedestrian crossing.	Infrastructure	Town Centre	All Vehicles	The Bedford bypass will provide an opportunity to consider de-trafficking the High Street. This includes reducing the highway carriageway and providing extending footway widths.
CPIO-1: There are a large number of car parks within the town centre offering various tariffs and lengths of stay. Managing the utilisation of each car park, both now and in the future, will influence town centre traffic circulation.	Infrastructure	Town Centre	Private Car	Utilise parking tariffs to encourage short-stay parking in the core town centre are with longer term parking within easy walking distances.
CPIO-2: Access into individual car parks is restricted through the one-way system. This affects decisions relating to choice of car parking location.	Infrastructure	Town Centre	Private Car	Consider car park access as part of wider changes to town centre highway circulation
RIO-1: The current layout of the rail station forecourt give large prominence to vehicular activity, specifically taxis creating a dominance of vehicular movements.	Infrastructure	Rail Station	Rail Access	Consider opportunities to revise station forecourt to create a 'gateway' to the town
BIO-1: Standard bus infrastructure provision is considered to be reasonably comprehensive, however, bus movements are restricted in the same manner as general traffic on cross-town movements due to highway network constraints.	Infrastructure	Town Centre and Wider Bedford Area	Bus	Consider opportunities to provide priority lanes for buses along key cross-town routes.
P&RIO-1: P&R is only currently provided on a single corridor	Infrastructure	Town Centre and Wider Bedford Area	P&R	Investigate opportunities to provide additional Park and Ride sites, particularly where these could make use of bus priority lanes if these are implemented as per the above.
WW-1: Currently the river is an underutilised as a natural resource in the heart of the town	Infrastructure	Town Centre	Waterway	Expanded facilities could encourage greater use of the waterway and further 'activate' the waterfront
C&WI-1 Traffic volumes and speeds create negative impacts on cycling and pedestrian routes around the town centre. This is particularly prevalent around the one-way system.	Infrastructure	Town Centre	Walking & Cycling	As part of wider changes to the town centre highway network, consider implementing design features which both combine to slow traffic speeds and improve amenity for pedestrians and cyclists.
C&WI-2 The severance caused by the local highway network, the river and rail lines restricts natural pedestrian and cycling desire lines. In addition, there are a number of areas where there are either incomplete routes or poor connectivity.	Infrastructure	Town Centre	Walking & Cycling	Investigate the opportunity to integrate pedestrian and cycle facilities on a new river crossing. Consider overarching walking / cycling strategies when developing strategic sites to enhance permeability through the Town.
C&WI-3 The provision of pedestrian and cycling facilities/prioritises at junctions is limited in some areas, as are dedicated crossing facilities.	Infrastructure	Town Centre	Walking & Cycling	Consider pedestrian / cyclist crossing facilities that could be improved on key desire lines to reduce the severance of the highway. These will include routes around the Town Centre as well as to and from key facilities. The opportunity to investigate Advanced Stop Lines at key junctions
C&WI-4 There are a number of locations, particularly around the one-way system, where narrow pavements and pinch-points impair pedestrian movements. There are also a number of locations where excessive street clutter, guard rail and physical intrusions have a negative impact upon pedestrian movements.	Infrastructure	Town Centre	Walking & Cycling	Investigate the opportunity to rationalise street signage and reduce street clutter. Consider the removal of guard railing and widening of streets to enhance the pedestrian environment.
C&WI-5 The quality, consistency and maintenance of some routes is poor, including both footway conditions, as well as trees and foliage. There are some routes where issues of personal safety are a concern due to conditions, including a lack of the lighting provision.	Infrastructure	Town Centre	Walking & Cycling	Consider improving footways and maintaining foliage on key routes. Investigate the opportunity to improve the feeling of safety by implementing high quality street lightening and improving street side frontages.
C&WI-6 There are a number of locations around the town centre where the 'sense of place' created through the interaction of building facades is not being maximised.	Infrastructure	Town Centre	Walking & Cycling	Investigate the opportunity to use public art and building facades to support wayfinding within the town centre.

Identified Issue	Designation	Location	Mode	Associated Opportunity
WF1: A range of wayfinding measures exist in the town centre, however there is an overarching need to ensure consistency and visibility of signage.	Infrastructure	Town Centre	Wayfinding	Investigate the opportunity to bring together all existing signage to provide an overall consistent strategy which ensures that signage provision is comprehensive across the town and is legible and easy to follow.
WF2: Some key routes through the town centre lack clear direction for pedestrians and cyclists, in particular. These routes include from Bedford station to the town centre, Bedford station to Borough Hall and Bedford College, and the Riverside to the town centre.	Infrastructure	Town Centre	Wayfinding	Consider the signage strategy to and from key routes. The signage could be improved to ensure that pedestrians and cyclists have a clear route, obvious, unobstructed route.
WF3: There are a number of possible routes from the station to the town centre and it is currently unclear for visitors which of these routes is preferable for use. The two main options are Prebend Street/Midland Road and Woburn Street/Alexandra Road.	Infrastructure	Town Centre	Wayfinding	Investigate the opportunity to create a single direct, safer route from Bedford Station to the Town Centre.
CPIO-3: Observations indicate that the free parking available at Lidl results in drivers parking who do not intend to use Lidl itself. This causes congestion along Lurke Street and unnecessary localised pollution as vehicles queue for the car park.	Operations	Town Centre	Private Car	Work with Lidl to address queuing along Lurke Street and investigate options for providing occasional patrols of the car park to reduce abuse of this facility.
CPIO-4: Two hours of free parking on Saturdays encourages shoppers into the town centre but it is important to understand the impact this has upon wider mode choice and overall level of vehicular activity in the town centre.	Operations	Town Centre	All Vehicles	Consider the free/discounted parking arrangements on Saturdays and Sundays as part of wider town centre access strategy.
FRO-1: Unrestricted HGV access to High Street permits through traffic movements to utilise this route.	Operations	Town Centre	HGVs	Consider option to restrict freight movements by time of day
FRO-2: Access and egress arrangements for the Harpur Centre are currently restrictive, resulting in unwanted ad hoc unloading within the bus stop on Horne Lane.	Operations	Town Centre	HGVs	Ensure amenities such as footpaths and bus stops are not impeded by deliveries/servicing vehicles (whether freight or otherwise) through improved street design and allocation of suitable loading bay areas near key delivery recipients (e.g. retail areas).
RIO-2: Immediate and longer term changes to rail operations will alter the level and profile of passenger flows both to and within the station	Operations	Travel to Station	All Modes	There are a range of potential enhancements to rail provision, both in terms of new rail services (e.g. Thameslink and East West Rail), as well as infrastructure through the redevelopment of the station and surrounding area that provide significant opportunities to enhance provision.
BIO-2: Nearly all bus services run into the town centre on arterial routes and terminate at the bus station. Cross-town journey by bus, therefore, require interchange.	Operations	Town Centre and Wider Bedford Area	Bus	Work with operators to encourage cross town services as part of wider improvements to the highway network reliability and resilience.
BIO-3: Bus fares are considered to be relatively expensive for short journeys into town, particularly in comparison to other modes. This is particularly the case when compared to the two hours of free town centre parking on Saturdays.	Operations	Town Centre and Wider Bedford Area	Bus	Work with operators to promote the perceived competitiveness of bus in terms of all round accessibility and cost.
P&RIO-2: The existing park & ride scheme was unable to support a dedicated bus service.	Operations	Ampthil Road Corridor	P&R	Investigate whether there is the potential for the P&R scheme to support its own bus service once the area has been developed with additional housing and retail.
TPHIO-1: The number of taxis queuing outside of Bedford station regularly exceeds the maximum number allowed in that area. This causes an unpleasant environment for pedestrians and makes for a visually unappealing vista upon exit of the station. Where drivers idle instead of turning off their engines, this also contributes to local air quality issues.	Operations	Bedford Station	Taxi	Investigate the opportunity to enforce restrictions on the number of taxis waiting in front of the station by working with Network Rail to repurpose some of the surface parking area, for example by adding additional cycle parking or landscaping.

Identified Issue	Designation	Location	Mode	Associated Opportunity
TTW-1: Nearly half (47%) of Bedford’s workforce population travel less than 5km to work. However, the majority (56%) of these journeys are made by car despite this distance generally being within cycling or public transport range. Among workers travelling less than 2km to work, 43% use a car, even though many of these journeys could likely be walked in 20 minutes or cycled within 10 minutes.	Travel Patterns	Town Centre and Wider Bedford Area	All Modes	Investigate the opportunity to provide a Personalised Travel Planning to areas of Bedford where short car distances are prevalent.
HF-1: Many of the main access points to the town centre and major junctions within the town centre suffer notable congestion during peak times, with the highest wait time recorded on Prebend Street with its junction at Midland Road/Ford End Road. The model outputs indicate that delays at this junction have considerable knock-on effects on other junctions to the south.	Travel Patterns	Town Centre and Wider Bedford Area	All Vehicles	Further investigate the wider impact that delays at that the Prebend Street/Midland Road/Ford End Road have upon surrounding junction and consider the implementation of traffic signals to prioritise key movements through the junction.
HF-2: Long wait times at junctions are costly in terms of local air quality, car ownership, and community. Idling on approach results in lower local air quality, higher petrol costs for drivers, and creates an unpleasant environment for pedestrians and cyclists. There are also issues associated with noise from high numbers of vehicles, particularly where they pass through residential areas.	Travel Patterns	Town Centre	All Vehicles	Develop a series of junction improvement schemes at the identified pinch-points across the network to be tested within a highway model in order to determine a package of measure to reduce congestion.
RS-1: Accident levels at the Prebend Street / Midland Road Junction	Travel Patterns	Town Centre	All Modes	Reduce accident rates
RS-2: Accident levels at the roundabout of Kingsway/St John’s Street/Rope Walk/London Road/Amphill Road	Travel Patterns	Kingsway	All Modes	Reduce accident rates
RS-3: Accident levels on Amphill Road around the access to the Hospital	Travel Patterns	Around Hospital	All Modes	Reduce accident rates
RS-4: General accident levels along the Amphill Road corridor	Travel Patterns	Amphill Road Corridor	All Modes	Reduce accident rates
RS-5: General accident levels along the Fore End Road corridor	Travel Patterns	Fore End Road Corridor	All Modes	Reduce accident rates
PD-1: The close proximity of the residential on-street parking to the retail town centre mean it is important to maintain and effectively enforce the CPZ restrictions to prevent non-resident parking.	Travel Patterns	Town Centre	Private Car	Consider the operation of the CPZ in terms of both enforcement and time of restrictions. Investigate whether the CPZ should be extended to ensure that resident parking is protected.
FRD-1: Whilst some High Street buildings can be accessed from the rear, those that cannot require vehicles to park along High Street. This can cause congestion and create an unpleasant environment for pedestrians.	Travel Patterns	High Street Corridor	Freight	Investigate restrictions on delivery times to ensure that they do not conflict with shoppers. All new developments in the Town Centre should have facilities for delivery and servicing to be made off-street. Consider the implementation of Delivery and Plans for new developments in the Town Centre.
TPHD-1: There is a significant demand for taxi journeys between Bedford Rail Station and the town centre. This adds to existing congestion along the Ashburnham Road and air quality issues.	Travel Patterns	Bedford Station / Town Centre	Taxi	Investigate the opportunity to provide information and maps showing walk and cycle times into the Town Centre to encourage active travel modes.
BM-1: Traffic congestion affects bus reliability and subsequently affects the route choices that bus operators are prepared to service.	Travel Patterns	Town Centre and Wider Bedford Area	Bus	Consider the implementation of bus lanes to improve the reliability of buses.

Identified Issue	Designation	Location	Mode	Associated Opportunity
CTP-1: Although Bedford station attracts a large number of cyclists, they tend to arrive largely from neighbourhoods in the north half of Bedford. This suggests residents in the south half of the town feel too cut off, or do not know of appropriate routes, to cycle to the station.	Travel Patterns	Town Centre and Wider Bedford Area	Cycling	Investigate the opportunity to improve cycle routes from the south and target those living south of the station with information relating to cycling.
CTP-2: Some ‘desire lines’ highlighted by the cycle survey, such as those along Roff Avenue and Castle Road/Mill Street, currently lack marked cycle lanes.	Travel Patterns	Town Centre and Wider Bedford Area	Cycling	Consider the implementation of cycle lanes on key routes.
BA-1: The majority of bus services come into Bedford on a radial route and then terminate at Bedford Bus Station. This makes cross-town movements by bus uncompetitive against private car trips	Accessibility	Town Centre and Wider Bedford Area	Bus	Investigate the opportunity for cross town bus services. These services could tie into major new developments to help assist with funding and patronage.
BA-2: The rail station has limited bus service connections, reducing accessibility. Wayfinding between the bus and rail station is limited for those wishing to transfer from one mode to the other.	Accessibility	Town Centre and Wider Bedford Area	Bus	Consider improved wayfinding between the bus and rail stations. In the longer term, work with bus operators to find opportunities to reroute bus services to connect the town centre, bus station, and rail station more effectively. Also, identify key bus stops/interchange hubs within the town centre and provide a full suite of waiting facilities to include easily identifiable shelters, plentiful seating, maps, lighting and real-time information.
W&C-1: The potential catchment area for walking and cycling access into the town centre offers significant potential to increase these modes of travel.	Accessibility	Town Centre	Walking & Cycling	Further opportunities for the development of dedicated walking and cycling networks should be considered

Defining the Strategy Objectives

Overview

- 7.73 Having identified a series of key issues and opportunities affecting transport and access into and across Bedford Town Centre it is important to translate these into a series of objectives against which to develop, and subsequently appraise, the schemes and measures that will form the basis of the final transport strategy.

Transport Strategy Objectives

- 7.74 A total of ten transport strategy objectives have been identified that best encompass the combined aims of the strategy:

- TSO1** Support the heritage, cultural and economic regeneration in the town centre through enhanced access and improved town centre permeability.
- TSO2** Manage vehicular activity in the core town centre, in particular through movements, to enhance the pedestrian retail, night-time, and visitor economy experience, whilst ensuring adequate town centre access for traders, freight, public transport and taxis and to car parks.
- TSO3** Facilitate efficient cross town and end-to-end corridor movements, for all transport modes, through strategic routings, reduced congestion at network pinch-points and improved infrastructure provision
- TSO4** Enhance strategic links to the town to secure the long term position of Bedford as a regional centre, whilst reducing the volume and impact of through vehicular traffic movements that could otherwise utilise the town ring road.
- TSO5** Provide network resilience, across all modes, that accommodates forecast growth associated with future development aspirations of the town and changes to population demographics.
- TSO6** Create a safe and secure environment for all transport users, taking particular account the needs of vulnerable users, and reduce conflicts between vehicular and non-vehicular transport movements.
- TSO7** Manage the environmental impacts of transport, in particular within the air quality management area, and promote sustainable modes of travel.
- TSO8** Proactively manage access to health and educational facilities, including hospital sites, schools, the college and the university, in order to make best use of transport network capacity.
- TSO9** Create a coherent 'sense of place' across the town quarters, ensuring clear vehicular and non-vehicular way-finding leading into and around the town centre, with a particular focus on ensuring connectivity with the river and the rail station.
- TSO10** Ensure inclusive, resilient, long-term, and low maintenance design of transport infrastructure and operational services.

- 7.75 These ten objectives will form the basis against which the emerging scheme and measures, as well as the ultimate packages of strategy measures, are appraised. In order to allow an evidence-based

approach to this appraisal process it is important that each strategy objective has an associated set of metrics.

7.76 Table 7.2 identifies a series of metrics for each strategy objective.

Table 7.2 Transport Strategy Objective Metrics

Objective	Metrics
TSO1	Journey times; accessibility journey time contours
TSO2	Town centre vehicle kms
TSO3	Journey times; delays; queue lengths
TSO4	strategic public transport services (rail routes/services; bus network kms); through traffic vehicle-trips within town centre cordon
TSO5	Transport network capacity
TSO6	Accident levels; facilities for vulnerable road users; security features
TSO7	Town centre vehicle-kms; town centre vehicle-queues
TSO8	accessibility contours to sites
TSO9	qualitative assessment of design and signage
TSO10	qualitative assessment of design

8 Next Steps

Phase 1

- 8.1 The GIS Accession modelling referenced in Section 6 will continued to be developed in order to provide a mechanism for assessing potential enhancements to bus provision. A baseline output assessment will be produced and incorporated into this report.
- 8.2 The final task of Phase 1 will be to translate the identified issues and opportunities for enhancements to transport provision into a definitive long list of potential schemes. This represents the final output of Phase 1.

Phase 2

- 8.3 Phase 2 of the study will focus upon sifting through the long-list of potential scheme options in order to identify a shorter list of schemes that will best meet the strategy objectives and be deliverable.
- 8.4 This process will begin with a further round of focussed stakeholder engagement to gauge initial views on the suitability and levels of support for individual options. This will lead into an initial option appraisal process that will sift out those interventions that are not considered to deliver sufficient benefits against the strategy objectives or are not deliverable.
- 8.5 The options sifting process will apply a high-level PESTLE-type analysis, which will consider the Political, Economic, Sociological, Technological, Legal, and Environmental issues relating to each scheme option.

The output from the task will be a short-list of schemes within each of the identified 'themed' areas. This will be provided in the form of an Option Assessment Report that will summarise the initial option sifting process. This will clearly demonstrate the process that has been undertaken and provide a record of the scoring matrices for future reference.

Phase 3 and 4

- 8.6 Phase 3 of the study will then develop and appraise the short-list of schemes in greater detail prior to the identification of potential packages of measures to include within the final transport strategy. These packages of measures will then be appraised in combination.
- 8.7 Phase 4 will then draw together the preferred packages of measure into a final strategy with a clear action plan for implementation.

Appendix A

PERS Audit Criteria and Weightings

Job No	Report No	Issue no	Report Name	Page
ST15226	1	4	Bedford Town Centre Transport Strategy	A1

PERS Audit Criteria and Weightings

Criteria	Pedestrians	Cyclists
Convenience		
Directness	5	3
Short cut	1	1
barriers	3	3
Connectivity		
Access and exit points	1	1
signage continuity	3	3
information boards/maps	3	3
Conviviality		
obstacles/barriers	3	3
width	5	5
noise	3	3
surface	3	3
tactile information	3	-
colour contrast	3	-
rest points	1	-
public spaces	1	-
cleanliness	1	1
Coherence		
Viable crossings	5	5
dropped kerbs	3	
Conspicuity		
sightlines	3	3
traffic speed	1	3
traffic volume	1	3
conflicts	5	5
lightning	3	3