

Boston Transport Strategy

Technical Appendix



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1 Introducing the Strategy

1.1 Introduction

This document sets out the process undertaken in the production of the Boston Transport Strategy for the period 2016-2036. The Strategy demonstrates a collective vision for improved accessibility and a sustainable transport network to support the growth of Boston.

This document provides a record of the information that has been reviewed in order to inform the Strategy based on:

- What it aims to achieve;
- How it is defined;
- What the proposals are; and
- How the strategy will be delivered.

The Strategy will help to address the existing accessibility and travel issues in Boston, facilitating future significant growth.

The remainder of this document is set out as follows:

- Chapter 2: Strategy Objectives and Area
- Chapter 3: Evidence Gathering and Analysis
- Chapter 4: Option Identification
- Chapter 5: Option Sifting and Shortlisting
- Chapter 6: Assessment of Shortlisted Options.
- Chapter 7: Pathways to Delivery

The strategy itself is presented in the accompanying shorter document.

1.2 Transport and accessibility

Transport is considered a mechanism through which people gain access to their needs including employment; education; healthcare; shops and services; and leisure facilities. These generators for people movements are termed 'personal travel'.

Additionally, transport is required to facilitate these reasons for travel, with businesses and service providers requiring efficient access for their service users (related to personal travel) and to markets (movement of goods).

Whilst accessibility to services is traditionally and commonly facilitated by transport of one mode or another, it is also facilitated by post, telephone and ever-increasingly the internet.

1.3 Purpose of the Strategy

A transport strategy's purpose should be to facilitate and improve accessibility for people, businesses and service providers, through either meeting the demand or managing the demand for travel.

Current demand for travel in Boston is met by a range of modes, though it is evident that the demand has not been addressed or managed in a way that facilitates the envisaged economic growth of Boston. Government and local policy and funding is focussed on stimulating economic growth, with an efficient transport system fundamental to achieving this objective. Therefore, rather than the traditional strategy model that is shaped around a particular transport mode, this Transport Strategy is shaped around providing access in general and managing demand for travel through promoting sustainable modes where practicable.

1.4 Strategic Process

The Boston Transport Strategy has been developed using a six-stage process overseen by a Steering Group which consisted of representatives from Lincolnshire County Council, Boston Borough Council, and the South East Lincolnshire Joint Policy Unit.

The stages of the Transport Strategy are shown in the diagram below. This highlights the work undertaken and the outputs generated, and where input was provided by the Steering Group and wider stakeholders to help shape the Strategy

This process has ensured that:

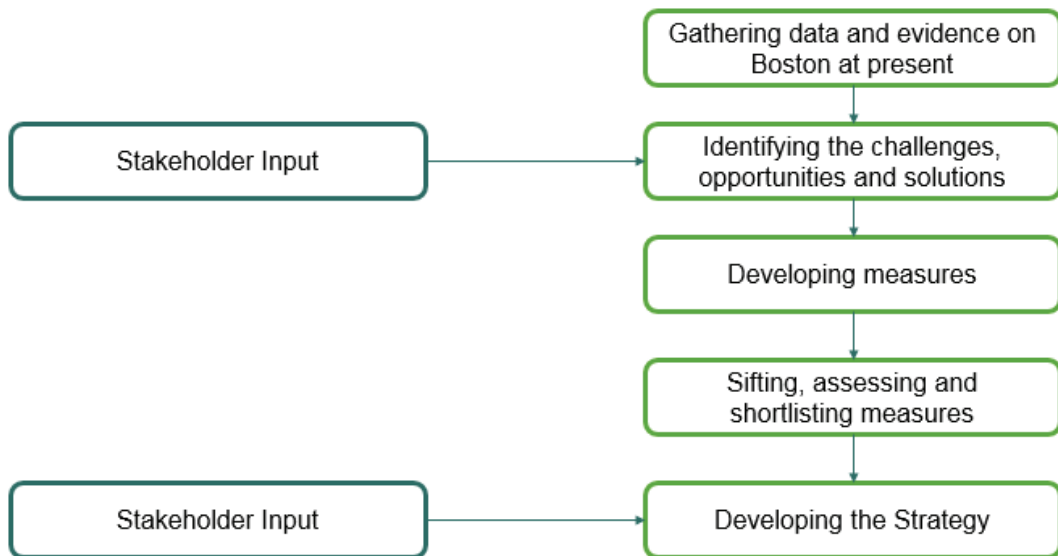
- Robust data has been collected to enable a thorough understanding of the current situation in Boston;
- Future land use developments and the potential impacts have been understood;
- Local needs have been understood as well as the influences of local and national policies;
- Options that will support growth, tackle current problems and help mitigate increased travel demands in the future have been identified and assessed.

A logic based approach has been utilised in developing the Strategy to ensure that there are links between:

- The issues and opportunities to be addressed;

- What investments need to be made;
- What outputs will be delivered;
- The short to medium term results; and
- The overall impact of the Strategy.

Figure 1-1 – Strategy Process



2 Strategy Objectives and Area

2.1 Introduction

2.1.1 *Strategy Objectives and Area*

This chapter, Strategy Objectives and Area, represents the first output from the strategy development process. The aim of this chapter was to provide the Steering Group, at the inception meeting, with draft themes for the strategy objectives and also to recommend the area of coverage for the strategy.

2.1.2 *Structure of the chapter*

This chapter, following on from this introduction, presents the draft objective themes of the Strategy in Section 2.2 to 2.4 and recommends a Strategy Area in Section 2.5.

2.2 Strategy Objective Themes

2.2.1 *Background*

The development of objectives is a key stage in formulating a robust transport strategy. Without the guidance given by focused, inclusive and locally specific objectives, strategies can lack direction and focus on the important issues, and lead to a one-size-fits-all approach where specific local circumstances and needs are not reflected.

The current Boston Transport Strategy 2006–2021 aims are presented in the table below and formed the starting point for generating the new strategy objectives.

Table 2-1 – Boston Transport Strategy 2006–2021 aims

Themes	Aims
Tackling Congestion e.g. difficulties associated with crossing the rivers	Reduced car usage for journeys wholly within Boston
	Limiting impact of development
	Reduced delays for traffic on A52/A16 corridor with safe facilities for vulnerable users
	Improved cross – town movements
	Reduced traffic on inappropriate routes
Delivering Accessibility e.g. improving the choice of transport in Boston	Improved access to facilities, especially for those who are mobility impaired and those without access to a car.
	Priorities for public transport into within/the town centre
	Improved public transport access and provision
Safer Roads	Reduced number and severity of crashes for all modes of transport
	Improved clarity of priority for all road users
	Improved road safety for pedestrians and cyclists, especially in the vicinity of schools
Better Air Quality	Improved air quality in the Air Quality Management Area
Local Priorities e.g. including improving the town centre	Improved cycling and pedestrian management in the town centre
	Improved links between shopping area and public transport facilities
	Effective management of car parking

Some of the aims, such as *Limiting the impact of development*, *Improved cross-town movements* and *Improved clarity of priority for all road users* are not easily measurable and therefore create risks related to delivery of the strategy.

The new strategy objectives expand and enhance those in the current strategy, providing robust and measurable objectives to guide delivery. Draft strategy objectives were developed through the understanding of issues and opportunities identified through the early stages of the project, as well as through experience and understanding of wider transport policy and practice.

The Boston Transport Strategy will form part of a hierarchy of policy documents, supporting policies and strategies at the national and county-wide levels. The objectives which steered the Transport Strategy were informed by those objectives contained in the higher level policies and strategies. The starting point for these new objectives was therefore those contained in the following documents:

- South East Lincolnshire Local Plan
- Local Transport Plan 4

In addition to the above documents, the current Boston Transport Strategy and existing transport strategies for other settlements in Lincolnshire were reviewed to collate their objectives. The objectives contained in the following documents were reviewed to ensure that those for Boston reflected the key themes and focus of ‘sister’ documents adopted elsewhere in the county. Objectives from the following strategies were included in that process:

- Boston Transport Strategy (2006–2021)
- Lincoln Integrated Transport Strategy
- Transport Strategy for Grantham
- Gainsborough Transport Strategy
- Sleaford Transport Strategy

2.2.2 *South East Lincolnshire Local Plan (January 2016 draft for public consultation)*

The South East Lincolnshire Local Plan was released for public consultation in January 2016 with the public given approximately one month to submit their response to the draft. The Local Plans Strategic Priorities are summarised in the table below with the right-hand column highlighting the main themes of each objectives.

Table 2-2 – South East Lincolnshire Local Plan Strategic Priorities

Objective	Themes
To ensure that growth in South East Lincolnshire delivers sustainable development that seeks to meet the social and economic needs of the area, whilst protecting and enhancing its environment for the enjoyment of future generations.	Sustainable Development
To deliver development in sustainable locations that seeks to meet the needs of the Local Plan area through the identification of a	

Objective	Themes
strategic planning framework that takes account of flood risk to guide the scale, distribution and nature of new development across South East Lincolnshire.	
To ensure that development contributes to the provision of necessary physical, social and green infrastructure to deliver planned levels of growth at the right time, to mitigate its impacts on existing communities and the environment.	
To provide the right conditions and sufficient land in appropriate locations to help diversify and strengthen the economic base of South East Lincolnshire to meet the needs of existing companies, to attract new businesses and sources of employment, and to maximise the potential historic and environmental assets can have for sustainable tourism.	Economy
To create a mutually supportive hierarchy of vibrant self-contained town centres that provide employment, retailing and services by encouraging an appropriate scale of retail, leisure and other town centre uses and by maximising opportunities for regeneration.	
To seek to meet the housing needs of South East Lincolnshire's population of affordable and other specialist housing to meet identified local needs.	Housing
To conserve and enhance, where appropriate, South East Lincolnshire's natural, built and historic environment.	
To adapt to, and mitigate against the effects of, climate change by reducing exposure to flood risk, minimising carbon emissions through the sustainable location, design and construction of new development, promoting energy efficiency and renewable energy, enhancing the green infrastructure network, and by minimising the need to travel.	Environment
To ensure that land is used efficiently and that the loss of South East Lincolnshire's high-quality agricultural land is minimised by developing in sustainable locations, at appropriate densities and by prioritising the re-use of previously-developed land.	
To seek to improve the quality of life for everyone who lives, visits, works and invests in South East Lincolnshire by protecting and enhancing access to homes, employment, retail, education, healthcare, community and leisure facilities, and open space.	
To minimise the need to travel by improving accessibility for all to jobs, services and facilities by a range of transport, including sustainable and public transport, as well as by vehicles.	Transport
To increase the potential for modal shift to sustainable forms of transport, whilst recognising the importance of the private car in rural areas, by seeking to improve South East Lincolnshire's highway infrastructure and thereby minimising congestion, improving road safety and aiding economic development.	

2.2.3 Local Transport Plan 4 – April 2013

Lincolnshire's Local Transport Plan 4 was adopted in April 2013. The objectives contained within this latest LTP have been carried forward from previous versions.

Table 2-3 – Lincolnshire Local Transport Plan 4 Objectives

Objective	Themes
To assist the sustainable economic growth of Lincolnshire, and the wider region, through improvements to the transport network	Sustainable economic growth

Objective	Themes
To improve access to employment and key services by widening travel choices, especially for those without access to a car	Access to employment and services
To make travel for all modes safer and, in particular, reduce the number and severity of road casualties	Safety
To maintain the transport system to standards which allow safe and efficient movement of people and goods	Maintenance
To protect and enhance the built and natural environment of the county by reducing the adverse impacts of traffic, including HGVs	Enhance the built and natural environment. Reduce adverse impact of traffic
To improve the quality of public spaces for residents, workers and visitors by creating a safe, attractive and accessible environment	Safety. Accessibility. Attractive Environment
To improve the quality of life and health of residents and visitors by encouraging active travel and tackling air quality and noise problems	Quality of life. Health. Active travel. Air quality. Noise.
To minimise carbon emissions from transport across the county	Carbon emissions

2.2.4 *Transport Strategy for Boston – 2006 to 2021 and Beyond*

The Transport Strategy for Boston was published in 2006 and used the following aims.

Table 2-4 – Transport Strategy for Boston Aims

Aim	Theme
Reduced car usage for journeys wholly within Boston Limiting impact of development	Reduce dependence on the private car
Reduced delays for traffic on A52/A16 corridor with safe facilities for vulnerable users	Efficient transport network
Improved cross – town movements	Efficient transport network
Reduced traffic on inappropriate routes	Efficient transport network
Improved access to facilities, especially for those who are mobility impaired and those without access to a car.	Accessibility for all
Priorities for public transport into within/the town centre	Public transport
Improved public transport access and provision	Public transport
Reduced number and severity of crashes for all modes of transport	Safety
Improved clarity of priority for all road users	Efficient transport network
Improved road safety for pedestrians and cyclists, especially in the vicinity of schools	Safety. Sustainable Transport
Improved air quality in the Air Quality Management Area	Air Quality
Improved cycling and pedestrian management in the town centre	Sustainable Transport
Improved links between shopping area and public transport facilities	Accessibility
Effective management of car parking	Parking

2.2.5 *Lincoln Integrated Transport Strategy – February 2008*

The Lincoln Integrated Transport Strategy was first adopted in January 2006 and revised in February 2008. A progress review for the Strategy was completed in August 2013.

Table 2-5 – Lincoln Integrated Transport Strategy Objectives (2008)

Objective	Themes
To improve the management of traffic, to protect the environment and promote efficient and convenient movement by various modes of transport	Traffic management. Environmental protection. Efficient and convenient movement.
To reduce the negative impacts of through traffic, particularly heavy goods vehicles, in the centre of Lincoln	Reduce through traffic. HGVs.
To develop transport infrastructure schemes which enhance sustainable economic development, safety and local amenity	Infrastructure. Sustainable economic development. Safety. Local amenity.
To encourage and develop movement by public transport, cycling and walking as part of an overall strategy designed to increase transport choice	Public transport. Cycling. Walking. Transport choice.
To increase accessibility for all sections of the community	Accessibility for all
To develop transport infrastructure that enables sustainable economic development and addresses priority areas for economic regeneration in the Lincoln Area	Infrastructure. Sustainable Economic Development. Regeneration.

2.2.6 Transport Strategy for Grantham – 2007 and Gainsborough Transport Strategy – October 2010

The transport strategies for Grantham and Gainsborough were published in 2007 and 2010 respectively and broadly use the same guiding objectives.

Table 2-6 – Transport Strategy for Grantham and Gainsborough Transport Strategy Objectives

Grantham Objectives	Gainsborough Objectives	Themes
To improve sustainable transport in order to reduce dependence on the private car	To improve sustainable transport in order to reduce dependence on the private car	Sustainable transport. Reduce dependence on the private car.
To improve traffic management and reduce congestion in Grantham	To manage the level of congestion in Gainsborough	Traffic management. Reduce congestion.
To improve accessibility for all	To improve accessibility for all	Accessibility for all,
To improve safety and security for all transport users	To improve safety and security for all transport users	Safety and security,
To improve air quality and reduce noise impact	To improve air quality and reduce noise impact	Air quality. Noise,
To encourage sustainable inward investment in Grantham	To encourage sustainable inward investment in Gainsborough	Sustainable inward investment.
To support the regeneration of Grantham as a Sub-Regional Centre	To support the regeneration of Gainsborough	Regeneration.
To protect and enhance the built and natural environment	To protect and enhance the built and natural environment	Built and natural environment.

2.2.7 Sleaford Transport Strategy – 2014 to 2030

The Sleaford Transport Strategy was published in 2014 and featured the following objectives.

Table 2-7 – Sleaford Transport Strategy objectives

Objective	Theme
To support the sustainable development, regeneration and growth of Sleaford, helping to attract inward investment and meeting current and future housing and business needs.	Sustainable development
To minimise carbon emissions from personal travel and freight transport.	Carbon emissions and climate change
To improve the sustainability and connectivity of the communities of Sleaford and the surrounding area by improving access for all to employment, retail and services.	Accessibility
To support and enhance sustainable travel and alternatives to the private car through widening choice, improving public transport and increasing provision for cycling and walking.	Sustainable transport
To protect and enhance the quality and attractiveness of the built and natural environment of Sleaford and the surrounding area.	Built and natural environment
To provide an efficient, convenient and accessible transport network for all, reducing the adverse impacts of travel, particularly from private cars and road-based freight.	Efficient and convenient transport network
To improve the safety and security of all travel and, in particular, reducing the number and severity of road casualties.	Safety and security
To improve the health, wellbeing and quality of life of residents, employees and visitors, including through the reduction of noise and air quality related issues.	Health and wellbeing
To promote safe and non-car based travel to schools.	Sustainable transport
To deliver a shift in modes of travel used away from the private car.	Sustainable transport

2.3 Key Themes

The themes identified from each of the objectives for each of the policy and strategy documents reviewed above were collated and summarised to produce a list of key themes upon which the objectives for the Boston Transport Strategy will be developed. The key themes are as follows:

- Sustainable development
- Carbon emissions and climate change
- Accessibility
- Sustainable transport
- Built and natural environment
- Efficient and convenient transport network
- Safety and Security
- Health and wellbeing

2.4 Strategy Objectives

The Boston Transport Strategy objectives were developed during Stage 2 of the project. They referenced the themes above and the issues and opportunities that emerged during Evidence Gathering and Stakeholder Engagement. The objectives are presented in Chapter 3.

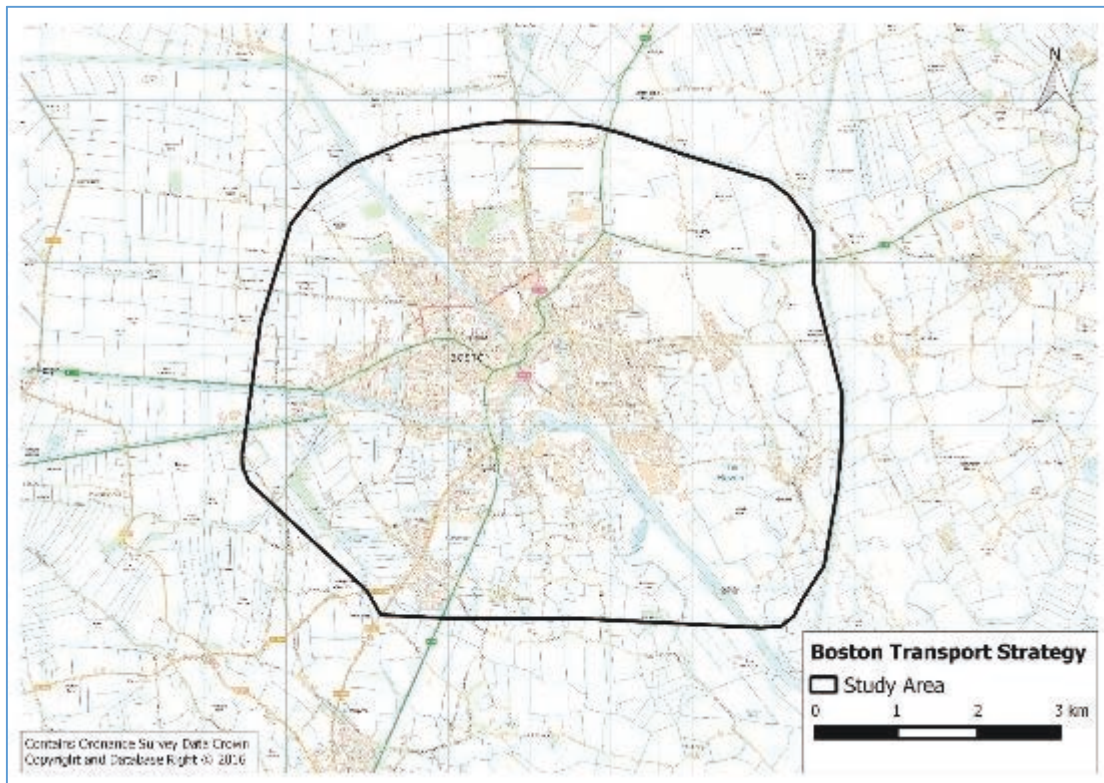
2.5 Strategy Area

2.5.1 Introduction

This section presents the area of coverage for the Boston Transport Strategy. The study area encompasses the urban area of Boston and immediate outlying settlements such as Wyberton and Fishtoft. Consequently this also includes the proposed Quadrant development.

The strategy area is presented in the figure below.

Figure 2-1 – Strategy Area



3 Evidence Gathering and Analysis

3.1 Introduction

The aim of this chapter is to provide a commentary on current trends in a range of subject areas that affect the development of the town and, in particular, transport. Existing sources of data and information have been reviewed, alongside views of stakeholders and the public, and national and local policy, to provide a broad understanding of the issues and opportunities affecting transport in and around Boston.

In particular, the following subject areas have been reviewed:

- National and local policy framework;
- Society and wellbeing;
- Economy;
- Environment;
- Travel;
- Land use and development;
- Engagement and consultation;
- Future conditions; and
- Progress review

A summary of the issues and opportunities has been provided, to set out the key pressures facing the town in terms of transport and accessibility.

Following on from the identification of issues and opportunities, these were used to formulate a set of objectives which the Transport Strategy should aim to achieve.

3.1.1 *Structure of the Chapter*

Following on from this introduction, in Sections 3.3 to 3.28, this chapter reviews the range of subject areas identified above. In Sections 3.29 to 3.31, the chapter summarises the issues and opportunities identified, Sections 3.32 to 3.38 reviews progress of the previous strategy and in Section 3.39 the draft objectives formulated to measure the progress of the Strategy are introduced.

3.2 Policy

3.2.1 Introduction

A number of changes in national policy have come into force since the current Boston Transport Strategy was adopted in late 2006 with the Coalition Government's commitment to radical reform of planning and the emergence of the localism agenda. In addition, there are changes taking place at the lower level of policy with the development of the South East Lincolnshire Local Plan. This chapter explores the main policy changes with an emphasis on the changes made to transport policy.

3.2.2 National policy

The national policies reviewed for this section of the Working Paper include:

- National Planning Policy Framework;
- Transport White Paper: Creating Growth, Cutting Carbon - Making Sustainable Local Transport Happen;
- Local Transport Act 2008;
- Planning Act 2008;
- Community Infrastructure Levy;
- Localism Act 2011;
- Health and Social Care Act 2012; and
- Infrastructure Act 2015.

3.2.3 National Planning Policy Framework

The National Planning Policy Framework (NPPF) sets out planning policies for England and how the Government expects these to be applied. It gives responsibility back to local people by providing a framework within which local people and their accountable councils can produce their own plans to reflect the needs and priorities of their communities. '*At the heart of the National Planning Policy Framework is a presumption in favour of **sustainable development**, which should be seen as a golden thread running through both plan-making and decision-taking*'.¹

The NPPF sets out a list of core aims and to achieve these aims it recognises the three dimensions of sustainable development set out above.

¹ NPPF paragraph 14

Aims

- Simplification of the planning system
- Making the planning process quicker and easier
- Encourage sustainable development
- Promote sustainable growth
- Protect the environment
- Empower local communities

Dimensions

Economic role – contributing to building a strong, responsive and competitive economy, by ensuring that sufficient land of the right type is available in the right places and at the right time to support growth and innovation; and by identifying and coordinating development requirements, including the provision of infrastructure;

Social role – supporting strong, vibrant and healthy communities, by providing the supply of housing required to meet the needs of present and future generations; and by creating a high quality built environment, with accessible local services that reflect the community's needs and support its health, social and cultural well-being;

Environmental role – contributing to protecting and enhancing our natural, built and historic environment; and, as part of this, helping to improve biodiversity, use natural resources prudently, minimise waste and pollution, and mitigate and adapt to climate change including moving to a low carbon economy. (NPPF page 5).

The presumption towards sustainable development for plan-making means that:

- local planning authorities should positively seek opportunities to meet the development needs of their area;

- Local Plans should meet objectively assessed needs, with sufficient flexibility to adapt to rapid change, unless any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in this Framework taken as a whole; or – specific policies in this Framework indicate development should be restricted.

For decision-taking this means:

- approving development proposals that accord with the development plan without delay; and
- where the development plan is absent, silent or relevant policies are out-of-date, granting permission unless: any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in this Framework taken as a whole; or specific policies in this Framework indicate development should be restricted.

Chapter 4 of the document looks specifically at the **Promotion of Sustainable Transport**. It sets out the need for transport systems to be balanced in favour of sustainable transport and that smarter use of technologies can reduce the need to travel. Local authorities should work with neighbouring authorities and transport providers to develop strategies to provide infrastructure to support sustainable development (such as rail freight interchanges).

NPPF recognises the importance of Travel Plans and all developments that generate significant amounts of movement should provide one.

Local authorities should seek to improve the quality of parking in town centres so that it is convenient, safe and secure. They should set appropriate parking charges that do not undermine the vitality of town centres. Parking enforcement should be proportionate.

3.2.4 *Transport White Paper: Growth, Cutting Carbon – Making Sustainable Local Transport Happen (January 2011)*

Vision

“Our vision is for a transport system that is an engine for economic growth, but one that is also greener and safer and improves quality of life in our communities.”

In line with the shift towards Localism the White Paper acknowledges that two-thirds of all journeys are 5 miles or under, trips which can be made by means other than the private car. Their research shows that a substantial proportion of drivers are willing to travel less by car and therefore the White Paper aims to offer:

“...people choices that will deliver that shift in behaviour, in many more local journeys, particularly drawing on what has been tried and tested.”

It is considered that the biggest opportunity for encouraging sustainable travel lie in short local journeys.

It acknowledges that smaller-scale transport schemes can deliver high value for money, encourage growth and reduce local carbon emissions.

The White Paper develops the concept of **enabling choice** by providing better information and education to promote sustainable travel.

Chapter 9 of the Paper sets out each of the Government's commitments on local transport.

It recognises the Government's commitment to ending top-down decision making and the steps taken to hand back responsibility for developing local solution to the local level.

The White Paper sets out a new approach to local transport funding which aims to simplify funding streams in four main areas:

- a major schemes (capital) programme of over £1.5 billion for schemes costing more than £5 million;
- more than £3 billion (capital) for local highways maintenance over four years;
- over £1.3 billion (capital) for the integrated transport block; and
- the Local Sustainable Transport Fund, which has made £560 million capital and revenue funding available over four years, enabling local authorities to deliver solutions that build strong local economies and address at a local level the urgent challenge of climate change, delivering cleaner environments, improved safety and increased levels of physical activity. Bids from local transport authorities which demonstrated support from, and the involvement of, voluntary and community organisations and the private sector were particularly welcome.²

The White Paper discusses the following areas of change:

² Transport White Paper: Paragraph 14

Areas of change

- Local transport – choices and implications
- Decentralising power – enabling local delivery
- Enabling sustainable transport choices
- Active Travel
- Making public transport more attractive
- Managing traffic to reduce carbon emissions and tackle congestion

Policy Issue

The key aims of transport are to support sustainable economic growth and reducing carbon emissions

3.2.5 *Local Transport Act 2008*

The Local Transport Act 2008 requires local transport authorities to develop policies “for the promotion and encouragement of safe, integrated, efficient and economic transport to, from and within their area” in line with national policy on environmental sustainability and climate change.

Aims

The Local Transport Act aims to provide local transport authorities with the power to make transport decisions at the local level.

The LTA is directed to address increasing congestion and improve the quality of bus services and as such amends the law relating to the responsibility of local authorities in relation to:

- transport policy and planning;
- operation of local bus services;
- functions of Integrated Transport Authorities (previously Passenger Transport Authorities); and
- implementation of road user charging.

3.2.6 *Planning Act 2008*

The Planning Act 2008 was granted Royal Assent on 26 November 2008. The Act introduced a new stream-lined system for decisions on applications to build nationally significant infrastructure projects (NSIPs) in England and Wales, alongside further reforms to the town and country planning system and the introduction of a Community Infrastructure Levy (CIL).

3.2.7 *Community Infrastructure Levy (CIL)*

Aims

CIL is a levy on development which will be spent at a local level to pay for infrastructure necessary to support the development. It will replace Section 106 Agreements, which will then become site specific only

The Community Infrastructure Levy (CIL) is a locally set charge which can be applied to most new developments to help fund infrastructure. It was introduced by the Planning Act 2008 and the CIL Regulations which came into force in April 2010.

Any local authority can decide whether or not they want to impose CIL, and if they do it will replace the approach of collecting developer contributions through Section 106 (S106) planning obligations.

CIL will be charged in pounds per square metre, the amount to be decided by each local authority; charging schedules will be subject to public scrutiny and they must be consulted upon.

The key test will be that the rate of CIL must strike an appropriate balance between:

- a) the desirability of funding infrastructure from CIL.
- b) the potential effects it would have on the economic viability of development in that area.

Once a charging schedule has been adopted, any development for which planning permission is required will be a chargeable development on which CIL must be paid.

CIL is considered to be a fairer way of raising money for infrastructure than S106 as the money will be 'pooled' and used for more general schemes in the area; as such the use of planning obligations is now more limited. Whilst the following tests were previously applied as a matter of policy for a planning obligation, they will now be a matter of law:

- necessary to make the development acceptable;
- directly related to the development; and

- fairly and reasonably related in scale and kind to the development.

3.2.8 *Localism Act*

The Localism Bill was submitted to parliament in December 2010 and became an Act in November 2011. The Act has led to a shift in power from central government to individuals, communities and local councils. The aim is to strengthen local democracy and individual responsibility, allowing local people to have an input into the issues that matter to them.

Through planning tools such as NPPF and other similar mechanisms available to them, local authorities are being given the powers to set their own policies that are more sensitive to their own local areas. In addition, the 'general power of competence' will give councils more freedom to work together with others in new ways to drive down costs.

Aim

The Localism Act aims to give power to Local people, through devolving powers to local level (abolishing regional strategies) and introducing Neighbourhood Plans.

3.2.9 *Health and Social Care Act 2012*

The Act sets out the key legislative changes which include a new focus for public health and greater accountability locally. As part of this greater accountability **Health and Wellbeing boards** and Local **HealthWatch** organisations are to be introduced. Local Authorities will be under duty to ensure that these organisations are effective and efficient.

The White Paper *Healthy Lives, Healthy People* sets out a higher priority for public health and dedicate resources. As part of this Local Authorities will have a new role in improving the health and wellbeing of their population as part of the new Localism agenda. Transport is seen to be a major influence in the promotion of health and wellbeing at a local level.

Health and Wellbeing Boards will introduce local democratic legitimacy by bringing together locally elected and accountable councillors, directors of adult social services, children's services and public health, CCGs and patients' views through local Healthwatch.

HealthWatch will provide advice and information about access to local care services and choices available to patients and a stronger voice for patients, with a seat on the local health and wellbeing board. HealthWatch organisations will feed their views on standards of providers' services to HealthWatch England.

Lincolnshire County Council carried out Community Engagement in the Spring/Summer of 2012. This exercise included consultation with residents and stakeholders in Lincolnshire regarding HealthWatch.

These boards are currently acting in shadow form and will officially take over their duties in April 2013; therefore giving the opportunity for close links between public health and local services such as transport provision within Local Authorities.

Aim

The Health and Social Care Act aims to follow the Localism Agenda by enabling decisions to be made at a local level.

Policy Issue

Local authorities are taking on responsibility for local public health matters, which may lead to greater policy and practice links between health and transport

3.2.10 Infrastructure Act 2015

Part 2 of the Infrastructure Act 2015 relates to Cycling and Walking Investment Strategies (CWIS) and introduces a duty for the Secretary of State for Transport to set a CWIS for England to encourage active modes.

The Cycling and Walking Investment Strategy must specify both the objectives and the financial resources available in order to achieve such objectives, and will be required to review and report on the progress to meeting objectives regularly.

The Department for Transport recently set its timeline for publishing the first CWIS in its publication: "Setting the First Cycling and Walking Investment Strategy", December 2015, with the aim to produce the final CWIS in Summer 2016 following public consultation of the draft CWIS in Spring.

The long term ambition for the CWIS will be for walking and cycling "to become the norm for short journeys or as part of a longer journey with places that are designed first and foremost for people on foot or bicycle."

The CWIS will be aimed at encouraging growth in cycling across England and reversing the decline of walking as a mode, to improve the population's health, the country's economy and the environment.

Aims

- Encourage healthy lifestyles
- Reduce congestion
- Reduce the effects of poor air quality
- Reduce the impact on the environment and climate change
- Reduce the cost to health services
- Reduce the need for employee sickness and increase economic productivity
- Reduce the impact of vehicles in town centres and high streets to encourage economic vibrancy

Policy Issue

Part 2 of the Infrastructure Act 2015 requires the development of a Cycling and Walking Investment Strategy (CWIS) for England to encourage the uptake of active modes. The first CWIS is expected to be published in summer 2016.

Policy Issue

The Bill aims to remove obstacles from the planning process to encourage housing development and home ownership.

3.2.11 *Local Policy*

This chapter summarises the changes in local policy in Lincolnshire and Boston itself since the previous strategy.

3.2.12 *Local Transport Plan 4*

The 4th Local Transport Plan (LTP4) covers the period 2013/14 to 2022/23 and builds on the previous three LTPs. LTP4 identified significant population growth across Lincolnshire over the period of 2001 to 2011 of 10.4% compared with 8.3% in the East Midlands and 7.4% in England, with strong growth across major urban areas including Boston at 15.8%.

It is expected that this growth is likely to further increase pressures on transport infrastructure and increase its negative effects on health and the environment.

The areas of ageing population bring further challenges of accessibility with the need to provide affordable modes such as public and community transport.

LTP4 proposes to tackle transport related issues across the county including congestion, air quality, noise, carbon emissions, accessibility and road safety by

minimising car travel and promoting sustainable modes and active travel as viable alternatives.

As such, three key challenges have been identified:

- Supporting growth and the local economy;
- Improving access to employment, training and key services; and
- Contributing to a healthier community.

LTP4 will work in conjunction with the county wide Parking Strategy, the Community Transport Strategy, and the Local Development Framework Core Strategy (currently in preparation), and will be supported by the Transport Strategy.

Recent progress on local transport improvements is outlined within LTP4 including the £5.5m A16/A52 online widening scheme which was completed in 2011 and has resulted in a reduction in journey times across the town centre by up to 20%, subsequently increasing network capacity. Other improvements with regards to the Market Place Enhancement which focuses on an improved streetscape and the refurbishment of footways by removing a large percentage of car parks is highlighted within the report. Public transport improvements are also identified and emphasises a 300% increase in bus patronage.

Through the South East Lincolnshire Joint Strategic Planning Committee, the LTP states that a Local Development Framework Core Strategy is being developed (since publication, this has changed to the emerging South East Lincolnshire Local Plan). It is anticipated that areas of land will be identified for future development which may help facilitate the possibility of a distributor road to the west of Boston. Other identified elements with the previous Transport Strategy continue to be delivered including the Waterways Project which aims to improve cycling facilities along the South Forty Foot Drain.

Moving forward, the LTP states that Boston will be at the forefront of improvements to public transport infrastructure which will focus on real time information systems, improving accessibility via rail and encouraging sustainable transport modes in aim of reducing levels of road traffic related pollutants.

Aims

- Assist in sustainable economic growth through transport network improvements
- Improve accessibility by widening travel choices
- Reduce severity and number of collisions by tackling road safety
- To enhance and protect the environment by reducing the impact of traffic and its carbon emissions
- Improve the quality of public spaces
- Improve health and quality of life by tackling air quality and noise issues

Policy Issue

The South East Lincolnshire Local Plan is in preparation and will be supported by the Transport Strategy.

3.2.13 *South East Lincolnshire Local Plan (draft)*

The South East Lincolnshire Local Plan (SELLP) will form a joint Local Plan for Boston Borough and South Holland District. The plan will present the vision and strategic priorities for South East Lincolnshire, with objectives for achieving the delivery of the plan and identified areas for growth. The SELLP is currently in preparation with the final document expected to be published in August 2016.

A Local Development Scheme (LDS) document was produced in March 2015 that set out the timetable and nature of the Local Plan that is expected to be submitted in August 2016 and finally adopted in early 2017.

It is intended that over time the Local Plan will replace saved policies in the Boston Borough and South Holland Local Plans. It will attempt to offer an “effective spatial expression to the vision and aspirations of South East Lincolnshire’s local communities” regarding the development and use of land in the area, coupled with a local interpretation of national planning policies.

According to the approved LDS the Local Plan will contain:

- An overall vision for South East Lincolnshire which sets out how the area and the places within it should develop;
- A set of strategic priorities for the area focussing on key issues that need to be addressed;
- A set of strategic policies that address the strategic priorities;

- A suite of criteria based policies to be taken into account when considering development;
- A ‘delivery’ section containing sufficient detail in relation to allocated sites and any broad locations to provide clarity to developers, local communities and other interests about the nature and scale of the development; and
- Where appropriate, a key diagram including any broad locations for strategic development.

A draft Local Plan for public consultation was published in January 2016 and sets out strategic priorities under the headings of sustainable development; economy; housing; environment; and transport (listed in Table 3-1). In total 32 policies in support of the strategic priorities have been proposed under the headings of promoting sustainable communities in South East Lincolnshire; promoting employment opportunities; quality housing for all; vibrant town centres and accessible shops and services; a distinctive greener, cleaner, healthier environment; and efficient and effective transport. Several of these policies have been identified as important strategic policies and are shown in the table below.

Table 3-1 – South East Lincolnshire Local Plan – Strategic Policies

Strategic Policy	
1	Presumption in favour of Sustainable Development A positive approach to considering development proposals will be taken that reflects the presumption in favour of sustainable development contained in the National Planning Policy Framework.
2	Spatial Strategy Policy sets out areas within South East Lincolnshire where development is to be directed and encouraged, limited or restrained based on a balance of factors relating to sustainable development and maintaining community/settlement character and needs.
4	Strategic Approach to Flood Risk Major development shall be located in areas with the lowest hazard or probability of flooding and shall not increase flood risk. Development in areas with higher flood risk will be required to demonstrate exceptional need and provide any mitigation for flood risk for the lifetime of the development. Strategic-level flood-risk management infrastructure should be provided where developments allow.
5	Meeting Physical Infrastructure and Service Needs Planning permission will be granted for new developments provided that developers can demonstrate that there is, or will be, sufficient physical infrastructure and service needs capacity to meet the requirements of the proposed development.
6	Developer Contributions Policy sets out the various mechanisms for securing improvement/provision of infrastructure as a consequence of development including planning conditions, Section 278 agreements and CIL.
7	Improving South East Lincolnshire’s Employment Land Portfolio Employment land will be managed to meet the economic needs of South East Lincolnshire.
11	Meeting Objectively Assessed Housing Needs Provision will be made for a net increase of at least 18,250 dwellings in South East Lincolnshire, 7,500 of which will be in Boston (300 per annum).

Strategic Policy	
12 Distribution of New Housing	Policy sets out number of dwellings to be built at various settlements on South East Lincolnshire.
22 Retail Hierarchy	Policy sets out a hierarchy for where retail and other main town centre land uses should be located.
25 The Natural Environment	Policy sets out to achieve a high quality, comprehensive network of inter-connected designated sites, sites of nature conservation importance and wildlife friendly greenspace.
26 The Historic Environment	To respect the historical legacy, varied character and appearance of South East Lincolnshire's historic, development proposals will conserve or enhance the character and appearance of designated and non-designated heritage assets, such as important archaeology, historic buildings, monuments, street patterns, streetscapes, landscapes, river frontages and their settings through high-quality, sensitive design.
28 Climate Change and Renewable and Low Carbon Energy	All development proposals will be required to demonstrate that the consequences of current climate change have been addressed.
30 Promoting Safe, Accessible Open Space, Sport and Recreational Facilities	Developments shall contribute to: the creation of socially-cohesive and inclusive communities; reducing health inequalities; and improving the health and well-being of the community.
31 Delivering a more Sustainable Transport Network	The Local Planning Authorities will work with a wide range of partners to make the best use of, and improve, existing transport infrastructure and services within, and connecting to, South east Lincolnshire, having first considered solutions to transport problems that are based on better promotion and management of the existing network and the provision of sustainable forms of travel.

Source: South East Lincolnshire Local Plan 2011-2036, Draft for Public Consultation (including site options for development), January 2016

The Local Plan could also be a tool that would allow Boston Borough Council to raise funds from developers through the Community Infrastructure Levy (CIL) mechanism which could be used to pay for infrastructure improvements that are required as a result of development. The government expects local authorities to implement the CIL on the basis of infrastructure requirements identified in an up-to-date, 'core strategy' type document, normally a draft or adopted Local Plan. No decision has been made to date on whether to implement the levy.

Aims

- Encouraging growth whilst ensuring development is sustainable
- Supporting residential development to meet the housing need
- Facilitating economic development to strengthen the local economy
- Improving the quality of life for residents and visitors by improving accessibility to services
- Mitigating the effects of climate change including reducing carbon emissions
- Encouraging modal shift to sustainable modes
- Improving road safety.

3.2.14 *Boston Car Park Strategy 2012-2017*

The Car Park Strategy was adopted on 2012 and is now towards the end of its timeframe. The Borough Council has continued to work towards the seven strategic objectives of the Strategy:

- Improve traffic flow and reduce congestion;
- Increase availability of on and off street parking in the areas of highest demand;
- Support access for everyone to local businesses, facilities and amenities;
- Promote the use of green forms of transport;
- Provide residents and visitors with safe, good quality parking facilities that meet their needs;
- Provide competitive charges for car park customers that protect the Council's income; and,
- Provide a parking service that embraces the use of new technology where this is appropriate and cost effective.

3.3 Society & Wellbeing

3.3.1 Introduction

The demographic characteristics of an area can determine to a large extent the transport needs of its population. This section explores various population statistics and provides comparisons with the wider county and country.

3.3.2 Population

The total estimated population of Boston, based on the latest available statistics is 66,500. Table 3-2 provides the key statistics of the town's population from 2006 to 2014.

Table 3-2 – Population of Boston Divided into Age Groups (mid-year estimates)

Age	Total Population 2006		Total Population 2014	
	Number	Share %	Number	Share %
All usual residents	59,770	100	66,500	100
Age 0 to 15	10,485	17.5	12,100	18.1
Age 16 to 64	35,594	59.6	38,500	61.1
Age 65+	13,691	22.9	13,800	20.7

Source: ONS Neighbourhood Statistics – Resident Population Estimates by Broad Age Band

Boston's population grew by 6,730 from 2006 to 2014, an increase of 11.3%. In this time the working age population has proportionally increased along with the under-15s group, whilst the over 65s group has remained static.

In order to better understand the trends in the size and demographics of Boston's population, mid-year population estimates have been obtained from the Office for National Statistics. It should be noted in these tables that prior to 2011 the categories for ages 16 to 64 and over 65 include ages 16-59 for women and 60+ for women respectively. Additionally, post 2010 population estimates were rounded to the nearest hundred.

The overall population figures in Table 3-3 show that the population of Boston grew significantly faster between 2006 and 2014 than the county, region and country.

Table 3-3 – Overall Mid-Year Population Estimates

	Boston	Lincolnshire	East Midlands	England
2006	59,770	625,644	4,366,676	50,965,186
2007	61,036	632,703	4,404,774	51,381,093
2008	62,176	638,604	4,441,125	51,815,853
2009	63,399	642,200	4,471,653	52,196,381
2010	64,475	647,330	4,507,071	52,642,452
2011	64,600	650,200	4,537,400	53,107,200
2012	64,800	654,000	4,567,700	53,493,700
2013	65,900	658,400	4,598,400	53,865,800

	Boston	Lincolnshire	East Midlands	England
2014	66,500	665,000	4,637,400	54,316,600
Change 2006–14	6,730	39,356	270,724	3,351,414
Percentage Change	11.3%	6.3%	6.2%	6.6%

Source: ONS Neighbourhood Statistics – Resident Population Estimates by Broad Age Band

With the population broken down into three age groups in the following three tables it can be seen that at the population of young people and people of working age in Boston has grown significantly faster than the county, region and country as a whole. The proportion of over-65s increased significantly less than the county, East Midlands and England as a whole.

Table 3-4 – Mid-Year Population Estimates of 0–15 year olds

	Boston	Lincolnshire	East Midlands	England
2006	10,485	111,326	828,030	9,802,937
2007	10,649	111,135	828,367	9,815,553
2008	10,743	111,274	830,871	9,852,867
2009	11,025	110,994	833,076	9,903,897
2010	11,261	110,928	835,268	9,960,792
2011	11,400	110,500	838,700	10,030,100
2012	11,500	110,900	844,400	10,130,200
2013	11,900	111,400	849,200	10,209,200
2014	12,100	112,200	855,100	10,303,600
Change 2006–14	1,615	874	27,070	500,663
Percentage Change	15.4%	0.8%	3.3%	5.1%

Source: ONS Neighbourhood Statistics – Resident Population Estimates by Broad Age Band

Table 3-5 – Overall Mid-Year Population Estimates of 16–64 year olds

	Boston	Lincolnshire	East Midlands	England
2006	35,594	371,739	2,708,662	31,733,571
2007	36,354	375,087	2,727,523	31,952,523
2008	37,147	376,728	2,740,580	32,158,557
2009	37,875	377,226	2,749,512	32,308,191
2010	38,403	378,811	2,763,009	32,514,092
2011	40,400	403,300	2,919,200	34,347,400
2012	40,000	401,500	2,912,200	34,307,000
2013	40,400	400,700	2,913,000	34,351,400
2014	40,600	402,500	2,923,200	34,475,400
Change 2006–14	5,006	30,761	214,538	2,741,829
Percentage Change	14.1%	8.3%	7.9%	8.6%

Source: ONS Neighbourhood Statistics – Resident Population Estimates by Broad Age Band

Table 3-6 – Overall Mid-Year Population Estimates of over 65 year olds

	Boston	Lincolnshire	East Midlands	England
2006	13,691	142,579	829,984	9,428,678
2007	14,033	146,481	848,884	9,613,017
2008	14,286	150,602	869,674	9,804,429
2009	14,499	153,980	889,065	9,984,293
2010	14,811	157,591	908,794	10,167,568
2011	12,900	136,300	779,600	8,729,700
2012	13,300	141,800	811,100	9,056,500
2013	13,600	146,400	836,300	9,305,200
2014	13,800	150,200	994,700	11,025,600
Change 2006–14	109	7,621	164,716	1,596,922
Percentage Change	0.8%	5.3%	19.8%	16.9%

Source: ONS Neighbourhood Statistics – Resident Population Estimates by Broad Age Band

Issue

Significant increases in young people and working age groups within the overall population in comparison to the surrounding area may generate future transport pressures above those experienced elsewhere.

3.3.3 Households

The total number of households in Boston recorded during the last census in 2011 was 27,291, a 13.8% increase from the 23,989 households recorded in the 2001 census (shown in Table 3-7). The number of households has increased by a similar

rate as in Lincolnshire but at a higher rate than the number of households regionally and nationally.

Table 3-7 – Number of Households, Census 2001-Census 2011

	Boston	Lincolnshire	East Midlands	England
2001	23,989	272,153	1,732,482	20,451,427
2011	27,291	306,971	1,895,604	22,063,368
% Change	13.8%	12.8%	9.4%	7.9%

Source: Lincolnshire Research Observatory

People in the 16-64 age group are classified as the ‘working age population’. There were 52,375 people aged 16-64 living in Boston households at the time of the 2011 census, an 18.1% increase since the previous census in 2001. This increase is greater than the rate of growth of the working age population per household for Lincolnshire, the East Midlands and England.

The increase in the working population in Boston will affect the number of trips per household during peak times. Although this will lead to an intensification of commuting trips, it will not necessarily lead to more traffic as the modes of transport are used is unknown. Table 3-8 shows the ratios of working age people per household in Boston compared to the rest of the country. It is evident that the increase in working age people per household is greater in Boston than across Lincolnshire and the rest of the country with 1.92 people of working age per household in 2011.

Table 3-8 – Ratio of Working Age People per Household 2001 and 2011

	Boston	Lincolnshire	East Midlands	England
2001	1.85	1.88	1.88	1.88
2011	1.92	1.88	1.90	1.91

Source: Nomis

Opportunity

The increasing number of households suggests that Boston has undergone a period of development. If this continues it presents an opportunity to gain funding from third parties for transport improvements.

Issue

A significant increase in the working population per household living in Boston will result in an increase in the number of commuting journeys per household at peak times

3.3.4 *School and college population*

There are 14 nursery/primary schools and four secondary schools in Boston, as well as a Further Education College. There are also two special schools. A detailed breakdown of pupil numbers at each school is provided in Table 3-9.

Table 3-9 – School and College Population in Boston

School	Type	Pupils
Boston Nursery School	Nursery	68
Boston Pioneers Free School Academy	Primary	173
Boston West Primary Academy	Primary	395
Carlton Road Academy	Primary	465
Fishtoft School	Primary	68
Hawthorn Tree School	Primary	367
Park Community Primary School	Primary	326
St George's Preparatory School	Nursery & Primary	42
St Mary's RC Primary School	Primary	211
St Nicholas CE Primary School	Primary	239
St Thomas' CE Primary School	Primary	408
Staniland Academy	Nursery & Primary	577
Tower Road Academy	Primary	612
Wyberton Primary School	Primary	199
Bridge House Independent School	Secondary	37
Boston Grammar School	Secondary - selective	605
Boston High School	Secondary - selective	746
Haven High Technology College	Secondary	1,143
John Fielding School	Special	49
The Pilgrim School	Special	11
Boston College	Further Education College	Circa 8,000
Total		14,741

Source: Lincolnshire County Council

Issue

6,741 pupils attend schools in Boston, and around 8,000 attend Boston College, generating significant movements of pupils and their parents, putting pressure on the transport network in the morning peak and the period immediately prior to the standard PM

3.3.5 *Indices of Multiple Deprivation*

The English Indices of Multiple Deprivation (IMD) are usually released on a three-yearly basis by the Department for Communities and Local Government. However

there were five years between the most recent release in 2015 and the previous release in 2010. Their purpose is to assess the concentration and degree of deprivation and poverty within all local authorities in England. The index ranks, at a highly localised scale, the degree to which the different locations could be considered to be in relative deprivation.

There are 326 local authorities within England and a ranking of 326 indicates the least deprived authority. The index is made up of several domains, which are presented below along with the proportion of the overall score they contribute:

- Income Deprivation – measures the proportion of the population living in families who are deprived due to unemployment or low earnings (22.5%)
- Employment Deprivation – measures the proportion of the population who are not working due to unemployment, illness or disability (22.5%)
- Health Deprivation and Disability – analyses those living in poor physical and mental health (13.5%)
- Education, Skills and Training Deprivation – investigates the level of skills, education and training among young people and adults (13.5%)
- Barriers to Housing and Services – looks at the affordability and availability of housing, and closeness of such housing to key services (9.3%)
- Crime – compares the level of four types of crime within a particular area: burglary, theft, violence and criminal damage (9.3%)
- Living Environment Deprivation – analyses the standards of people’s indoor and outdoor living environment. The specific measures which contribute to this index are the quality of housing, the local air quality and number/severity of road traffic collisions in the area (9.3%)

3.3.6 *IMD in Boston*

The IMD divides the country into Lower Super Output Areas which are homogenous small areas of relatively even size (approximately 1,500 people) of which there are 32,844 in England and 36 in Boston.

With an average rank of 66, Boston falls just outside the 20% most deprived districts in the country.

Issue

Boston is just outside the 20% most deprived districts in the country.

Between 2010 and 2015 there has been an increase in the population residing within LSOAs in Boston that fall in the 10% most deprived LSOAs in the country. However,

overall deprivation has reduced across the borough. This means that whilst there are more people living in particularly deprived areas within Boston, there has been a decrease in deprivation in other areas having an overall greater affect in the average for the district.

Issue	There has been in an increase in the amount of people living within areas that fall within the 10% most deprived in the country.
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The average ranks for each of the seven elements of the deprivation index of LSOAs in Boston are shown in

Table 3-10 below; the lower the average rank the more deprived Boston is in terms of each of the elements of the deprivation index. As can be seen in the table the majority of the elements of deprivation became less deprived from 2010 to 2015, however education, skills and training; crime and living environment all became more deprived over the same period.

Table 3-10 – Boston Indices of Multiple Deprivation - Average Ranks

Category	2010	2015	Change
Income	14,085	15,317	1,232
Employment	11,493	14,209	2,716
Health and Disability	12,725	12,950	225
Education, Skills and Training	9,813	7,980	-1,833
Barriers to Housing and Services	12,345	15,625	3,280
Crime	18,250	17,842	-408
Living Environment	19,957	13,979	-5,978

Source: GOV.UK

The following maps show the overall deprivation rank for LSOAs within Boston for 2010 and 2015 taking into account all seven factors previously mentioned. The third map shows the change in rank among Boston’s LSOAs between 2010 and 2015.

Figure 3-1 provides a visual representation of how each LSOA in Boston ranked overall in 2010 in the IMD which comprises all of the domains listed at the beginning of this section. It can be seen that the majority of LSOA’s in the town centre ranked higher (more deprived) than the outer suburbs and rural fringe. However, interestingly, some of the lowest ranked LSOA’s (least deprived) were also found to be close to the town centre, directly next to LSOA’s that ranked far higher in some cases. This indicates that there were some pockets of relatively better off areas in Boston town centre that performed better at other aspects of deprivation included in the IMD.

Figure 3-1 – Indices of Multiple Deprivation, Overall Rank, 2010

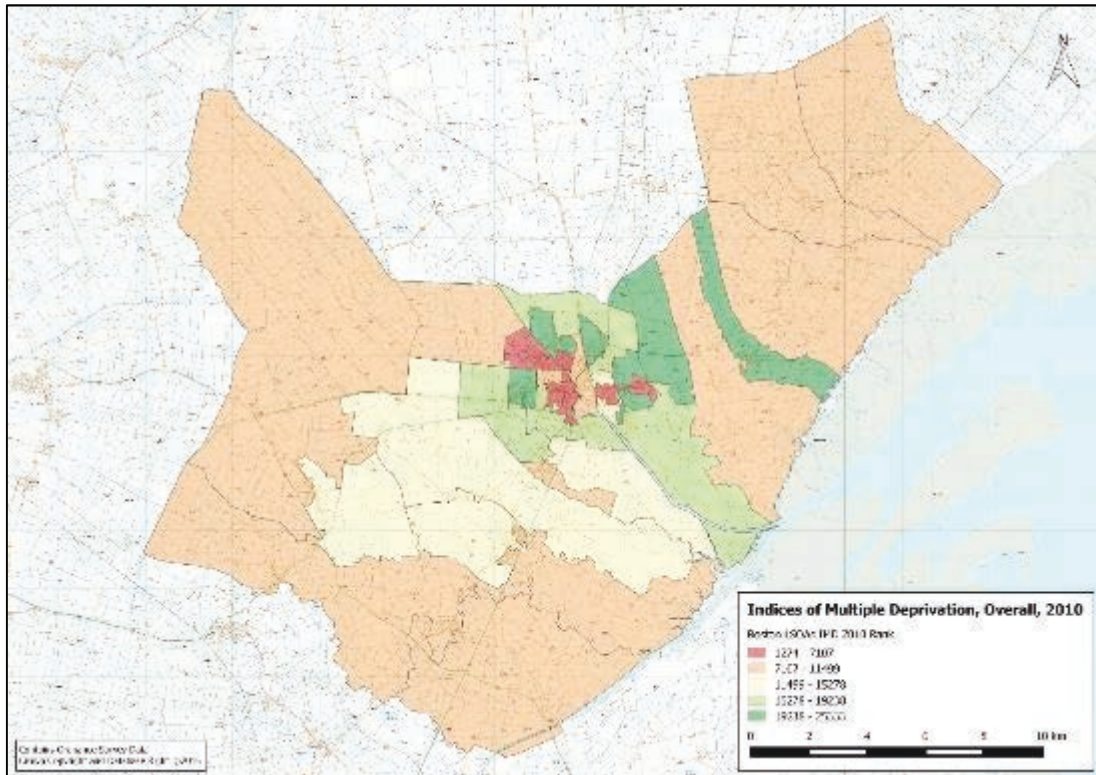


Figure 3-2 shows the same IMD overall rankings but for 2015. Differences are observed in the spatial patterns of some of the LSOA's and how they rank, however, these are negligible. Some of the LSOA's close to the town centre have dropped significantly in their ranking in just five years. There are many factors related to the indicators of the IMD domains that could have influenced this change such as a decrease in the amount of affordable housing available. The outer regions of Boston on the other hand, are clearly less sensitive to change.

Figure 3-2 – Indices of Multiple Deprivation, Overall Rank, 2015

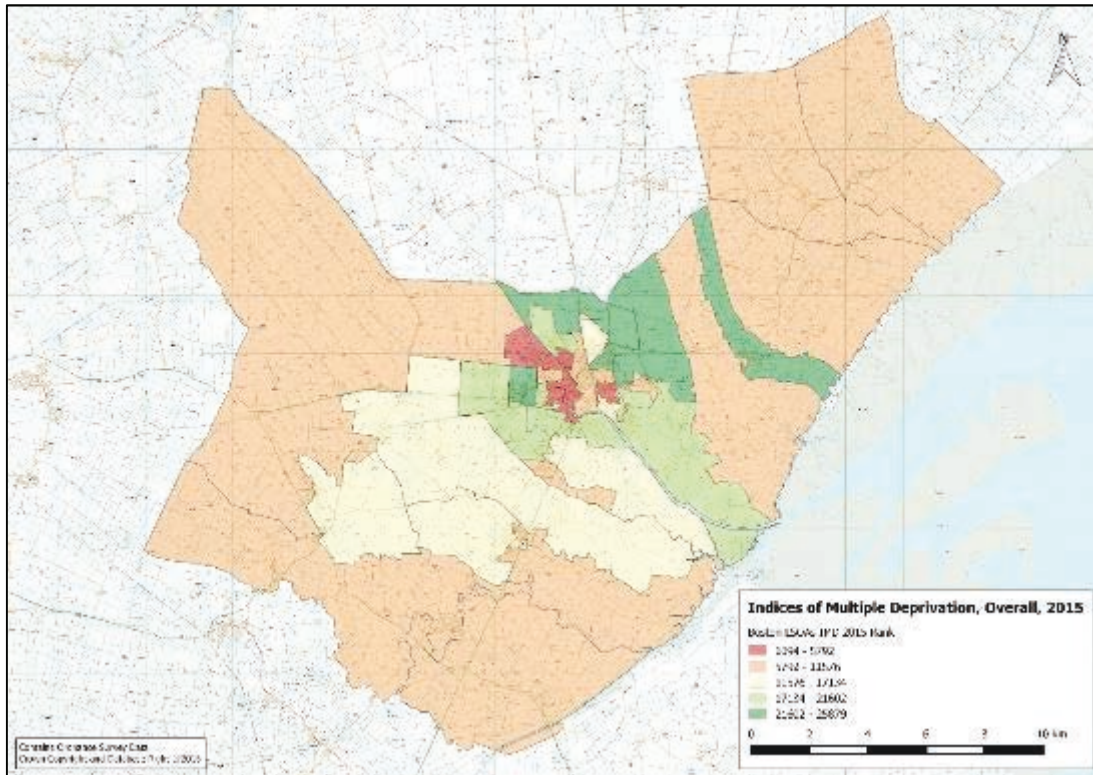
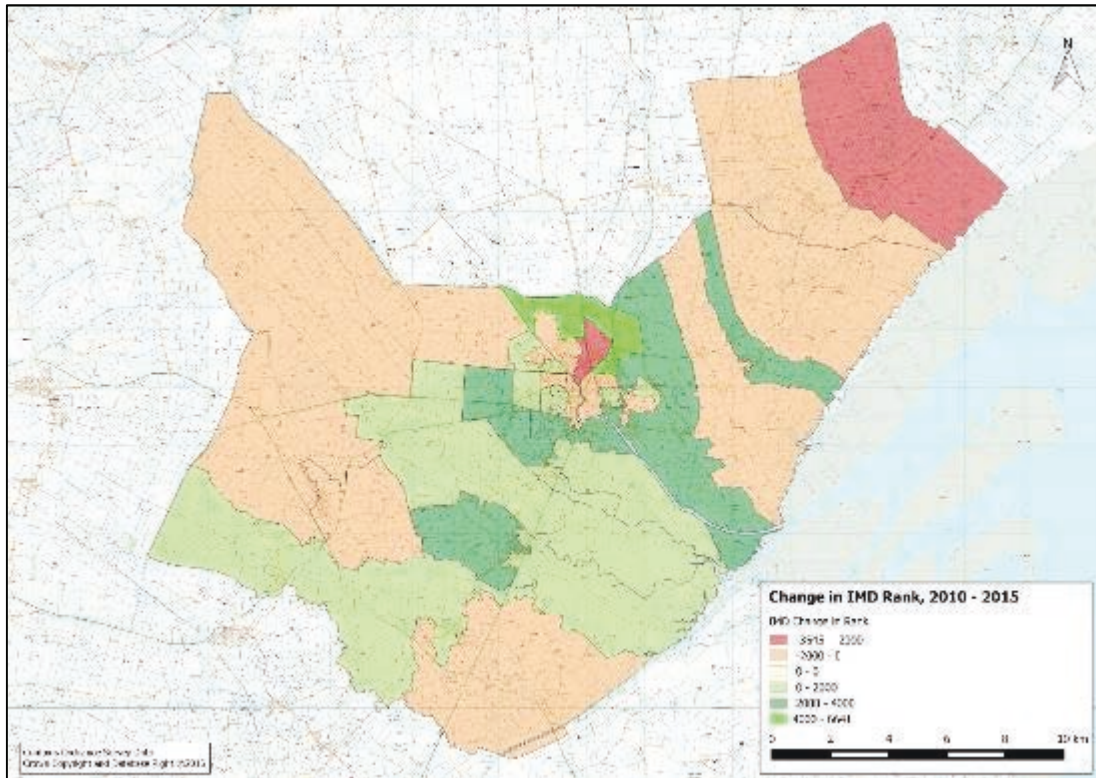


Figure 3-3 summarises the change in the overall IMD ranking for Boston between 2010 and 2015. It is evident that some of the already well performing areas have improved their IMD ranking while some of the already deprived areas have become more deprived.

Figure 3-3 – Indices of Multiple Deprivation, Change in Overall Rank, 2010 - 2015



Issue

Boston's inner urban area has high levels of deprivation.

Issue

Boston has varied levels of deprivation. However, deprivation is increasing in some areas that are already deprived. The opposite is true for less deprived areas, widening the gap between the two ends of the scale.

Opportunity

The majority of Boston's suburban areas (outside the centre but relatively close to it) are significantly less deprived

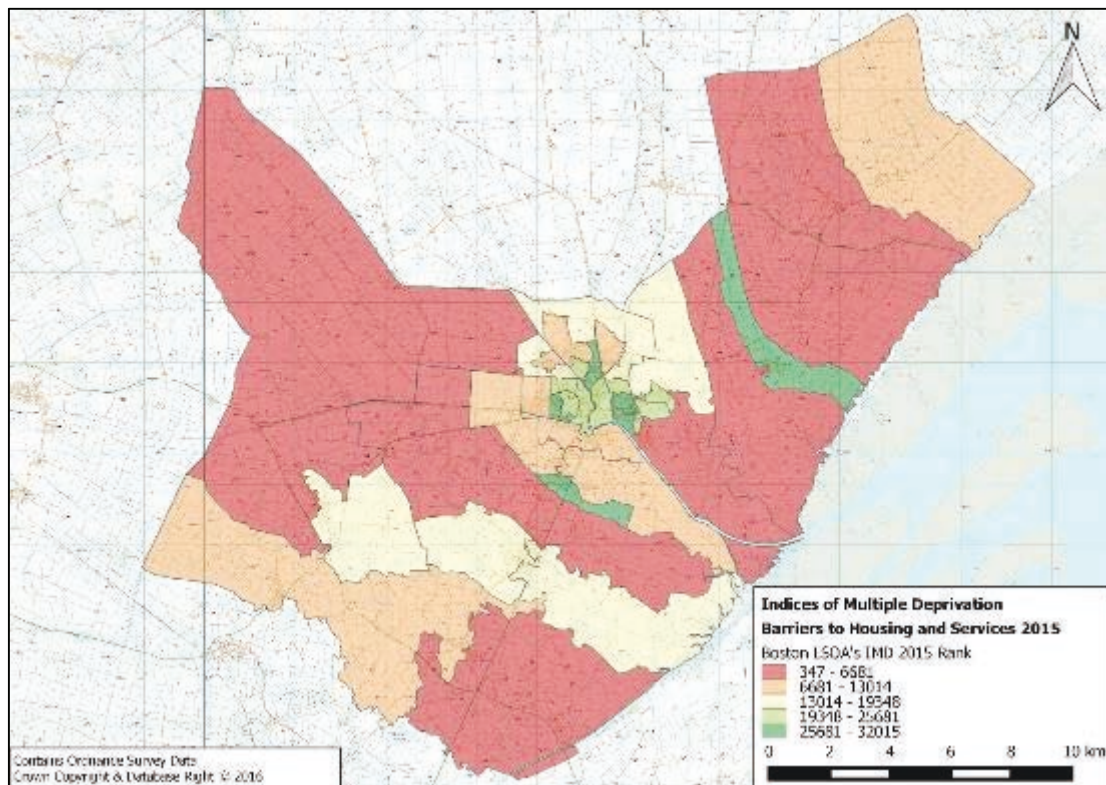
3.3.7 *Transport related deprivation*

The IMD is designed to pull together different facets of deprivation, however, when carrying out small area analysis, it is often worth looking closely at what the domains, and even their subdomains, tell you about different aspects of deprivation.

Figure 3-4 and Figure 3-5 show Boston's rankings for the IMD Barriers to Housing and Services domain and the IMD Living Environment Deprivation domain respectively which both relate directly to transport.

The Barriers to Housing and Services domain measures the physical and financial accessibility of housing and key local services. The indicators fall in to two sub-domains: 'geographical barriers' and 'wider barriers'. Geographical barriers relate to the physical proximity of local services measured by road distance to a post office, primary school, supermarket and GP surgery. Wider barriers include issues relating to the access to housing including household overcrowding, homelessness and housing affordability. It is clear that Boston's town centre ranks significantly higher than its peripheries which can be attributed to the larger range of housing and local services that you would expect to find in a town centre.

Figure 3-4 – IMD Barriers to Housing and Services Domain 2015



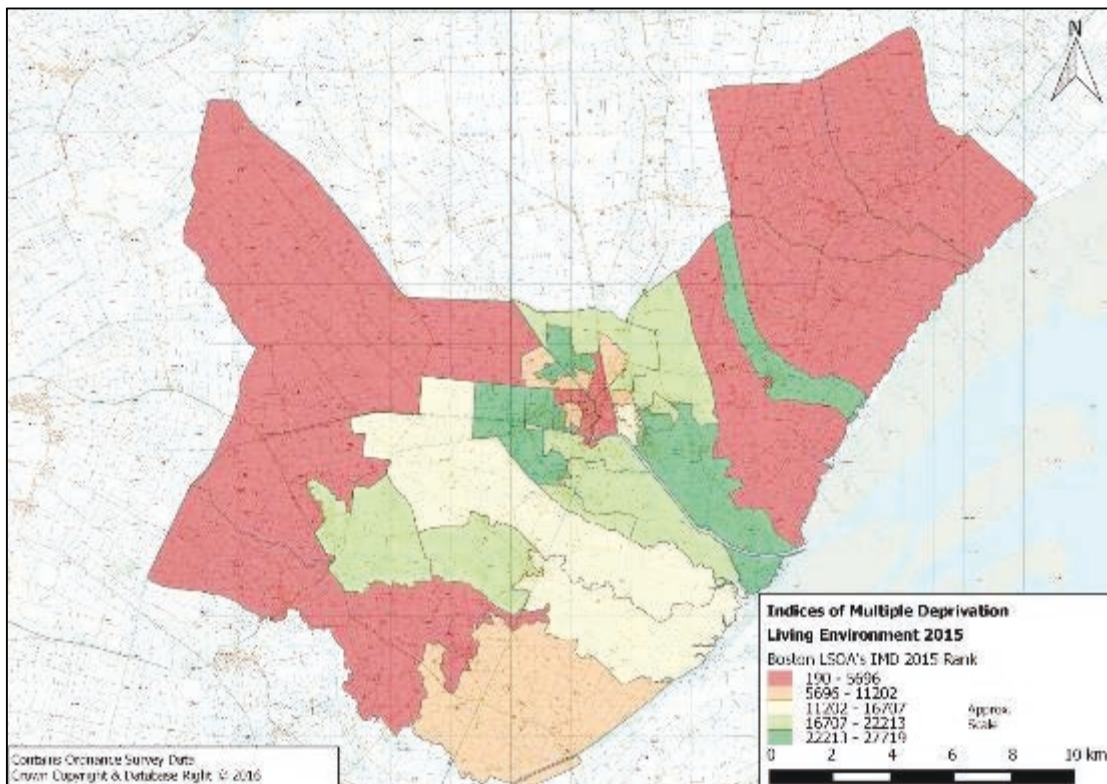
The Living Environment Deprivation domain measures the quality of the local environment. The indicators fall into two sub-domains: The 'indoors' and 'outdoors' living environment. The Indoors sub-domain measures the quality of housing based on whether a house has central heating and whether or not it fails to meet the decent homes standard.

The Outdoors sub-domain contains measures of air quality and road traffic incidents involving injury to pedestrians and cyclists. Figure 3-5 demonstrates that Boston town centre ranks poorly in this particular domain when compared to the rural-urban

fringe. The ranking of the town centre suggests that it has poor air quality which links with the presence of two Air Quality Management Areas within the town centre.

The ranking also indicates that Boston town centre has a relatively high number of road traffic collisions involving injury to pedestrians and cyclists. This is reflected in Section 3.16 where it is discussed that the number of collisions involving pedestrians and cyclists is significantly higher than the national average. Notably, areas further away from the town centre on the outer edge of the Boston region also rank poorly.

Figure 3-5 – IMD Living Environment Deprivation Domain 2015



Overall, Boston is extremely varied in its levels of deprivation related to these specific domains, with some areas ranking very highly and other having very low scores in reasonably close proximity to one another.

Some areas of Boston became significantly less deprived than others between 2010 and 2015, particularly the rural areas north of the town centre which rose by 6,641 places. However, the urban area just south suffered the worst increase in deprivation, dropping by 3,545 places.

The general trend is that the town centre areas have suffered an increase in levels of deprivation, whereas residential areas on the urban-rural borders of Boston town have generally improved. Rural areas further out from Boston town centre generally have smaller levels of change.

Issue

There are many geographical and wider barriers for residents living within Boston's rural fringe.

Issue

Boston's town centre has poor air quality, poor housing quality and a relatively high number of road traffic incidents. A large proportion of Boston's most remote areas in the east and west mirror this.

Opportunity

Boston town centre has affordable housing and is served well by key local services.

3.3.8 *Car ownership*

There were 33,699 cars available to Boston's households in 2011. This is an average of 1.23 cars per household, greater than the national average of 1.17 cars per household.

The total number of cars and vans in Boston increased significantly by 21.9% between 2001 and 2011, greater than the rate of population growth for people over the legal age to drive; 17.7% between 2001 and 2011.

Table 3-11 highlights that Boston has a higher rate of growth in the total number of cars and vans per household in comparison to the figures for East Midlands and England. The proportion of households without a car actually fell by 1% between 2001 and 2011 despite Boston showing a significantly higher increase in the actual number of households without access to a car or van. The rate of growth for households with one car was slightly lower than Lincolnshire but still greater than the region and the country as were the rates of growth for households with three cars.

Table 3-11 – Changes in Car Ownership between 2001 and 2011

	Boston		Lincolnshire		East Midlands		England	
	2001	2011	2001	2011	2001	2011	2001	2011
No cars or vans in household	5,221	5,667	54,520	55,407	420,165	418,999	5,488,386	5,691,251
	21.76%	20.77%	20.03%	18.05%	24.25%	22.10%	26.84%	25.80%
1 car or van in household	11,802	12,561	129,236	137,635	770,028	805,212	8,935,718	9,301,776
	49.20%	46.03%	47.49%	44.84%	44.45%	42.48%	43.69%	42.16%
2 cars or vans in household	5,542	6,925	70,632	87,271	437,345	519,487	4,818,581	5,441,593
	23.10%	25.37%	25.95%	28.43%	25.24%	27.40%	23.56%	24.66%
3 cars or vans in household	1,099	1,567	13,553	19,598	80,823	113,338	924,289	1,203,865
	4.58%	5.74%	4.98%	6.38%	4.67%	5.98%	4.52%	5.46%
4 or more cars or vans in household	325	571	4,212	7,060	24,121	38,568	284,453	424,883
	1.35%	2.09%	1.55%	2.30%	1.39%	2.03%	1.39%	1.93%

Source: Nomis

Issue	The number of cars and vans in Boston increased by almost 22% between 2001 and 2011, significantly higher than the national rate and at a greater rate than the driving population within Boston.
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3.3.9 Summary

The population of Boston has grown by 11.3% from 2006 to 2014, almost twice the growth in population seen nationally. This could present significant impacts on Boston’s local transport services and infrastructure. The working age population per household also significantly increased by 18.1% between 2001 and 2011 which will inevitably result in an increase in the number of commuting journeys per household and therefore potentially exacerbate the issue of road congestion during peak times.

There are also 2,531 pupils attending secondary schools in Boston which could present an altogether different set of challenges for local transport services, especially with the schools being located relatively centrally.

Boston is almost in the 20% most deprived districts in the country, and the gap between the more deprived and less deprived areas in Boston is widening. The deprivation information that directly relates to transport presents different patterns. The town centre ranks poorly in relation to air quality and road traffic incidents whereas it ranks highly when measured against the barriers to key local services. This contrast suggests that although services within the town centre are accessible,

there are a large number of vehicles exploiting them as opposed to more sustainable modes of transport which in turn is having a negative effect on the local air quality, particularly along the highway network and has resulted in more road-related collisions to cyclists and pedestrians.

There would seem to be a strong urban influence on the degree of deprivation in all of the domains but also a clear factor relating to 'remoteness' in many.

3.4 Economy

3.4.1 Introduction

National and local policies have made the link between the need for good quality transport infrastructure and economic growth. This chapter explores various economic statistics in the strategy area in comparison to the wider county and to England as a whole.

3.4.2 Employment rate

The number of people in employment is a key indicator of the economic health of an area. Headline figures from the ONS Annual Population Survey have shown, at the local authority level, that Boston outperformed the county, region and England and Wales in 2012 and 2013 in terms of having a higher employment rate. However, employment rates saw a significant change in 2014, falling below Lincolnshire, East Midlands and England and Wales, whilst employment rates for these areas continued to increase. This is reflected in the decline in employment from 2008 to 2014 for Boston, of -11.3%, compared with the county, region and England and Wales.

Table 3-12 – Percentage of Working Age Population in Employment

Year	Boston	Lincolnshire	East Midlands	England & Wales
2008	79.1%	74.0%	73.5%	72.1%
2009	75.5%	73.0%	72.1%	70.6%
2010	67.1%	73.1%	70.7%	70.2%
2011	63.7%	72.8%	71.0%	69.9%
2012	75.4%	70.6%	71.2%	70.6%
2013	82.0%	73.2%	72.5%	71.3%
2014	67.8%	74.8%	73.7%	72.4%
Change 2008-2014	-11.3%	0.8%	0.2%	0.3%

(Source: Lincolnshire Research Observatory)

Issue

Employment rates across Boston district experienced a sharp decline between 2013 and 2014 compared with increasing employment across the county, region and England and Wales.

Table 3-13 below provides a comparison of the wards within the study area with the district average for 2011 as this is the latest data available at ward level. Within the study area, all of its wards have a higher employment rate than the district average ranging from four percentage points to ten percentage points greater. All of the wards in the strategy area, with the exception of Fenside (below by only two percentage points) are also above the national average. However, there is great disparity in rates across wards, with the employment rate ranging from 67.6% to 82.3%, and the unemployment rate ranging from 2.7% to 10.1%.

Table 3-13 – Percentage of Working Age in Employment by Ward 2011 (latest available)

	Num. Residents Employed	Economically Active (Ages 16 74)	Working Age in Employment	Unemployment Rate	Retired Persons	
					Num.	%
Central	1,476	85.2%	76.6%	10.1%	40	2.1%
Fenside	1,992	74.8%	67.6%	9.7%	97	3.3%
Fishtoft	2,794	80.6%	76.8%	4.7%	232	6.4%
North	1,746	81.3%	77.4%	4.8%	158	7.0%
Pilgrim	1,182	81.2%	73.6%	9.4%	37	2.3%
Skirbeck	2,432	77.1%	70.7%	8.4%	158	4.6%
South	1,321	85.5%	82.3%	3.7%	52	3.2%
Staniland North	1,022	82.4%	75.3%	8.6%	42	3.1%
Staniland South	1,573	77.0%	71.6%	7.0%	165	7.5%
West	1,023	82.3%	80.1%	2.7%	94	7.4%
Witham	2,155	81.7%	75.6%	7.5%	133	4.7%
Wyberton	1,722	81.7%	77.0%	5.7%	130	5.8%
Boston Study Area³	20,438	80.9%	75.4%	6.9%	1,338	4.8%
Boston Total	27,100	71.0%	63.7%	8.4%	3,200	7.6%

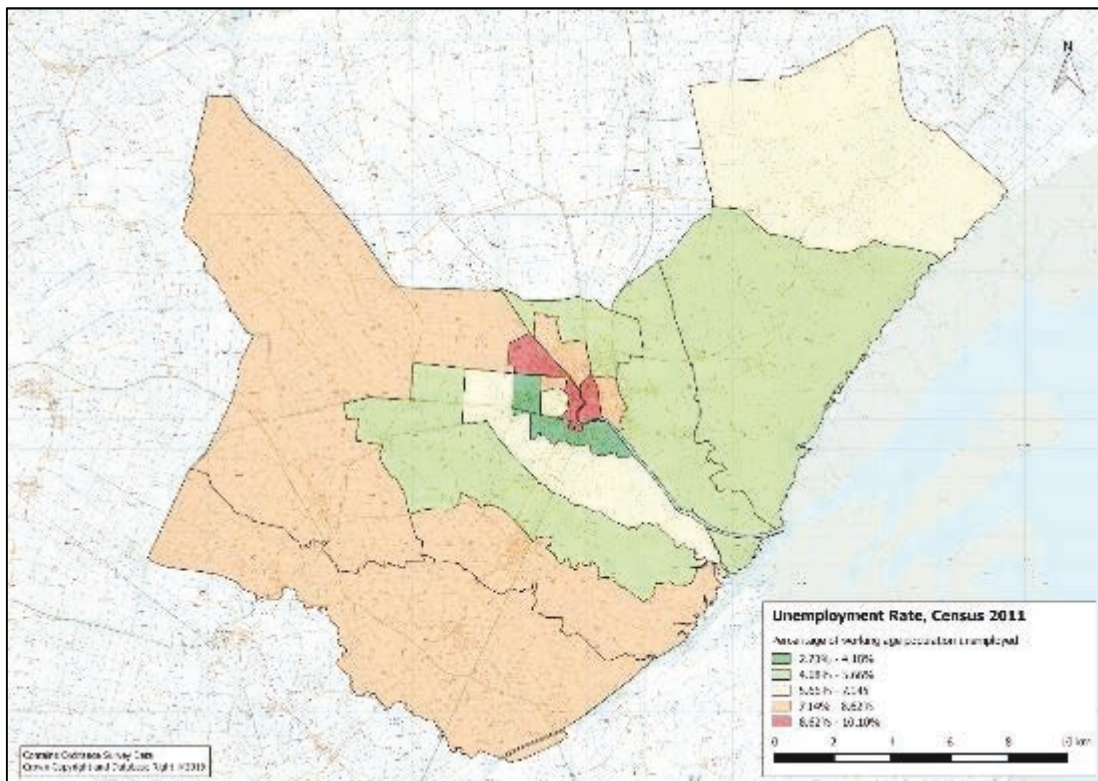
(Source: Nomis)

The unemployment rate by ward in Boston Borough has been mapped in Figure 3-6 below. From the mapped data it can be seen that there is a clearly defined inequality in unemployment rates with wards in the rural west of the borough and the Boston town centre wards, especially Central, Fenside and Pilgrim, experiencing higher levels of unemployment than those wards in the east of the borough and south and east of the town centre.

Although there are a range of reasons why unemployment is high, the lack of accessibility of the transport network and the financial barriers to it could accentuate the existing lack of employment opportunities.

³ Aggregated figures for the study area have been estimated from data provided for the 12 district wards it includes.

Figure 3-6 – Boston Wards Unemployment Rate, Census 2011



Issue

The study area has a wide range of employment and unemployment rates across its wards, although employment rates are higher (and unemployment rates lower) than the borough average.

Issue

There is a clearly defined inequality in unemployment rates, with central and western wards suffering from higher levels of unemployment than those to the east.

Opportunity

Improved access to wider geographies via public transport would enable access to employment opportunities further afield for those unable to access other forms of transport.

3.4.3 *Average earnings*

Annual average earnings for Boston residents (listed in Table 3-14) has increased by 9% since 2006, although this is lower than the county, region and national averages. As a result of lower incomes access to some forms of transport, such as cars, is

reduced. This in conjunction with limited rail services and infrequent inter-urban bus services make Boston geographically isolated. The result of this relative isolation is that the workforce in Boston is less flexible than other areas.

Table 3-14 – Average Annual Earnings £, Full Time, Residents Based 2010-2015

Year	Boston	Lincolnshire	East Midlands	England & Wales
2006	18,722	20,947	22,187	23,604
2007	20,875	21,257	22,544	24,300
2008	20,151	21,949	23,724	25,397
2009	20,364	23,174	24,549	26,000
2010	20,373	23,676	24,453	26,113
2011	20,444	23,101	24,337	26,307
2012	20,494	24,139	24,995	26,643
2013	20,915	24,578	25,379	27,189
2014	20,719	24,284	25,420	27,346
2015	20,376	24,306	25,606	27,732
Change 2006-2015	1,604	3,359	3,419	4,128
% Change (2006-2015)	9%	16%	15%	17%

(Source: Nomis)

Issue	Average earnings in Boston are significantly lower those of Lincolnshire, the East Midlands and the county as a whole.
Issue	Annual average earnings in Boston have not experienced the level of growth seen at the county, region and national levels.
Issue	Lower earnings and the geographic isolation of Boston, coupled with relatively limited public transport networks, means limited opportunities for the local population.
Opportunity	Enable cycling as it is a reliable and affordable mode of transport.

3.4.4 *Employment by industry*

The following table presents information on employment by industry type in Boston. Between 2009 and 2014, Boston has seen an 8% growth in Banking, Finance and Insurance, with reductions in Distribution, Hotels and Restaurants, Manufacturing and Public Administration, Education and Health. This growth means Boston's Banking, Finance and Insurance industry has higher than the average employment compared to the county, region and the country. Similarly, Boston has higher than average employment in agriculture and fishing.

Table 3-15 – *Employment by Industry Type 2014*

Type of Industry	Boston 2009	Boston 2014		Lincolnshire 2014	East Midlands 2014	England 2014
		Num.	%			
Banking Finance and Insurance	19%	7,048	27%	16%	19%	22%
Public Administration Education and Health	27%	6,526	25%	26%	26%	26%
Distribution Hotels and Restaurants	24%	5,221	20%	25%	22%	23%
Manufacturing	13%	2,610	10%	12%	13%	8%
Agriculture and Fishing	7%	2,088	8%	6%	3%	2%
Transport and Communications	5%	1,305	5%	5%	7%	9%
Construction	2%	522	2%	4%	4%	4%
Other Services	3%	522	2%	4%	4%	4%
Energy and Water	1%	261	1%	1%	1%	1%

(Source: Lincolnshire Research Observatory)

In Boston, the most common types of industries within which local businesses focus are agriculture, forestry and fishing; retail; and construction (shown in Table 4-5) - these industries tend to be intensive users of freight transport.

Table 3-16 – Number of Local Business Units 2013

Type of Industry	Boston		Lincolnshire		East Midlands		England	
	Number	%	Number	%	Number	%	Number	%
Agriculture Forestry and Fishing	355	14.1%	3,890	13.0%	11,075	6.3%	98,795	4.4%
Retail	315	12.5%	3,345	11.1%	19,165	10.9%	239,340	10.7%
Construction	235	9.4%	3,275	10.9%	18,810	10.7%	227,875	10.2%
Business Admin and Support Services	205	8.2%	1,730	5.8%	10,740	6.1%	156,455	7.0%
Health	175	7.0%	1,900	6.3%	10,525	6.0%	126,695	5.7%
Professional Scientific and Technical	150	6.0%	2,895	9.6%	21,455	12.3%	340,970	15.3%
Production	150	6.0%	1,835	6.1%	13,485	7.7%	130,935	5.9%
Arts Entertainment and Recreation	145	5.8%	1,585	5.3%	10,540	6.0%	151,730	6.8%
Transport and Storage	145	5.8%	1,575	5.2%	7,545	4.3%	72,090	3.2%
Accommodation and Food Services	145	5.8%	1,895	6.3%	10,480	6.0%	138,820	6.2%
Wholesale	130	5.2%	1,470	4.9%	9,300	5.3%	108,505	4.9%
Motor Trades	110	4.4%	1,205	4.0%	6,615	3.8%	66,160	3.0%
Property	70	2.8%	815	2.7%	5,810	3.3%	82,595	3.7%
Education	60	2.4%	815	2.7%	4,915	2.8%	56,140	2.5%
Information and Communication	55	2.2%	895	3.0%	7,965	4.6%	159,470	7.1%
Finance and Insurance	40	1.6%	490	1.6%	4,300	2.5%	57,240	2.6%
Public Administration and Defence	25	1.0%	420	1.4%	2,300	1.3%	20,530	0.9%
Total	2,510	100%	30,035	100%	175,025	100%	2,234,345	100%

(Source: ONS UK Business: Activity, Size and Location 2013)

Issue

The main industries in Boston tend to be relatively intensive users of freight transport.

The number of businesses in Boston has declined by 2% since 2007, whilst there was an increase across the county of 4% over the same period. The decline may have led to a drop in the amount of jobs available in Boston.

Table 3-17 – Number of Active Enterprises 2009-2014

	Boston	Lincolnshire
2007	1,990	25,040
2008	2,010	25,145
2009	1,970	25,080
2010	1,900	23,990
2011	1,900	24,365
2012	1,900	24,435
2013	1,935	25,460
2014	1,950	26,065
Change 2007-2014	-40	2,075
% Change (2007-2014)	-2%	4%

(Source: Lincolnshire Research Observatory)

Issue

The number of active enterprises in Boston has decreased, whilst there has been an increase across Lincolnshire as a whole.

As indicated in the table below, 63.9% of businesses in Boston have fewer than five employees, lower than the national average of 68.6%. Furthermore 0.6% of businesses have greater than 250 employees, higher than the national average of 0.44%.

Table 3-18 – Size of Business by Employees 2013

Number of Employees	Boston		Lincolnshire		East Midlands		England	
	Number	%	Number	%	Number	%	Number	%
0-4	1,605	63.9	20,250	67.4	117,450	67.1	1,531,705	68.6
5-9	380	15.1	4,610	15.3	25,825	14.8	319,905	14.3
10-19	250	10.0	2,565	8.5	15,045	8.6	184,895	8.3
20-49	180	7.2	1,735	5.8	10,435	6.0	122,650	5.5
50-99	45	1.8	495	1.6	3,595	2.1	42,620	1.9
100-249	35	1.4	280	0.9	1,930	1.1	22,600	1.0
250-499	10	0.4	75	0.2	500	0.3	6,490	0.3
500-999	5	0.2	20	0.1	185	0.1	2,325	0.1
1000+	0	0.0	5	0.0	60	0.0	1,125	0.1

Number of Employees	Boston		Lincolnshire		East Midlands		England	
	Number	%	Number	%	Number	%	Number	%
Total	2,510	100.0	30,035	100.0	175,025	100.0	2,234,315	100.0

(Source: ONS UK Business: Activity, Size and Location 2013)

3.4.5 *Summary*

Since 2010, employment rates have been increasing. Boston, outperformed the county, region and national averages with rapid growth in employment in 2012 and 2013. However in 2014 Boston's employment rates saw a significant decline to below the rates in Lincolnshire, East Midlands and England and Wales, whilst employment rates for these areas continued to increase.

Alongside this, average annual earnings in Boston have remained relatively constant whilst earnings have been increasing elsewhere, as a general trend. Boston has experienced slow growth in the number of businesses compared with the rest of the county, although, compared with the national average, businesses are larger with greater numbers of employees. The majority of businesses are concentrated in sectors that are dependent on freight (agriculture, forestry and fishing, retail and construction), but there has also been a significant shift to banking, finance and insurance industries.

3.5 **Environment**

3.5.1 *Introduction*

This section will discuss the changes in environmental conditions that have been observed within Boston since the last transport strategy.

3.5.2 *Carbon emissions*

Trends in transport-related carbon dioxide emissions were obtained from the Department for Energy and Climate Change (DECC) to be analysed for the Boston area and compared with Lincolnshire, the East midlands and England.

The difficulty in measuring emissions from road transport is well documented. Within the National Atmospheric Emissions Inventory, hot exhaust emissions and the related fuel consumption are calculated based on the composition of the vehicle fleet including age profile and fuel mix. The resulting fuel consumption and emission factors are then applied to detailed mapped traffic movements. As fleet mix varies by location, different factors are applied to different road types in different geographical locations. Vehicle kilometres are then calculated by the DfT using annual average daily flow (AADF) statistics by vehicle type at census points in the highway network.

The vehicle kilometres for each road link are then multiplied by the appropriate emissions factors according to the vehicle types and the average speeds per vehicle type recorded there. It is noted that this methodology assumes that diesel cars travel more miles in a year than petrol cars (1.6 times higher on average).

The two tables below demonstrate the road-transport related and overall trends in per capita carbon dioxide emissions for Boston, Lincolnshire, East Midlands and England between 2005 and 2013. It is evident that there has been a decline in both road transport and overall carbon emissions over this period. It is noted that transport-related emissions in Boston are reducing at a slower rate than overall emissions. Conversely, at regional and national level it is clear that overall emissions per capita are reducing at a faster rate than the ones related to transport.

Table 3-19 – Road Transport – Per Capita CO₂ Emissions (tonnes)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	Change 2005 13
Boston	2.4	2.4	2.3	2.1	2.0	2.0	2.0	1.9	1.9	-20.8%
Lincolnshire	2.4	2.3	2.3	2.2	2.1	2.1	2.1	2.0	2.0	-16.7%
East Midlands	2.7	2.6	2.6	2.5	2.4	2.4	2.3	2.3	2.3	-14.8%
England	2.3	2.2	2.2	2.1	2.0	2.0	2.0	1.9	1.9	-17.4%

Source: Department of Energy & Climate Change

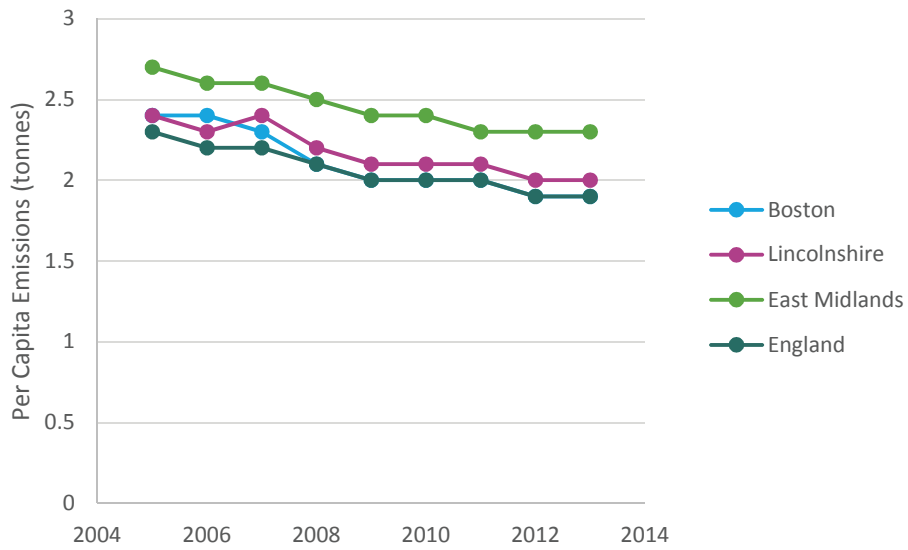
Table 3-20 – Overall – Per capita CO₂ Emissions (tonnes)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	Change 2005 13
Boston	8.3	8.2	7.8	7.6	6.9	7.1	6.4	6.7	6.4	-22.9%
Lincolnshire	8.4	8.4	8.1	7.8	7.2	7.5	6.8	7.1	6.9	-17.9%
East Midlands	9.6	9.5	9.1	8.8	8.0	8.3	7.6	7.8	7.7	-19.8%
England	8.8	8.7	8.5	8.2	7.4	7.6	6.9	7.1	7.0	-20.5%

Source: Department of Energy & Climate Change

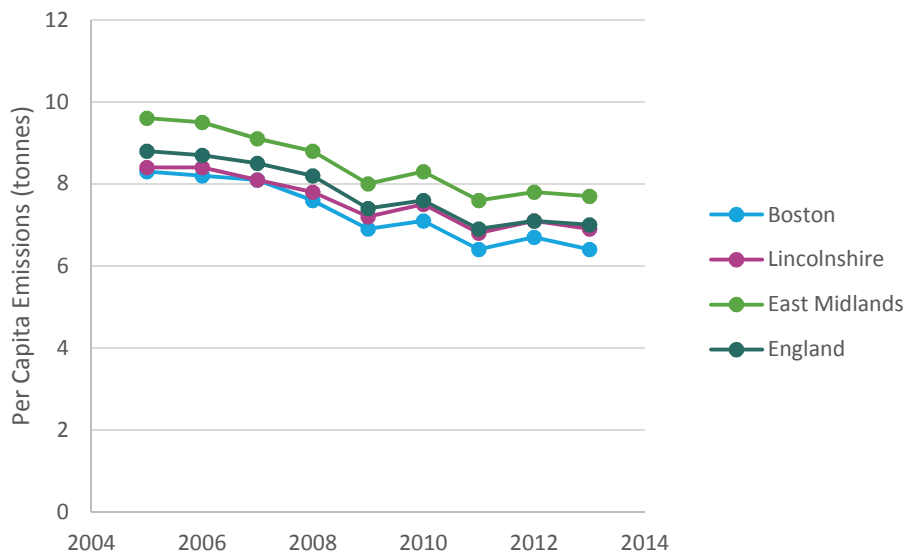
The following figures show that transport related CO₂ emissions per capita for Boston are in line with the national figures, however, it is clear that Boston generates less emissions than Lincolnshire and the East Midlands. Figure 5-2 illustrates that Boston is actually generating less overall carbon emissions than the county, region and country as a whole. Figure 3-9 on the other hand, clearly shows that Boston has a higher proportion of its carbon emissions being generated from road transport than at national level, this is still lower than the regional figures and is equivalent to Lincolnshire however.

Figure 3-7 – Road Transport CO₂ Emissions per capita



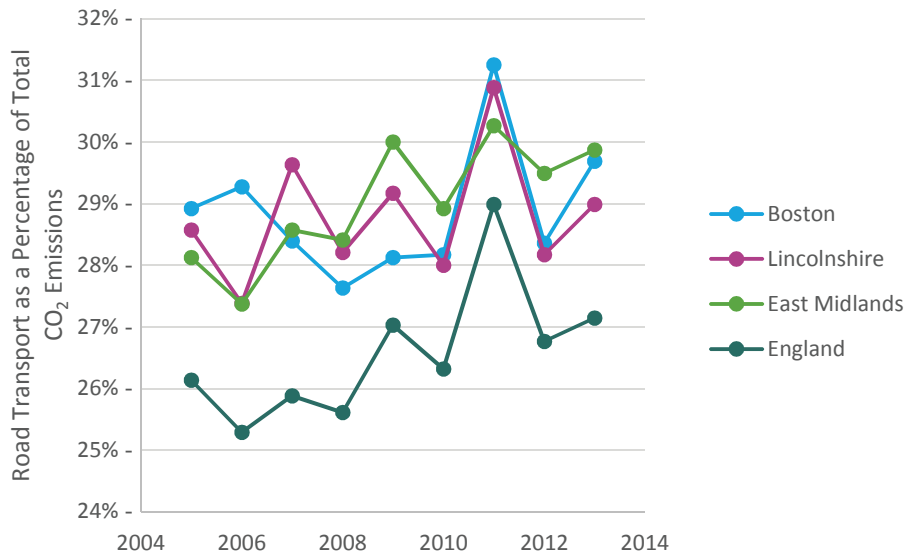
Source: Department of Energy & Climate Change

Figure 3-8 – Overall CO₂ Emissions per Capita



Source: Department of Energy & Climate Change

Figure 3-9 – Road Transport as a Percentage of Total CO₂ Emissions



Source: Department of Energy & Climate Change

Issue

Boston has a higher proportion of its carbon emissions coming from road transport than the national average.

3.5.3 Air Quality

There are currently no automatic air quality monitoring stations in use within the Borough of Boston due to budget restrictions. Passive non automatic-diffusion tube monitoring of NO₂ is now undertaken comprising of 15 locations at two Air Quality Management Areas (AQMA). The two AQMAs in Boston are located on the main highway corridor that runs through the town centre and is therefore focussed on transport and traffic flows. The Haven Bridge AQMA (Figure 3-10) is located centrally along part of the A52 extending to the intersection of John Adams Way and Main Ridge East from the Queen Street roundabout. The Bargate Bridge AQMA (Figure 3-11) is located at the Bargate roundabout extending east along Spilsby Road and incorporating the junctions of Freiston Road and Willoughby Road.

It is noted that measurements taken from these sites will only be representative over a very small area as NO₂ concentrations close to sources vary considerably, even over short distances. Due to this, NO₂ diffusion tubes for these site types are positioned at sites along all roads estimated as most likely to exceed the Air Quality Strategic Objective. Diffusion tubes are also placed at background sites for one month at a time where at the end of the year a bias adjustment factor is calculated and applied to the annual mean results to correct for any systematic bias.

The monitoring station within the Haven Bridge AQMA was closed at the end of 2011 following budget constraints as the Council did not secure an air quality grant from DEFRA to continue monitoring. The 2014 Progress Report concluded that inside the

Haven Bridge AQMA, monitored results indicate that there is still an air quality issue and therefore the AQMA should remain.

Figure 3-10 – Haven Bridge AQMA

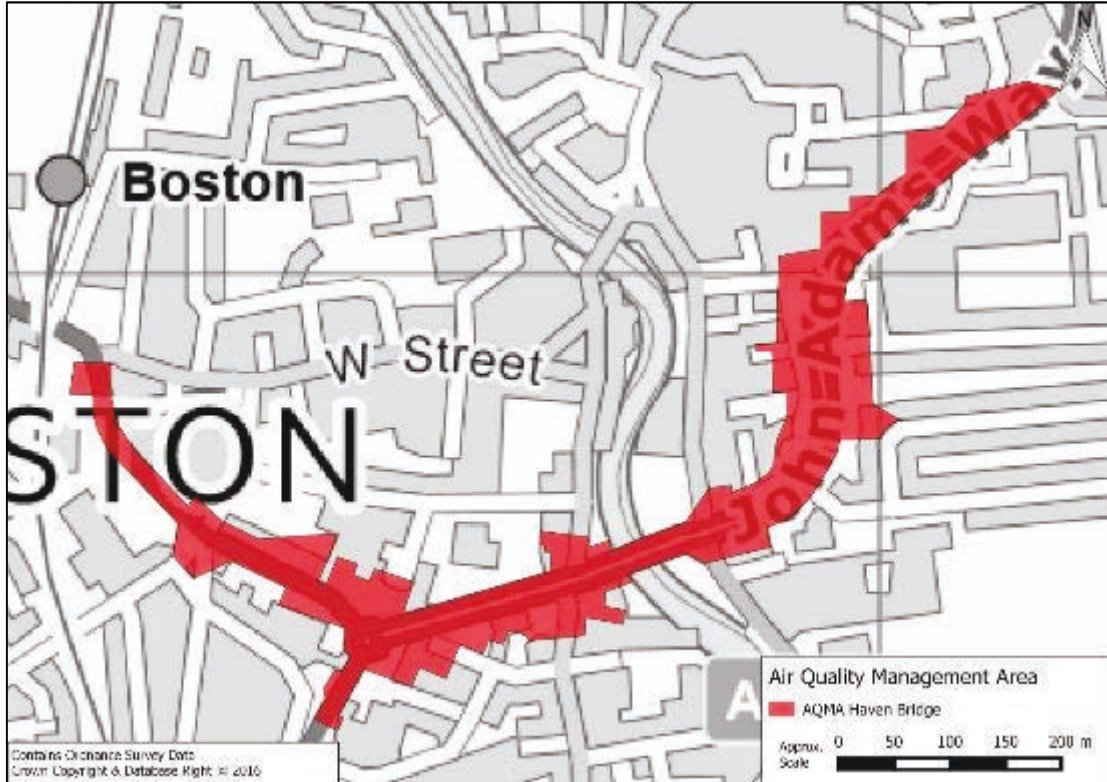


Figure 3-11 – Bargate Bridge AQMA

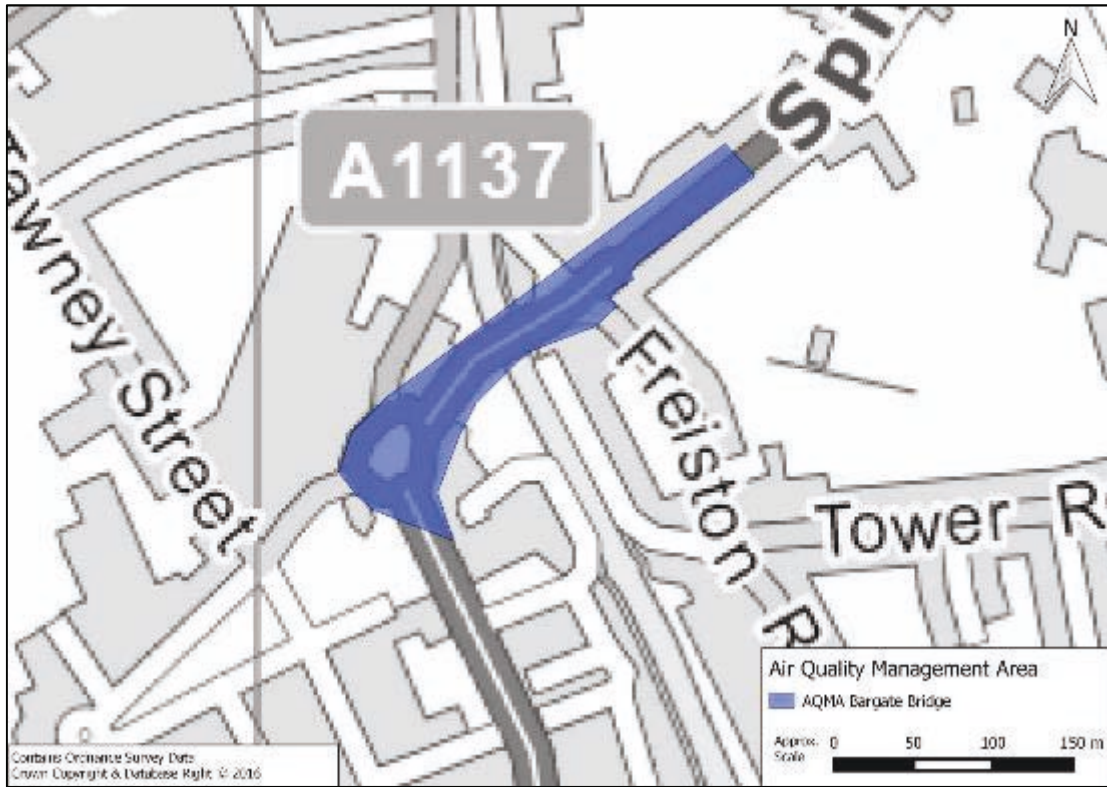
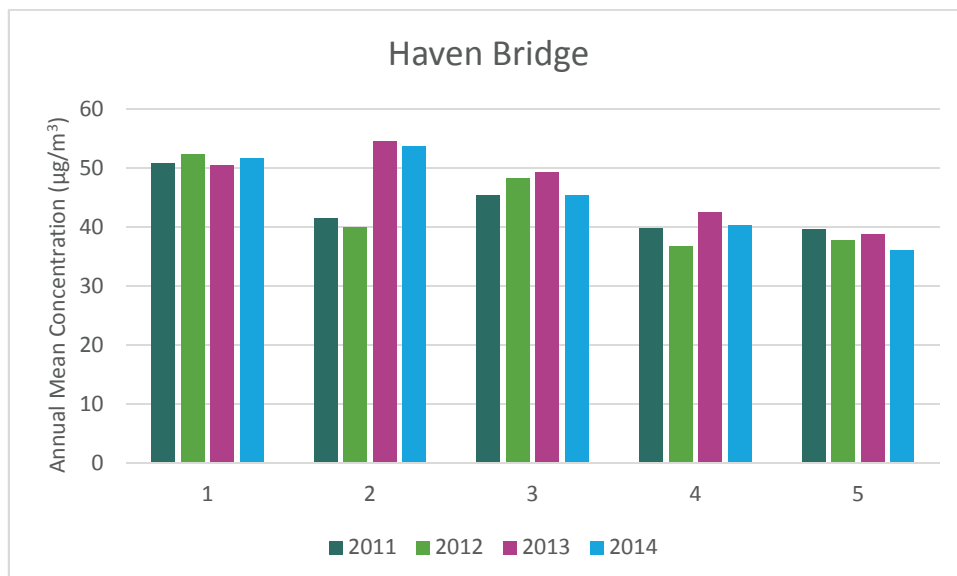


Figure 3-12 below shows the annual mean concentration of NO₂ for sites within the Haven Bridge AQMA between 2011 and 2014. Results show that over the four year period, concentrations at four of the five sites at Haven Bridge have remained relatively stable with the exception of Site 2 where an increase has been observed since 2013. Notably, in 2014, sites 1, 2, 3 and 4 exceeded the objective of 40 µg/m³.

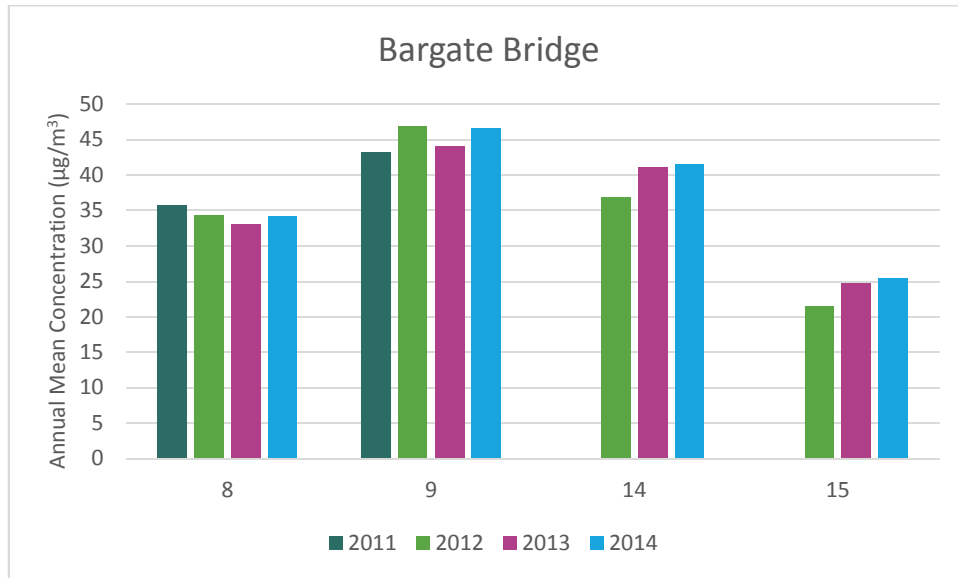
Figure 3-12 – Annual Mean Concentration NO₂ (µg/m³) within Haven Bridge AQMA



Source: Boston Borough Council Updating and Screening Assessment 2015

Sites at the Bargate Bridge AQMA saw a marginal increase in NO₂ concentrations between 2013 and 2014. It was observed that Sites 8 and 15 showed concentrations below the annual mean objective during 2014, with the other two sites exceeding it, however, concentrations estimated at locations relevant for public exposure were below the objective in 2014, in line with previous years.

Figure 3-13 – Annual Mean Concentration NO₂ (µg/m³) within Bargate Bridge AQMA



Source: Boston Borough Council Updating and Screening Assessment 2015

Issue Air Quality within the Haven Bridge AQMA remains an issue

Opportunity Boston has good overall air quality, significantly better than the region and the country as a whole.

3.5.4 *Noise*

Strategic noise exposure maps have been produced for the larger urban cities in accordance with the Environmental Noise Regulations 2006. Since Boston is a smaller town with a population of well under 250,000, there has been no noise mapping for road, rail, industry or air undertaken by the Department for Environment, Food and Rural Affairs (DEFRA).

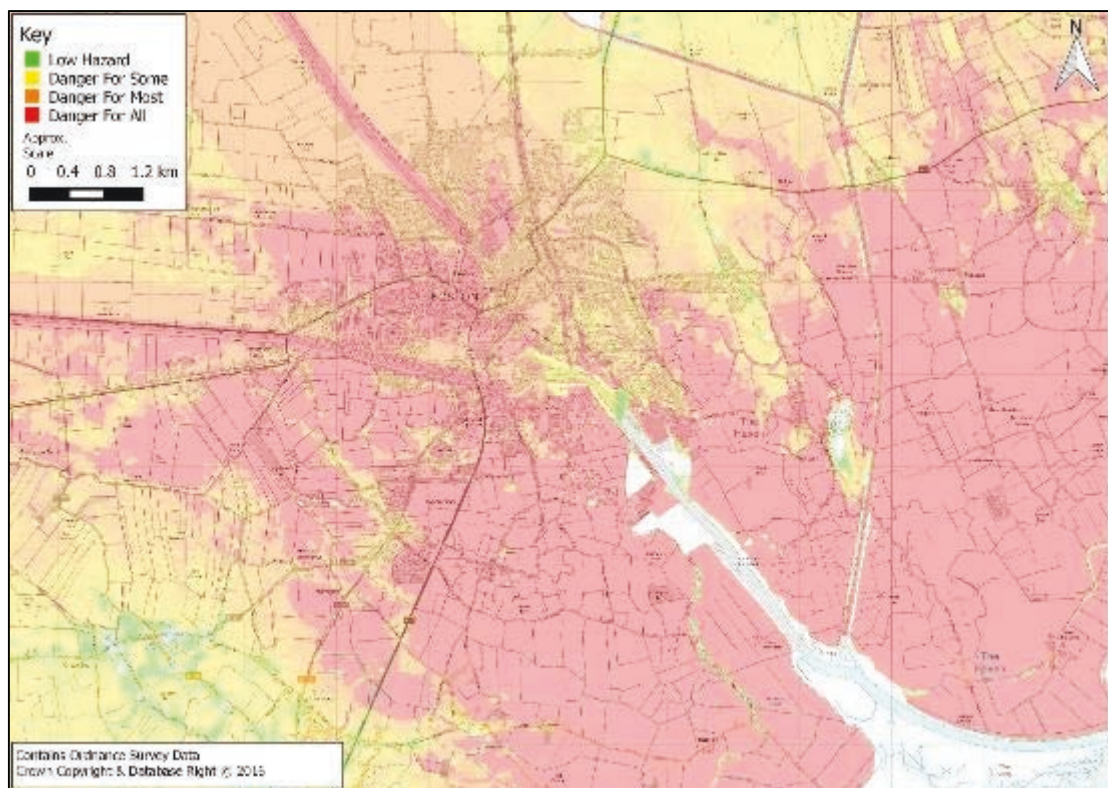
3.5.5 *Flood Risk*

Figure 3-14 presents the flood hazard zones from the 2010 Strategic Flood Risk Assessment (SFRA) report. This hazard mapping employs a matrix of flood flow velocities and depths to define categories of ‘Danger for Some’, ‘Danger for Most’

and 'Danger for All'. The extent of the hazard zone at any location is determined by a hydraulic model of the breach scenario. River models are also used in conjunction to provide an estimate of the head of water and to provide topographical details.

The higher risk areas are more predominantly concentrated to the west and in the south and south east of Boston near to the coastal zones. If a breach in tidal defences or the River Witham's flood banks occurred, the majority of the land to the south and the west would be in the 'danger to all' category with some pockets in 'danger to most' category. Land in the east of Boston would be in the 'danger to most' with a small allocation in the 'danger to all' category.

Figure 3-14 – River and Sea Flood Risk Areas in Boston



Source: Boston Borough Council/Environment Agency

The SFRA report also comments on flood zones defined in the Planning Policy Statement 25 (PPS25, now superseded by NPPF) which are based on the probability of river and sea flooding to which an area of land is currently subject, ignoring the presence and effect of existing flood defences or other man-made interventions to flood flows. From this, three probability zones were developed. Zone 3 (FZ3) represents a high probability of flooding greater than 1% (1 in 100 or less years) and greater than 0.5% (1 in 200 years or less) for fluvial and tidal sources respectively. Flood Zone 2 (FZ2) represents medium probability for flooding from fluvial (0.1-1%) and tidal sources (0.1-0.5%). Flood Zone 1 (FZ1) represents a probability of less than 0.1% of annual fluvial and tidal flooding.

The SFRA report states that where there are no reasonably available sites in FZ1 for development, decision makers allocating land in spatial plans should take into account the flood risk vulnerability of land uses and consider sites in FZ2. Only where there are no sites available in FZ1 and FZ2 should the suitability of sites in FZ3 be considered, applying the exception test if required.

The exception test should be passed only if it demonstrates that; development provides wider sustainability benefits to the community that outweigh flood risk; development is on developable or previously developed land (unless there are no alternatives); and that development will be safe without increasing flood risk elsewhere.

It is apparent that upon inspection, the majority of the Boston Borough Council's area is within FZ3.

Issue

Most of Boston is in the 'Danger for All' or 'Danger for Most' flood hazard categories

Issue

Most of Boston has a high probability of flooding (Greater than 1%)

3.5.6 *Summary*

There was a significant reduction of transport-related emissions and overall CO₂ between 2005 and 2012 in Boston, greater than county, regional and national averages. It was found, however, that during the last data period in 2013, Boston's overall generation of CO₂ consisted of a higher proportion of transport-related emissions than the country as a whole.

Although Boston has good overall air quality, the annual mean of NO₂ is exceeding the objective inside the Haven Bridge AQMA indicating that there is still an issue with air quality in that area. It should be acknowledged that mitigation measures including parking management and encouraging a change in travel behaviour are both effective ways of reducing traffic congestion and could lead to improved air quality in the Haven Bridge AQMA.

The flood hazard risk within Boston is noteworthy with some of the higher risk zones designated to plots of land being considered for development including the South Quadrant. Other proposed developments and infrastructure to the south and south west of Boston also coincide with a predominantly high flood risk zone and are at threat from both fluvial and tidal/coastal sources.

Flood risk has a significant impact on the reliability of Boston's transport network. Transport infrastructure is sensitive to increased risks of river and tidal flooding due to networks being closely interlinked. Disruption affecting one form of transport can

have knock-on effects on others. The overall level of risk can be intensified by its interdependency on other sectors. An example would be the energy sector where interruptions to supply can disrupt rail and road networks and operations and therefore increase risks for businesses. Improved flood defence barriers would decrease the likelihood of flooding in areas of proposed development and new transport infrastructure.

3.6 Travel

3.6.1 Introduction

This section of the Working Paper presents information on trends in travel and transport use within the study area. The section focusses on a range of issues including traffic, public transport, walking and cycling, freight, and road safety.

3.6.2 Highway network

Boston is considerably remote from the trunk road network – the A1 to the west is approximately 28 miles away as the crow flies. The shortest journey to the A1 at Grantham is 32.5 miles along the A52, a journey that takes approximately 50 minutes. Trips that are ultimately heading northbound on the A1 could also take the A17 route to join the A1 at Newark-on-Trent which also takes around 50 minutes at 35 miles. The A1 runs from London to Scotland.

The most strategic (non-trunk) roads serving Boston are the A16 running north and south towards Grimsby and Peterborough respectively; the A52, running towards Nottingham in the west and Skegness to the north east; and, the A17 accessed via the A1121 to the west of Boston and the A16 to the south, runs towards Newark-on-Trent in the west and joins the A47 trunk road to the east onwards towards Norwich.

The key route through Boston itself is the A16 John Adams Way running from the south west of the town to the north-east, crossing both the River Witham and Maud Foster Drain. John Adams Way connects to the A52 east and west to the north and south of the town centre respectively. The A52 westbound connects to the A1121, providing westbound access to the A17. The A16 southbound connects to the A17 for easterly journeys.

The A16 John Adams Way is a two-lane dual carriageway with roundabouts at either end where it becomes Spilby Lane at the junction with the A1137 to the north east of the town centre and Spalding Road at the junction with the A52 Sleaford Road to the south west of the town centre.

John Adams Way services predominantly employment residential areas to the west and east of the town, through a mixture of land use areas as it bypasses the town centre heading further north east. There are few private accesses or frontages making the route conducive to heavy through traffic.

At its north eastern roundabout, John Adams Way intersects with A1137 which heads northbound, becoming B1183, towards the village of Cowbridge.

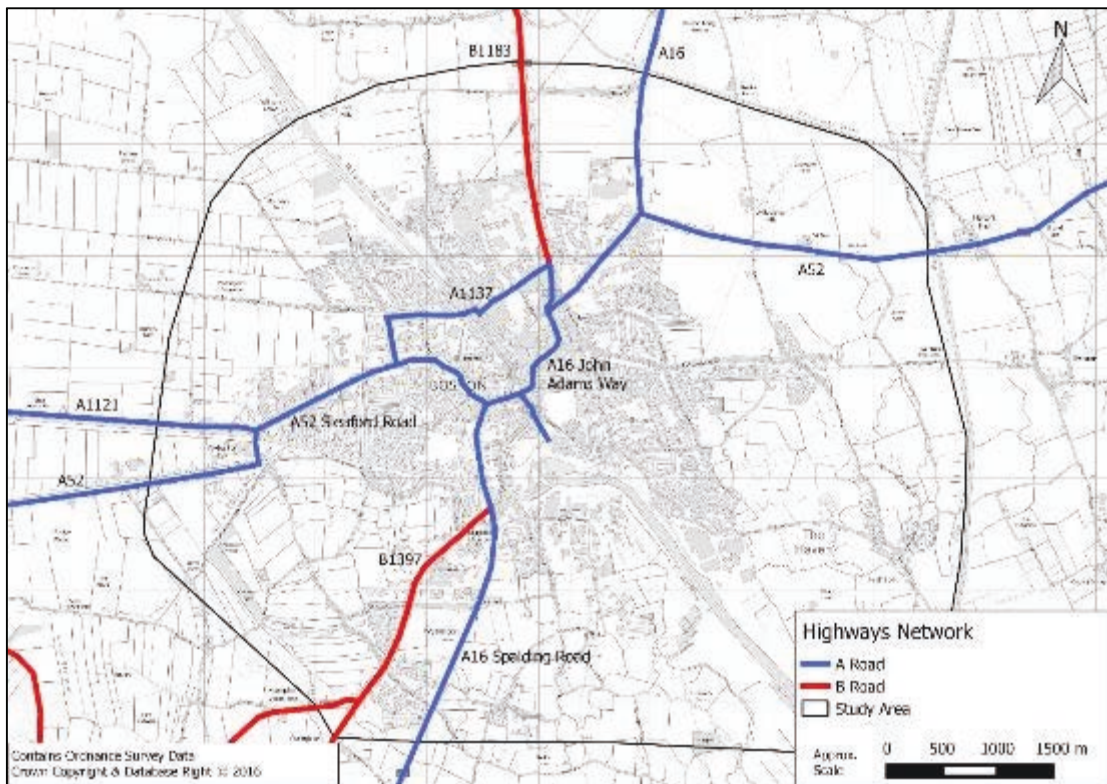
Residential areas to the east of the town are reached via Main Ridge East off John Adams Way, which becomes Vauxhall Road, crossing Maud Foster Drain and ahead onto Freiston Road.

The other main route through Boston is A1137 Fydell Street/Norfolk Street. There is a level crossing and the route is mainly fronted by residential properties and is not really suitable for heavy traffic.

The key route through the town centre is West Street/Bridge Street/Town Bridge. On West Street the carriageway is narrow with shop frontages on both sides and is therefore not suitable for high traffic flows. Beyond Town Bridge the town centre has a shared space feel promoting less intimidating traffic speeds. Strait Bargate is a pedestrian zone.

Figure 3-15 highlights the highway network in Boston.

Figure 3-15 – Highway Network in Boston



Issue

Boston is far removed from the trunk road network and the nature of most local roads is not conducive to the heavy traffic experienced.

Issue

Several roads converge on Boston and they all have to funnel across the River Witham by two bridges (Haven Bridge and Fydell Street).

3.6.3 Traffic

This section looks at the following:

- Average daily flows
- AM and PM peak flows
- Hourly flow profiles
- Comparison of weekday and weekend traffic
- Journey times
- Origin and destination of traffic
- Comparisons with other parts of Lincolnshire

In order to analyse vehicle traffic flows in Boston several data sources were utilised.

Department for Transport (DfT) AADF (Annual Average Daily Flows) – The DfT has 11 monitoring sites on major routes in and surrounding Boston. The AADF data is high level information that shows the total volume of vehicles passing a count site. It is non-directional so just consists of a total number of vehicles passing in both directions. The data is classified so it is possible to know how many HGVs are within the total vehicle number.

Lincolnshire County Council ATC (Automatic Traffic Counts) – Lincolnshire County Council undertake Automatic Traffic Counts (ATCs) annually in June and August. The ATCs record two-way traffic flow at hourly intervals for the entirety of June and August. The data is unclassified with all vehicle types totalled together.

7-day ATC surveys – To supplement the LCC ATC data with counts from sites specifically chosen for the Strategy, a 7-day ATC survey was undertaken between Sunday March 6 and Saturday March 12, 2016.

12-hour ANPR surveys – In order to establish the movement patterns of strategic traffic through Boston, Automatic Number Plate Recognition (ANPR) surveys were undertaken on Thursday March 10, 2016. ANPR captures vehicle registration number using a roadside camera which also records the time the vehicle passes the site. By setting up sites across the study area it is possible to establish journey movements by matching vehicle registrations and times at different sites.

Boston Traffic Model & Online journey planners – To provide information on journey times in the study area, the Boston Traffic Model and freely available online journey planners were utilised. The sources provide information on how much vehicle traffic congestion has an impact on journey times when travelling around Boston.

Figure 3-16 – ATC and AADF Sites

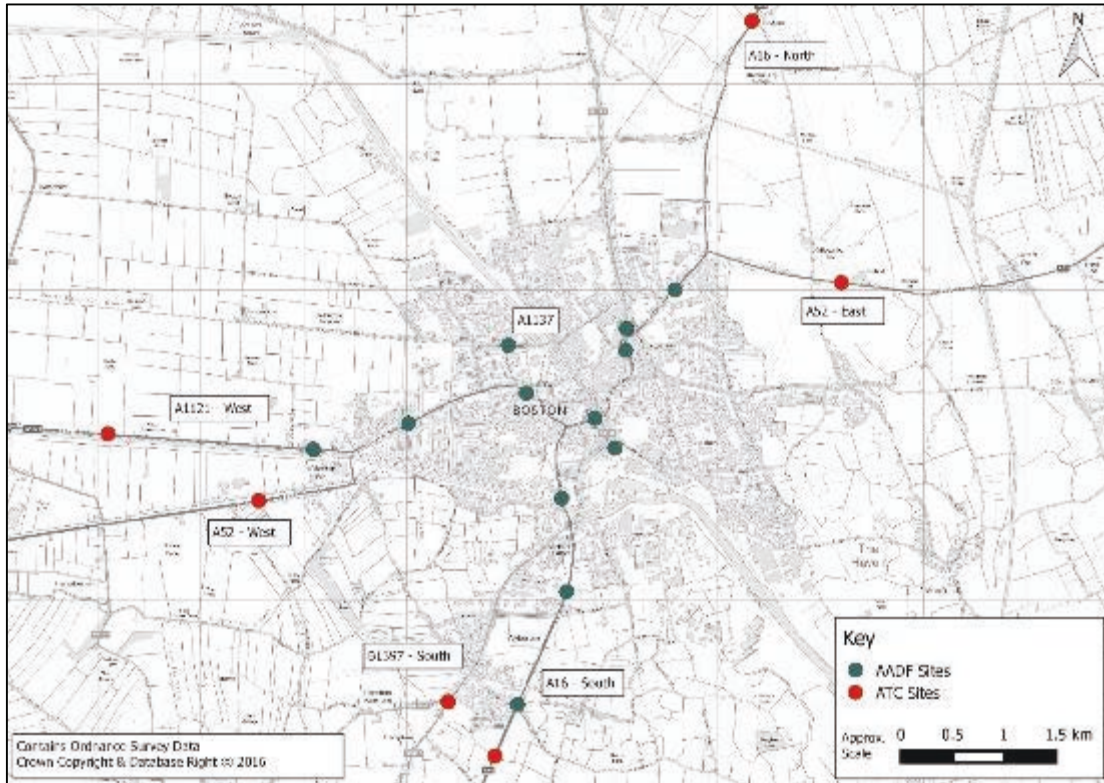
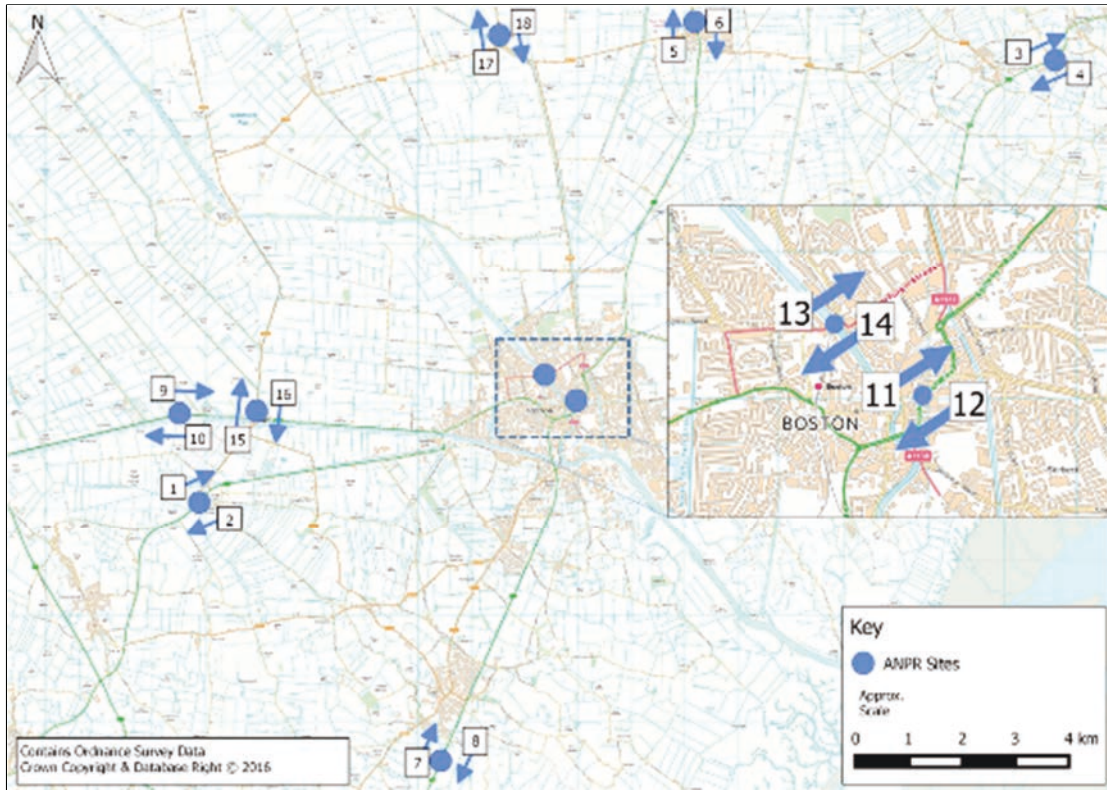


Figure 3-17 – ANPR and ATC Survey Sites



3.6.4 *Average daily flows*
Starting with the second column of

Table 3-21, the three A-roads approaching Boston from the south and west (the A52, A1121 and A16) have a total AADF of over 31,000 vehicles.

The A52 and A1121 merge as they meet the western edge of the town and with the A16 have a combined daily flow of over 41,000 as they pass into the urban area. In the centre of the urban area, the total flow on the two main routes through the town, covered by the A16 John Adams Way and Fydell Street, increases to nearly 50,000 vehicles. On the eastern and northern edge of the urban area, where the main through route is formed solely by the A16, the flow decreases to 20,700 vehicles per day. The DfT has monitoring sites on the A16 and A52 to the north and east of the town and, although they are some distance away, they clearly show, with a combined daily flow of just over 14,000, that traffic is significantly less on this side of the town.

Overall, this data shows that the predominant movements to and from the town are to the south and west, at least double those to the north and east. The data also shows that traffic flows on the main routes through the town are substantially higher than those on routes entering the town.

Table 3-21 – AADF Traffic Flows on Key Links To and Through Boston – 2014

	Rural Area (South & West)	Edge of Town	Central Urban Area	Edge of Town	Rural Area (North & East)
	A52 Abbey Lane	A52 Sleaford Rd	Fydell Street	A16 Spilsby Road	A16
	7,172	17,972	10,612	20,713	7,941
	A1121 Boardsides	A16 Spalding Road	A16 J Adams Way		A52
	7,264	23,172	38,678		6,188
	A16				
	16,918				
Total	31,354	41,144	49,290	20,713	14,129

Source: Department for Transport

Issue	Traffic flows on main routes through the town are substantially higher than those on routes entering the town.
--------------	--

The following table shows the change in daily traffic flows between 2006 and 2014 on the key routes into and through the town. Over that period there appears to have been significant reductions in traffic flows on major routes within the urban area of the town as well as on the western approaches. However, traffic on the A16, both north and south of the town, and on the A52 to the east, has increased over the period.

Table 3-22 – AADF Traffic Flows on Key Links To and Through Boston – % Change 2006-2014

	Rural Area (South & West)	Edge of Town	Central Urban Area	Edge of Town	Rural Area (North & East)
	A52 Abbey Lane	A52 Sleaford Rd	Fydell Street	A16 Spilsby Road	A16
	-6%	-7%	3%	-20%	6%
	A1121 Boardsides	A16 Spalding Road	A16 J Adams Way		A52
	-1%	-3%	-9%		9%
	A16				
	3%				
Total	0%	-5%	-7%	-20%	7%

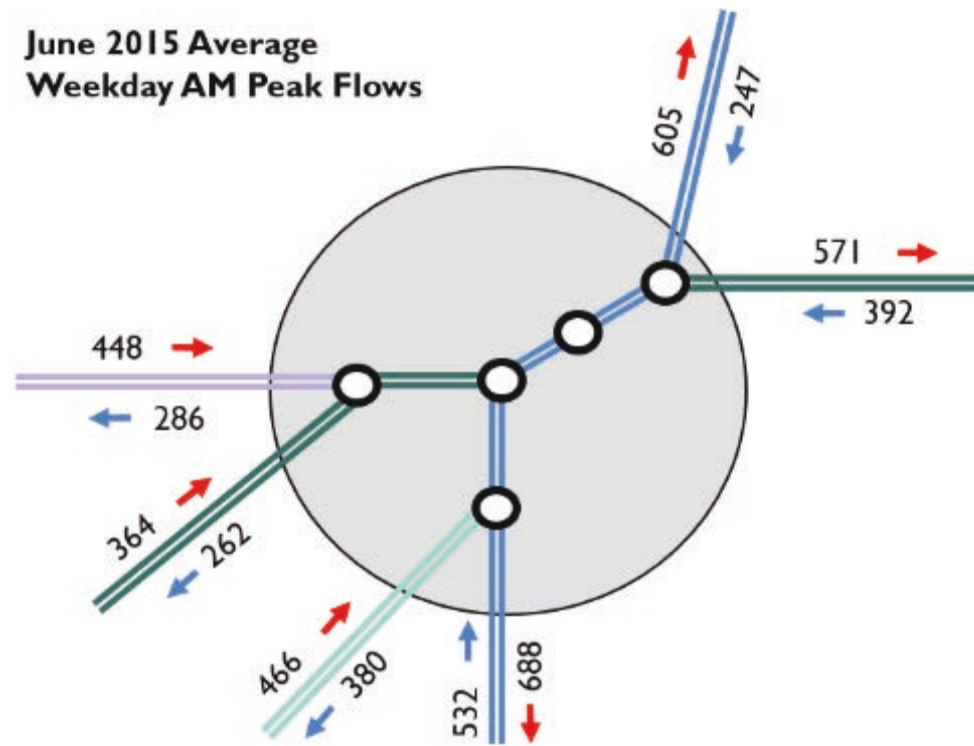
Source: Department for Transport

3.6.5 Peak hour flows

June is considered a neutral month not affected by peak holiday season while August is considered non-neutral as schools are closed and many people take their holidays during this month.

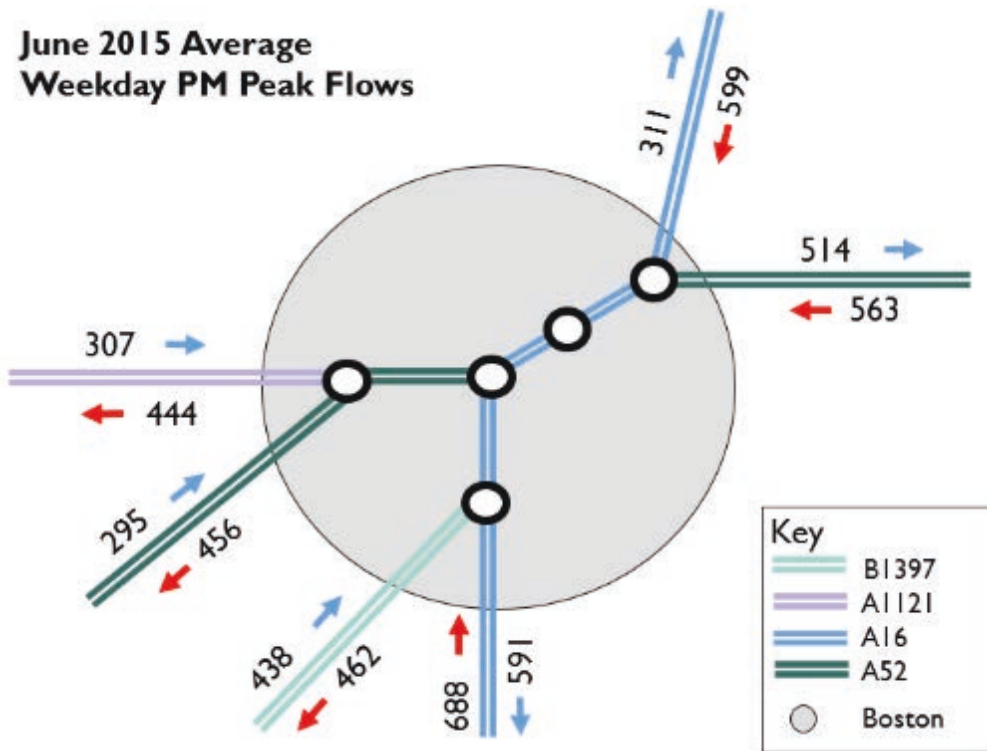
Figure 3-18 shows the average weekday AM peak flows during June 2015 on the links around Boston. The combined two-way flows for the whole day broadly correlate with the DfT AADF data, however, there are differences in the location of the count sites of the datasets with the DfT sites further away from the town. This means there are possibilities for traffic to dissipate onto or join from other routes between the LCC and DfT count sites.

Figure 3-18 – June 2015 Average AM Peak flows



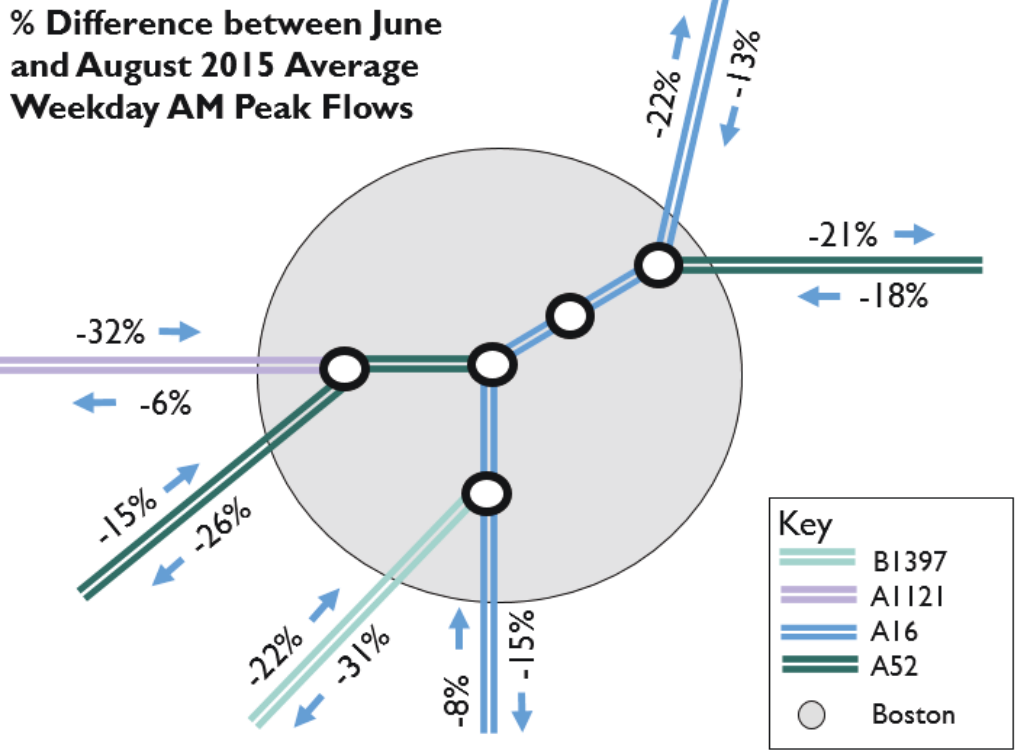
Source: Lincolnshire County Council

Figure 3-19 – June 2015 Average PM Peak flows



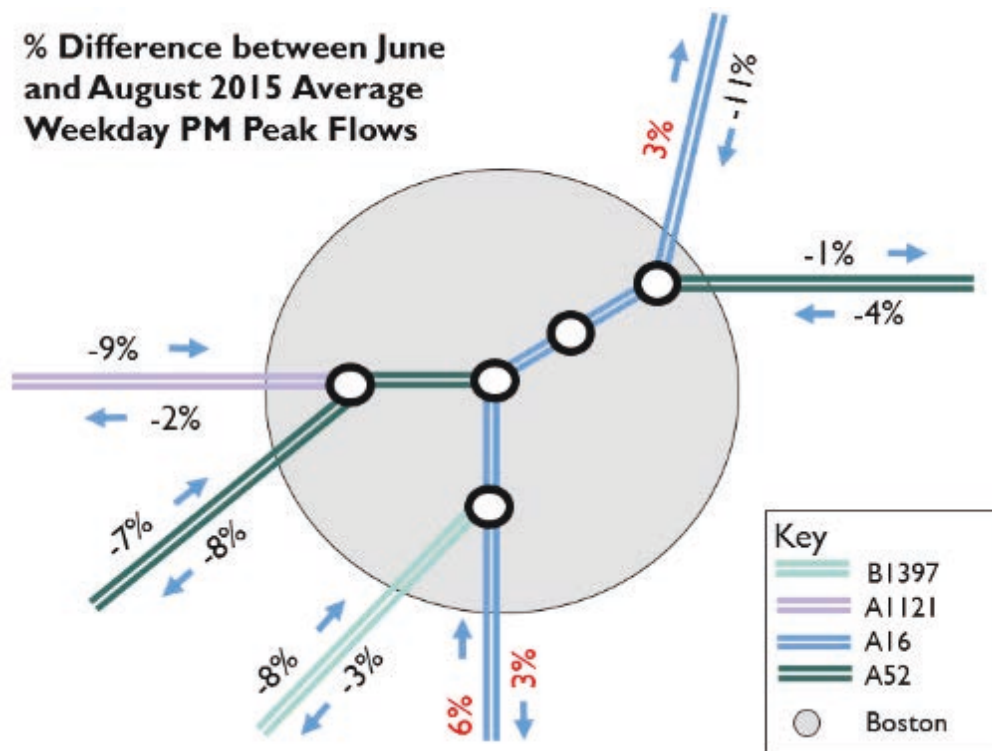
Source: Lincolnshire County Council

Figure 3-20 – % Difference between Average Weekday AM Peak Flows



Source: Lincolnshire County Council

Figure 3-21 – % Difference between Average Weekday PM Peak Flows



Source: Lincolnshire County Council

3.6.6 Hourly flow profile inbound and outbound

Figure 3-22 displays the hourly profile of average traffic flows inbound towards Boston for weekdays in June 2015. The A16 Spalding Road is the busiest road into Boston in the morning, with flows of 500–600 vehicles per hour between 07:00 and 09:00. All other routes apart from the A16 Sibsey Road experience flows between 360 and 470 vehicles per hour between 08:00 and 09:00. The A16 Sibsey Road is less busy with approximately 250 vehicles travelling inbound in the same time period.

In the evening peak hour of 17:00 to 18:00, the A16 Spalding Road, A52 Wainfleet Road and the A16 Sibsey Road have busier inbound flows than in the morning peak – the latter considerably so.

Comparing the June inbound flows with the June outbound flows displayed in Figure 3-24, correlation is evident with regards to similar flows in opposing peaks for the A16 Spalding Road, A52 Wainfleet Road and A16 Sibsey Road. This shows a balance of flows with a similar amount of traffic leaving the town in the evening peak as what entered the town in the morning peak.

Figure 3-22 and Figure 3-23 highlight the comparisons between June and August traffic flows. It is observed that the morning and evening peaks are less pronounced on most links. Traffic flows rise to their highest between 08:00 and 09:00 and remaining at a similar level before dropping away after 18:00. The A16 Sibsey Road and B1397 do not follow this trend, with the former having a busier morning peak

and the latter having a busier evening peak. The A16 Spalding Road and A52 Wainfleet Road are the busiest links with flows between 450 and 600 vehicles per hour inbound between 08:00 and 18:00.

Figure 3-22 – June 2015 Average Weekday Traffic Flows to Boston

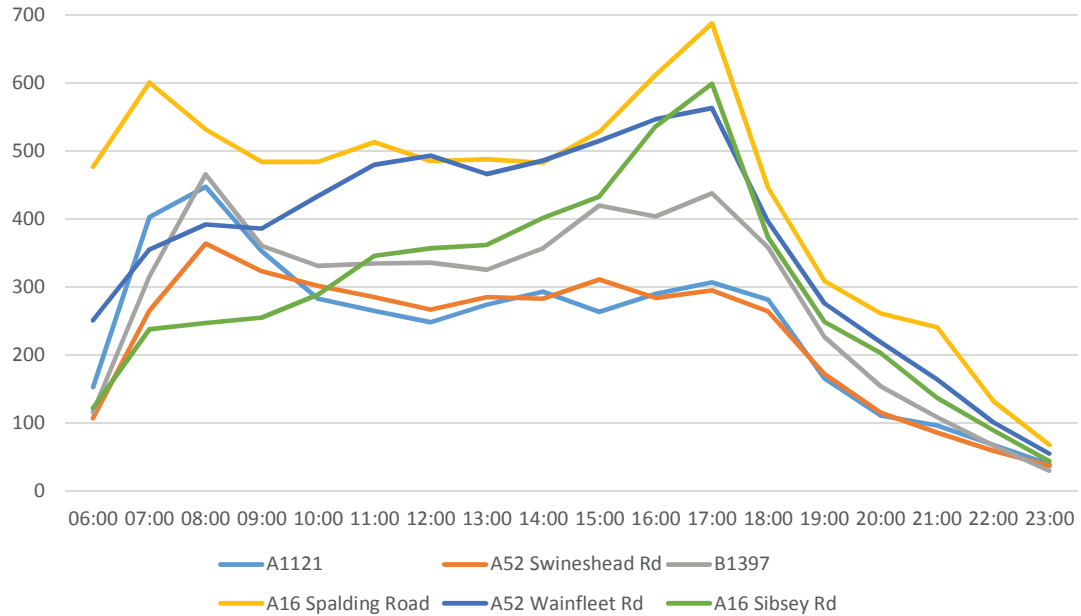
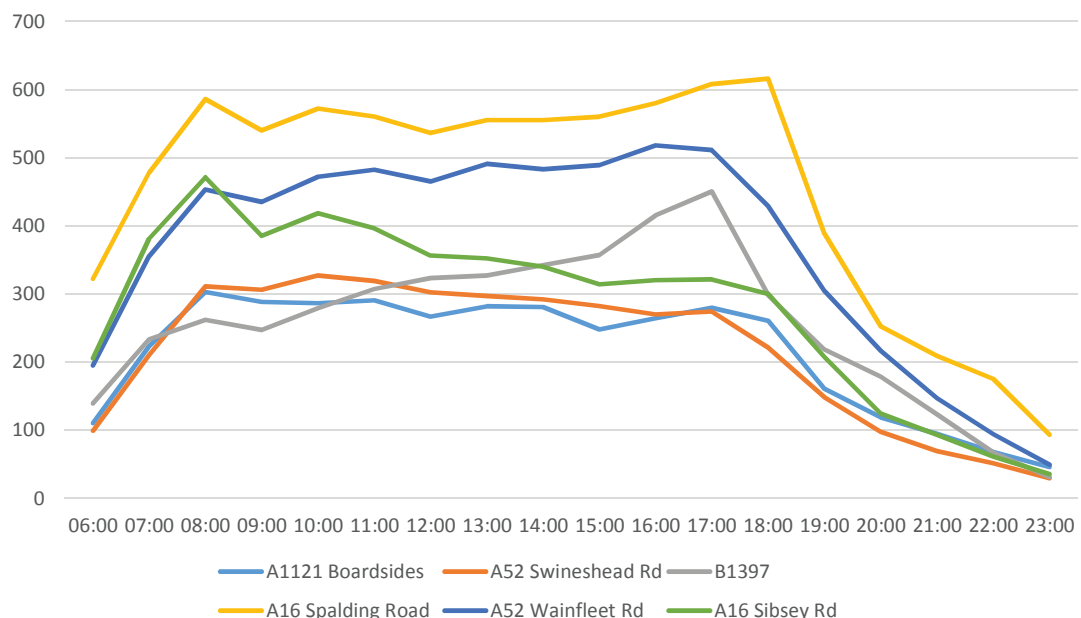


Figure 3-23 – August 2015 Average Weekday Traffic Flows to Boston



In June 2015, it is evident that the A16 Spalding Road, A52 Wainfleet Road and A16 Sibsey Road were the busiest heading outbound from Boston during the morning peak, with between 560 and 700 vehicles travelling along each link between 08:00

and 09:00 (Figure 3-24). As highlighted above, there is a balance of flows between the morning peak outbound and evening peak inbound for these three links.

The A16 Spalding Road and A52 Wainfleet Road are the busiest outbound routes in the evening peak but have lower flows than in the morning. The A16 Sibsey Road has half as many vehicles travelling outbound on it during the evening peak compared to the morning peak.

Comparing the June and August data, it is evident that the A16 Spalding Road and A52 Wainfleet Road have less pronounced peaks with both reaching their daily highs between 08:00 and 09:00 and generally remaining stable until 18:00 (Figure 3-25).

However, the B1397, A1121 Boardsides and A52 Swineshead Road show a gradual increase during the day that peaks at approximately 400 vehicles per hour between 17:00 and 18:00 before dropping away. This pattern is almost identical to the June 2015 data showing that the holiday period has little effect on the traffic flows and flow profiles on these three links.

Figure 3-24 – June 2015 Average Weekday Traffic Flows from Boston

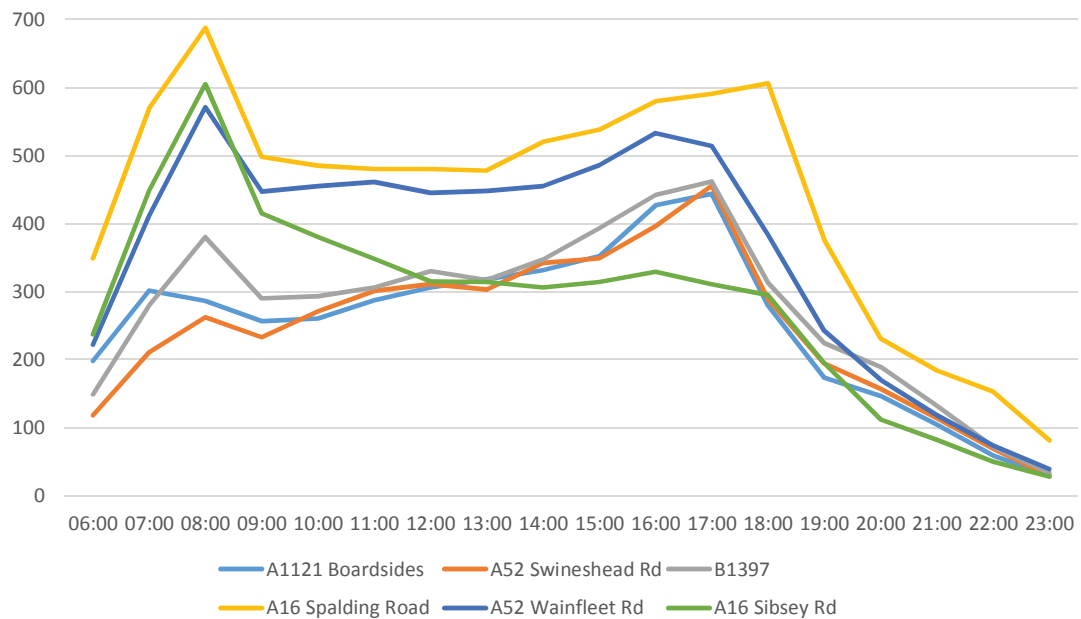
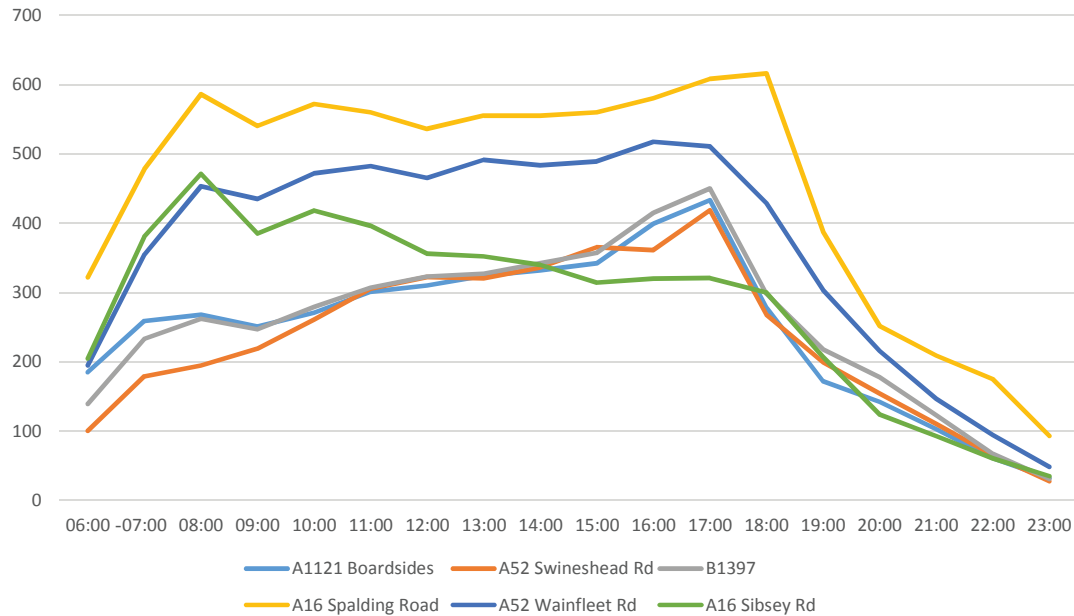


Figure 3-25 – August 2015 Average Weekday Traffic Flows from Boston



Issue

The A16 to the south of Boston is a consistently busy route in both directions and is likely to cause congestion during the morning and afternoon peaks.

It is clear from the figures below that the A16 running south of Boston was the busiest route consistently throughout weekdays in June and August 2015. The average figures were comparable in both directions on this route both entering and leaving Boston. These high numbers are possibly attributed to commuters travelling between Boston and towns to the south including Spalding and a high flow of HGV's utilising it as an arterial road.

Traffic travelling during the morning peak (8am) to Boston from the north (A16 Sibsey Road) increased by over 90% between June and August 2015 on average. It is difficult to interpret what caused this large increase in flow.

Another interesting trend is observed regarding the peak flows on the A52 Swineshead Road. The average AM peak flows in to Boston on this route were 364 and 311 for June and August respectively. There was a 25% increase in traffic flow during the PM peak leaving Boston in June and a 35% increase in August suggesting that a significant amount of commuters are using the A52 as an alternative route to go home in the afternoon to the ones they used during the morning peak.

3.6.7 *Weekend traffic flows*

Looking at weekend traffic flows, there is clear increase in both inbound and outbound flows in August compared to June. Comparing the weekend totals with the weekday totals highlights how in August Saturday and Sunday experience the same level of traffic flows as weekdays.

Table 3-23 – Difference between weekend flows in June and August 2015.

	June 2015	August 2015	June 2015	August 2015
	Weekends (Saturday & Sunday)		Weekdays	
Inbound	57,381	72,006	34,922	32,783
Outbound	59,202	69,451	34,872	33,247

Despite having similar levels of traffic flow across the day, weekends are less likely to experience the same peaks in traffic flow as weekdays where increase are generally observed as in the morning and evening.

3.6.8 *Journey times*

Through the use of the Boston Traffic Model and observations both on site and using freely available journey planning systems, an understanding of current traffic conditions within Boston has been developed.

12 routes across Boston were chosen covering all of the main roads – the A16, A52 and A1121 – and these routes were monitored for several weeks, observing journey times throughout the weekday.

Table 3-24 presents the 12 routes along with the free flow journey time outside of the peak periods, e.g. the time it would take to complete the route without any delay from other traffic. The final column in the table shows the longest observed journey time from the morning or evening peak periods.

Table 3-24 – Journey Time Analysis Routes

Route	From	To	Free Flow Journey Time	Longest Peak Journey Time
1	A52 East (Willoughby Hills)	A16 South (Tytton Lane East)	8 mins	14 mins
2	A16 South (Tytton Lane East)	A52 East (Willoughby Hills)	8 mins	18 mins
3	A1121 (Great Fen Road)	A52 East (Willoughby Hills)	11 mins	22 mins
4	A52 East (Willoughby Hills)	A1121 (Great Fen Road)	10 mins	18 mins

Route	From	To	Free Flow Journey Time	Longest Peak Journey Time
5	A52 West (Fen Road)	A52 East (Willoughby Hills)	11 mins	24 mins
6	A52 East (Willoughby Hills)	A52 West (Fen Road)	12 mins	20 mins
7	A16 North (Pilleys Lane)	A16 South (Tytton Lane East)	8 mins	14 mins
8	A16 South (Tytton Lane East)	A16 North (Pilleys Lane)	8 mins	18 mins
9	A1121 (Great Fen Road)	A16 North (Pilleys Lane)	11 mins	22 mins
10	A16 North (Pilleys Lane)	A1121 (Great Fen Road)	11 mins	18 mins
11	A52 West (Fen Road)	A16 North (Pilleys Lane)	12 mins	22 mins
12	A16 North (Pilleys Lane)	A52 West (Fen Road)	12 mins	20 mins

As can be seen in the table journey times can often be as much as twice as long during the morning and evening peaks compared to making the same journey outside the peak travel times.

Issue	The journey time of some cross town movements in the peaks is more than twice the journey time under free flow conditions.
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Observations during peak periods have shown that congestion is particularly an issue on the A52 and A16 on the approaches to and through the town centre. Of particular note is congestion in the following areas:

- A52/A1121 Boardsides Junction
- A52 between A1121 and A16
- A52/A16 junction
- John Adams Way
- A16/London Road junction

Issue

Peak period congestion occurs on the A52 and A16 on the approaches to and through the urban area.

3.6.9 *Origin and destination of traffic*

Nine sites were strategically chosen for the ANPR surveys in order to pick up the widest range of potential movements into and through Boston and are shown in Figure 3-17. The survey was conducted over a 12-hour period from 07:00 to 19:00.

The figures in this section present how traffic that passed a specific inbound origin site (denoted by a green numbered arrow) was proportionally distributed across the other count sites. For the outbound count sites, the opposite is true in terms of where traffic travelled from to reach the site proportionally distributed across the other count sites.

In order to identify single trips rather than where people have, for example, driven to a destination, stopped to pick up/drop off and then started a new trip, a maximum duration of 30 minutes was applied. This means that the vehicles must be seen at another count site within 30 minutes of where they are first spotted. This time should allow sufficient time to pass between each site.

As highlighted in the previous section (

Table 3-21) the A16 Spalding Road is the busiest road in the rural areas outside Boston in terms of inbound flows into Boston across the week. From the count site south of Kirton (Site 7) over 80% of vehicles were seen on the A16 John Adams Way with very few vehicles seen beyond the town centre as Figure 3-26 shows. This highlights how the destination for the majority of vehicles travelling north along the A16 Spalding Road is somewhere in Boston Town.

Figure 3-26 – ANPR Site 7 All Day (A16 Spalding Road)

Site 7 All Day (A16 Spalding Road)

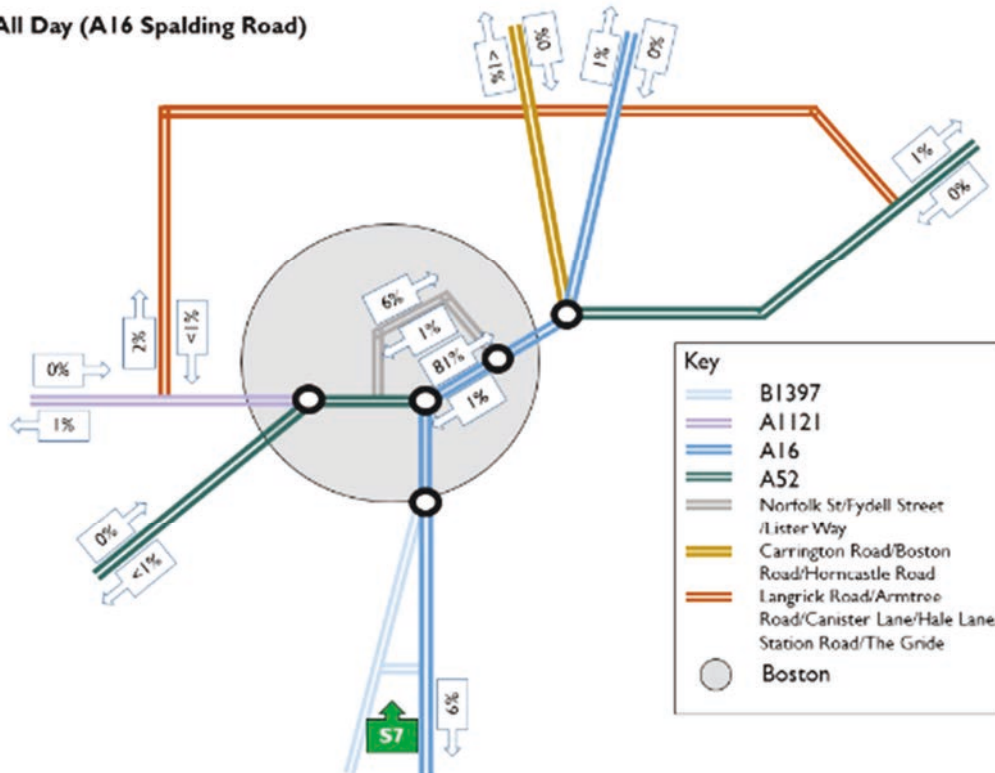
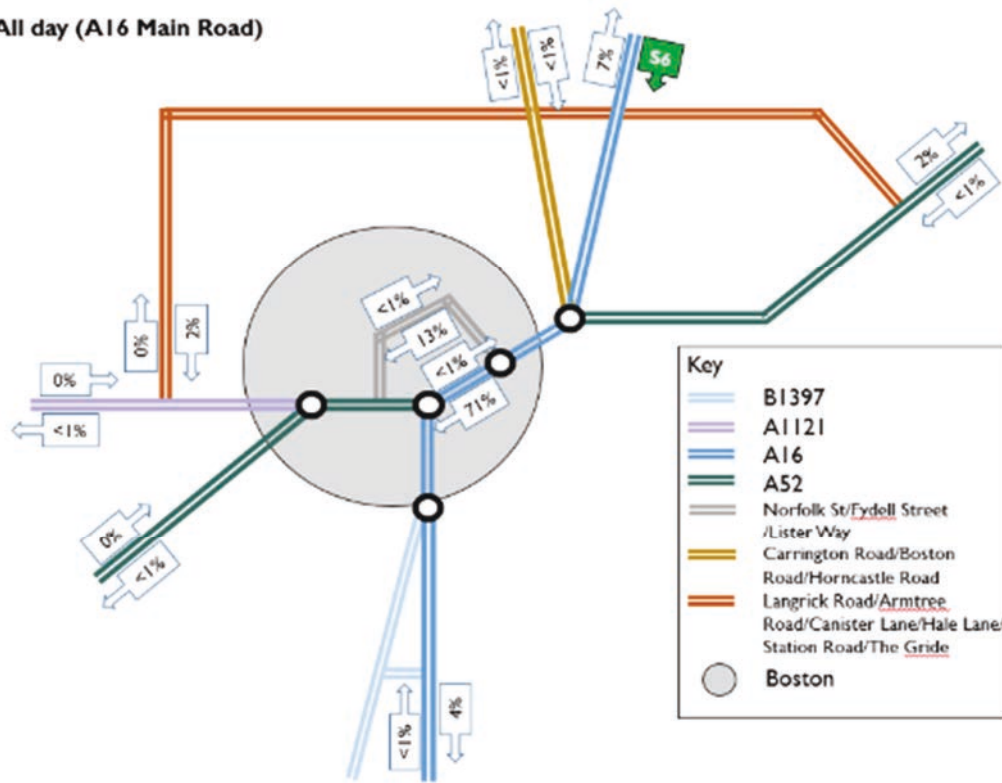


Figure 3-27 below shows the proportional distribution of vehicles from Site 6 on the A16 Main Road north of Sibsey. Similar to the A16 Spalding Road it shows that a large percentage of vehicles are seen in the town centre on John Adams Way or Fydell Street/Norfolk Street. 4% were seen at the A16 south of Kirton showing a small number of vehicles travelling through the town without stopping.

Figure 3-27 – ANPR Site 6 All Day (A16 Main Road)

Site 6 All day (A16 Main Road)



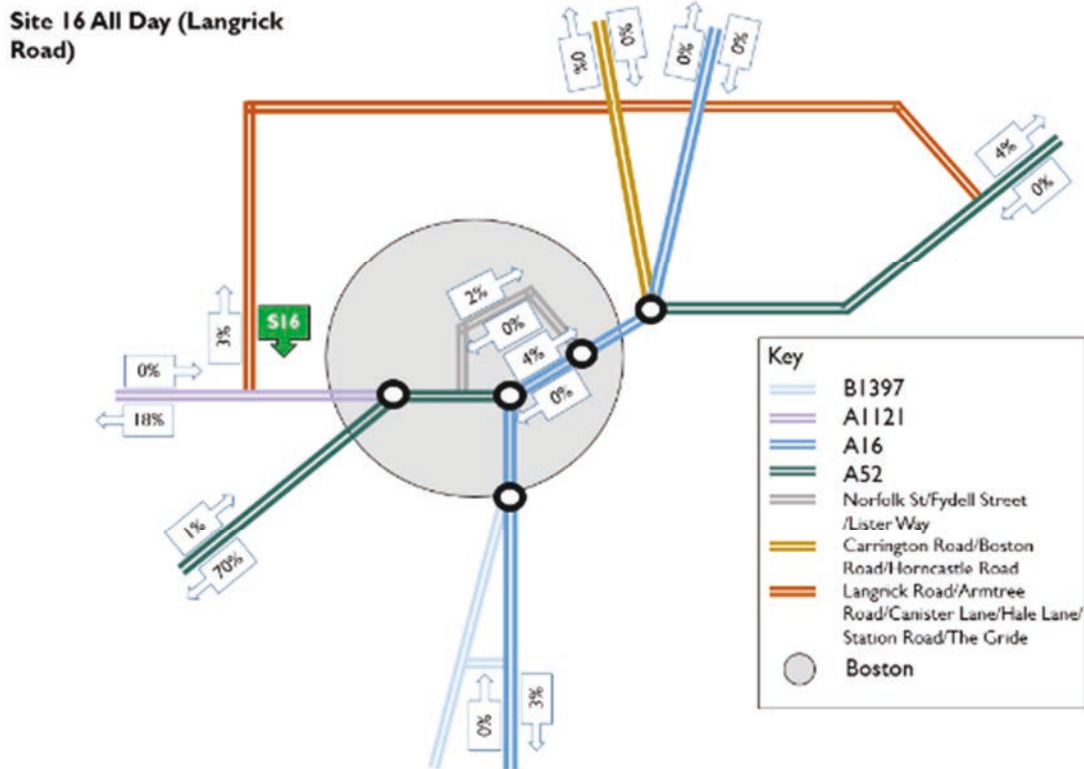
Just looking at the AM and PM peak periods for both sites (08:00-09:00 and 17:00-18:00), there are similar results with the majority of vehicles seen in the town centre and very few recorded at sites on the other roads travelling out of the town.

Looking at the B-roads that travel around the north west of the town (such as Canister Lane and Langrick Road) the data shows that a proportion of vehicles travelling from the north along Carrington Road are avoiding the town by using these links.

Figure 3-28 shows that 20% of the vehicles that were seen at Site 18 were also seen on Langrick Road near to Hubbert's Bridge. Looking further south and west, Figure 3-29 shows that from Langrick Road 70% of vehicles were seen on the A52 Swineshead Road heading south west and 18% were seen on the A1121 Boardsides heading west. Similar proportions were observed when looking at vehicles travelling north at Langrick Road with the majority coming from the A1121 and A52 Swineshead Road.

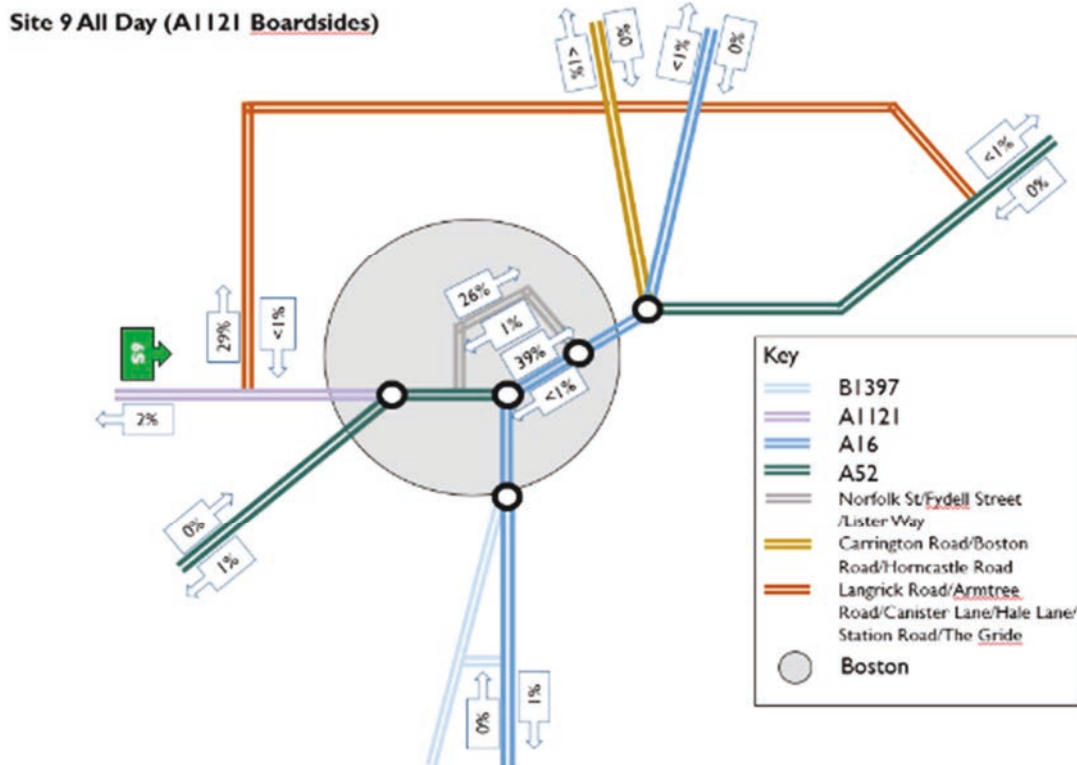
It is worth noting that the number of vehicles passing through Site 18 is considerable lower than all the other sites inbound into Boston.

Figure 3-29 – ANPR Site 16 All Day (Langrick Road southbound)



Traffic entering the study area from the west was recorded at sites along the A1121 Boardsides and A52 Swineshead Road. Figure 3-30 shows that less than 1% of traffic originating at Site 9 (A1121) is seen at the count sites on the A16 Main Road (Site 5) and A52 Wainfleet Road (Site 3). This means that most of the vehicles have dispersed somewhere in the town or immediate outskirts and are not heading further afield to the east, to Skegness for example. Some 29% of traffic from the A1121 turns on to Langrick Road before dispersing.

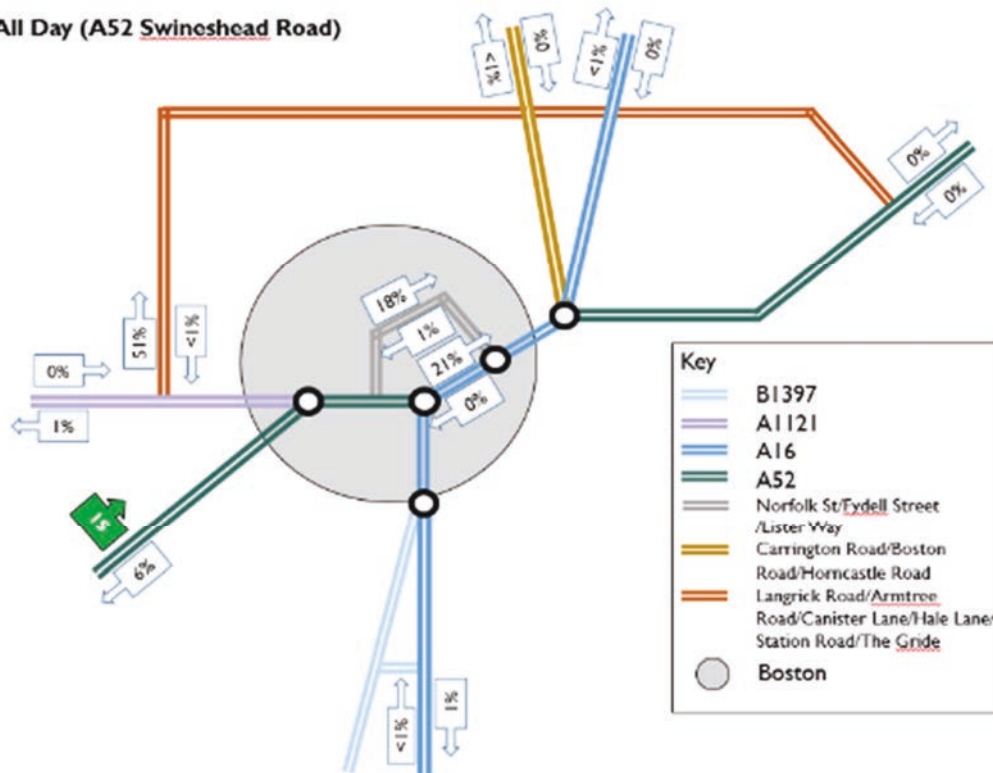
Figure 3-30 – ANPR Site 9 All Day (A1121 Boardsides)



The distribution from Site 1 on the A52 Swineshead Road is similar to the A1121 with little traffic seen as having travelled through the town towards the A52 east. Half of vehicles were seen on Langrick Road heading north showing that this is a key movement from this location. A smaller proportion of vehicles are seen in the town centre compared to vehicles inbound on the A16.

Figure 3-31 – ANPR Site 1 All Day (A52 Swineshead Road)

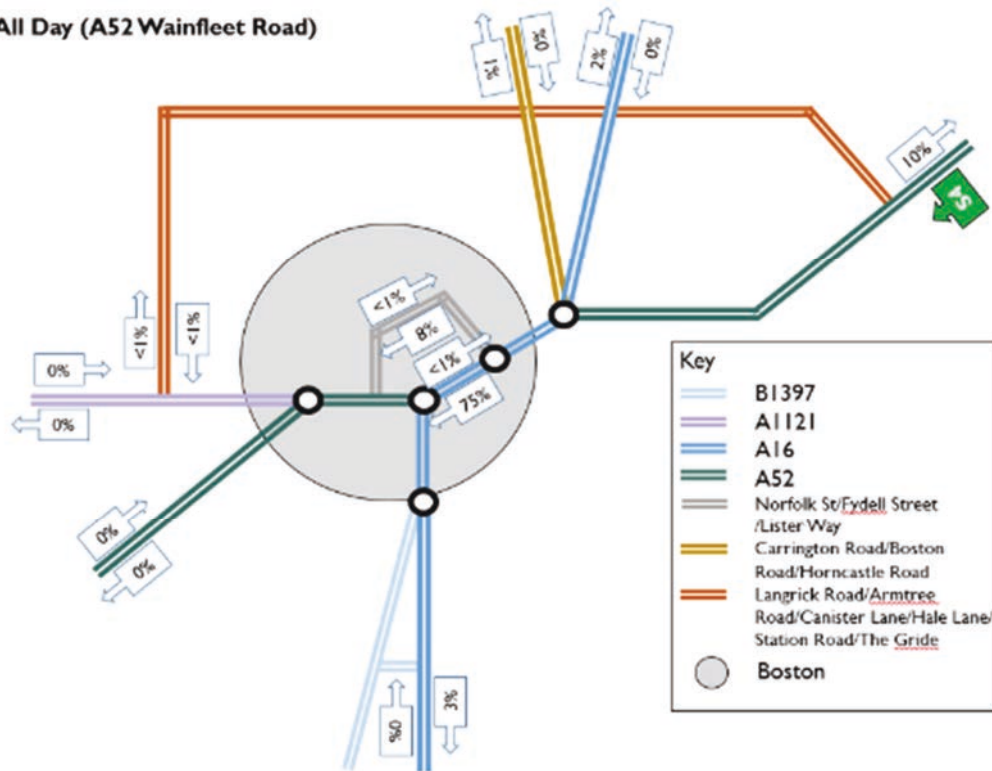
Site 1 All Day (A52 Swineshead Road)



Looking at vehicles travelling in the opposite direction from east to west, a similar outcome is observed with small percentages of vehicles travelling through the town and emerging on the A1121 Boardsides, A52 Swineshead Road or A16 Spalding Road. Over 80% of vehicles are seen within the town centre, demonstrating a similar outcome as was seen with the A16 in that people are travelling into rather than through Boston.

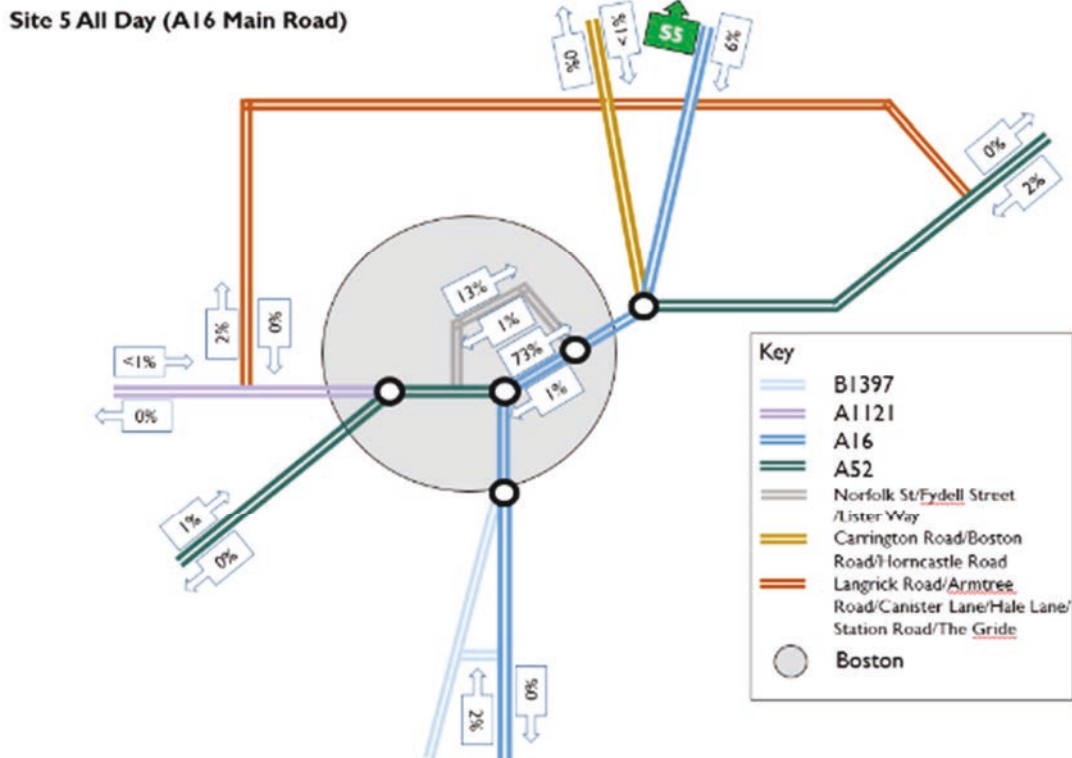
Figure 3-32 – ANPR Site 4 All Day (A52 Wainfleet Road)

Site 4 All Day (A52 Wainfleet Road)



Reversing the analysis to look at outbound journeys reveals similar trends across all routes. For example, Site 5 on the A16 Main Road is opposite Site 6 which was looked at for the inbound trips. Figure 3-33 below shows how the majority of vehicles passing Site 5 were seen within the town centre only with few vehicles having travelled from the opposite sides of Boston.

Figure 3-33 – ANPR Site 5 All Day (A16 Main Road)



To summarise, from the ANPR surveys it is evident that the majority of traffic travelling inbound towards Boston has a destination within the town centre or immediate outskirts. Very small proportions of vehicles are undertaking continuous trips that go through the town centre to destinations on the opposite side. There was some evidence of vehicle using the minor roads to the north west of the town centre to avoid driving through the town from the north to the west/south west and in the opposite direction. However, the vehicle flows for these movements are considerably smaller than the inbound trips that are finishing in the town centre.

3.7 Car parking

Within the town centre, there are currently over 3,278 car parking spaces located in 32 car parks, listed in Table 3-25. Of these spaces, 1,606 are operated by Boston Borough Council and the remaining 1,672 spaces operated by private operators (Meteor Parking Ltd, NCP, Robin Hood, Asda, Tesco and Boston Shopping Park) and the NHS. All car parks within the table below carry tariffs (as shown in

Table 3-27) with the exception of the Tesco and Asda supermarkets which are free but have a maximum length of stay.

The majority of car parks in Boston are located on the eastern side of the River Witham, coinciding with the main shopping areas. This encourages people to travel across the already busy river crossings to reach car parks on the eastern side of the river adding to capacity related problems and congestion especially during peak hours. Car parks on the western side of the river predominantly serve the large supermarkets.

Table 3-25 – Car parks in Boston

Operator	Car Park	Capacity	Map Ref.	Type	Positioning to River Witham
BBC	Boston Station, Station Approach	43	1	Mixed	West
	St Georges Road	195	2	Mixed	West
	Rosegarth Street	105	3	Mixed	West
	George Street	25	4	Mixed	West
	Staniland, Fydell Crescent	150	5	Mixed	West
	Municipal buildings, Fydell Crescent	67	6	Mixed	West
	Victoria Place	27	7	Mixed	West
	West End	103	8	Mixed	West
	Doughty Quay, High Street	33	9	Mixed	West
	South Square	24	10	Mixed	East
	Buoy Yard, South End	42	11	Mixed	East
	Custom House Quay, South Street	22	12	Mixed (Max 2 Hours & Overnight)	East
	Spayne Road	23	13	Mixed	East
	Pump Square	19	14	Mixed (Max 2 Hours & Overnight)	East
	Artillery Row	19	15	Mixed	East
	Blue Street	30	16	Long Stay	West
	Botolph Street	35	17	Mixed	East

Operator	Car Park	Capacity	Map Ref.	Type	Positioning to River Witham
	County Hall, Church lane	55	18	Mixed (Max 2 Hours & Overnight)	East
	Market Place	102	19	Mixed	East
	Fountain Lane	19	20	Mixed	East
	Tunnard Street	145	21	Mixed	East
	Wide Bargate	21	22	Mixed (Max 2 Hours & Overnight)	East
	Bargate Green, Wide Bargate	79	23	Mixed (Max 2 Hours & Overnight)	East
	Cattle Market	158	24	Mixed	East
	Maud Street	65	25	Mixed	East
Meteor Parking Ltd	Pescod Square, Silver Street	400	26	Mixed	East
NCP	Market Place, Red Lion Street	254	27	Mixed	East
Boston Shopping Park	Boston Shopping Park	370	28	Mixed	East
Robin Hood Parking	Robin Hood	190	29	Long Stay (Unknown)	East
Asda	Asda, Lister Way	Unknown	30	Long Stay	West
United Lincolnshire Hospitals NHS Trust	Pilgrim Hospital, Sibsey Road	458	31	Mixed	East
Tesco	Tesco, New Hammond Beck Road	450	32	Long Stay	West
Total		3,278			

Issue

Boston has a large number of car parks for a town of its size which encourages vehicular movements in both directions across the two river crossings. This is likely to add to congestion issues, particularly at peak times.

In addition to the spaces provided in designated car parks, there are also several roads within the town centre that allow on-street parking including West Street and Tawney Street which have pay and display policies. The locations of the car parks in Boston are shown below in Figure 3-34 (Tesco on New Hammond Beck Road was not shown).

Figure 3-34 – Car Parks in Boston

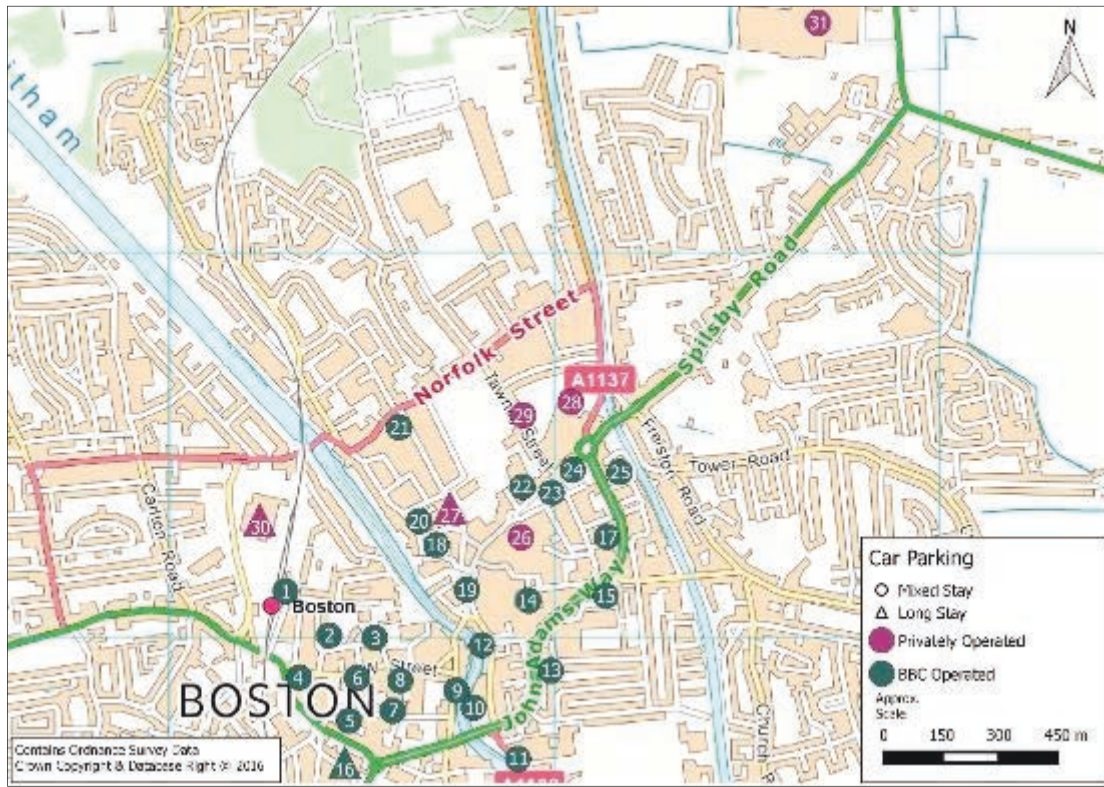


Table 3-26 presents the rates for council owned car parks within the town centre.

Table 3-26 – Council Owned Parking Tariffs in Boston Town Centre

Car park type	1/2 hour	1 hour	2 hours	3 hours	4 hours	All day 8 6	Sunday 8 6	Evening 6 9	Overnight 9 8
Short stay	£0.60	£1.60	£2.40				£1.20	£1.00	£1.00
Mixed stay		£1.40	£1.90	£2.40	£2.90	£3.90	£1.20	£1.00	£1.00
Long stay			£0.80	£1.40	£1.90	£2.70	£1.20	£1.00	£1.00

Source: Boston Borough Council

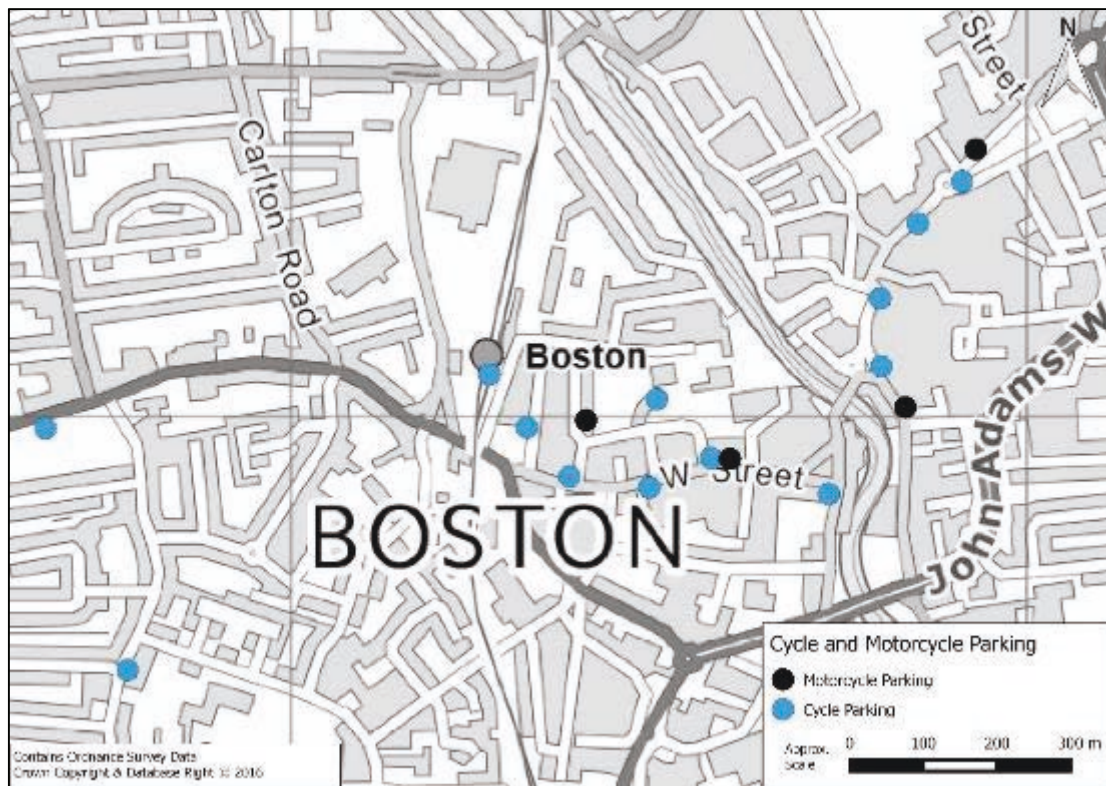
Table 3-27 shows the tariffs for privately owned car parks within the town centre. The two supermarkets haven't been included as they are free 24 hour customer car parks that carry time restrictions. The Robin Hood Car park is also not included due to no information being available.

Table 3-27 – Private Car Parking Tariffs in Boston Town Centre

Car park	½ Hour	0 1 hour	1 ½ Hours	0 2 hours	2 3 hours	3 4 hours	Over 4 hours	All day	Sunday	Evening	Overnight
Pescod Square		£2.20		£2.80	£3.10	£3.60		£7.50	Weekday Prices		
Market Place	£0.60	£1.20	£1.80	£2.40				£2.80	£1.00	Day Rate	£2.80
Boston Shopping Park			£1.00	£1.30	£2.00	£2.50	£3.50		Weekday Prices?	£1.00	
Pilgrim Hospital		£1.40				£3.40	£4.00		Weekday Prices	Day Rate	?

There are several cycle racks located in the town centre, particularly around Wide Bargate and the main shopping area providing cyclists with parking. There are also free designated motorcycle parking spaces provided at various points throughout the town centre, displayed in Figure 3-35.

Figure 3-35 – Cycle and Motorcycle Parking



Opportunity

The removal of small car parks in favour of fewer large car parks would release land for development/regeneration and could lead to better traffic management and greater control on where traffic goes.

3.8 Public Transport

3.8.1 Bus

There are a number of bus services currently serving the town of Boston and the surrounding study area as shown in Table 3-28. The frequency of these bus services however is an issue, with only the number 7 'InterConnect' service to Skegness operating more frequently than every hour. All other services operate every 60 minutes or more. Bus services are also significantly reduced in the evenings and there are no Sunday services at all.

As shown in Figure 3-36, the coverage of the bus network is fairly extensive with most parts of the town and some of the outlying villages, such as Fishtoft, served by one or more bus service.

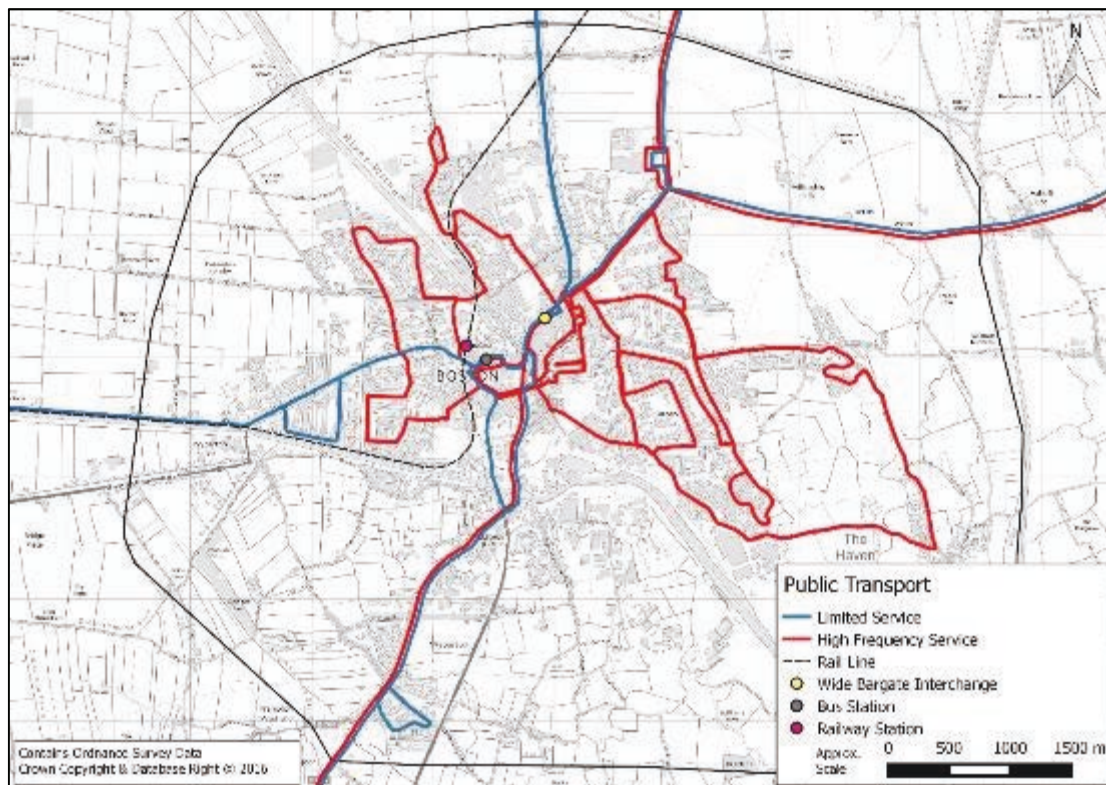
Table 3-28 – Boston area bus service summary table

Service	Operator	Route	Days of operation	Daytime frequency	Sunday frequency
High Frequency Services					
IT 1/2 (Into Town)	Brylaine Travel	Into Town loop (Fenside)	Mon - Sat	60 mins	No service
IT 3/4 (Into Town)	Brylaine Travel	Into Town loop (Robin Hood's Walk)	Mon - Sat	60 mins	No service
IT 5/6 (Into Town)	Brylaine Travel	Into Town loop (Woad Farm)	Mon - Sat	60 mins	No service
G61	Brylaine Travel	Boston – Fishtoft (loop)	Mon - Sat	60 mins	No service
5 (InterConnect)	Brylaine Travel	Boston – Lincoln	Mon - Sat	Max every 60 mins	No service
7 (InterConnect)	Brylaine Travel or Stagecoach	Boston – Skegness	Mon - Sat	30 mins	No service
B13	Brylaine Travel	Boston – Kirton – Spalding	Mon - Sat	60 mins	No service
K58	Brylaine Travel	Boston – Kirton	Mon - Sat	60 mins	No service
Monday to Saturday Services					
A6	Brylaine Travel	Boston – Horncastle	Mon - Sat	4 journeys (Mon - Fri) 3 journeys (Sat)	No service

Service	Operator	Route	Days of operation	Daytime frequency	Sunday frequency
K59	Brylaine Travel	Boston – Donnington – Spalding	Mon - Sat	7 journeys	No service
B11	Brylaine Travel	Boston – Spilsby	Mon - Sat	Max every 2 hours	No service
Limited Days Services					
12	Hunts Coaches	Boston – Alford	Wednesdays	1 journey	No service
YO34	Haines	Boston – Toynton All Saints	Wednesdays	1 journey	No service
36	Centrebus	Sleaford – Billingham – Boston	Wednesdays	1 journey	No service
44	Centrebus	Boston – Lincoln	Fridays	1 journey	No service

Source: Lincolnshire County Council; Traveline East Midlands

Figure 3-36 – Bus network in Boston



Source: Lincolnshire County Council

The InterConnect network and its services are subsidised by Lincolnshire County Council and serve main cities and towns in Lincolnshire whilst making stops at rural locations along the way. The YO34 service between Boston and Toynton All Saints is also fully subsidised along with the 36 service between Sleaford and Boston. The A6

and K59 services linking Boston with Horncastle and Spalding respectively receive minimal support from LCC at certain times.

In addition to regular services, the Boston area is also served by CallConnect, an on-demand bus service that operates in response to pre-booked requests, dropping passengers off at the local interchange where they can continue their journey on the InterConnect services. There is no fixed timetable or route as passenger demand can differ each day.

Some bus services were scaled back in April 2011 as a result of cuts to local government funding including service 7 between Boston and Skegness which had its evening bus withdrawn, service 8 between Mablethorpe and Boston which had its route changed and service Y034 from Hagnby Lock to Boston which had its Wednesday service withdrawn completely. Further cuts to services are anticipated following a proposal to cut the LCC transport subsidies budget.

Boston Borough Council has recently funded improvements to Boston Bus Station. Old bus shelters have been removed and replaced and eight new bus bays were also constructed which included lowering kerbs and introducing tactile paving. Other works included replacing signage and the painting of street furniture in effort to increase the appeal to visitors.

However, the quality of the bus station, from a user perspective, remains poor. The location and general streetscape of the bus station are not attractive and the waiting and information facilities are of poor quality. Signage and wayfinding from the bus station to other key locations, such as the railway station and the Market Place are poor with the streetscape quality providing a disorientating experience upon arrival. This reduces the attractiveness of bus services and could undermine investment in services and new vehicles.

Issue

No bus services operating on Sundays and reduced service availability in the evenings.

Issue

Overall poor frequency of bus services.

Issue

Some services have been reduced due to cuts in local government funding. Further cuts are anticipated.

Issue	The bus station is not an attractive environment for users.
Opportunity	Wide range of existing bus routes into the town centre, residential and surrounding rural areas.

Some data regarding bus patronage levels is available nationally and enables a good comparison between Lincolnshire and the rest of the country. It should be noted that data is not available at the national level for Boston and patterns for Lincolnshire as a whole may not be representative of Boston itself.

Table 3-29 shows the annual bus passenger numbers (in millions) for Lincolnshire, the East Midlands, areas outside London and England. Since 2009/10 bus passenger numbers in Lincolnshire increased, fell, then increased again in line with national trends. Bus patronage in Lincolnshire is now only slightly below what it was in 2009/10. However, this compares favourably with East Midlands and outside London levels which have more severe overall decreases in passenger numbers.

Table 3-29 – Annual bus passenger journeys (millions)

Area	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	% Change 09/10 to 14/15
England	4635.1	4641.1	4661.8	4590.0	4674.1	4647.4	0.27%
Outside London	2396.9	2371.9	2337.9	2279.1	2312.8	2283.8	-4.72%
East Midlands	218.0	214.5	212.9	206.8	208.1	202.6	-7.07%
Lincolnshire	16.3	16.9	16.4	15.6	16.1	16.3	-0.04%

Source: Department for Transport

A different perspective of bus passenger numbers is gained by looking at the number of bus passenger journeys by head of population.

Table 3-30 shows that the number of bus passenger journeys per head of population in Lincolnshire has fallen since 2009/10, by a proportionally similar amount as England as a whole, but significantly less than the East Midlands region.

As shown in

Table 3-30 below the population of Lincolnshire has grown since 2010. Therefore the similarity in the number of bus passenger journeys from 2009/10-2013/14 can be attributed to the overall growth in the Lincolnshire population.

Table 3-30 – Bus passenger journeys per head of population

Area	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	% Change 09/10 to 14/15
England	88.8	88.2	87.8	85.8	86.8	85.6	-3.65%
East Midlands	48.7	47.6	46.9	45.3	45.3	43.7	-10.39%
Lincolnshire	23.1	23.7	22.9	21.7	22.2	22.3	-3.58%

Source: Department for Transport

Table 3-31 – Population Change 2010-2014

	Boston	Lincolnshire	East Midlands	England
2010	64,475	647,330	4,507,071	52,642,452
2011	64,600	650,200	4,537,400	53,107,200
2012	64,800	654,000	4,567,700	53,493,700
2013	65,900	658,400	4,598,400	53,865,800
2014	66,500	665,000	4,637,400	54,316,600
Change 2010-14	2,025	17,670	130,329	1,674,148
Percentage Change	3.14%	2.73%	2.89%	3.18%

Source: ONS Neighbourhood Statistics

Issue

Bus patronage levels in Lincolnshire have fallen since 2009/10, but have performed better than the whole East Midlands region.

Issue

Bus patronage per head levels in Lincolnshire have fallen since 2009/10, by approximately the same rate as England as a whole, whilst performing better than the East Midlands region.

Opportunity

Bus patronage levels in Lincolnshire have increased since 2012/13. Continue to build upon this recent positive trend.

3.8.2 *Rail*

Boston railway station is situated to the west of the town centre. There is car parking on Station Approach and the car park to the north of the station entrance has spaces for 66 vehicles. There are eight sheltered cycle stands provided on the platform. A summary of the train services available at Boston rail station is provided in Table 3-32.

Boston station has a good frequency of services Monday to Saturday and a reasonably good number of service operating on Sundays on the Nottingham and Grantham to Skegness line. One late night direct service from Lincoln is provided, arriving in Boston at 21:53. There are however, no direct services to Lincoln and passengers have to change trains at Sleaford.

Table 3-32 – Boston Station Rail Services

Station	Route	Days of operation	Daytime frequency	Sunday frequency
Boston	Nottingham and Grantham - Skegness	Mon-Sun	Approx. 60 mins (Mon - Sat)	4 journeys
Boston	Skegness - Nottingham and Grantham	Mon-Sun	Approx. 60 mins (Mon - Sat)	5 journeys
Boston	From Lincoln	Mon-Sat	1 journey	No service

Source: Network Rail

Annual patronage figures are made available by the Office of Rail Regulation for all railway stations enabling comparisons to be made on station usage. Table 3-33 shows passenger numbers (in thousands) in terms of station entries and exits. Boston railway station generated around 210,000 passengers in 2014/15 which was a 2.2% increase in passenger number since 2009/10. However, the increase in passenger numbers was not as significant as the increase in the whole of Lincolnshire or the East Midlands.

Table 3-33 – Station entries and exits (thousands)

Area	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	% change 09/10 to 14/15
England	1,927,830	2,103,229	2,242,142	2,318,850	2,443,134	2,552,303	32.4%
East Midlands	36,048	37,247	38,541	38,753	38,950	41,178	14.2%
Lincolnshire	4,468	4,517	4,807	4,736	4,726	4,958	11.0%
Boston	205	208	217	213	207	210	2.2%

Source: Office of Rail Regulation

Issue

Rail patronage levels in Boston have increased but not as significantly as the whole of Lincolnshire or wider East Midlands region.

Issue

The frequency of rail services is good, but the variety of destinations is poor with longer journeys having to change trains at Grantham.

3.8.3 *Public transport journey times*

Journey times travelling to different destinations by bus, car and rail are compared in Rail provides a comparative journey time to car for the destinations that can be reached by direct rail services, such as Skegness, Sleaford and Grantham. The time shown for destinations that require interchange, such as Lincoln and Spalding, is the lowest time possible. At some times of the day, the rail journey time can be longer due to the interchange required.

Table 3-34. Rail provides a comparative journey time to car for the destinations that can be reached by direct rail services, such as Skegness, Sleaford and Grantham. The time shown for destinations that require interchange, such as Lincoln and Spalding, is the lowest time possible. At some times of the day, the rail journey time can be longer due to the interchange required.

It is clear that travelling by car is predominantly the fastest mode of transport for travelling to each of the destinations (depending on traffic conditions). Observed journey time differences between travelling by public transport and by car are considerable. Travelling to Alford for example would take around 40 minutes by car, whereas it would take a passenger on a bus approximately 40 minutes longer to reach the same destination.

Rail provides a comparative journey time to car for the destinations that can be reached by direct rail services, such as Skegness, Sleaford and Grantham. The time shown for destinations that require interchange, such as Lincoln and Spalding, is the lowest time possible. At some times of the day, the rail journey time can be longer due to the interchange required.

Table 3-34 – Public Transport and Car Journey Times Comparison from Boston

Destination	Approximate Journey Time From Boston		
	Bus	Rail	Car
Fishtoft	15 mins	n/a	10 mins
Skegness	1hr 15 mins	39 mins	40 mins
Spalding	45 mins	47 mins	30 mins
Kirton	25 mins	n/a	10 mins
Horncastle	50 mins	n/a	30 mins
Spilsby	40 mins	n/a	30 mins
Alford	1 hr 20 mins	n/a	40 mins
Toynnton All Saints	50 mins	n/a	25 mins

Destination	Approximate Journey Time From Boston		
	Bus	Rail	Car
Sleaford	1hr 15 mins	25 mins	25 mins
Lincoln	1hr 20 mins	1 hr 2 mins	50 mins
Grantham	>3 hours	51 mins	50 mins

3.8.4 *Community Car Scheme*

Boston Community Transport is an independent, charitable organisation aiming to provide accessible transport through a community car scheme, offering door-to-door services for those unable to access existing forms of public transport and have no alternative means of transport available.

3.8.5 *Wheels 2 Work*

Wheels 2 Work is a social enterprise working in partnership with Lincolnshire County Council and Build-a-Future training centre to offer an affordable transport solution to individuals struggling to get to work, college or training. Mopeds are loaned to individuals to enable greater accessibility where public transport may not be an option.

3.8.6 *Access Lincs*

Access Lincs is a countywide initiative from Lincolnshire County Council offering free help, advice and assistance to support employers who wish to access sustainable travel solutions for the benefit of their organisation and their staff.

Specifically aimed at Lincolnshire organisations who wish to voluntarily encourage staff to travel in a more environmentally-friendly way, the Access Lincs programme provides specialised support and advice on all aspects of travel planning to help employers identify and achieve their goals.

In the Boston area two local employers have engaged with the Access Lincs scheme, one of these being Boston Borough Council.

3.8.7 *School Travel Planning*

All schools in Boston should have a travel plan that may or may not be up to date. A school travel plan resources and initiatives information pack has been sent to all schools in Boston from the Smarter Choices Team at Lincolnshire County Council. All available resources are free. There are 17 schools in Boston in total of which 8 engaged in school travel plan activities since 2014. The majority of these schools took part in either the Big Bike Race or the Golden Boot Challenge.

3.8.8 *Bikeability*

Of the 15 schools in Boston that are eligible to receive Bikeability training, 10 have engaged with the scheme since 2014. Bikeability sessions were delivered to 482 pupils in 2014/15 and 399 so far in 2015/16.

3.8.9 Car Sharing

Lincshare is a free travel matching service for all those who live, work and travel in and around Lincolnshire. There are seven members of the scheme currently registered in Boston.

Issue

There is a low take up of the initiatives aimed at enabling access by sustainable means.

Opportunity

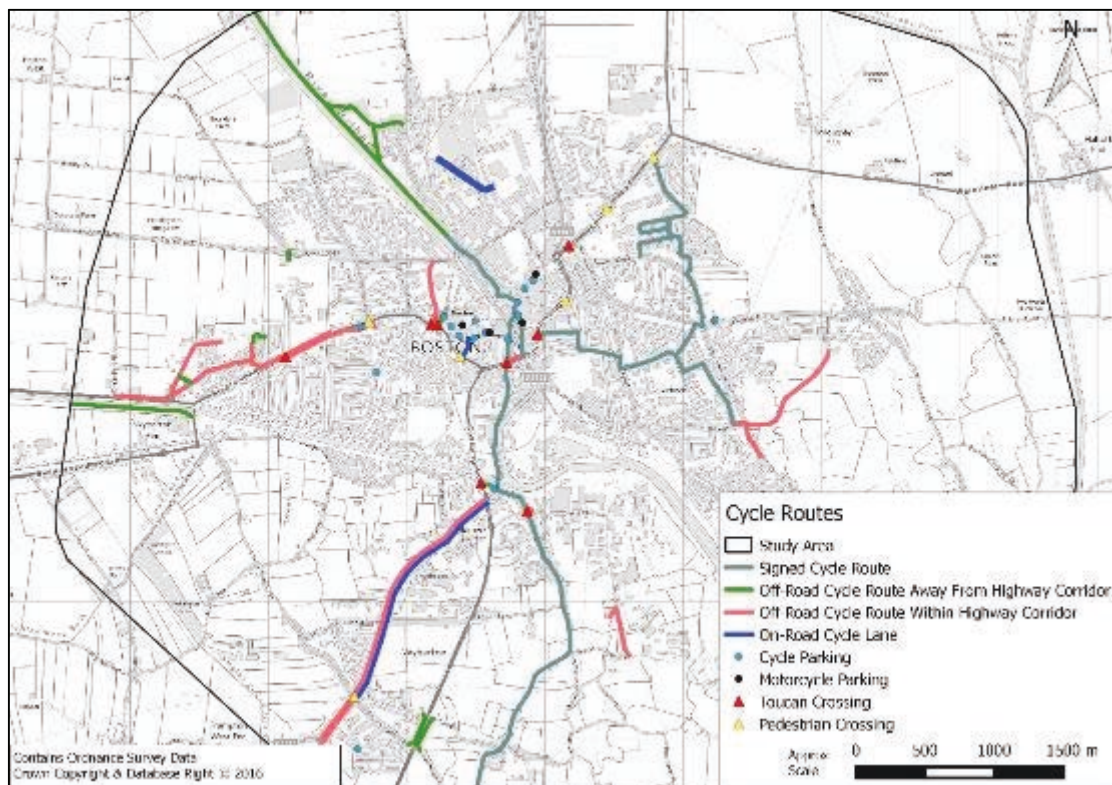
Bikeability sessions are popular amongst primary schools.

3.9 Cycling

3.9.1 Cycle network

The Boston cycle network is shown below in Figure 3-37.

Figure 3-37 – Boston and Surrounding Area Cycle Network



Source: Lincolnshire County Council

National Cycle Network Route 1 (NCN1) is a 1,695 mile cycle route with a mixture of on-road and traffic-free sections between Dover and the Shetland Isles passes through Boston.

From north to south NCN1 runs off-road along the eastern bank of the River Witham before joining the A1137 in the centre of Boston. A further on-road cycle route heads

east off John Adams Way along Spaynes Road before splitting to service both the Skirbeck area of Boston and towards St Bede's Science College. There are also on-road cycle routes on the relatively busy London Road, A52 and A1121.

There are also a substantial number of quiet streets in Boston that are designated as routes. A number of junctions in the main retail area of the town centre have been provided with advanced stop lines for cycle users.

The narrow width of the footbridge over the Maud Foster Drain at Rowley Road/Windsor Crescent means it can only be designated as a pedestrian bridge where cycle users are required to dismount and walk with their bicycles. This provides a constraint in the network as it is where the cycle network east of the drain, which has had various recent improvements, meets the cycle network west of the drain and onto the town centre. There is a similar issue at the Norfolk Street/Hospital Lane bridge which if widened could provide a cycle link across the Maud Foster Drain north of the town centre.

Several key highway routes, such as Spilsby Road, do not have any cycle infrastructure which may create a barrier to encouraging greater use of cycling to and from key origins and destinations.

3.9.2 *Aspirational routes*

Several aspirational routes have been identified by Lincolnshire County Council to enhance the cycle network in Boston. Some of the routes are partly complete while some are yet to be started.

- Windsor Crescent cycle bridge – The existing pedestrian bridge is not wide enough to convert to a shared bridge without additional width. The bridge is a key connection in the cycle network across the Maud Foster Drain linking the east of Boston to the town centre.
- St Botolphs Footbridge to Carlton Road Rowing Club cycle route – This would provide a route on the west side of the River Witham linking the north west of the town into the town centre.
- Windsor Bank/Maud Foster cycle route from A16 to Skirbeck Road.
- Brothertoft Road, Peck Avenue, Broadfield Street, George Street cycle route – This route is partly complete, the section on Brothertoft Road is yet to be added.
- Cycle route from Spilsby Road to Pilgrim Hospital – Pilgrim Hospital is a major employment site and key amenity in the town. Better cycle links to the hospital would therefore be a beneficial addition to the cycle network.

Issue Some of the waterway crossings are constrained by width so cannot be easily converted to cycle bridges.

Issue Some key routes (serving key destinations) do not have any cycle infrastructure.

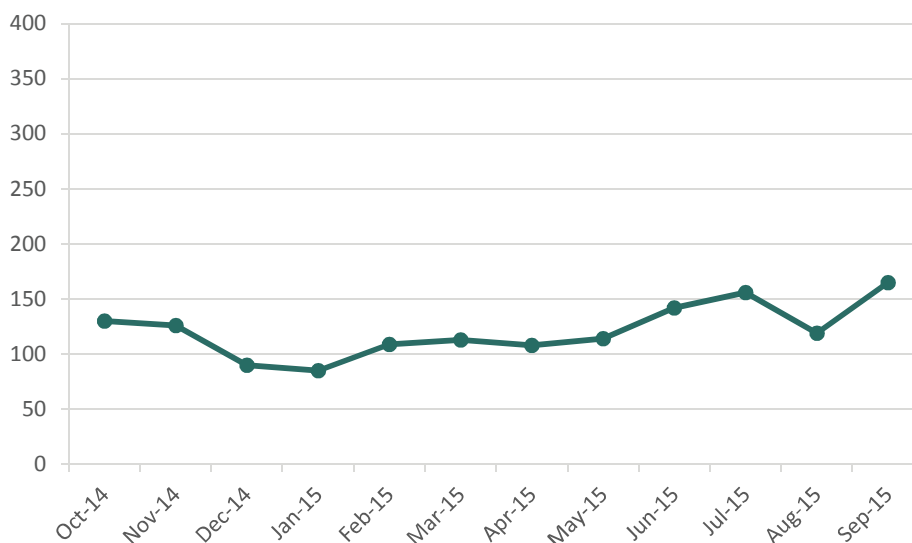
3.9.3 Cycle Movements

Cycle counts have been recorded at two locations managed by Lincolnshire County Council on Sleaford Road, one for each cycleway on either side of the road. Whilst these will not allow a full assessment of cycling levels across the whole of Boston, they can be used with some caution to give an idea of the general yearly and monthly trends.

The monthly average daily cycle counts for the most recent full year, in Figure 3-38 and Figure 3-39 show that there has been an overall increase in cycling over the 12 months from October 2014 to September 2015, with an expected drop in cycling numbers during the winter months and increased levels of cycling over the summer months. However, there was an anomalous drop in cycling numbers in August 2015, particularly on the northside cycleway.

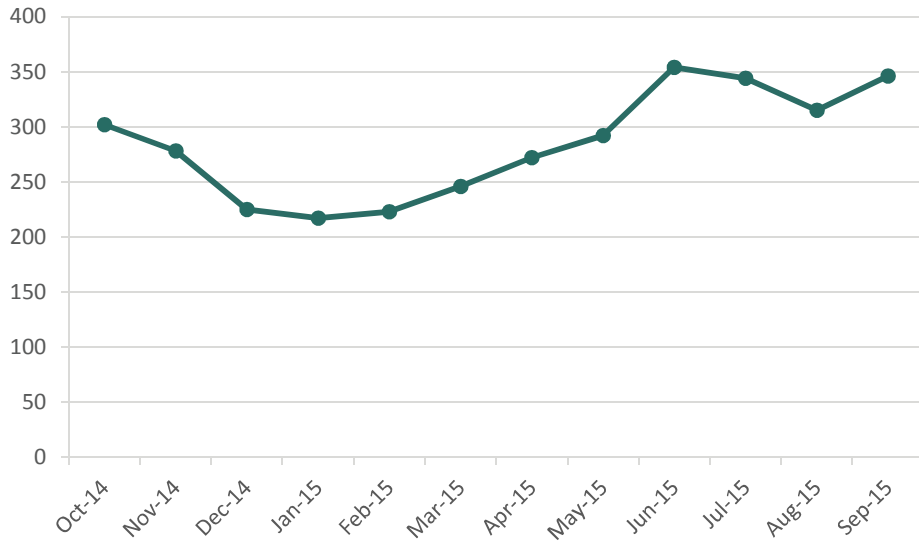
Cycling numbers by year going back to 2010 are shown in Figure 3-40 and Figure 3-41.

Figure 3-38 – A52 Sleaford Road Northside Cycleway, Average Daily Cycle Counts, 2014/15



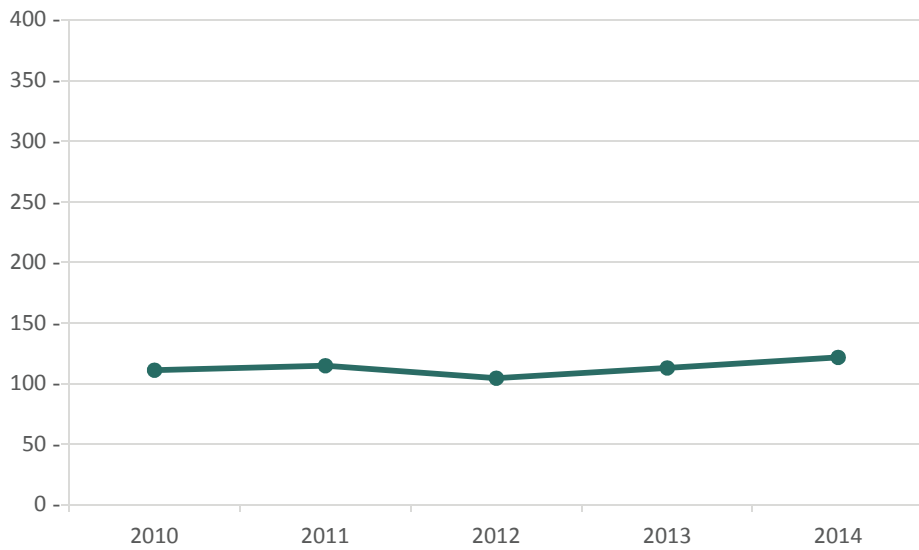
Source: Lincolnshire County Council

Figure 3-39 – A52 Sleaford Road Southside Cycleway, Average Daily Cycle Counts, 2014/15



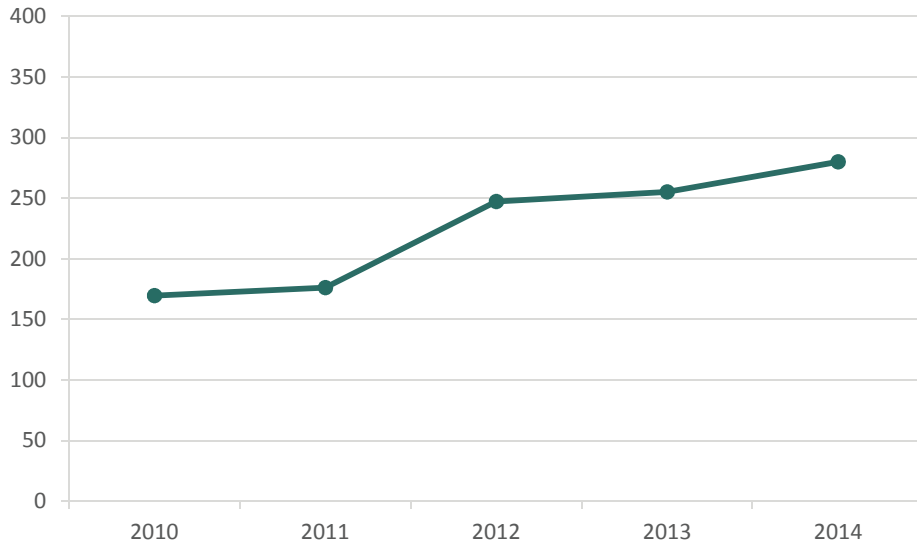
Source: Lincolnshire County Council

Figure 3-40 – A52 Sleaford Road Northside Cycleway, Average Daily Cycle Counts by Year, 2010-2014



Source: Lincolnshire County Council

Figure 3-41 – A52 Sleaford Road Southside Cycleway, Average Daily Cycle Counts by Year, 2010-2014

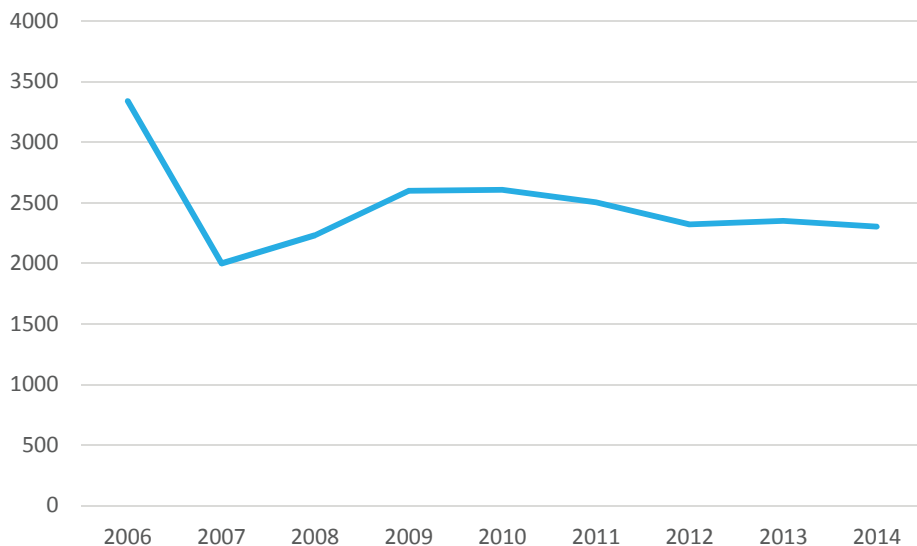


Source: Lincolnshire County Council

Additional data on cycle flows is available from the Department for Transport Annual Average Daily Flow (AADF) counts. The AADF counts take place at 11 locations around Boston: A1137 Fydell Street, A16 John Adams Way (two sites), A52 Sleaford Road, A16 Spilsby Road, A52 Sleaford Road, A16 Spalding Road (two sites), A1137 Horncastle Road, A1121 Broadships and A1138 St Johns Road.

The AADF data provides historic data and as Figure 3-42 shows there has been a reduction in the total number of cycle flows across all sites since 2006. After a steep drop between 2006 and 2007, there was an increase to 2009 but since then there has been a gradual reduction through to 2014.

Figure 3-42 – Cycle flows from AADF counts



Source: Department for Transport

The increase in cycle flows in 2010—2014 as recorded by LCC could be reversing the trend shown by the historic DfT AADF data. However, as the LCC data is only taken from one site, it is insufficient to draw a conclusion from this site.

Issue	There is a historic reduction in cycle flows in the last few years up to 2014.
Opportunity	Local counts during 2014/15 show an increase in cycle flows.

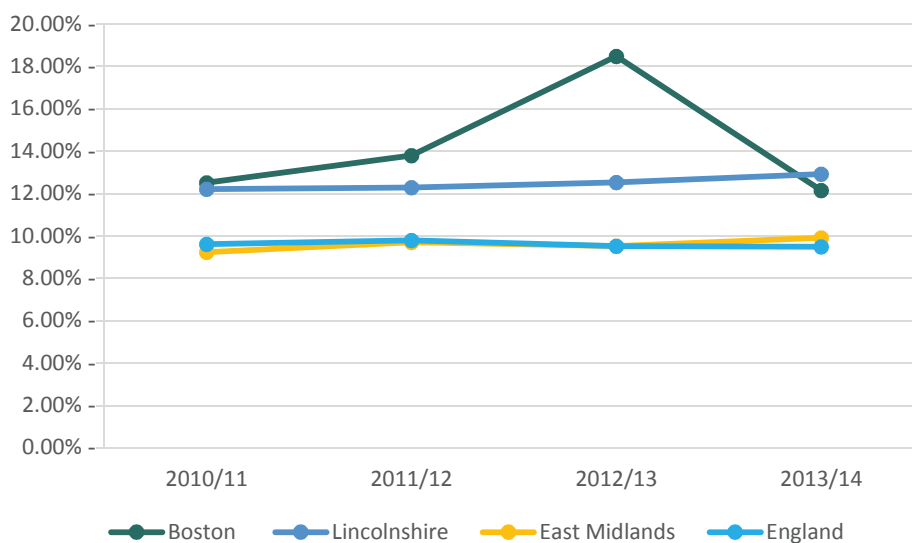
3.9.4 *Cycling activity*

Through the Active People Survey, the Department for Transport records how often people participate in active modes of travel – walking and cycling – for all journey purposes.

As shown in the results in Figure 3-43, the overall proportion of people cycling at least once per week was less in 2013/14 than it was in 2010/11. However, a significant peak was observed in 2012/13 where Boston was the fifth ranked local authority in terms of the percentage of people cycling at least once per week.

As of 2013/14 Boston is slightly behind Lincolnshire in this measurement but above the regional and national average.

Figure 3-43 – Proportion of residents who cycle at least once per week for any purpose



Source: Department for Transport

Issue

The proportion of people cycling at least once a week has declined.

Opportunity

In 2012/13 Boston was ranked as the fifth highest local authority in England for the percentage of people cycling at least once per week.

Opportunity

The percentage of people cycling at least once per month is above the regional and national average.

3.10 Walking

3.10.1 Pedestrian infrastructure

The overwhelming majority of highways within Boston town have sufficient provision for pedestrians. The main town centre street, Strait Bargate, is pedestrianised between the market place and Wide Bargate and the Market Place north east of Town Bridge is designed as a shared space environment. Several shopping streets in the town centre are narrow mediaeval lanes where vehicles are not permitted.

Heading north from Wide Bargate along Horncastle Road towards Cowbridge there is a footway on the northbound side of the carriageway continuing on towards Cowbridge though it becomes very narrow after the residential properties have been passed. There is a signalised crossing to allow pedestrians to use the footbridge across Maud Foster Drain opposite Norfolk Street. On the eastern bank of Maud Foster Drain, Willoughby Road has a footway on the southbound side of the carriageway.

Heading south along the west bank of the River Witham from the town centre along High Street from Town Bridge there is good footpath provision. Upon reaching John Adams Way there is a toucan crossing allowing pedestrians to continue along High Street. East of the River Witham there is a one-way street heading south from the market place with toucan crossings where it meets with John Adams Way.

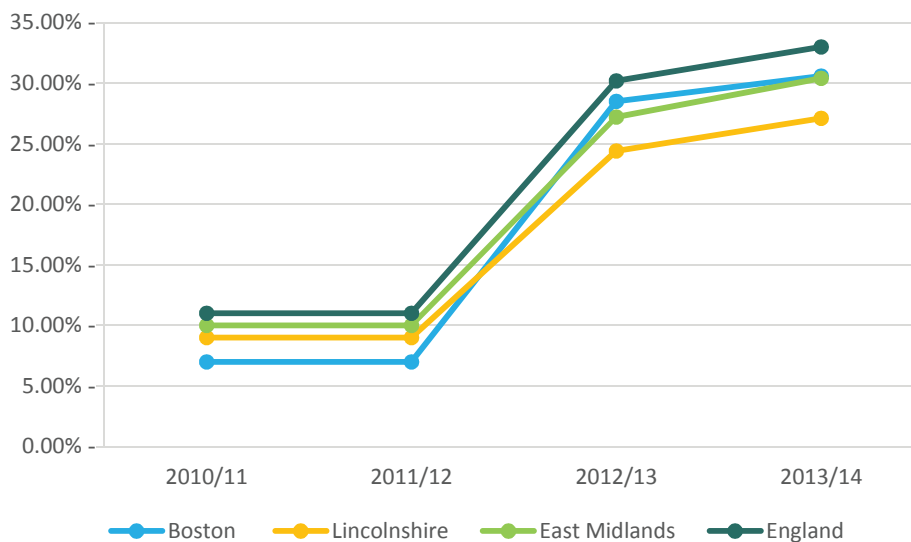
Heading west, West Street has low traffic flows and footpaths on either side. There is a zebra crossing at the junction with George Street. There are informal pedestrian crossings (dropped kerbs and tactile paving) on the West Street and Queen Street arms of the roundabout with Queen Street heading south east and Sleaford Road continuing west. Both these roads have good footway provision. A short distance from the roundabout there is a level crossing on Sleaford Road.

Heading east, Wide Bargate has sufficient footway provision with signalised crossings at the Freiston Road junction continuing onto Spilsby Road. Once across Maud Foster Drain, pedestrians can head south east on Freiston Road to the predominantly residential areas.

3.10.2 Active People Survey

Unfortunately there are no pedestrian counts available for Boston. However, the Active People Survey can be referred to for information on the percentage of people who walk a minimum of three times per week for utility purposes in Boston Borough. This graph shows that walking has increased in line with county, regional and country levels.

Figure 3-44 – Proportion of residents who walk at least three times per week for a utility purpose



Source: Department for Transport

Opportunity

The proportion of people walking within Boston is increasing at a higher rate than the county, region or country.

3.11 Barriers to movement

Across Boston there are several barriers to movement, some of which are natural, such as the River Witham and some of which are man-made, such as the drains, highways and railways.

3.11.1 Waterways

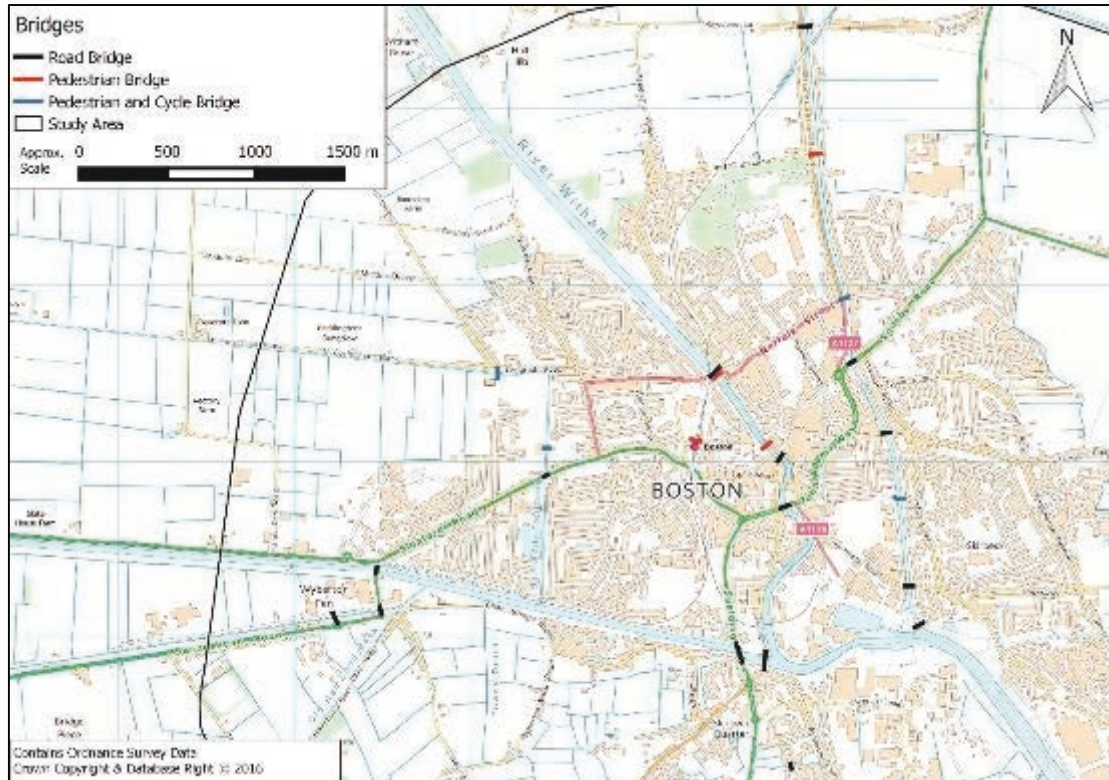
There are two watercourses – the River Witham and Maud Foster Drain – running approximately north to south in Boston that have the potential to cause severance issues for east-west journeys between residential and employment areas.

A third watercourse, South Forty Foot Drain, runs east-west south of Boston town centre, but does not have the same level of potential to cause similar severance

impacts due to the south bank being sparsely developed in comparison to the north bank.

There are fifteen road bridges and seven pedestrian and cycling bridges in Boston to enable movements across these watercourses. Figure 3-45 shows the locations of the bridges in Boston.

Figure 3-45 – Bridges and footbridges in Boston



Issue

The waterways present significant barriers to movement across Boston and there are a limited number of crossing points for bicycle and motor vehicle traffic.

3.11.2 Railways

There are nine level crossings on the passenger rail line in the Boston area. Based on the frequency of passenger rail services through Boston, it is estimated that the barriers at these level crossings are down twice every hour during the daytime.

A further level crossing is situated on the A16 south of town centre where the rail line services freight trains from the port. It is assumed therefore that the downtime periods at this level crossing will be fewer (once or twice per day).

The positioning of the railway lines within Boston presents a severance issue whereby vehicles, pedestrians and cycle users can only cross at certain points

served by level crossings. This in turn may lead to longer journey times and congestion in addition to a negative impact on accessibility and the isolation of services, residential areas and green spaces.

Figure 3-46 shows the location of the ten level crossings on Boston.

Figure 3-46 – Level crossings in Boston



Issue

The level crossings in the town centre restrict movement of traffic and cause congestion, particularly during peak periods.

3.11.3 *Highways*

The highway network in Boston consists of two principal A roads; the A52 running east-west and the A16 running north-south, linked by the A1137 at Fyde Street.

John Adams Way, a section of the A16 that runs east across the River Witham effectively dissects the town in half. Crossing points are limited to one pedestrian crossing at Main Ridge East and which presents a barrier for movement between the areas either side of John Adams Way.

The high vehicle flows along primary routes, such as John Adams Way, provide a barrier to pedestrian and cycle movements due to difficulty in crossing the road, noise and air pollution and reduced perceptions of safety for cycling.

3.12 Freight

This section looks at how the freight industry impacts on the transport network in Boston looking at HGV flows and the Port of Boston.

3.12.1 HGV flows

There are 11 Department for Transport Count Points in Boston town centre. The data from these count points has is shown in Table 3-35 and combined to give a typical daily number of HGVs travelling through Boston for each year in the period. Overall HGVs in Boston have reduced by 10.5%. HGVs using the docks access road have reduced by 42.1%.

Table 3-35 – HGV AADF in Boston 2011—2014

Site no.	Location	HGV AADF				
		2011	2012	2013	2014	% Change
7892	A1137 Fydell Street	235	237	146	127	-46.0%
7996	A16 John Adams Way	1,888	1,920	1,817	1,750	-7.3%
16212	A16 John Adams Way	1,471	1,476	1,519	1,272	-13.5%
16524	A52 in Leverton	600	603	607	610	2%
36567	A52 Sleaford Road	878	889	897	826	-5.9%
46228	A16 Spilsby Road	71	77	80	75	5.6%
47946	A52 Sleaford Road	909	904	919	859	-5.5%
48738	A16 Spalding Road	1,521	1,507	1,545	1,466	-3.6%
56090	A1137 Horncastle Road	281	286	283	254	-9.6%
57598	A1121 Broadsides	507	526	526	533	5.1%
57948	A1138 St Johns Road (Docks)	382	209	222	221	-42.1%
77229	A16 Spalding Road	1,559	1,354	1,332	1,301	-16.5%

Source: Department for Transport

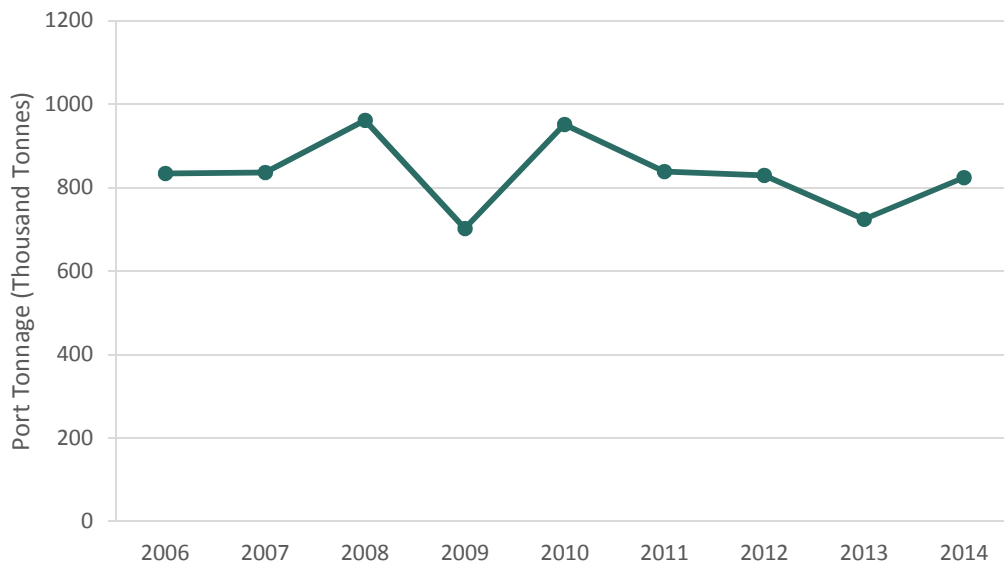
Opportunity

The number of HGVs in Boston is decreasing.

3.12.2 Port of Boston

The Port of Boston is one of two ports in the East Midlands. This may have a significant effect on the surrounding highway network in Lincolnshire. Port freight statistics are available from 2006 to 2014 and Figure 3-47 shows the change in the amount of goods going through the Port of Boston.

Figure 3-47 – Freight tonnage (000s) through Port of Boston, 2006-2014



Source: Department for Transport

Between 2011 and 2013, the amount of goods through the Port of Boston decreased dramatically. However 2014 saw the amount of goods increase almost back up to the 2012 level. Future monitoring will be required to determine if the recent growth at the Port of Boston will be sustained into the future.

The Port is a major entrance point for both steel and timber products into the UK and utilises both road and rail to move freight onwards. Approximately 250 HGV movements are generated per day and as well as one outbound train. HGV movements are predominantly outside of peak traffic periods and the outbound freight train leaves before the AM peak period, therefore, limiting impacts caused by the level crossing.

However, there is a potential risk to the rail freight operations as Victoria Group, which owns and operates the port, has its main rail freight interchange at Washwood Heath in Birmingham, which could be impacted upon by the new high speed railway line (HS2) as it enters the city centre.

Issue

Rail freight from the Port of Boston may cease due to the impact of HS2 on the company's Birmingham rail freight interchange

3.13 Mode Share

Mode share data is available for Boston from the 2001 and 2011 Census. The 2011 Census is valuable as a tool to measure trends and changes in travel behaviours over the decade. For the calculation of modal share, those not in employment have

been excluded from the calculations. Figure 3-48 shows the mode share comparison for Boston between 2001 and 2011 while

Table 3-36 displays the same information but also for Lincolnshire, the East Midlands and England.

Figure 3-48 – Mode of travel to work in Boston 2001 and 2011

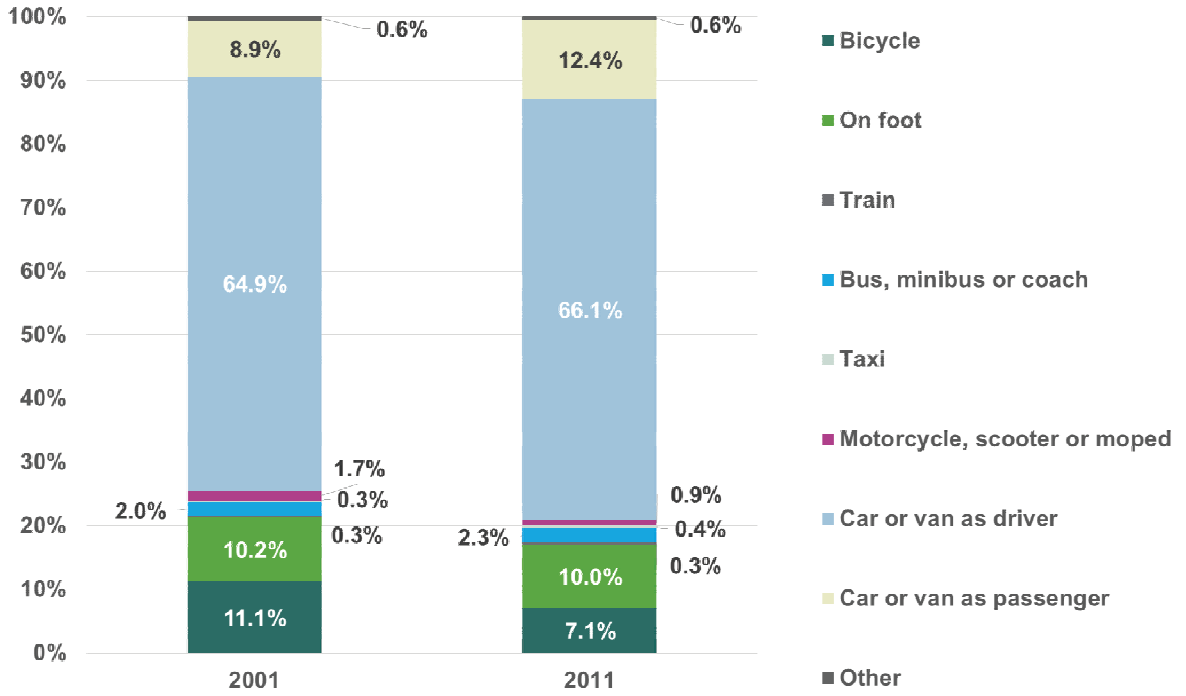


Table 3-36 – 2001 and 2011 mode of travel compared with rest of the country

Mode	Boston				Lincolnshire		East Midlands		England	
	2001	2011	2001 %	2011 %	2001 %	2011 %	2001 %	2011 %	2001 %	2011 %
Car driver	14,709	18,492	64.9%	66.1%	67.2%	70.9%	66.4%	69.4%	62.6%	62.9%
Car passenger	2,013	3,471	8.9%	12.4%	7.6%	6.9%	7.6%	6.6%	7.0%	5.7%
Bus	448	632	2.0%	2.3%	3.7%	2.8%	7.7%	6.7%	8.6%	8.5%
Rail	67	92	0.3%	0.3%	0.8%	1.0%	1.1%	1.4%	4.8%	6.0%
Cycle	2,523	1,976	11.1%	7.1%	6.1%	4.4%	3.6%	3.0%	3.2%	3.3%
Motorcycle	375	239	1.7%	0.9%	1.4%	0.9%	1.1%	0.8%	1.3%	0.9%
Foot	2,311	2,783	10.2%	10.0%	12.2%	12.2%	11.5%	11.2%	11.4%	11.4%
Taxi	69	119	0.3%	0.4%	0.4%	0.4%	0.5%	0.4%	0.6%	0.6%
Other	137	60	0.6%	0.6%	0.6%	0.6%	0.4%	0.5%	0.5%	0.6%

Source: Office for National Statistics

The number of residents in Boston travelling to work by car increased by 25.7% in real terms and increased significantly more than Lincolnshire, the East Midlands and England. The mode share in Boston for car/van drivers increased by 1.3 percentage points.

The number of people walking to work increased by 20.4% between 2001 and 2011, over twice as much as nationally and regionally, and significantly more than Lincolnshire. Cycling as a mode of travel to work fell by 21.7% over the period and modal share fell from 11.1% to 7.1%. This trend compares regionally and in Lincolnshire, where cycling has also decreased but not to such an extent as in Boston.

Motorcycle use as mode of travel to work decreased by 36.3% and the modal share decreased from 1.5% to 0.8%. This matches the trend seen at all geographical levels but is more significant than nationally, regionally and in Lincolnshire.

Bus travel to work in Boston increased marginally between 2001 and 2011; the opposite of what happened to bus patronage throughout the rest of the country. The addition of new bus services in the Boston area provides a logical reason for this increase in usage.

It is worth noting the link between car use and the working age population where, between 2001 and 2011, there was a significant increase in both. This rate of growth is likely to put pressure on the transport infrastructure of Boston and its capability of meeting increasing demands.

Issue

Car travel remains dominant, whilst cycling is decreasing in real terms and in modal share.

Opportunity

Walking has increased in real terms, and bus use has increased in real terms and modal share.

Data on journeys to work and the mode of transport used from the different output areas of Boston was analysed. It should be emphasised that the sample sizes were small and therefore indicative.

The relationship between the number of people commuting to Boston by driving a vehicle and the area they are travelling from is as to be expected. There are significantly less people driving to work in the more central locations of the town compared to those commuting from the sub-urban areas of the town.

Conversely, the number of people travelling to work on foot are more concentrated in the town centre. Those commuting from areas further away from the town centre are less likely to travel in to Boston on foot.

Journeys to work by bus or coach are fairly sporadic and do not present the same spatial patterns as the ones representing travelling to work by car or on foot. A pocket of high bus use to the north west of the town centre is most likely attributed to the frequent town bus services that run in that area.

These services are not prevalent in the south of the town centre, particularly to the south of the Skirbeck quarter which is reflected by significant less bus and coach use. Bus routes in this area and in the north east of the town centre where there is also low bus use consist of less frequent services that are travelling outside of Boston to other areas. The north east area of the town is relatively closer to the main employment district than the south east and therefore people are more likely to walk to work.

3.14 Origin and Destination

3.14.1 Inbound and outbound trips

Using data from the 2011 Census, the origin and destination of travel to work trips was identified. The analysis looked at the following movements to and from Boston Town to/from:

- The rest of Boston Borough;
- Other Lincolnshire towns;
- Other Lincolnshire Districts (rural area);
- and Outside Lincolnshire (anywhere else in England).

Table 3-37 displays the outputs of the analysis. It is clear how the most trips originating in the urban area Boston ('Boston Town') itself remain within the town with a further significant number having destinations in the wider borough. Outside of the borough, Grantham, South Kesteven, Spalding and South Holland represent the destinations of a significant proportion of trips to work within Lincolnshire. Additionally, there are over 3,200 people travelling to work outside of Lincolnshire altogether, however, exactly where they are travelling to is undefined.

Other than Boston Town and Borough, East Lindsey has the most people travelling inbound to Boston which is representative of its location just north of Boston Borough. South Holland, to the south of Boston and North Kesteven, to the west, were also the origin of significant travel to work trips into Boston Town.

Table 3-37 – Trips from and to Boston Town

Trips FROM Boston Town		Trips TO Boston Town	
Boston Town	7,181	Boston Town	7,181
Boston District	4,275	Boston District	4,275
South Holland	890	East Lindsey	1,856
South Kesteven	890	South Holland	602
East Lindsey	396	North Kesteven	554
Lincoln	145	Spalding	222
Other Lincolnshire	132	Skegness	199
Spalding	109	Other Lincolnshire	174
West Lindsey	108	Sleaford	157
Grantham	101	South Kesteven	123
Outside Lincolnshire	3,214	Lincoln	120
		Outside Lincolnshire	437

In addition to trips to and from Boston, it is also important to appreciate that origin and destination data can also highlight trips that may pass through Boston. Census data shows that there are 1,491 people travelling from Sleaford to Skegness for work. A significant amount of these journeys are likely to use Boston as part of their

route to work and therefore, if they are travelling by car, contributing to traffic flows in the morning and afternoon peaks.

The public transport network supports some of the movements from Boston to other towns e.g. to Grantham and Skegness, however, the frequency of services (as highlighted earlier) may reduce their feasibility. The rural location of some workplaces, e.g. in the agricultural industries, means that many will not be served by public transport and beyond a reasonable walking or cycling distance.

3.14.2 Trips within Boston Town & Borough

Table 3-37 above showed that approximately 7,000 travel to work trips started and ended in Boston Town and approximately 11,000 started and ended in Boston Town and Borough.

Figure 3-49

Figure 3-50 display the mode split of those trips within Boston Town and Boston Borough. It is evident that nearly half of people travelling within the town are doing so as a car or van driver. Given that Boston Town is approximately 4km across, so these trips are over short distances, this represents opportunity for modal shift to sustainable modes such as walking or cycling.

Some journeys within Borough will be longer and less feasible by other modes but there still represents an opportunity to shift some of the 52% of people travelling by car to other modes.

Figure 3-49 – Mode split of trips within Boston Town

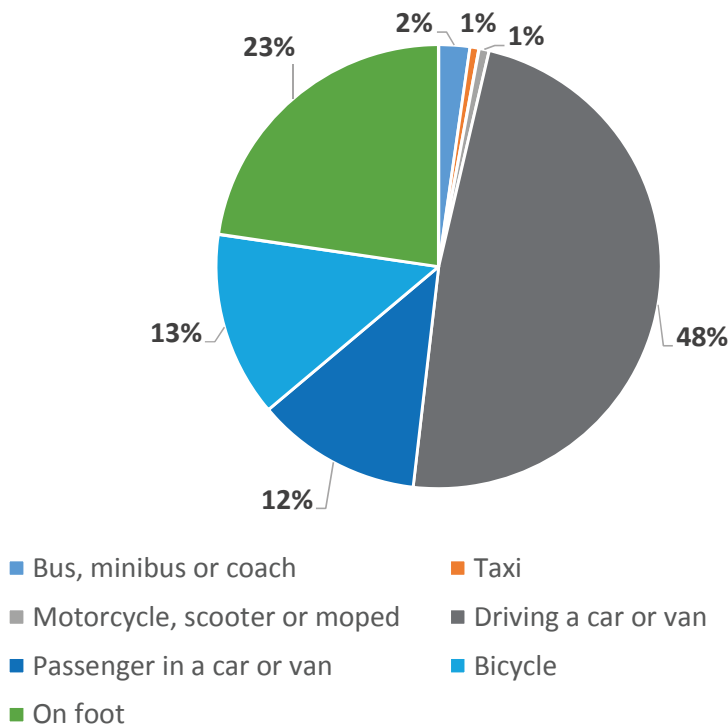
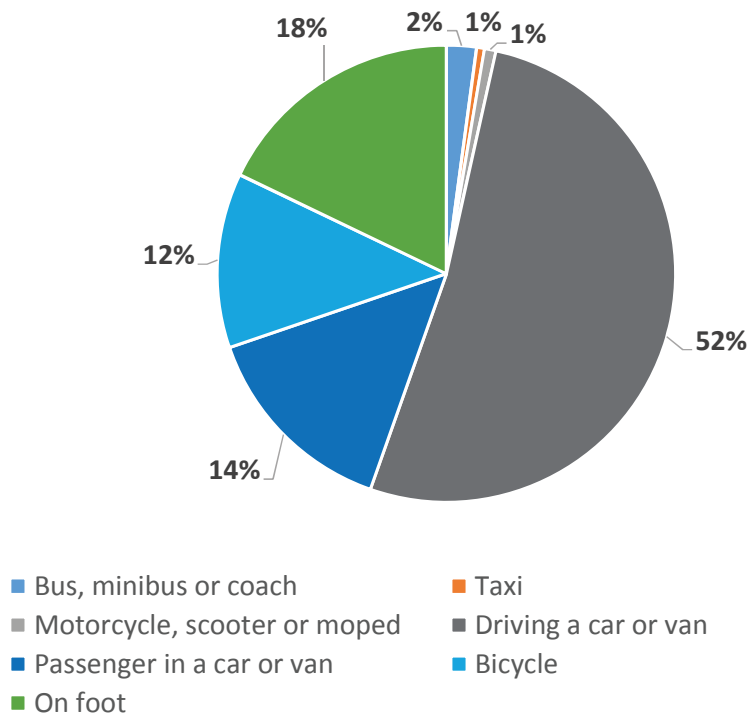


Figure 3-50 – Mode split of trips within Boston Borough



Issue	Car and van use is the dominant mode of travel for travel to work journeys wholly within Boston Town and Borough.
Opportunity	The large proportion of people travelling to work within Boston Town and Borough by car represents a clear opportunity for modal shift.

3.15 School Travel

Travel to school data from the school census year 2010/2011 has been analysed to obtain a general understanding of travel to school behaviours in Boston. It should be noted however that due to the age of the data available, much of the school age population from the census year will have passed through the school system and as such this data may not be an accurate representation of current trends. More recent data from school travel plans was not available due to the poor levels of engagement in travel planning from schools in Boston.

The table below shows that overall there was a fairly even split in terms of mode share between car and walking with 38.3% and 39.9% of trips respectively. Cycling over all made up 9.8% of the modal split.

The most significant difference between primary and secondary school travel is the shift away from car travel, and to a lesser extent walking, towards bus travel and cycling.

A comparison between the modal share data of Boston with that of fellow Lincolnshire town Sleaford and England is presented below in Table 3-38. Boston has a higher percentage mode share for travelling to school by car than Sleaford and England. The modal split of travelling to school via more sustainable modes of transport including by bus is also substantially lower in Boston than Sleaford and England. This may be pertained to poor public transport links or low frequency of services. It is however observed that Boston has a higher percentage mode share in cycling for both primary and secondary schools than Sleaford and the nation as a whole.

Table 3-38 – Mode of Travel to School in Boston

Mode	Boston		Sleaford		National	
	Primary School	Secondary School	Primary School	Secondary School	Primary School	Secondary School
Car	47.0%	25.7%	40.6%	6.1%	36.4%	18.8%
Car Share	4.5%	1.5%	5.8%	0.5%		
Bus	0%	17.2%	1.6%	60.8%	3.0%	31.1%
Train	0%	0.2%	0%	4.2%	0.1%	1.5%
Taxi	1.4%	0.6%	0.8%	0.6%	No Data	No Data
Cycle	4.3%	17.9%	1.7%	0.9%	1.0%	3.0%
Walk	42.0%	36.9%	49.6%	25.8%	58.2%	41.5%
Other	0.8%	0.1%	0.00%	1.0%	0.2%	1.2%

Source: School Census 2010; Lincolnshire County Council

Issue	Car travel is one of the dominant travel to school modes; Boston has a higher percentage mode share for travelling to school by car than Sleaford and England.
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Opportunity	Boston’s modal share for cycling is significantly greater than the national figures, particularly in secondary schools.
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3.16 Road Safety

As was highlighted in Section 3.3.5 (Indices of Multiple Deprivation), exposure to road traffic collisions represents an issue within the town. This section reports on analysis of collisions for five whole years between 2011 and 2015 to identify what the trends and issues are with regards to road safety.

3.16.1 *Collisions by severity*

A summary of collisions that have occurred within Boston between 2011 and 2015 is presented, according to severity, in Table 6-18. Over this period, there have been very few fatal collisions, with a number of serious collisions, although 2015 saw a reduction in serious collisions to 9, which, since 2011, had been more than double this. There has also been a reduction in the number of slight collisions since the peak in 2013.

Table 3-39 – Collisions within Boston by Severity 2011-2015

	2011	2012	2013	2014	2015	Total	Average
Fatal	1	1	0	0	1	3	1
Serious	16	21	22	19	9	87	17
Slight	126	126	136	103	106	597	119
Total	143	148	158	122	116	687	137

(Source: Lincolnshire Road Safety Partnership)

The number of casualties in road collisions is summarised in Table 6-19. As a whole, the number of casualties has reduced. The number of fatalities has remained relatively constant and low, with the number of serious and slight casualties both falling by 15.8% and 19.8%, respectively.

Table 3-40 – Number of Casualties in Road Collisions within Boston 2011-2015

	2011	2012	2013	2014	2015	Total	Average	Change (2011 2015)
Fatal	1	1	0	0	1	3	1	0.0%
Serious	19	24	35	21	16	115	23	-15.8%
Slight	162	168	172	143	130	775	155	-19.8%
Total	182	193	207	164	147	893	179	-19.2%

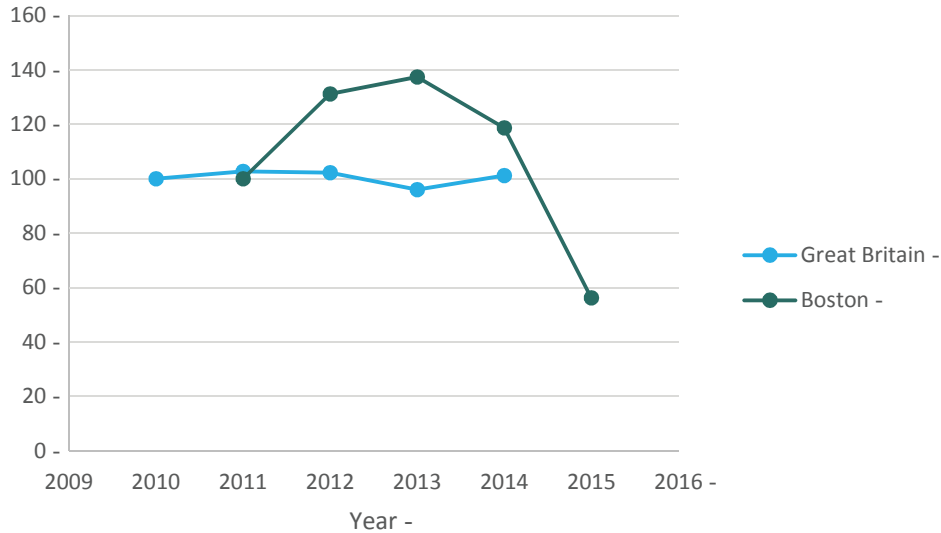
(Source: Lincolnshire Road Safety Partnership)

A comparison of the trend for serious collisions between Boston and Great Britain is shown in Figure 6-16. Data for Great Britain is not currently available for 2015, therefore the 5 year period 2010-2014 has been observed. Serious collisions in Great Britain have remained relatively constant over the period 2010-2014. In Boston, the significant peak in collisions in 2013 has been followed by a reduction with serious collisions in Boston reduced by almost half in 2015.

Figure 6-17 provides the same comparison for slight collisions. As a general trend, the number of slight collisions across Great Britain has been falling. In Boston, it appears that there has been a faster reduction in slight collisions following the peak in 2013, with the initial reduction in 2014 coinciding with an increase in slight collisions across Great Britain. Analysis of the road surface conditions recorded at the time of collisions shows that there were notably fewer collisions occurring on wet road surfaces in Boston in 2014 and 2015, suggesting that these years may have

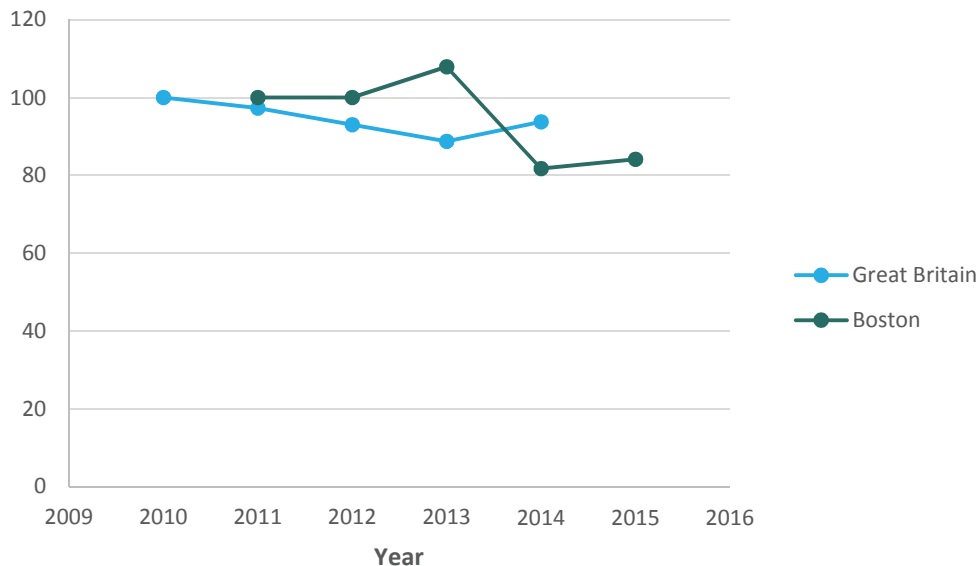
been drier on average compared to the previous years – potentially explaining this sharp reduction.

Figure 3-51 – Indexed Rates of Serious Collisions, Great Britain 2010-2014 and Boston 2011-2015



(Source: Department for Transport; Lincolnshire Road Safety Partnership)

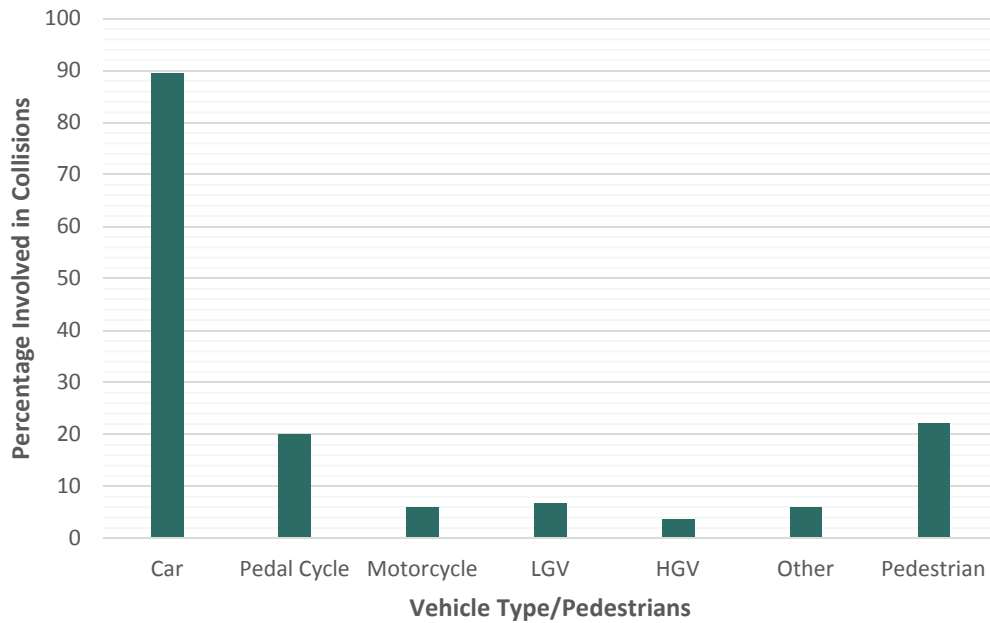
Figure 3-52 – Indexed Rates of Slight Collisions, Great Britain 2010-2014 and Boston 2011-2015



(Source: Department for Transport; Lincolnshire Road Safety Partnership)

A comparison of collisions by mode is given in Figure 6-18 below. As would be expected, the majority of collisions involved at least one car. Quite strikingly, 1 in 5 collisions in the study area involved a cyclist (20%) and slightly more involved a pedestrian (22%). This compares to the national averages of 13.3% involving cyclists and 15.6% involving pedestrians.

Figure 3-53 – Percentage Involved in Collisions by Type of Vehicle/Pedestrians

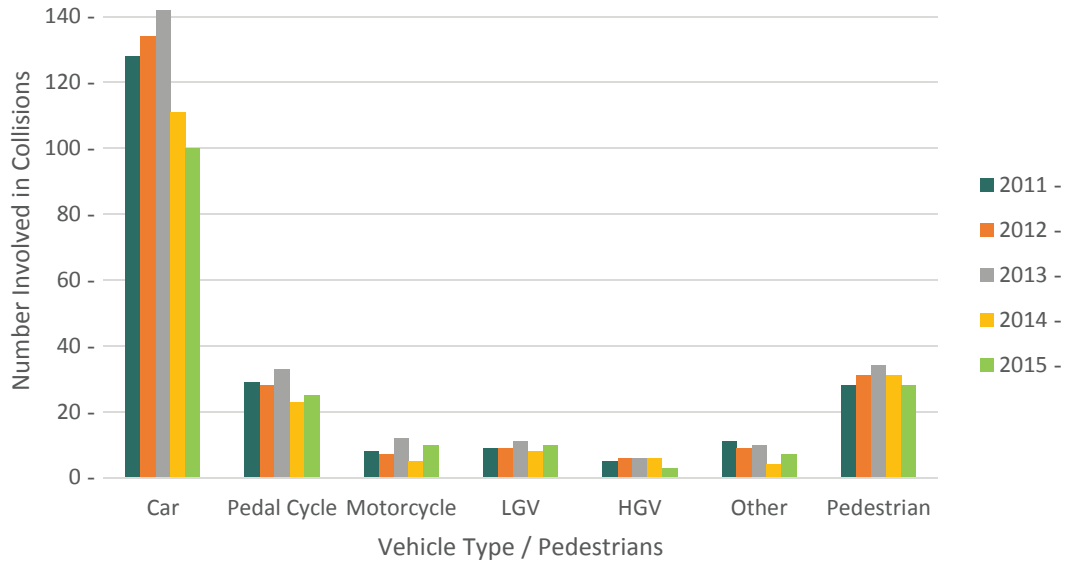


(Source: Lincolnshire Road Safety Partnership)

Figure 3-54 shows the year-on-year variation in the number of collisions for all vehicle types and Figure 3-55 shows this as a percentage of the total annual collisions.

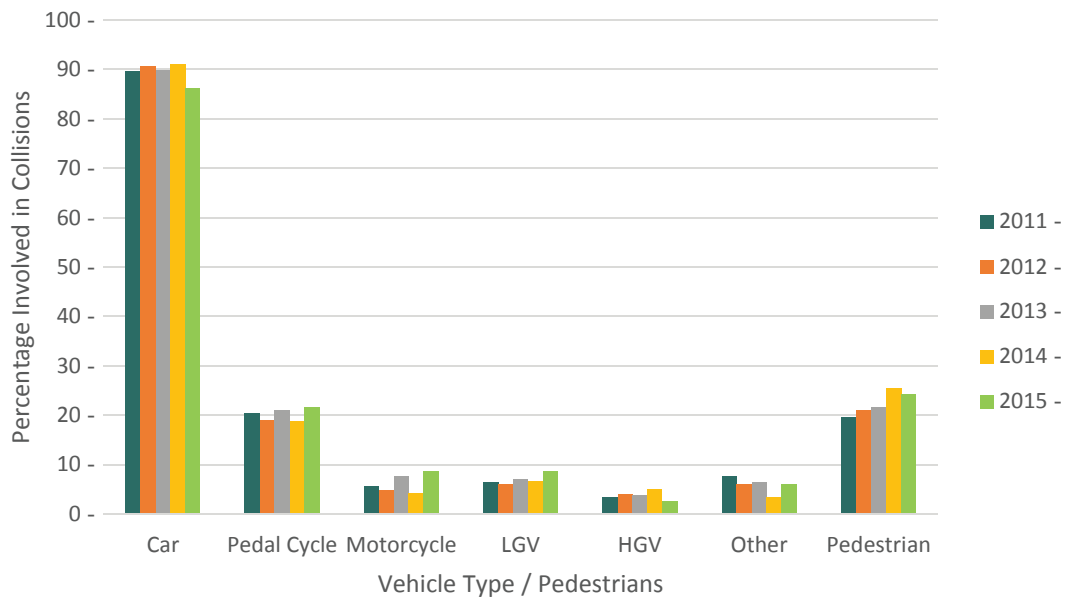
The number of collisions involving at least one car has decreased in recent years, although has remained high. This has resulted in a decrease in the percentage of car collisions. Whereas the percentage of collisions involving pedal cycles and pedestrians has increased. This is because although collisions have decreased as a whole the number of collisions involving pedal cycles has only decreased slightly and the number of pedestrian collisions has remained relatively constant.

Figure 3-54 – Number of Collisions Involving Vehicle Type/Pedestrians 2011-2015



(Source: Lincolnshire Road Safety Partnership)

Figure 3-55 – Percentage of Collisions Involving Vehicle Type/Pedestrians 2011-2015



(Source: Lincolnshire Road Safety Partnership)

Issue	20% of all collisions in the strategy area involved cyclists and 22% involved pedestrians – significantly higher than the national average.
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Issue

Although the total number of collisions has been decreasing, the number of pedal cycle and pedestrian collisions has remained relatively constant.

3.17 Collision analysis by location

The locations of all the road collisions in the Boston strategy area from 1st January 2011 until 31st December 2015 have been displayed in the following maps according to their severity.

As can be seen from Figure 3-56 and Figure 3-57 a significant number of collisions occurred on routes into the town centre, along the A52 Sleaford Road, A52 John Adams Way, Fydell Street / Norfolk Street, West Street, and the High Street.

Figure 3-56 – Study Area Collisions 2011-2015

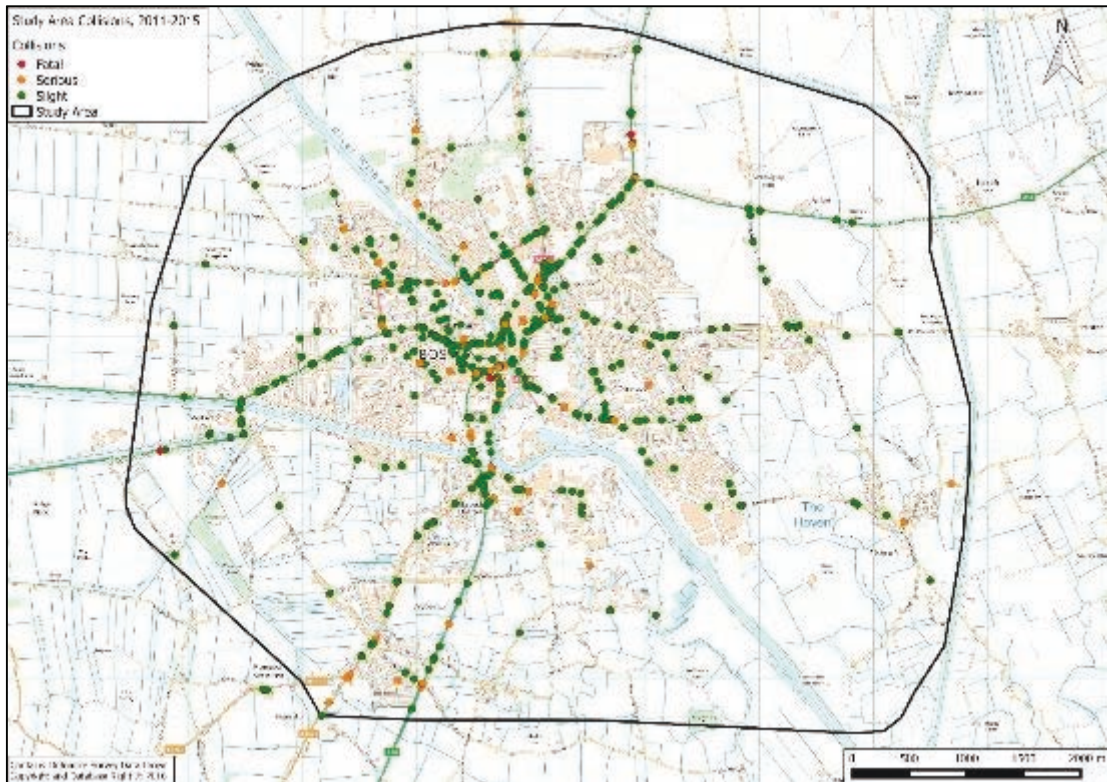
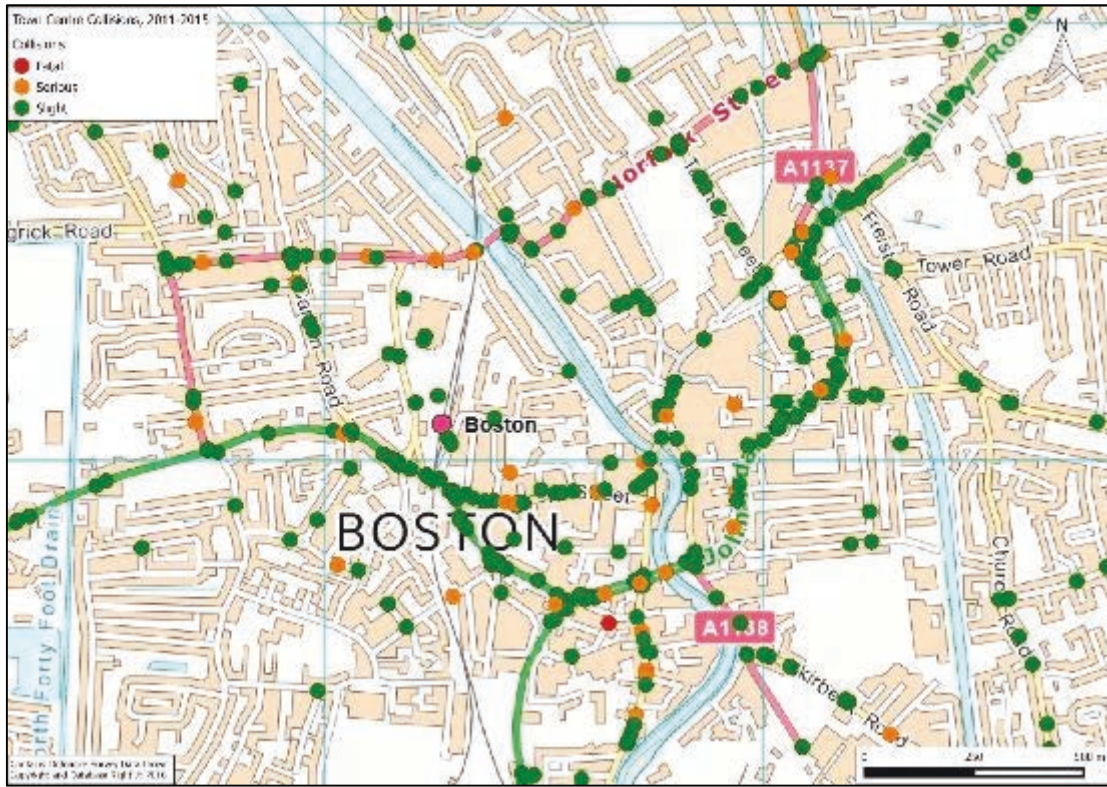


Figure 3-57 – Town Centre Collisions 2011-2015



The total number of collisions that occurred in the town centre in 2015 was similar to those of the previous year. Overall, this was a reduction on the previous three years. However, the number of collisions involving pedestrians and pedal cycle users in the town centre has remained relatively constant over the five year period.

Figure 3-58 – Study Area Pedestrian and Cyclist Collisions 2011-2015

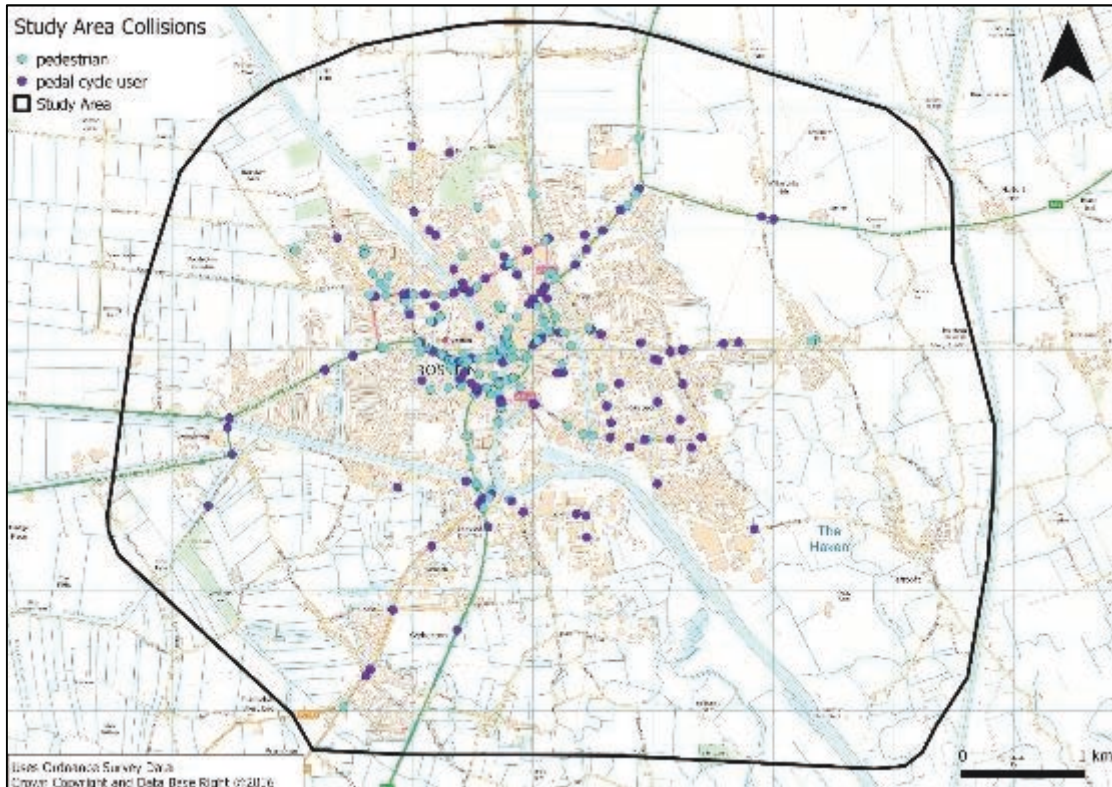
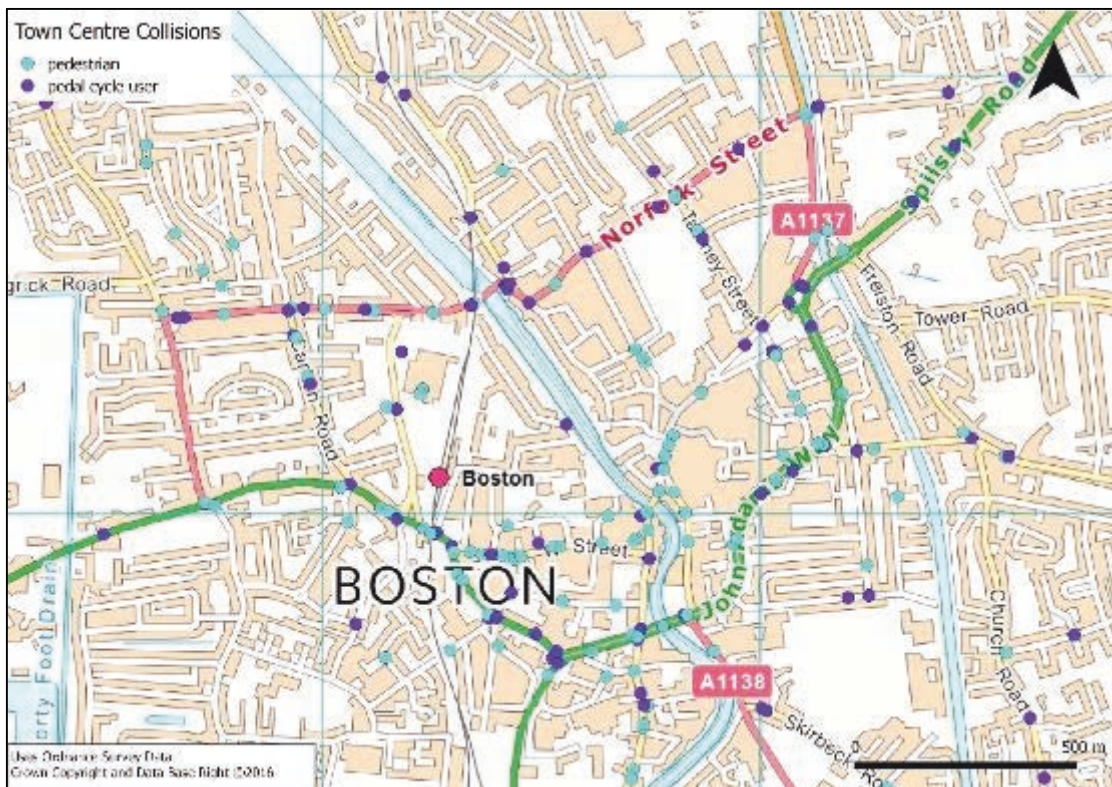


Figure 3-59 – Town Centre Pedestrian and Pedal Cycle User Collisions 2011-2015



3.17.1 *A52 Sleaford Road*

Along the A52 Sleaford Road, notable clusters of collisions occurred at the junctions with Lister Way; Broadfield Street; and Spalding Road.

At the signalised junction of Sleaford Road and Lister Way, eight collisions involved pedestrians and three involved pedal cycle users. All of the pedestrian collisions were related to pedestrians attempting to cross Sleaford Road, with a number of these caused by pedestrians crossing in stationary traffic and being hit by a passing car user. Of the pedal cycle collisions, two involved conflicts with car users and one was a result of the pedal cycle skidding on loose gravel. The remaining collisions involved car users colliding with another car user as a result of failing to give way or stop at the signals.

At the signalised junction of Sleaford Road and Broadfield Street, one collision involved a pedestrian and four involved pedal cycle users. Of the pedal cycle collisions, two were the result of pedal cycle users failing to stop at the junction, one was a result of a car user running a red light whilst a pedal cycle user was using the crossing and the other resulted from a car user travelling from Broad Street to George Street, colliding with a pedal cycle user turning right onto Sleaford Road. The remaining collisions involved car users colliding with another car user as a result of failing to give way or stop at the signals.

At the roundabout junction of Sleaford Road and Spalding Road, there was a significant number of collisions, three of which resulted in serious casualties. The majority of these were vehicle to vehicle collisions including one involving a motorcycle user and a HGV driver. There was also three collisions involving pedestrians, and three involving cyclists of which one resulted in serious injuries to the pedal cycle user. In general, these collisions occurred as a result of conflicts on entering the roundabout.

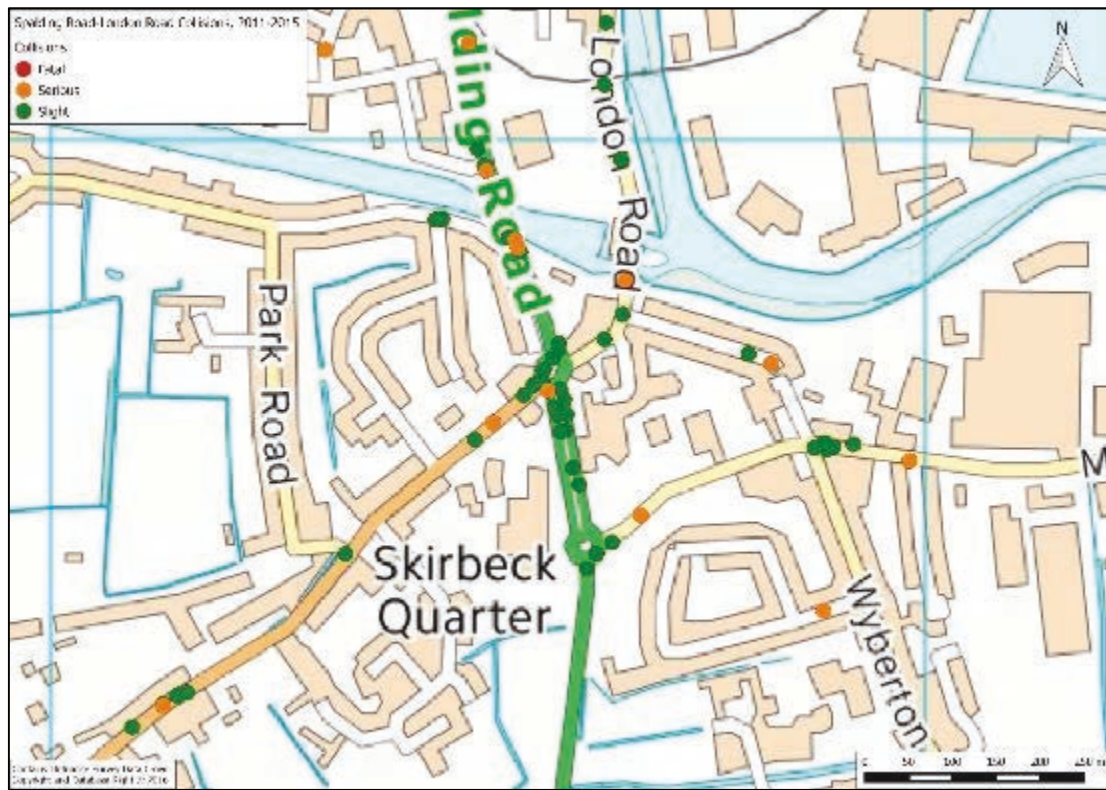
Figure 3-60 – A52 Sleaford Road Collisions 2011-2015



3.17.2 Spalding Road/London Road

A significant number of collisions occurred at the roundabout junction of Spalding Road and London Road, two of which resulted in serious injuries. The majority of these collisions involved car users, four involved pedal cycle users and three involved pedestrians. Generally the collisions occurred as a result of conflicts on entering the roundabout.

Figure 3-61 – Spalding Road/London Road junction Collisions 2011-2015



3.17.3 A16 John Adams Way

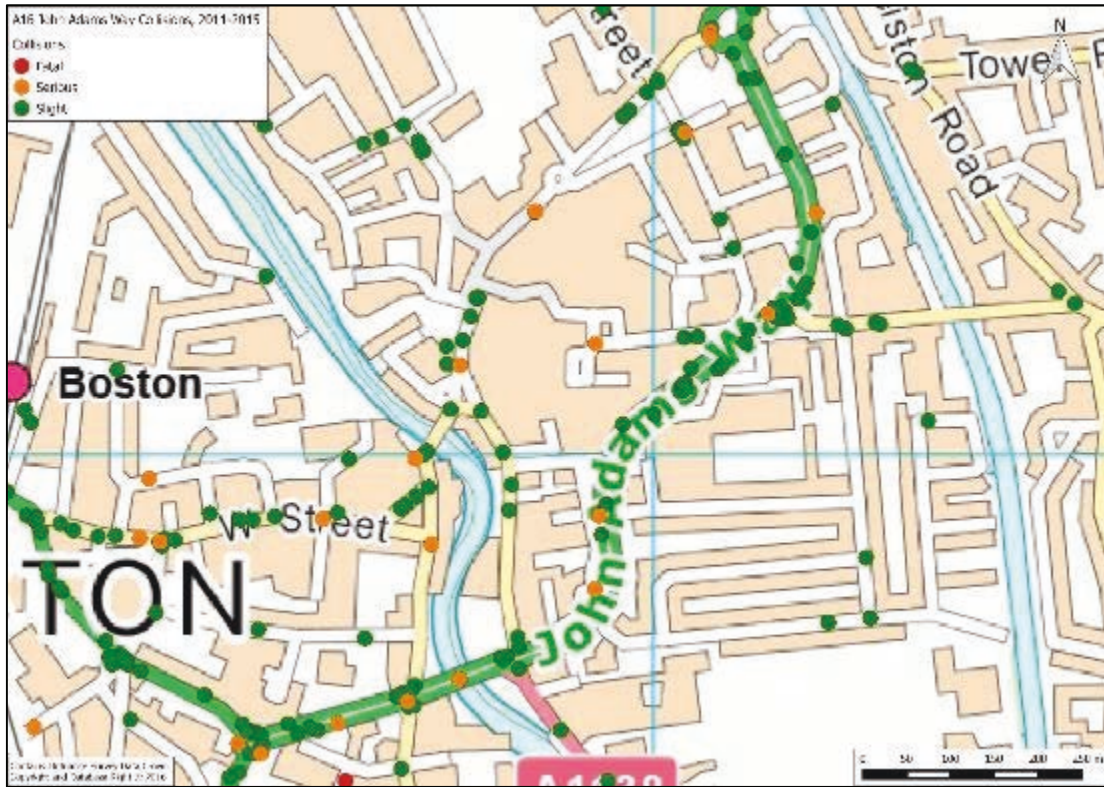
Several collision clusters are noticeable along John Adams Way at the junctions with the High Street, Main Ridge East, and Wide Bargate.

At the signalised junction with High Street there were two collisions involving pedestrians (one of which resulted in serious injuries), three involving pedal cycle users and two involving mobility scooter users. The majority of these collisions occurred as a result of these users crossing in conflict with vehicles (car users and a single HGV driver) turning to/from High Street.

At the signalised junction of the A16 and Main Ridge East there is a notable cluster of collisions. The majority of these collisions involved car drivers, however five involved pedestrians (one of which resulted in serious injuries) and one involved a pedal cycle user. These collisions occurred either as a result of crossing in contravention of the pedestrian crossing, or crossing unaided.

At the roundabout junction of Wide Bargate and the A16 there was a number of collisions, three of which resulted in serious injuries. A total of six of these collisions involved pedal cycle users (accounting for two serious casualties), one involved a motorcycle user (accounting for one serious casualty) and one involved a moped user. In general, these collisions occurred as a result of conflicts on entering the roundabout.

Figure 3-62 – A16 John Adams Way Collisions 2011-2015



3.17.4 Fydell Street / Norfolk Street

A significant number of collisions occurred along Fydell Street / Norfolk Street, six of which resulted in serious casualties, two of which involved pedestrians and two involved pedal cycle users. Of the total collisions, 15 involved pedestrians, 16 involved pedal cycle users, and one involved a mobility scooter user. Of these 32 collisions involving vulnerable road users, 17 occurred as a result of crossing (either at a crossing facility or unaided) in conflict with car users and one bus; and 10 occurred as a result of car users conflicting with the path of pedal cycle users.

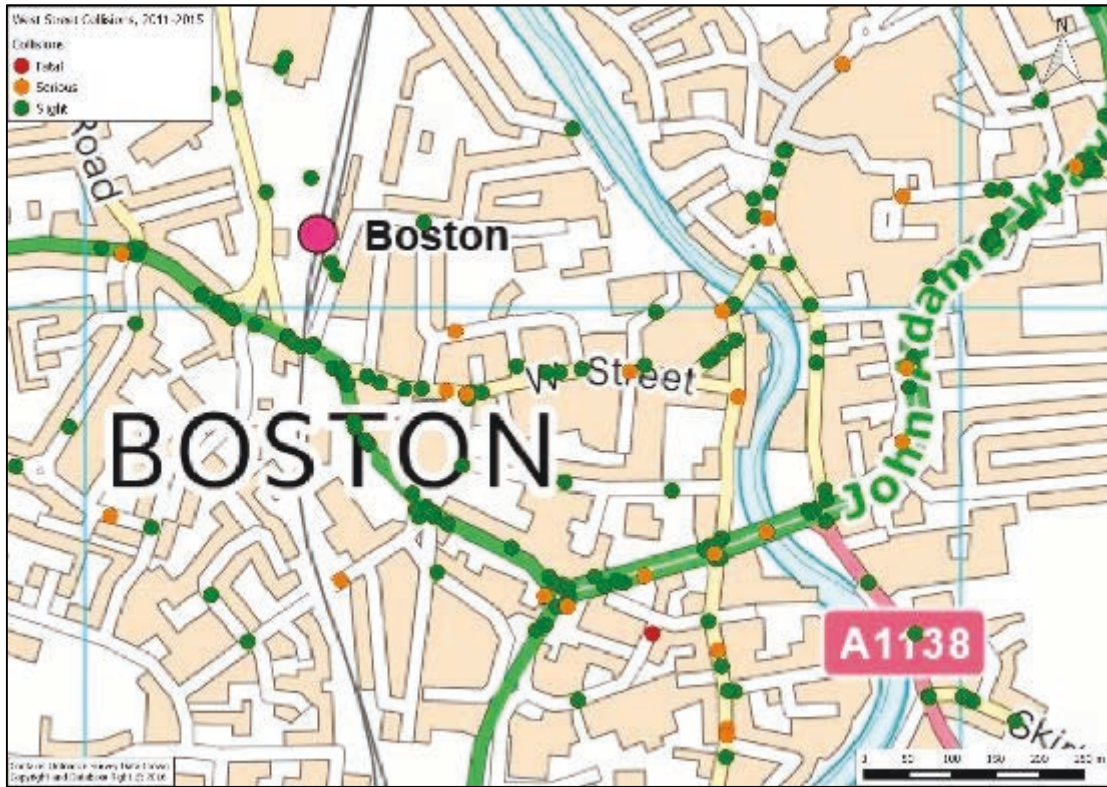
Figure 3-63 – Fydell Street / Norfolk Street Collisions 2011-2015



3.17.5 West Street/High Street/Town Bridge/Wide Bargate

A notable number of collisions also occurred along West Street, High Street, Town Bridge and Wide Bargate. The majority of these collisions involved vulnerable road users: 26 involved pedestrians and four involved pedal cycle users. Of these collisions, 11 were as a result of conflict between vulnerable users and car users manoeuvring to park; two were as a result of conflict between pedal cycle users and pedestrians on the footway; and three occurred with pedestrians attempting to cross at zebra crossings.

Figure 3-64 – West Street Collisions 2011-2015



Issue

Several town centre links and junctions are collision cluster locations.

3.17.6 *Location of Fatal collisions*

Three fatal collisions occurred in the study area over the period 2011-2015. These collisions were located on Sibsey Road between the junctions with Pilley's Lane and Spilsby Road; Swineshead Road between the junction of Fen Road and Wortley's Lane; and on the residential street, Bedford Place.

The collision on Sibsey Road resulted in a pedestrian fatality after a collision with a HGV. Although there was also a few slight collisions and one serious collision within the vicinity of this site, these collisions were of a different nature and were as a result of conflicts between car users.

The collision on the A52 Swineshead Road resulted in a motorcycle user fatality, which occurred as a result of a car user overtaking a HGV and colliding with the motorcycle user. A slight collision also occurred within the vicinity as a result of a car user overtaking a HGV, slowing and causing a following car user (also overtaking the HGV) to collide.

The collision on Bedford Place resulted in a pedestrian fatality after a collision with a parking vehicle. No other collisions occurred within the immediate vicinity of this collision site.

Figure 3-65 – Sibsey Road Collisions 2011-2015



Figure 3-66 – Swineshead Road Collisions 2011-2015

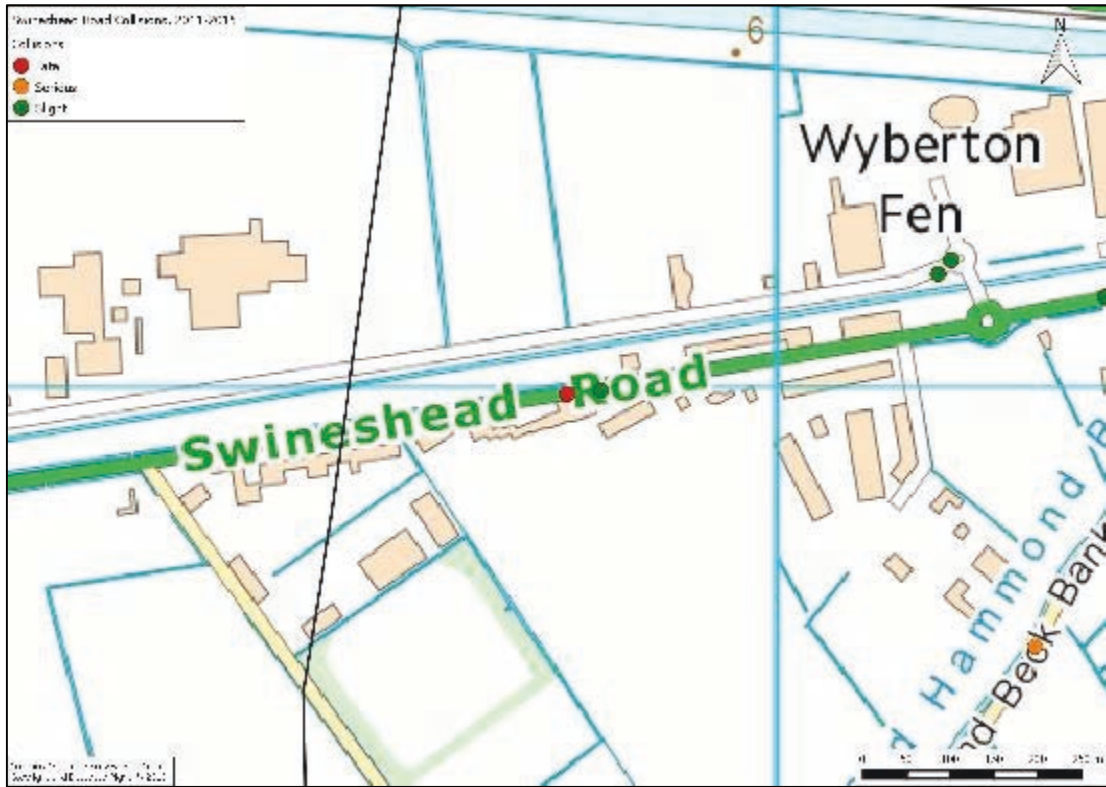
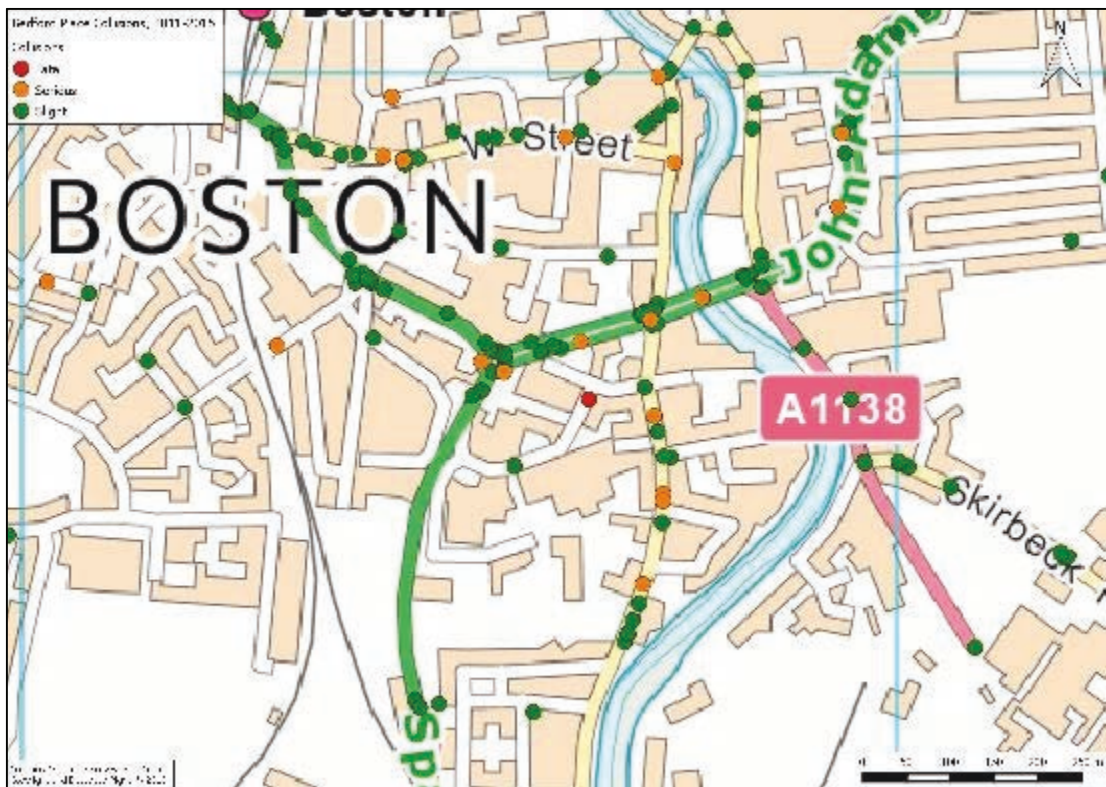


Figure 3-67 – Bedford Place Collisions 2011-2015



3.17.7 Location of Serious collisions involving car users

A total of 72 serious collisions involving at least one car user occurred over the study period. These collisions were located on London Road, the A16 Spalding Road, John Adams Way, High Street and Fydell Street / Norfolk Street in particular although no clusters of serious car user collisions are identifiable. Notably, the number of serious collisions remained relatively constant over the period 2011-2014 but decreased in 2015.

Over the study period, the majority of serious collisions involving car users also involved pedestrians, a total of 26, compared with 23 that only involved car users (with one or more cars). Of the remaining serious car user collisions 13 involved pedal cycle users; five involved motorcycle users and another four involved moped users; and one involved a HGV driver.

Figure 3-68 – Study Area Serious Car Collisions 2011-2015

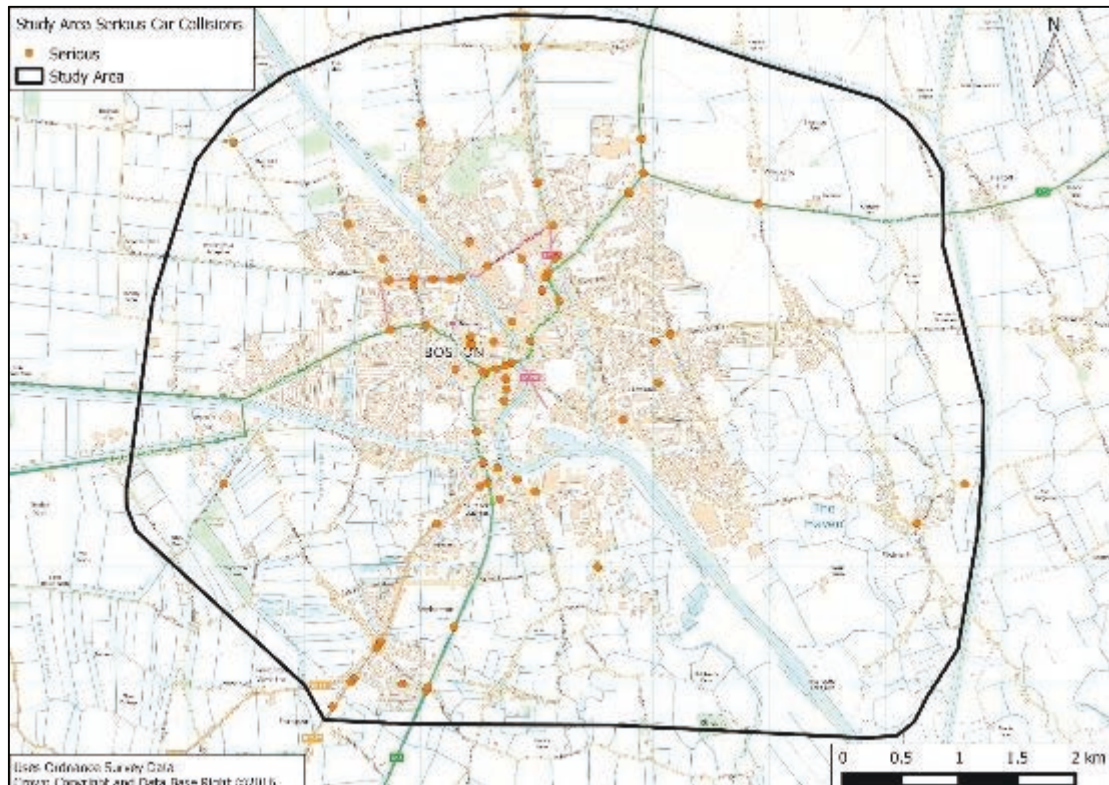


Figure 3-69 – Town Centre Serious Car Collisions 2011-2015



3.17.8 Summary

Analysis of collision data for the study area over the period 2011-2015 shows that the number of collisions has reduced following a peak in 2013. In particular, there has been a faster reduction in slight collisions compared to the national average. Analysis of the road surface conditions recorded at the time of collisions shows that there were notably fewer collisions occurring on wet road surfaces in 2014 and 2015, suggesting that these years may have been drier on average compared to the previous years.

Notably, one in five collisions in the study area involved pedal cycle users (20%), and slightly more involved pedestrians (22%), with the majority of these located around the town centre. This is significantly higher than the national averages of 13.3% and 15.6% respectively.

Across the town centre there were notable collision clusters along the A52 Sleaford Road; the junction of Spalding Road and London Road; A16 John Adams Way; Fydell Street / Norfolk Street; West Street / High Street / Town Bridge and Wide Bargate. Collisions occurring on Fydell Street / Norfolk Street and West Street / High Street / Town Bridge and Wide Bargate involved a significant number of vulnerable users. On Fydell Street / Norfolk Street, the majority of collisions involved conflicts between car users and either vulnerable users attempting to cross or pedal cycle users on the carriageway.

Figure 3-70 – Collisions cluster locations



On West Street / High Street / Town Bridge and Wide Bargate a significant number of collisions involved conflicts between parking vehicles and vulnerable road users,

with a number of other collisions involving pedal cycle users on the footway and pedestrians attempting to cross at the zebra crossings.

3.18 **Summary**

Boston is considerably remote from the trunk road network with the A1 approximately 30 miles away. Links to the mainline rail network are also similarly limited with Grantham on the East Coast Mainline the nearest connection point and only served by hourly trains in the week and a journey time of approximately 50 minutes.

Boston's town centre highway network centres on the A16 John Adams Way where the A16 north and south, A52 east and west and other principal routes converge to pass through the town. Waterways and railways provide significant barriers to movement in the town centre, constraining vehicle, cycle and pedestrian traffic to a limited number of crossing points and elongating journey times.

Traffic count data from 2006—2014 shows vehicle flows reducing on most links in and around the town, however, many routes experience journey time delays due to traffic congestion.

The ANPR surveys showed how the majority of inbound longer-distance traffic had a destination in Boston Town and was not travelling through the town centre to reach destinations on the opposite side.

Some avoidance of the town centre was seen on the minor roads to the north west of Boston (such as Langrick Road and Canister Lane) with vehicles going from north to west/south west and the opposite direction using the minor roads to avoid the town centre. Although noticeable proportions of vehicles were doing these movements, the actual number of vehicles was a lot lower compared to other inbound flows that were finishing their journey in the town centre.

The bus network has good coverage of the town, however, only one service operates at a frequency of two per hour with the majority of services having only an hourly frequency. This reduces in the evenings and on Sundays there are not bus services at all.

The cycle network has been developed over the period of the current Strategy with new and upgraded links added. However, several key highway links and junctions have no cycle provision, creating a barrier for accessing key locations such as Pilgrim Hospital. The number of people cycling at least once per week was 18% in 2012/13 putting Boston fifth overall across the country.

HGV flows are generally reducing across the Town with only a few locations seeing a slight increase between 2011 and 2014. In 2014 approximately 800,000 tonnes of freight passed through the Port or Boston, about the same as was recorded in 2006. The years in between have seen a fluctuation in freight tonnage through the Port.

The mode share of travel to work journeys has changed between the 2001 and 2011 Censuses with car and van use increasing from 64.9% to 66.1%. Cycling has reduced significantly from 11.1% in 2001 to 7.1% in 2011. Approximately half of the people who live and work in Boston Town travel to work by driving a car or van. This represents significant potential for modal shift due to the short nature of these journeys.

In terms of road safety, the total number of collisions has decreased in the five years from 2011 to 2015. However, the number of collisions involving vulnerable road users – pedestrian and cycle users – has remained constant and they are now involved in over 20% of collisions in Boston, significantly higher than the national average.

3.19 Land Use & Development

In this section, Boston will be placed within a wider regional context. It will also explore the principal locations of residential and employment land in addition to the sites of key functions including local amenities, shops and public services.

The following table shows the distance of Boston from a range of key towns and cities locally and nationally.

Table 3-41 – Distances to Key Towns/Cities

Town/City	Distance from Boston (kms)
Lincoln	53
Sleaford	27
Grantham	48
Stamford	56
Newark-on-Trent	58
Leicester	101
Sheffield	140
Nottingham	93
Peterborough	53
London	211

3.19.1 Current Land Use

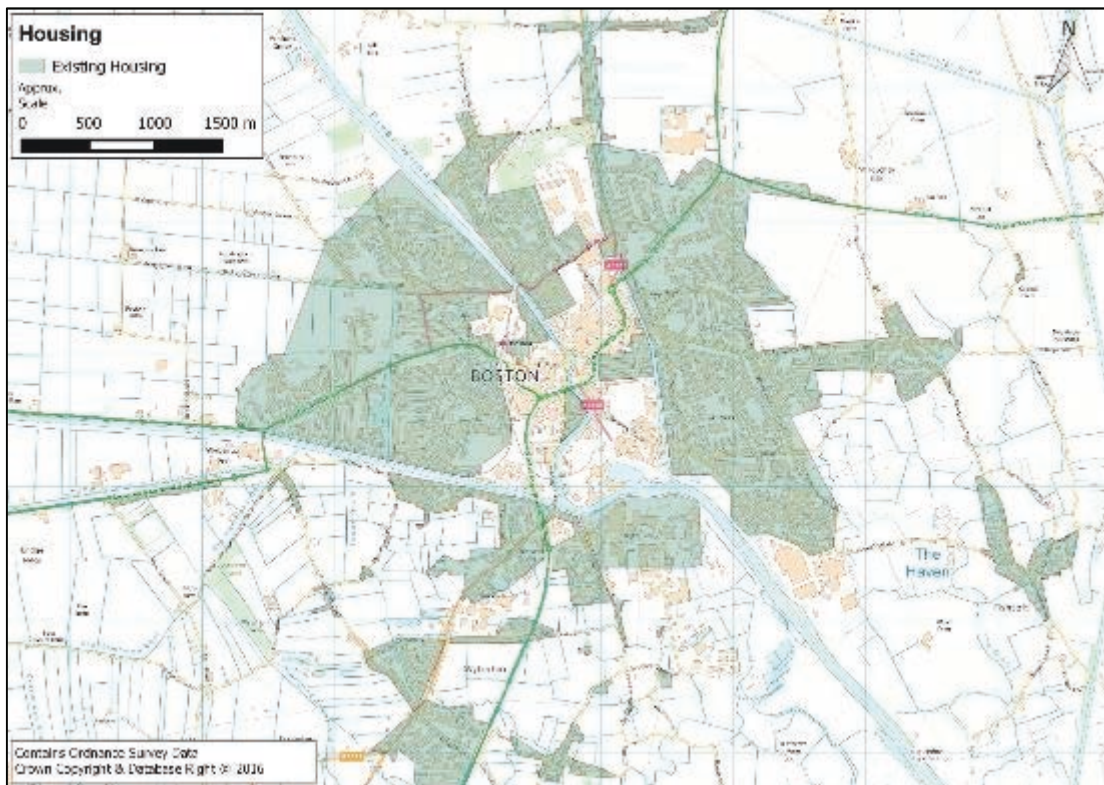
It is important to recognise the geographical context of existing infrastructure, services, housing and employment in order to plan Boston’s future transport infrastructure. This sub-section will explore the distribution of Boston’s key land uses and functions.

3.19.2 Residential

The residential areas within Boston are concentrated around the periphery and more dispersed around the town centre, as shown in Figure 3-71. One of the two larger concentrated areas of existing housing is located to the west between the River

Witham and the South Forty Foot Drain with the other situated further east of the town centre between the Maud Foster Drain and Rochford Tower Lane, which becomes Church Green Road. A small region to the north between the River Witham and the Maud Foster Drain serves as another site for existing housing. Skirbeck Quarter to the south along with some other small estates located near Wyberton make up the remaining residential areas. There are also residential pockets within the town centre itself that can be found scattered close to the more built up industrial sector.

Figure 3-71 – Existing Residential Areas



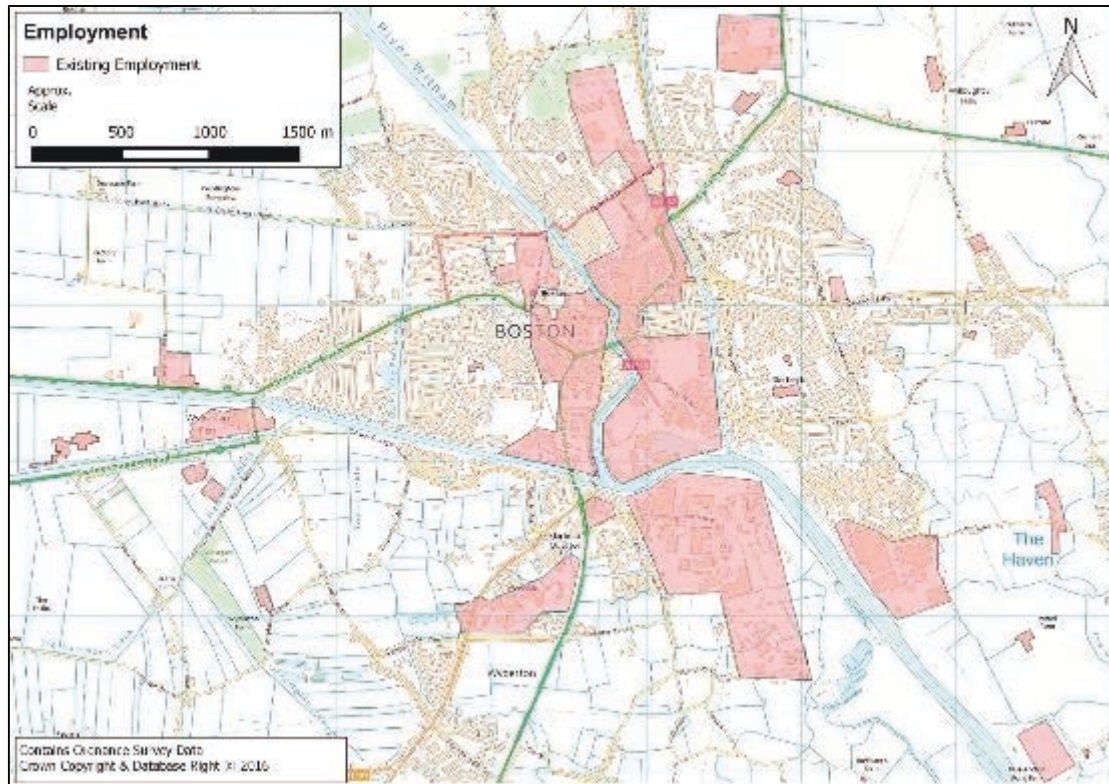
3.19.3 *Employment*

Agriculture and the food processing industry are the dominating elements of Boston's local economy. Engineering and ICT companies also make up a significant proportion of the economy along with car retail, trade counter and service industry sectors which is mainly owed to Boston's position as a service centre for the surrounding rural area. The main industrial units are predominantly located centrally with a southern corridor adjoining to the east of Skirbeck Quarter (see Figure 3-72). Some of the employment areas, such as the area around Marsh Lane, are separated from the residential areas to the north by the Haven with no direct crossing points to complete this movement.

Issue

Some of the employment areas are separated from other parts of the town by barriers, such as waterways.

Figure 3-72 – Existing Employment Areas

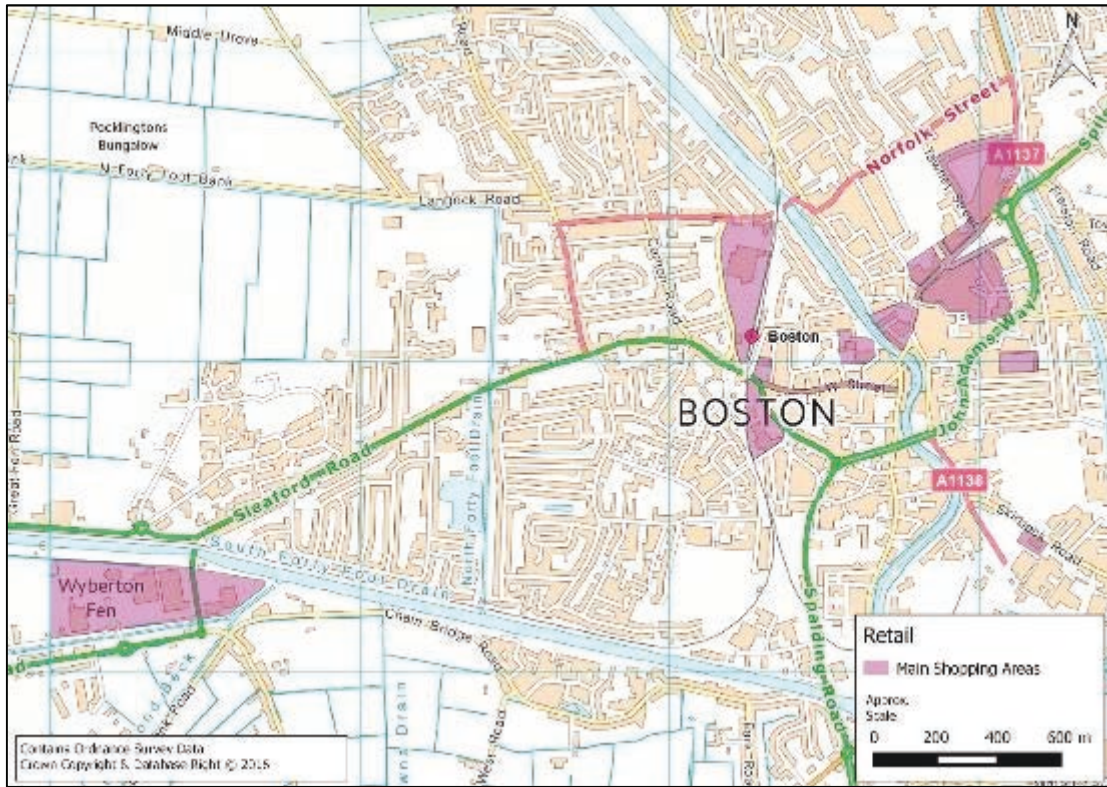


3.19.4 *Retail*

The main retail hub in the town centre incorporates Market Place and Strait Bargate where a network of medieval lanes host many smaller independent shops in addition to the mainstream retailers. The shopping centre at Pescod Square is located centrally and offers a range of national retailers along with Boston Shopping Park found just north. West Street also serves as a small retail district to the west of the River Witham.

Following the announcement of the closure of the Morrisons Supermarket branch at Boston Shopping Park, it leaves all large supermarket provision to the west of the town. There is an Asda supermarket on Lister Way and also a Tesco superstore on Hammond New Beck Road, both serving as key amenities to residents. The lack of a large supermarket to the east of the water courses within Boston will most likely add to the east-west traffic flow and could potentially exacerbate congestion on John Adams Way and the A1137 Fydell Street.

Figure 3-73 – Principal Retail Areas



Issue

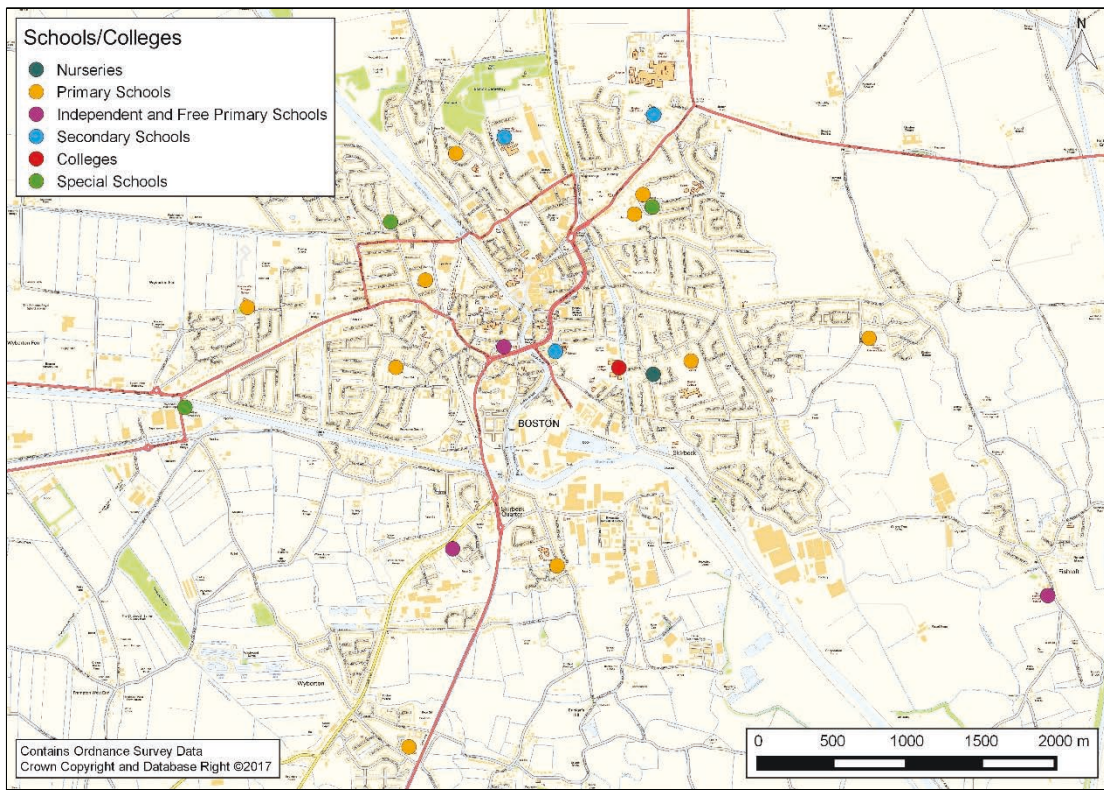
The lack of food retail opportunities on the east of the town is likely to cause traffic movements across town as people from east of Boston access the food stores.

3.19.5 *Education*

There are nineteen schools within a 4km radius of Boston town centre made up of 14 primary schools, four secondary schools, two special school and one college, all of which are listed with pupil numbers in Table 3-9. These schools are concentrated centrally in clusters becoming more dispersed towards the surrounding sub-urban villages. This current configuration could lead to significant congestion problems as the town expands over the coming years.

All of the secondary schools in Boston are located to the east of the River Witham. This means a significant number of pupils are having to travel across town to reach their school, potentially adding to the traffic congestion in the town centre if they are being dropped off in a car.

Figure 3-74 – Schools and Colleges in Boston



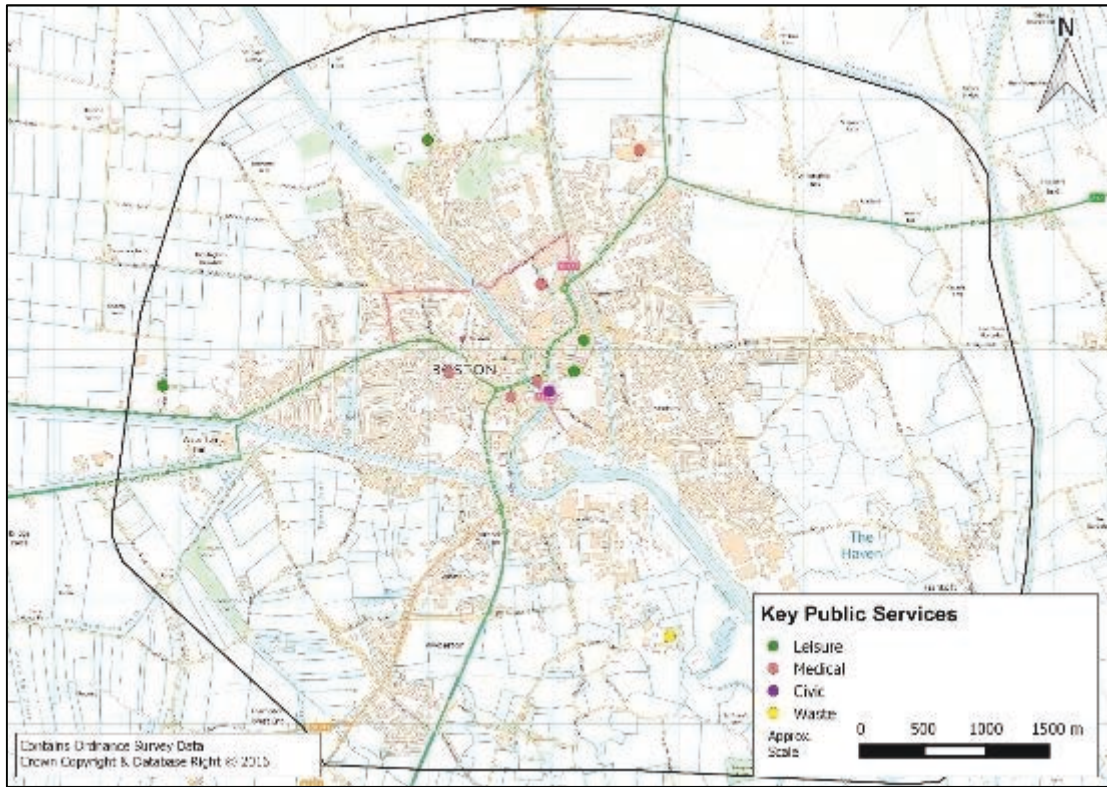
Issue

All secondary schools are east of the River Witham resulting in cross-town movements for pupils living west of the River.

3.19.6 *Civic*

The agriculture and food processing industries are a natural strength of the local economy with highly productive land available as discussed in section 3.19.3. As a sub-regional centre Boston also hosts strong public sector employment reflected in the likes of the Borough Council, Pilgrim Hospital, the County Council and other key facilities as shown in Figure 3-75.

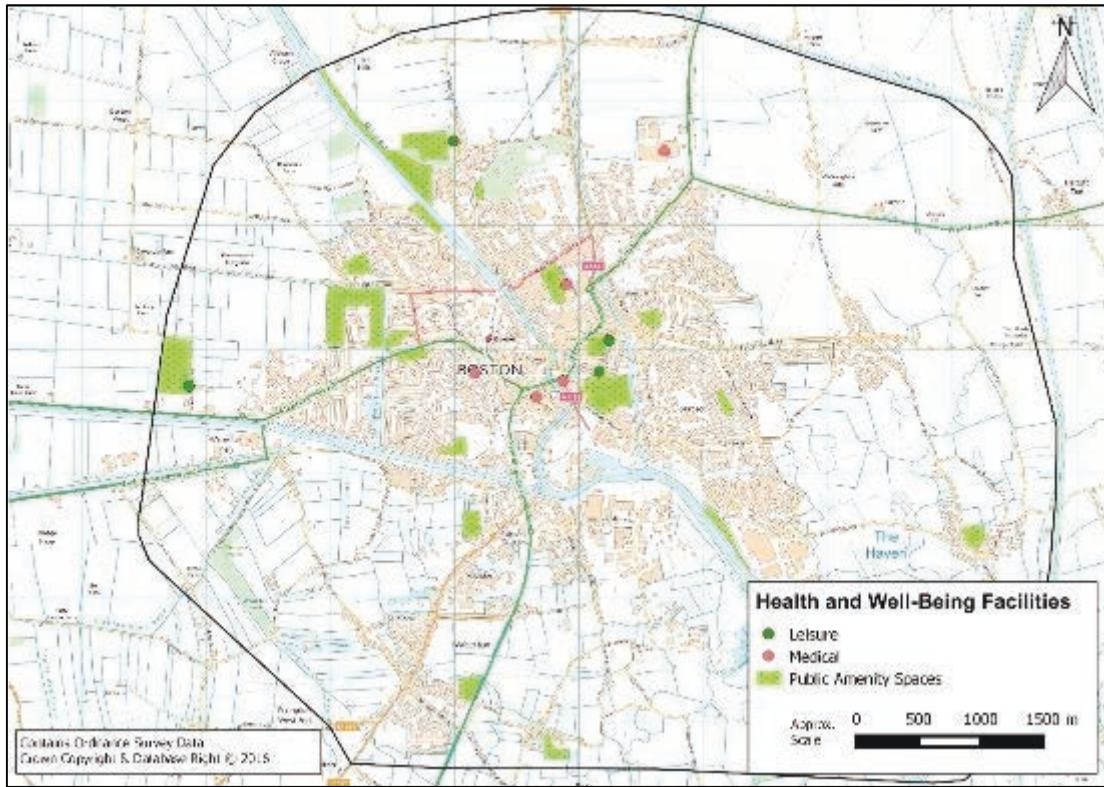
Figure 3-75 – Key Public Services



3.19.7 Health and Leisure

There are two large leisure complexes within the Transport Strategy study area with fully equipped gymnasiums and pools with one of them also having an outdoor athletics track. In addition to these facilities, there are also two football grounds within the town that host the local teams. An abundance of green spaces consisting of parks and nature reserves can be found well-distributed throughout the strategy area, including along the River Witham.

Figure 3-76 – Health and Well-being facilities



3.20 Committed Development

There are several multi-scale developments in Boston which are at one of three stages; they have planning permission and are committed, they are waiting to have their application determined or they have not yet submitted an application. For purposes of this strategy, all of the developments that are currently in the development log and have planning permission need to be considered as committed.

3.20.1 Endeavour Park

Endeavour Park is strategically located fronting Boardsides close to the junction of Sleaford Road and comprises an overall site of approximately 34 acres. Development is under way with a range of high quality office buildings and other complementary facilities being constructed on 16 individual plots to home some of Boston's major businesses and offering a relocation solution to other clients.

3.20.2 Riverside Industrial Estate

A development involving the conversion of land into a metal recycling yard and other commercial properties is planned on what was previously occupied by an agricultural site. Infrastructure works including access, a weighbridge, a site office and surfaced areas are part of a proposed vehicle dismantling facility. The site has already seen substantial development with industrial buildings being erected in the immediate vicinity and therefore the proposal achieves a high level of compatibility with adjacent land use.

3.21 Potential Developments and Future Land use

Furthermore to the committed developments outlined above, there are also a number of major developments at the proposal stage that are likely to have a significant impact on transport within Boston and the surrounding area.

3.21.1 South West Quadrant

A new proposed sustainable urban extension (SUE) has been identified in the draft Local Plan. The site is planned to be split across two parcels of land. Q1 has been formally granted planning permission for the first phase and represents a new residential and retail development situated on the land south of Tyton Lane East between the A16 and London Road supplying approximately 500 homes. A new football stadium has also been planned across the eastern side of the A16. Plans for Q2 are in the early stages but it is proposed to be a sustainable mixed-use scheme situated just north-west of Q1 between the boundaries of London Road, West End Road and the South Forty Foot Drain envisaging more housing, retail and leisure units, community facilities, open spaces and employment land.

3.21.2 Residential site allocations

The table below shows a number of the larger proposed developments listed in the South East Lincolnshire Strategic Housing Land Availability Assessment (SHLAA, January 2016) within Boston Town. These developments are in line with the 5,900 dwellings which the emerging Local Plan seeks to be developed in Boston.

Table 3-42 – Large Proposed Residential Site Allocations in Boston Town

Site Name	Dwellings	Location	Notes
Sou006	1,900	South West Quadrant SUE. Land to the south of Chain Bridge Road,	Moderate achievability. There are no nearby 'bad neighbour' uses. However, the site has some amenity value. It is Grade 1 and 2 agricultural land & it is not previously developed. The Highway Authority indicates that Chain Bridge Rd & West End Rd are unsuitable to provide the sole means of access, & that the proposed strategic route linking the A16 with the A52 and possibly the A1121 would require traffic modelling. The impacts of this site require consideration by means of a full Transport Assessment.
Wes002	547	Land to the south of North Forty Foot Bank	Moderate achievability. No nearby 'bad neighbour' uses & the site has no intrinsic amenity value. It is Grade 2 agricultural land & it is not previously developed.
Fen006	240	Land to the east of Fenside Road.	Poor achievability. Planning permission is outstanding for the development of an inland waterways marina and it is possible that the site will not be

Site Name	Dwellings	Location	Notes
			available for residential development.
Fen001	55	Land to the west of Fenside Road.	Moderate achievability. The site has little intrinsic amenity value & there are no nearby 'bad neighbour' uses. It is Grade 1 agricultural land & is not previously developed.
Fen003	116	Land to the east of Punchbowl Lane.	Moderate achievability. The site has little intrinsic amenity value & there are no nearby 'bad neighbour' uses, it is Grade 2 agricultural land & is not previously developed.
Fis001	224	Land to the east of Lindis Road.	Moderate achievability. Although the site has little intrinsic amenity value & there are no nearby 'bad neighbour' uses. It is Grade 1 agricultural land & is not previously developed land.
Fis003	90	Land to the east of White House Lane.	Moderate achievability. There are no nearby 'bad neighbour' uses & it has no intrinsic amenity value. It is Grade 1 agricultural land & is not previously developed land.
Fis033	569	Land to the west of Toot Lane.	Moderate achievability. There are no nearby 'bad neighbour' uses & it has no intrinsic amenity value. It is Grade 1 agricultural land & is not previously developed land.
Fis038	53	Land to the west of Church Green Road.	Moderate achievability. There are no nearby 'bad neighbour' uses & it has no intrinsic amenity value. It is Grade 1 agricultural land & is not previously developed land.
Ski001	109	Land to the north of Mill Road.	Moderate achievability. There are no nearby 'bad neighbour' uses, the site has no amenity value, is not agricultural land & is previously developed.
Wyb013	85	Land to the south of Swineshead Road.	Moderate achievability. There are no nearby 'bad neighbour' uses, the site has no intrinsic amenity value, it is not agricultural land but is previously developed land. Allocated as a housing site in the Boston Borough Local Plan (April 1999).
Wyb033	250	Land to the north of Tytton Lane East.	Moderate achievability. The site is in four separate ownerships, and all have indicated that their land is available for development. The site has little intrinsic amenity value. It is grade 1 agricultural land, is not previously developed,

Site Name	Dwellings	Location	Notes
			& is adjacent to a potential 'bad neighbour' use (the A16). The road's proximity may impact on the amenities that would be enjoyed by new dwellings at the western end of the site, but it is considered that development on this scale offers opportunities to mitigate such impacts effectively.
Sts001	200	Land to the east of Broadfield Lane.	Moderate achievability. Outline planning permission is outstanding for the development of a maximum of 200 dwellings. The site has little intrinsic amenity value & is not agricultural land, it is not previously developed land & the industrial uses to its east may impact upon residential amenities.
Cen003	59	Land to the south of Blue Street.	Moderate achievability. Permission has previously been renewed. Advertised for sale. The site has no amenity value, is not agricultural land but has been previously developed. The site abuts the A16 which may have impacts upon the amenities of the occupiers of any dwellings on the site. However, adverse impacts could potentially be mitigated by careful design & layout.
Wes006	206	Roseberry Meadows.	Good achievability. Planning permission is outstanding. There are no nearby 'bad neighbour' uses & the site has little intrinsic amenity value. It is Grade 2 agricultural land & is not previously developed.
WYB009	500	Land to the south of Tyton Lane East.	Moderate achievability. Council has resolved to grant planning permission for the mixed use development of this site. The site has little intrinsic amenity value. It is grade 1 agricultural land & has not been previously developed. Furthermore, it is adjacent to a 'bad neighbour' use (the A16), which may impact on the amenities that would be enjoyed by new dwellings at the eastern end of the site. However, it is considered that development on this scale offers opportunities to mitigate such impacts effectively.
FIS014/FIS015	340	Land to the west of Toot Lane.	Moderate achievability. There are no nearby 'bad neighbour' uses & it has no intrinsic amenity Value. It is Grade 1 agricultural land & is not previously developed land.

Site Name	Dwellings	Location	Notes
FIS031	79	Land to the east of Toot Lane.	Moderate achievability. There are no nearby 'bad neighbour' uses & it has no intrinsic amenity value. It is Grade 1 agricultural land & is not previously developed.
Total	5,622		
Target for Boston 2014-2036	5,550		

Figure 3-77 – Proposed Developments within Study Area from SHLAA

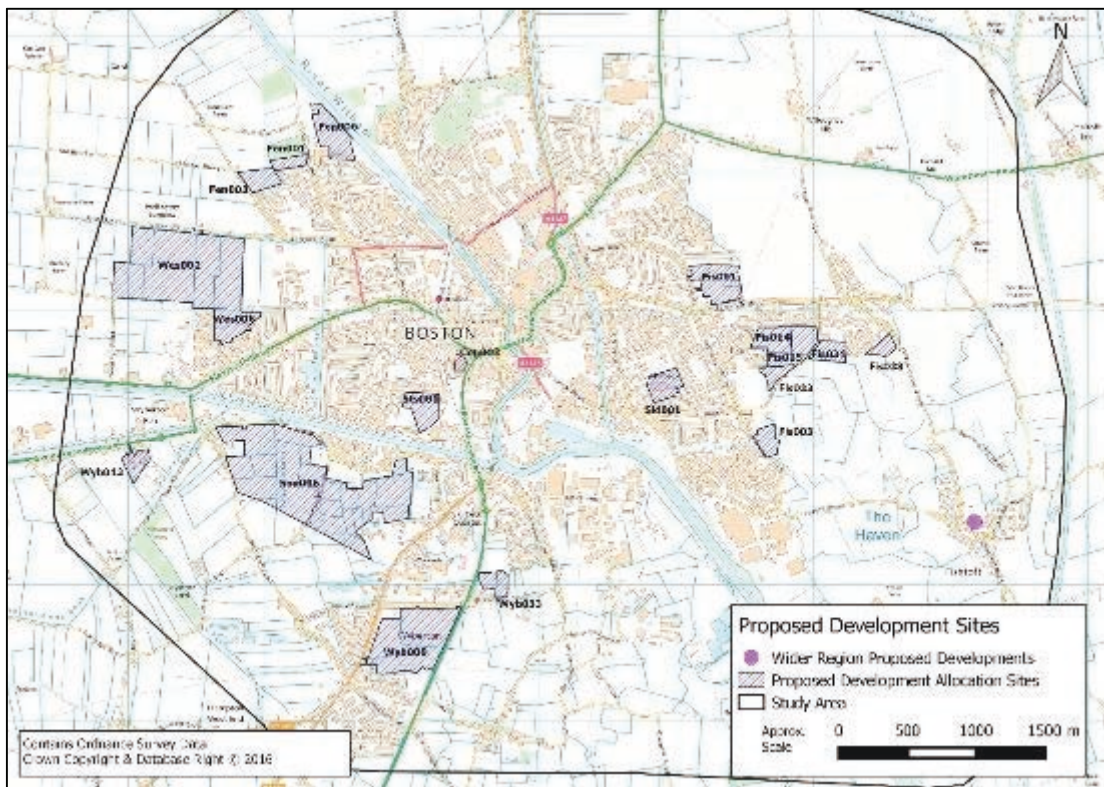


Table 3-43 below displays the number and location of residential development sites in Boston Borough outside of Boston Town through to 2036.

Table 3-43 – Residential development in the remainder of Boston Borough

Location	Zone(s)	Dwellings 2011 2036	Completed 2011 2015	Dwellings 2015 2036
Kirton	42 and 54	500	2	498
Swineshead	20	400	6	394
Sutterton	20	300	3	297
Wrangle	22	100	8	92
Bicker	20	50	0	50
Fishtoft	81	50	0	50
Old Leake	22	100	29	71
Butterwick	81	70	3	67
Wigtoft	42	30	2	28
Total		1,600	53	1,547

3.22 Summary

A significant amount of residential and non-residential development could take place in Boston in the coming decades. The proposed developments will have a considerable impact on travel demand for all types of trip purpose. In order to mitigate the development and associated increase in demand it is vital that sustainable transport options are improved across the area.

Opportunity

The future planned development provides an opportunity to increase Council revenues and embed sustainable travel from the outset.

3.23 Engagement & Consultation

Recent engagement exercises undertaken in the Boston area are documented in this section of the paper providing an insight into stakeholder and public opinions.

3.24 Previous Consultations

3.24.1 South East Lincolnshire Local Plan Preferred Options Consultation Report 2013

A significant portion of the report is designated to the responses of a proposed distributor road. The consultation found a lack of evidence to suggest that the implementation of a distributor road is critical for the delivery of Boston's growth to 2031. It is discussed how if there is no policy regarding a distributor road, it will effectively ensure that one cannot happen.

One of the key issues raised in favour of the proposal is the effect that traffic congestion has on the economy of Boston. It is mentioned how recent improvements in traffic flow have alleviated congestion however there has been virtually no growth

due to a major national economic downturn. Some other perceived positive outcomes of the scheme being implemented include:

- Improving accessibility;
- A benefit to the historic environment by helping to repair severed streets and derelict buildings;
- A reduction in the consequence of flood risk;
- Delivers benefits to and influences the broad locations for development in flood risk areas; and
- If the economy of Boston is to improve in the long term a distributor road and another major bridge over the Witham are key factors.

Opposition of the scheme is not aimed directly at the proposal to build a distributor road but more towards the lack of policy documents and an assessment of the positive and negative impacts. There are however some underlying issues that have been brought to attention that could be perceived as negative. Some of the comments surrounding these issues include:

- There is no evidence to suggest the implementation of a Boston Distributor Road is critical for the delivery of the growth strategy for Boston to 2031;
- BDR's impact on heritage assets given the high archaeological potential of the landscape and the proximity of designated assets;
- The impact on views to and from St Botolph's Church given that any road would need to be elevated to cross the railway and watercourse;
- Less intrusive and expensive options could potentially carry out the same job;
- People should be encouraged to stop using their car leading to a modal shift to sustainable forms of transport. It is unknown if the BDR would support this through cycle and bus lanes;
- No detailed modelling work has been carried out to detail the benefits;
- No technical work has been undertaken related to engineering a specific route or estimated costs;
- Failure to include policy threatens the economic viability of Boston as new businesses are reluctant to locate there due to congestion issues; and
- The BDR won't minimise the need to travel. This will only be achieved by locating new developments adjacent to existing employment, education and services opportunities.

Responses regarding wider issues and suggestions of how to mitigate these issues are also deliberated throughout the preferred options consultation report. A range of these are included in the table below:

Issues	Potential Causes and Effects	Suggestions for mitigation
Town centre congestion	<ul style="list-style-type: none"> • Conglomeration of supermarkets on one side of the town. People living on other side of town drive across the centre. • It is a deterrent to new businesses moving to the area and is a cause of existing businesses relocating elsewhere resulting in lost employment. 	<ul style="list-style-type: none"> • Call for at least one full sized supermarket in the area beyond Clay Lake where commercial development is already approved. • Residents without a drive or a garage of their own could have an exemption license. • There should be free or extremely cheap parking in the town centre. • Modelling should be carried out regarding the benefit or otherwise of the BDR with respect to relieving congestion on the A52 and also HGVs using unsuitable B roads in attempt to avoid the town centre. • Technology can be used to extend the capacity of the road infrastructure without heavy capital expenditure.
Public Transport	<ul style="list-style-type: none"> • The provision of public transport by the private sector will make it difficult to improve the reliability, frequency and journey time of services as well as the quality of infrastructure and bus/rail integration. 	<ul style="list-style-type: none"> • The bus station needs to be refurbished with a waiting room and overall supervision of the site. • Food processing firms and other large employers could provide buses for their employees. • Rail links should be improved, lines re-laid to areas lost to rail and better links to other towns and main lines in order to achieve a shift of road to rail for both freight and passengers. • A good regular rural bus service should be provided and pressure should be brought on the Government to make changes to the current regulations regarding this.
Lack of modal shift	<ul style="list-style-type: none"> • The freedom that personal transport offers and the cars ability to breakdown rural isolation is a major obstacle for modal shift. 	<ul style="list-style-type: none"> • Extension of the safe cycle and walking routes. • Travel Plans that fail to acknowledge the influences of personal transport will never fully achieve their objectives. • Convenient comprehensive accessible cheap rural public

		transport over the course of this Plan's life remain a chimera.
Poor state of road network	<ul style="list-style-type: none"> It will be difficult to attract new business and investment to the area with the current state of the road network. 	<ul style="list-style-type: none"> The unemployed could help get us back on track for better economic growth

3.25 Stakeholder Workshop 1 – Issues & Opportunities

3.25.1 Workshop background

A half-day Stakeholder Workshop was held at Boston West Golf Club on Friday March 4, 2016. Invites were sent out to stakeholders from a range of organisations, including parish councils, transport operators, public services and voluntary advocacy organisations.

The following people attended the workshop:

Gary Alexander	South East Lincolnshire Local Plan
Cllr Elizabeth Armstrong	Fishtoft Parish Council
Richard Barclay	Age UK Boston & South Holland
Cllr Peter Bedford	Boston Borough Council (BBC)
Cllr Angela Cannon	Holland Fen with Brothertoft Parish Council
James Carpenter	Stagecoach
John Chapman	BBC
Cllr Bob Cory	Wyberton Parish Council
Ian Farmer	BBC
Roger Fixter	Blind Society
Molly Fixter	Blind Society
Richard Hardesty	Lincolnshire County Council (LCC)
Cllr Barry Holden	Holland Fen with Brothertoft Parish Council
Chris Holliday	BBC
Phil Hughes	LCC
Sean Johnson	BBC
Andrew Lawrence	Port of Boston
Cllr Richard Leggott	Holland Fen with Brothertoft Parish Council
Steve Lumb	BBC
Shaun McGarry	Lincolnshire Chamber of Commerce
Gwyneth McMinn	Sustrans
Ian Naylor	Stagecoach
Ian Palmer	BBC
Andy Pottle	Pescod Square Shopping Centre
Neal Rothwell	Lincolnshire Police
Vanessa Strange	LCC
Andy Wharff	LCC
Gill Williamson	Lincolnshire CVS

In addition to the workshop an online survey was set up to allow workshop attendees and other stakeholders who could not make the workshop an opportunity to contribute further issues, opportunities and solutions.

3.25.2 *Session 1 – Issues & Opportunities*

After introducing the context of the workshop and the strategy update, the workshop was divided into two halves. The first half focused on issues and opportunities relating to transport in the study area. Delegates were invited to discuss and record what they thought were the key issues and what opportunities there were to tackle these issues. Each of the four groups presented back to the whole room at the end of the session.

The following issues and opportunities were recorded (the list also included submissions from the online survey):

- There is a lack of connectivity between different modes.
- Public transport timetables do not take into account the distances people now travel to work or their varied hours.
- Bicycles cannot be transported by bus.
- The links between the railway station and the town centre is poor, both in terms of the route and signage.
- There are several pinch points in the cycle network where infrastructure provision is inadequate.
- The level crossings (e.g. Hubert's Bridge and one near Asda) timings need reviewing.
- People are bypassing Boston by using smaller roads.
- The location of some town centre employers causes access issues, such as the Police Station.
- Shared footway/cycleways cause confusion and conflict between pedestrians and cycle users, particularly for people with audio, visual and mobility impairments.
- Car use for school trips is high.
- Cycle users having to share space with fast moving and large vehicles creates safety concerns.
- Some areas of the town centre do not feel safe after dark.
- Physical activity levels are low and high obesity levels.

- On-street parking near to the hospital and schools causes issues.
- There is a lack of significant highway infrastructure in the surrounding area.
- Rural residents could park and ride (onto Into Town services) instead of driving all the way into town if parking provision was available at key locations.
- Residents are going to other towns to use services as they are easier to access due to congestion in Boston.
- There is a perceived lack of investment in the Boston area.
- John Adams Way is particularly sensitive to highway issues (e.g. collisions) as it has a high number of vehicles using it.
- John Adams Way acts as a barrier dividing the historic core of the town centre and is not a pleasant environment for people outside of cars.
- There are only two road bridges across the Haven.
- Not enough freight is transport by rail.
- The frequency of some bus services is low.
- Some rail journey times are comparably slower than by road.
- The range of direct destinations reached by train is low.
- Travelling to and from many destinations requires river crossings.
- Lack of Sunday bus services.
- Do schools have cycle storage provision?
- Are we sharing travel information with new arrivals?
- On-street parking spaces near to the High Street.
- Emergency vehicle access through some roads.
- Insufficient bus services for travel to secondary schools outside of town (e.g. William Lovell).
- HGVs using rat-runs via Fishtoft/Langrick causing problems for communities and highway damage.
- Lack of good road infrastructure east of the A1 discouraging investment.

- A large percentage of traffic wants to pass through Boston e.g. to Skegness.
- Some people think there is not enough parking in the Market Square, others feel it should be pedestrianised.
- Use of Waterways – progress on the Fens Waterways project stalled.
- Views of migrant population – how will this influence transport choices in the future?
- Some key services, such as schools and doctors, are inaccessible by public transport.
- Bus passenger numbers are falling.
- Lack of large industrial areas allowing early morning bus services to be operated.
- Condition of some roads is detrimental to bus drivers and vehicles.

3.25.3 *Session 2 – Objectives and solutions*

The second half of the workshop moved on to look at options or solutions. To help shape the options being generated, each of the four tables was allocated two of the draft strategy objectives. Their first task was to suggest any amendments to the objectives, they were then asked to think of solutions relating to these objectives. Again, each table presented their solutions back to the wider group.

There were some minor amendments to some of the objectives and these are presented in Section 3.40. The groups then presented the following solutions (submissions from the online survey are also included):

- Influence rail operators to provide more direct routes to wider destinations.
- Encourage and facilitate walking and cycling for school travel.
- Improve all schools in the area to avoid parents choosing schools travel require car travel.
- Create a town centre transport hub to:
 - Improve connectivity between bus, rail and coach;
 - Improve safety and feel of the area, e.g. through public realm improvements;
 - Improve waiting areas and passenger information
- Create park and ride sites on the A16 north and south of the town centre.

- Improve traffic flow through reviewing signal timings.
- Create a comprehensive and safe cycle network.
- Improve pedestrian safety, particularly at key locations where collisions are occurring.
- Create a new bridge link to the port and wider Skirbeck area (e.g. Boston College) to improve access for all modes.
- Mitigate new development by ensuring sustainable transport linkages with the wider Boston area as well as within the development. Is the current level of development control sufficient to ensure this?
- Dualling of existing A-roads, such as the A16.
- Relocate train station to edge of town with shuttle service link to town centre.
- Create a new railfreight hub on the edge of the town.
- Make it a priority to develop town centre brownfield sites that facilitate sustainable travel, regenerate the town centre and provide residential opportunities.
- Improve cycle and walking connectivity with new bridges and through the provision of safe, segregated routes.
- Improved pedestrian and cycle signage.
- Pedestrian and cycle user education.
- Reduce parent choice in terms of schools to reduce the requirement for long-distance (often car-based) trips.
- Improve the Sleaford Road cycle route.
- Link leisure cycle routes with key leisure and tourist destinations.
- Restrict HGV use on some links.
- Utilise waterways for passenger and freight travel.
- Flyover to links A52 with Boardsides
- A BDR would provide suitable highway infrastructure to encourage traffic to use it and relieve congestion in the town centre.
- Introduce more rail connections, such as Doncaster via Lincoln.

- Encourage and facilitate sustainable travel to schools, e.g. walking buses, park and stride.
- All schools to have active travel plans.
- Better balance of land use, e.g. schools and supermarkets.
- Improve Haven Bank cycle route.
- New bridges to improve walking and cycling routes.
- Traffic orders to regulate parking and improve traffic flows.
- Park and bike on own or part of park and ride. Potential sites are Johnsons/Pilgrim Hospital and new football ground.
- Improve traffic flow at three central roundabouts.
- Focus sustainable travel work with schools, such as Bikeability.
- Need to bear in mind tourism/visitors and tie-in with Sustrans Route 1 (Witham Way), Boston Woods path network, Black Sluice trail, Coastal footpath and RSPB reserve.
- Improve traffic management at Hubert's Bridge.
- Improved rail service to Spalding and Peterborough would be useful.
- When planning new developments consider circular bus routes rather than just in/out routes which take longer for a service to operate the same route.
- Consider the development of industrial estates to support early morning services to cover shifts.

3.26 Future Conditions

This section reviews the potential impact of future growth proposals on Boston's transport network, in particular highways. Outputs from the Boston SATURN⁴ model have been utilised to provide the predicated future conditions relating to traffic. Before looking at the traffic model outputs, the section summarises what is known about future changes to land use and population in Boston.

⁴ SATURN (Simulation and Assignment of Traffic to Urban Road Networks)

3.27 Land use changes

3.27.1 Residential

As presented in section 3.21 a proposed sustainable urban extension (SUE) has been identified in the South East Lincolnshire Local Plan. The site is located to the south west of Boston and is split into two quadrants providing a total of 1,900 dwellings along with other land uses including a new stadium for Boston United Football Club.

Within the Local Plan period through to 2036, the South East Lincolnshire Strategic Housing Land Availability Assessment (SHLAA) identifies space for 5,900 dwellings across Boston Town.

3.27.2 Non-residential

Along with the non-residential elements of the South West Quadrant, a number of major retail and business developments have been proposed in Boston such as Endeavour Park and Riverside Industrial Estate. Endeavour Park consists of 34 acres and is proposed to feature high quality office facilities. Riverside Industrial Estate, south of the Haven around the Marsh Lane area, is the subject of development involving commercial and industrial properties.

3.28 Projected population changes

Section 3.3.2 highlighted how the population of Boston has increased by 11.3% from 59,770 to 66,500 between 2006 and 2014.

Over the period 2014—2036 the population of Boston is forecast to grow to 77,000, an increase of 16.7% over the 22-year period. Over the same period, the population of Lincolnshire is forecast to increase by 12.8% while the population of England is forecast to rise by 14.1%⁵. This highlights how the population of Boston is predicted to grow faster than Lincolnshire and England.

3.29 Highway Network Operation

3.29.1 Background

As part of recent work to investigate the potential benefits of delivering a Boston Distributor Road (BDR) to the west of the town, a number of highway and land use development scenarios were tested using Boston Traffic Model. Two of these scenarios has been used to provide an understanding of potential traffic conditions in 2036 without the delivery of interventions through the new transport strategy.

Proposals for the BDR were contained in the 2006 Boston Transport Strategy and were based on the principle that residential developments to the west of the town would provide the main highway links of the BDR as part of their proposals. This approach was adopted so that the individual links within each residential development would together deliver the BDR without the need for significant public

⁵ Subnational population projections for England (2012-base) – Office for National Statistics

sector investment. However, whilst key links may be provided by individual developments there may be a need for public sector funding where infrastructure is required to complete the BDR outside of development sites. Furthermore, the residential sites that are currently proposed for inclusion in the South East Lincolnshire Local Plan will not be sufficient to provide all sections of carriageway required to provide the full length of the BDR from the A16 South to the A16 North (via the A52 West and A1121) within the plan period to 2036. Two scenarios have therefore been tested using the Boston Traffic Model which sets out the 'Do-Minimum' situation in 2036; Do-Minimum being a scenario in the future where changes have occurred, such as development and associated infrastructure, but where the local authorities have not intervened, by implementing policy or infrastructure proposals for example (this would form the 'Do-Something' scenario).

The two Do-Minimum scenarios used in the traffic modelling to support this working paper are as follows:

Do-Minimum 1 – which includes background traffic growth and committed development up to 2036 (this includes the first section of BDR delivered as part of the Quadrant 1 development between the A16 and B1397).

Do-Minimum 2 – which adds to Do-Minimum 1 all known residential and employment development up to 2036 (as currently assumed as part of the Draft South East Lincolnshire Local Plan) and also includes three elements of the BDR that cover the following links:

- Quadrant 1 – A16 to B1397
- Quadrant 2 – B1397 to A52
- North Forty Foot – A1121 to Punchbowl Lane

As these are Do-Minimum scenarios, they does not include any additional infrastructure provision such as a bridge crossing of the Boston-Spalding railway line, South Forty Foot Drain and A1121 Boardsides.

The Do-Minimum 1 scenario essentially demonstrates what is likely to happen to the highway network even without development included in the Local Plan whilst Do-Minimum 2 demonstrates the full impact of the local plan.

3.29.2 *Modelling Outputs*

Presented below are brief outputs from the traffic modelling exercise. The following table presents key statistics for the highway network and compares the two Do-Minimum scenarios for both the AM and PM peak hours. Overall, the table shows that network operation would deteriorate significantly between the two scenarios with the growth projected in the local plan increasing queuing, total travel time and distance travelled while also reducing the average speed. Of particular note are the figures for over-capacity queuing (the length of time spent by vehicles queuing at

junction operating over capacity) and the average speed on the network. Over-capacity queuing will increase by at least 387% in 2036 with the addition of development included in the Local Plan above committed development and general traffic growth. Average vehicle speeds within the Boston highway network will reduce by approximately 15% between the two scenarios.

Table 3-44 – Highway Network Statistics – 2036 AM and PM Peak Hours

Scenario	Scenario	Transient Queueing (pcu hr)	Over Capacity Queueing (pcu hr)	Total Travel Time (pcu hr)	Total Distance Travelled (pcu km)	Average Speed (kph)
AM peak hour	DM1	320.9	55.9	1,682.5	66,711.6	39.6
	DM2	455.8	272.2	2,352.0	79,528.1	33.8
	Diff	42%	387%	40%	19%	-15%
PM peak hour	DM1	309.2	52.4	1,527.8	60,105.4	39.3
	DM2	421.6	303.3	2,169.8	71,578.8	33.0
	Diff	36%	479%	42%	19%	-16%

The model has been used to identify the level of traffic grow on key highway links within and around the urban area with the following being significant outputs:

- Traffic growth for routes into the town from the south will focus on London Road/High Street rather than A16 Spalding Road with growth being significantly higher on the former. This appears to be due to the A52/A16 John Adams Way junction causing congestion and traffic therefore reassigning onto London Road/High Street.
- Traffic will increase significantly on the
- Norfolk Street/Fydell Street corridor
- Traffic growth will be significant on the A52 to the west of the town increasing pressure of junctions where the A52 and A1121 meet.
- Traffic will also increase significantly at Hubbert’s Bridge, potentially due to constraints at the A52/A1121 junction
- Traffic growth will be limited on the A52 and A16 to the north and east of the town.

The modelling shows that the junctions that will be most significantly affected by growth (in descending order) will be:

- A16/A52
- A16/London Road

- A52/A1121
- John Adams Way/South End
- Norfolk Street/Horncastle Road
- A52/Brothertoft Road/Woodville Road
- Brothertoft Road/Argyle Street

3.30 Issues & Opportunities Summary

Throughout the working paper issues and opportunities have been flagged up. This section collates all of the issues and opportunities from the various sections of the document.

3.31 Issues

3.31.1 Society & Wellbeing

Issue

Significant increases in young people and working age groups within the overall population in comparison to the surrounding area may generate future transport pressures above those experienced elsewhere.

Issue

A significant increase in the working population per household living in Boston will result in an increase in the number of commuting journeys per household at peak times

Issue

6,651 pupils attend schools in Boston, generating significant movements of pupils and their parents, putting pressure on the transport network at the morning peak and period immediately prior to the standard PM peak.

Issue

Boston is just outside the 20% most deprived districts in the country.

Issue

There has been an increase in population living within areas that fall within the 10% most deprived in the country

Issue

Boston's inner urban area has high levels of deprivation.

Issue

Boston has varied levels of deprivation. However, deprivation is increasing in some areas that are already deprived. The opposite is true for less deprived areas, widening the gap between the two ends of the scale.

Issue

There are many geographical and wider barriers to residents living within Boston's rural fringe.

Issue

Boston's town centre has poor air quality, poor housing quality and a relatively high number of road traffic incidents. A large proportion of Boston's most remote areas in the east and west mirror this.

Issue

The number of cars and vans in Boston increased by almost 22% between 2001 and 2011, significantly higher than the national rate and at a greater rate than the driving population within Boston.

3.31.2 *Economy*

Issue

Employment rates across Boston district experienced a sharp decline between 2013 and 2014 compared with increasing employment across the county, region and England and Wales.

Issue

The study area has a wide range of employment and unemployment rates across its wards, although employment rates are higher (and unemployment rates lower) than the district average.

Issue

There is a clearly defined inequality in unemployment rates, with central and western wards suffering from higher levels of unemployment than those to the east.

Issue

Average earnings in Boston are significantly below those of Lincolnshire, the East Midlands and the county as a whole.

Issue

Annual average earnings in Boston have not experienced the level of growth seen at the county, region and national levels.

Issue

Lower earnings, meaning less access to private car travel, and the geographic isolation of Boston, coupled with relatively limited public transport networks, means limits opportunities for the local population.

Issue

The main industries in Boston tend to be relatively intensive users of freight transport.

Issue

The number of active enterprises in Boston has decreased, whilst there has been an increase across Lincolnshire as a whole.

3.31.3 *Environment*

Issue

Boston has a higher proportion of its carbon emissions coming from road transport than the national average.

Issue

Air Quality within the Haven Bridge AQMA remains an issue.

Issue

Most of Boston is in the 'Danger for All' or 'Danger for Most' flood hazard categories.

Issue

Most of Boston has a high probability of flooding (Greater than 1%).

3.31.4 *Travel*

Issue

Boston is far removed from the trunk road network and the nature of most local roads is not conducive to the heavy traffic experienced.

Issue

Several roads converge on Boston and they all have to funnel across the River Witham by two bridges (Haven Bridge and Fydell Street).

Issue

Traffic flows on main routes through the town are substantially higher than those on routes entering the town.

Issue

The A16 to the south of Boston is a consistently busy route in both directions and is likely to cause congestion during the morning and afternoon peaks.

Issue

The journey time of some cross town movements in the peaks is more than twice the journey time under free flow conditions.

Issue

Peak period congestion occurs on the A52 and A16 on the approaches to and through the urban area.

Issue

Boston has a large number of car parks for a town of its size which encourages vehicular movements in both directions across the two river crossings. This is likely to add to congestion issues, particularly at peak times.

Issue

No bus services operating on Sundays and reduced service availability in the evenings.

Issue

Overall poor frequency of bus services.

Issue

Some services have been reduced due to cuts in local government funding. Further cuts are anticipated.

Issue

The bus station is not an attractive environment for users.

Issue

Bus patronage levels in Lincolnshire have fallen since 2009/10, but have performed better than the whole East Midlands region.

Issue

Bus patronage per head levels in Lincolnshire have fallen since 2009/10, by approximately the same rate as England as a whole, whilst performing better than the East Midlands region.

Issue

There is a low take up of the initiatives aimed at enabling access by sustainable means.

Issue

Some of the waterway crossings are constrained by width so cannot be easily converted to cycle bridges.

Issue

Some key routes (serving key destinations) do not have any cycle infrastructure.

Issue

There is a historic reduction in cycle flows in the last few years up to 2014.

Issue

The proportion of people cycling at least once a week has declined.

Issue

The waterways present significant barriers to movement across Boston and there are a limited number of crossing points for bicycle and motor vehicle traffic.

Issue

The level crossings in the town centre restrict movement of traffic and cause congestion, particularly during peak periods.

Opportunity

The number of HGVs in Boston is decreasing.

Issue

Rail freight from the Port of Boston may cease due to the impact of HS2 on the company's Birmingham rail freight interchange

Issue

Car travel remains dominant, whilst cycling is decreasing in real terms and in modal share.

Issue

Car and van use is the dominant mode of travel for travel to work journeys wholly within Boston Town and Borough.

Issue

Car travel is one of the dominant travel to school modes; Boston has a higher percentage mode share for travelling to school by car than Sleaford and England.

Issue

20% of all collisions in the strategy area involved cyclists and 22% involved pedestrians – significantly higher than the national average.

Issue

Although the total number of collisions has been decreasing, the number of pedal cycle and pedestrian collisions has remained relatively constant.

Issue

Several town centre links and junctions are collision cluster locations.

Issue

There is a lack of connectivity between modes.

3.31.5 *Land use and development*

Issue

Some of the employment areas are separated from other parts of the town by barriers, such as waterways.

Issue

The lack of food retail opportunities on the east of the town is likely to cause traffic movements across town as people from east of Boston access the food stores.

Issue

All secondary schools are east of the River Witham resulting in cross-town movements for pupils living west of the River.

3.31.6 *Stakeholder consultation*

Issue

There is a lack of connectivity between different modes.

Issue

Public transport timetables do not take into account the distances people travel to work or their varied hours.

Issue

The links between the railway station and the town centre are poor, both in terms of routes and signage.

Issue

Cycle users have to share space with fast moving and large vehicles, causing safety concerns.

Issue

Some areas of the town centre do not feel safe after dark.

Issue

John Adams Way is particularly sensitive to highway issues, such as collisions.

Issue

John Adams Way acts as a barrier dividing the historic core of the town and is not a pleasant environment for people outside of cars.

Issue

The range of direct destination reachable by train is poor.

Issue

Travelling to and from many destinations requires one or more waterway crossings and there are a small number of bridges that people are funnelled onto.

Issue

The condition of some roads is detrimental to drivers and vehicles, particularly buses.

3.32 Opportunities

3.32.1 Society & Wellbeing

- Opportunity** The increasing number of households suggests that Boston has undergone a period of development. If this continues it presents an opportunity to gain funding from third parties for transport improvements.
- Opportunity** The majority of Boston's suburban areas (outside the centre but relatively close to it) are significantly less deprived
- Opportunity** Boston town centre has affordable housing and is served well by key local services.

3.32.2 Economy

- Opportunity** Improved access to wider geographies via public transport would enable access to employment opportunities further afield for those unable to access other forms of transport.
- Opportunity** Promote cycling as a reliable and cheap mode of transport.

3.32.3 Environment

- Opportunity** Boston has good overall air quality, significantly better than the region and the country as a whole.

3.32.4 *Travel*

- Opportunity** The removal of small car parks in favour of fewer large car parks would release land for development/regeneration and could lead to better traffic management and greater control on where traffic goes.
- Opportunity** Wide range of existing bus services to the town centre, residential and surrounding rural areas.
- Opportunity** Bus patronage levels in Lincolnshire have increased since 2012/13. Continue to build upon this recent positive trend.
- Opportunity** Bikeability sessions are popular amongst primary schools.
- Opportunity** Local counts during 2014/15 show an increase in cycle flows.
- Opportunity** In 2012/13 Boston was ranked as the fifth highest local authority in England for the percentage of people cycling at least once per week.
- Opportunity** The percentage of people cycling at least once per month is above the regional and national average.
- Opportunity** The proportion of people walking within Boston is increasing at a higher rate than the county, region or country.

- Opportunity** The number of HGVs in Boston is decreasing.
- Opportunity** Walking has increased in real terms, and bus use has increased in real terms and modal share.
- Opportunity** The large proportion of people travelling to work within Boston Town and Borough by car represents a clear opportunity for modal shift.
- Opportunity** Boston's modal share for cycling is significantly greater than the national figures, particularly in secondary schools.
- Opportunity** Link leisure cycle routes with key leisure and tourist destinations.

3.32.5 *Land use and development*

- Opportunity** The future planned development provides an opportunity to increase Council revenues and embed sustainable travel from the outset.
- Opportunity** The Market Place improvements have had a positive effect on the feel of the town centre.

3.33 **Progress Review**

The previous Transport Strategy for Boston covered the period from 2006—2021. It was published in December 2006 after the 2005 study on all forms of transport in the

Boston area. This section reviews the progress of the previous strategy against its aims and reports on the progress of the measures that were included.

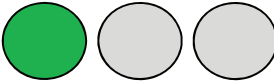

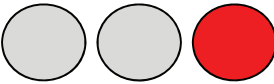
3.34 What did the previous Strategy aim to deliver?

The Strategy was intended to act as a framework to guide future transport improvements in Boston, both in the short term (up to 2010) and longer term (2011—2021 and beyond). The Strategy contained a range of transport improvements and includes 15 aims in five broad areas which set out what the Strategy is intended to achieve. The five areas were:

- Tackling Congestion e.g. difficulties associated with crossing rivers;
- Delivering Accessibility e.g. improve the choice of transport in Boston;
- Safer Roads;
- Better Air Quality; and
- Local Priorities e.g. including improving the town centre.

3.35 Did the Strategy deliver?

A commentary is provided on the progress that has been made in delivering these aims. Some of the aims are not easily measurable and the commentary refers to this where applicable. The progress made to date is indicated by the 'traffic light' symbols provided for each outcome:

- Green indicates that aims have been delivered or significant progress has been made towards delivery of major elements of delivery and are on programme 
- Amber indicates that moderate progress has been made on delivery but is behind expectations and/or there are moderate risks to their delivery due to external factors 
- Red indicates that delivery is behind expectations and/or there are significant risks to delivery due to external factors. 

3.35.1 Tackling Congestion e.g. difficulties associated with crossing rivers

The first two aims under this heading are not measurable so it is not possible establish if there has been progress.

1 Reduced car usage for journeys wholly within Boston.




2 Limiting impact of development.



Improvements to cross-town movements is not directly measureable, however, it could be said that the improvements to the A16/A52 corridor have improved cross-town movements.

3 Reduced delays for traffic on A52/A16 corridor with safe facilities for vulnerable users.

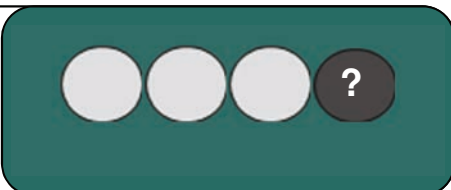


4 Improved cross-town movements.



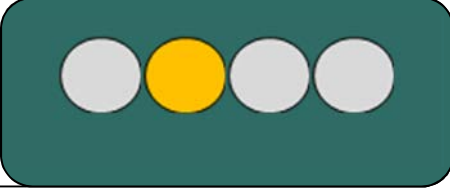
Reductions in traffic on inappropriate routes is not measureable without defining what routes are inappropriate.

5 Reduced traffic on inappropriate routes.



- 3.35.2 *Delivering Accessibility e.g. improving the choice of transport in Boston;*
Access for people without access to car was improved through the implementation of 'Into Town' bus services in 2008. The services were initially subsidised becoming commercially operated in 2013. However, the low frequency of bus services and lack of services on a Sunday means that non-car accessibility has limitations.

6 Improved access to facilities, especially for those who are mobility impaired and those without access to a car.



A dedicated right turn was introduced in November 2011 for the manoeuvre from Queen Street into Broadfield Street which is activated by buses. As part of the Endeavour Park development which was built around Ashton Hall Drive off Sleaford Road in 2000, a bus gate has been provided from the development access road onto Sleaford Road; this was funded by the developer. This bus gate is not currently in operation as there are no existing services using this route but was built in anticipation of a new route.

7 Priorities for public transport into/within the town centre.



The introduction of the 'Into Town' services is seen as an example of improvements to public transport access and provision. Again, as before there are still part of the town that do not have a bus service or are only served by low frequency services and no services at all on Sundays and evenings.

8 Improved public transport access and provision.

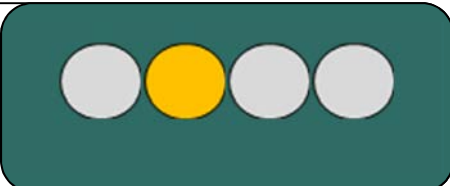


3.35.3 Safer Roads

The total number of road collisions reduced between 2011 and 2015. There were reductions in serious and slight collisions. Fatal collisions did not reduce but remained at one.

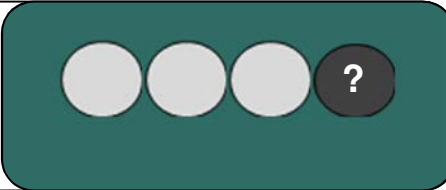
When looking at different modes of transport, the number of pedal cycle and pedestrian collisions has remained relatively constant.

9 Reduced number and severity of crashes for all modes of transport.



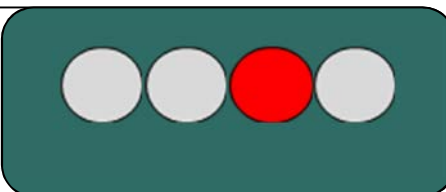
It is not possible to determine if the clarity of priority for all road users has been improved.

10 Improved clarity of priority for all road users.



As stated above, the number of collisions involving cycle users and pedestrians has remained constant while the overall number of collisions has been reducing. There are no obvious clusters of collisions near to schools, however, there were concentrations of pedestrian and cycle user collisions in parts of the town centre, such as West Street.

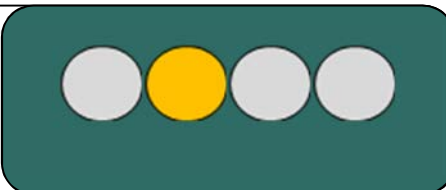
11 Improved road safety for pedestrians and cyclists, especially in the vicinity of schools.



3.35.4 *Better Air Quality*

Improved air quality in the Air Quality Management Area was the sole aim in this category. As section 3.5.3 presented, air quality is still an issue within the town centre where the Air Quality Management Areas are located.

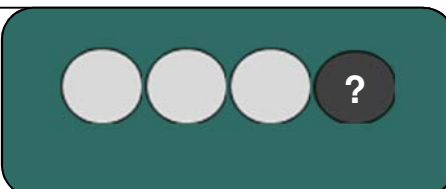
12 Improved air quality in the Air Quality Management Area.



3.35.5 *Local Priorities e.g. including improving the town centre*

New cycle lanes and additional pedestrian crossings have helped with pedestrian and cycle movements in the town centre. However, the first aim is not measureable as it is not straightforward to define what management refers to in this context.

13 Improved cycling and pedestrian management in the town centre.



The next aim is measureable with the new St. Botolphs footbridge providing an improved link from the Market Place to the bus station. However, there is still potential to improve links further, such as to the railway station.

14

Improved links between the shopping area and public transport facilities.



Lincolnshire adopted Civil Parking Enforcement (CPE) in December 2012, when the powers to enforce nearly all parking and waiting restrictions were handed over from the Police to the County Council. CPE includes the provision of parking tickets, allocation of Blue Badges and local parking restrictions. In Boston, powers to enforce off street car parks were delegated to Boston Borough Council.

15

Effective management of car parking.



3.36 Public Transport schemes

3.36.1 'Into Town' bus service

The £1million scheme became operational in 2008 with three new buses, costing approximately £300,000 each, running along three new routes with the service becoming commercial from August 2013. The remaining funding was spent on associated infrastructure including shelters, signage, raised kerbs and real time passenger information.

3.36.2 Bus priority measures

A dedicated right turn for buses from Queen Street into Broadfield Street was introduced in November 2011 at a cost of £30,000 for the required hardware and £35,000 for the required realtime software. A bus gate was also implemented from the Endeavour Park development access road onto Sleaford Road, funded by the developer, however there are currently no plans to provide a bus service that would make use of this bus gate. Furthermore, the bus gate uses C-Tag technology which is now obsolete and would need to be upgraded before it could be used.

A tender is currently out for a system improve junction priority for buses.

3.36.3 Real Time Passenger Information (RTPI)

RTPI signs were purchased at a cost of approximately £50,000 but the identified locations were on unadopted roads with no electricity supply. It is proving difficult to identify alternative locations for installation.

Further developments in the process of providing RTPI for passengers feature real-time information posted directly onto the Traveline website. This removes the requirement for on-street timing boards. A tender is currently out for the provision of the new system.

3.36.4 *Bus station*

Moderate improvements were made to the existing bus station in lieu of a developer funding mechanism for more substantial improvements collapsing due to the developer going into administration. These improvements included ensuring the bus station was Disability Discrimination Act compliant and providing improved seating.

3.37 **Traffic schemes**

3.37.1 *Improving the existing A16/A52 main road*

A number of schemes were undertaken in 2010 – 2011 at a combined cost of £5.5million including:

- Creating two lanes for traffic travelling north into Boston on the A16 Spalding Road from London Road roundabout to Liquorpond Street roundabout.
- Creating two lanes for traffic travelling westbound on A52 Liquorpond Street, Queen Street and Sleaford Road.
- Widening of the Liquorpond Street roundabout and removal of signals.
- Addition of an extra lane on the London Road west approach to the A16 Spalding Road roundabout.
- Right turn bans into Broadfield Street and George Street from Queen Street.

3.37.2 *Car parking improvements*

Additional signage was provided in 2012 to direct drivers to the most appropriate car parks and new pricing charges were introduced in October 2013. A decision was made not to move forward with the introduction of a real time information system displaying the number of free spaces in each car park.

A new multi-storey car park was proposed but was dependent on developer funding. The developer pulled out after going into administration.

3.37.3 *Traffic management measures*

The following traffic management schemes have been implemented:

- Junction improvement at A16 Spilsby Road/Freiston Road at a cost of £354,829.
- Double white line system on the A16 Spalding Road at a cost of £14,141.
- Signage improvements at a cost of £150,193.
- Non-motorised user works at a cost of £100,664.
- Right turn ban, junction improvement and pedestrian facilities on Brothertoft Road.

- Civil enforcement scheme implemented in December 2012.
- Removal of traffic signals at Bargate roundabout.
- Traffic calming on Eastwood Road

Following a survey of affected residents, a decision was made not to progress a Residents Parking Scheme due to lack of support.

3.38 Sustainable Travel schemes

3.38.1 *Softer measures*

A number of softer measures were implemented across Boston to promote and encourage sustainable travel choices including:

- School travel plans;
- Modeshift Stars Accreditation scheme;
- Big Bike Race 2;
- Travel plans as a requirement of the planning process;
- Lincshare car sharing website; and
- Access Lincs workplace travel planning.

3.38.2 *Cycling Infrastructure*

A number of cycling infrastructure improvements have been made including:

- Sleaford Road cycleway;
- George Street cycle contraflow;
- Cycleway on B1397 London Road – Wyberton to Kirton (Phase 1).
- Rosebury Avenue to Haven Bank cycle route;
- Rosebury Avenue cycle bridge;
- Woad Farm to Town Centre cycle route;
- Cycleway and Toucan crossing at South Square – Haven Bridge to High Street;
- Toucan crossing at Bargate Bridge; and
- Toucan crossing on Spain Lane.

3.39 Public realm improvements

Although not part of the 2006–2021 Transport Strategy, the following two key public realm schemes are important due to how they improve the town centre as a pedestrian environment.

3.39.1 *New St. Botolph's footbridge*

A replacement footbridge for the previous non-Disability Discrimination Act compliant footbridge opened in March 2014, costing £750,000 and funded by Lincolnshire County Council and the European Regional Development Fund (ERDF).

The path of the bridge provides a key link between the east and west of the town centre between Market Place and the West Street area and onto the railway station.

3.39.2 *Market Place refurbishment*

European Union ERDF funding was also utilised to refurbish the Market Place. Excessive car parking was removed and a new layout that showcases the surrounding historic buildings, providing space for market and attracting further investment to the area. £1.1 million of the £2 million total cost came from the ERDF with Lincolnshire County Council and Boston Borough Council contributing the remaining funding.

3.40 Objectives

3.40.1 *Strategy Objectives*

Robust policy and strategy should be led by clear and appropriate objectives which have been set through an understanding of both higher level policy and local circumstances. Objectives should set out what is to be achieved through policy and strategy and, importantly, should enable measureable outcomes to be developed.

The 2006 Boston Transport Strategy had a set of aims rather than objectives but many were very difficult to measure, which, as discussed above, makes the success of the strategy more difficult to measure. It has therefore been decided that a new set of objectives be developed for the new transport strategy.

The new objectives, as discussed in Working Paper 1, have been developed through a process of identifying key themes from existing higher level policy documents (Local Transport Plan 4 and South East Lincolnshire Local Plan) and existing transport strategies covering other urban areas in Lincolnshire. The key issues identified earlier in this working paper have also been used to steer the objective development process, which has resulted in the following objectives being formulated:

- To improve the sustainability and connectivity of the communities of Boston and the surrounding area by improving access for all to employment, retail and services.
- To improve the safety and security of all travel and, in particular, reducing the number and severity of road casualties.

- To support and enhance sustainable travel and alternatives to the private car through widening choice, improving public transport and increasing provision for cycling and walking.
- To provide an efficient, convenient and accessible transport network for all, reducing the adverse impacts of travel, particularly from private cars and road-based freight.
- To support the sustainable development, regeneration and growth of Boston, helping to attract inward investment and meeting current and future housing and business needs.
- To reduce carbon emissions from personal travel and freight transport.
- To protect and enhance the quality and attractiveness of the built and natural environment of Boston and the surrounding area.
- To improve the health, wellbeing and quality of life of residents, employees and visitors, including through the reduction of noise and air quality related issues.

These objectives were discussed and agreed at the first stakeholder event on Friday 4th March.

4 Option Identification

4.1 Introduction

This chapter presents the outputs from the process to identify a 'long list' of options for transport improvements to potentially be included in the Transport Strategy. The chapter also presents the suggested methodology for sifting the long list of options to produce a more concise shortlist to be taken forward for further, more detailed assessment.

4.2 Structure of the Chapter

Following on from this introduction, this chapter has two further sections. Section 4.4 introduces the long list of options and Section 4.5 introduces the proposed sifting methodology.

4.3 Option Identification

Following the data gathering and analysis stage, the project team has produced a long list of options that could be included within the Transport Strategy. The options have been identified from a range of sources and approaches including:

- A review of the Strategy's objectives and outcomes;
- A review of the issues and opportunities identified in the previous stage;
- Steering Group inputs;
- Stakeholder and Member consultation;
- A review of transport improvements included in existing Lincolnshire urban transport strategies;
- Wider practice across the country.

The options have been identified under the following headings:

- Highways and traffic management
- Public transport
- Walking and Cycling
- Freight
- Parking
- Smarter Choices
- Land use

It should be noted that the long list includes all options identified from the above sources and that while some will not be viable, they have been included for completeness.

The objectives associated with each option are numbered as follows:

1. To improve the sustainability and connectivity of the communities of Boston and the surrounding area by improving access for all to employment, retail and services.
2. To improve the safety and security of all travel and, in particular, reducing the number and severity of road casualties.
3. To support and enhance sustainable travel and alternatives to the private car through widening choice, improving public transport and increasing provision for cycling and walking.
4. To provide an efficient, convenient and accessible transport network for all, reducing the adverse impacts of travel, particularly from private cars and road-based freight.
5. To support the sustainable development, regeneration and growth of Boston, helping to attract inward investment and meeting current and future housing and business needs.
6. To reduce carbon emissions from personal travel and freight transport.
7. To protect and enhance the quality and attractiveness of the built and natural environment of Boston and the surrounding area.
8. To improve the health, wellbeing and quality of life of residents, employees and visitors, including through the reduction of noise and air quality related issues.

The following subsections present the complete long list of options.

4.4 Options

The sections below present the long list of options identified for the Strategy. A brief description of each option is included along with if it is new or existing from the previous strategy. The source of the option is also included with the following abbreviations:

- PTS – Previous transport strategy
- S – Stakeholders/Members
- PT – Project team
- SG – Steering group
- OTS – Other transport strategies

The objectives that the option is relevant to is also included along with an issue and/or opportunity that influenced the option. Some options may be relevant to several issues or opportunities but for brevity we have limited the number listed.

4.4.1 Highways and Traffic Management

Option	Description	New or existing	Source	Objective(s)	Issue/Opportunity
New link road into Docks and Skirbeck Quarter	New link road from the A16 Spalding Road to the Port of Boston. The road would require a bridge across the River Witham. The road would not only serve the Port but also provide a link to/from the east of Boston, such as Skirbeck.	Existing	PTS/S	1, 5, 8	Several roads converge on Boston and they all have to funnel across the River Witham by two bridges (Haven Bridge and Fydell Street).
Bypass by upgrading existing road	Upgrading the B1192 and B1184 through Langrick Bridge and Frithville to allow traffic to bypass the town	Existing	PTS	1, 5, 8	Perceived impact of through traffic within the town centre
Junction improvements	Improvements to help improve traffic flow through the junctions forecast to be under pressure in the future, such as: A52/A16 A16/London Road A52/A1121	New	Future growth/traffic model	1, 5, 8	Peak period congestion occurs on the A52 and A16 on the approaches to and through the urban area. Traffic model predicts future growth that will impact on these junctions.
Boston Distributor Road	New strategic route linking the A16 in the South of the town to	Existing	SG/S/PTS	1, 5, 8	New highway links are required to service developments and with

Option	Description	New or existing	Source	Objective(s)	Issue/Opportunity
	the A16 in the north and servicing the new developments.				the addition of bridge infrastructure could provide a distributor road around the town.
20mph Zones	Review potential locations for 20mph zones.	New	PT	2, 3, 4	20% of all collisions in the strategy area involved cyclists and 22% involved pedestrians – significantly higher than the national average.
Introduce one-way route on London Road	Introduce a one-way northbound vehicle restriction on London Road to improve environment for cyclists on NCN 1	New	PT	2, 3, 4	Lack of cycle infrastructure on this approach to the town. Opportunity to provide cycle route that avoids busier roads.
Convert Spalding Road/High Street into a gyratory	The gyratory would have traffic going south on Spalding Road and north on High Street.	New	PT	1, 4, 5, 8	Opportunity to reallocate road space for sustainable modes.
Review of town centre traffic management	Review existing traffic management measures including one-way routes and banned movements.	New	PT	4, 5, 6, 7	
Public realm improvements around John Adams Way	Reduce the barrier that John Adams Way imposes by improving the environment for other road users: introducing greenery/lighting; and removing excessive guard railing.	New	PT	2, 3	John Adams Way acts as a barrier dividing the historic core of the town and is not a pleasant environment for people outside of cars.
Town centre public realm improvements	Expand the Market Place public realm onto West Street and High Street by: reallocating space for pedestrians and commercial opportunities (e.g. footway café tables and seating), rationalising parking and loading and making landscape improvements. The individual elements of the scheme could be split into separate packages.	New	PT	1, 2, 5, 7, 8	The Market Place improvements have had a positive effect on the feel of the town centre.
Traffic calming and crossing facilities on	Consider implementing traffic calming and providing crossing facilities on Fydell Street/Norfolk	New	PT	1, 2, 5, 7	Several town centre links and junctions are collision cluster locations.

Option	Description	New or existing	Source	Objective(s)	Issue/Opportunity
Fydell Street/ Norfolk Street	Street to encourage lower speeds and improve safety for other road users.				
Review on-street parking close to schools and the hospital.	Review existing parking demand and on-street supply within the vicinity of schools and the hospital with a view to alleviating parking issues.	New	S	7	On-street parking issues close to schools and hospital
Provide new road bridge across the Haven	Provide a new road bridge across the Haven to alleviate road congestion on the two existing river crossings	New	S	1, 4, 5	Several roads converge on Boston and they all have to funnel across the River Witham by two bridges (Haven Bridge and Fydell Street).
Flyover to link the A52 with A1121 Boardsides	New road bridge to provide alternative route across railway and South Forty Foot Drain	New	S	1, 4, 5	
Consider introducing TROs for HGVs restrictions	Review HGV routing through the town centre and consider implementing TROs on unsuitable routes	New	S	2, 7	
Daytime loading restriction	Restrict loading/unloading to outside of daytime hours	New	PT	2, 7	

4.4.2 Public Transport

Option	Description	New or existing	Source	Objective(s)	Issue/Opportunity
Bus station upgrade	Upgrade to include improved waiting facilities and passenger information	Existing	PTS	2, 3, 4, 7	The bus station is not an attractive environment for users
Public transport hub	New town centre public transport hub on location of existing bus station or new location. The hub would facilitate interchange between different modes of transport and improve safety, public realm, waiting areas and passenger information. The hub would reflect best	New	PTS/S	2, 3, 4, 7	The bus station is not an attractive environment for users

Option	Description	New or existing	Source	Objective(s)	Issue/Opportunity
	practice to create a first-class facility.				
Review community transport provision	Review community transport provision with a view to improving offer where the public transport network does not provide coverage.	New	PT	1, 3, 4	Public transport timetables do not take into account the distances people travel to work or their varied hours.
Improve signage	Improve signage for the bus and train stations for pedestrians travelling from the town centre	New	PT	1, 4	The links between the railway station and the town centre are poor, both in terms of routes and signage.
Improve inter-urban bus service provision	Increase number and frequency bus services on inter-urban routes to nearby key destinations. Align services that visit the rail station with train times, providing a fully integrated public transport provision for the town.	New	PT	1, 3, 4	There is a lack of connectivity between different modes
Park and ride	Introduce park and ride sites on the A16 north and south of the town centre	New	S	3, 6	Traffic flows on main routes through the town are substantially higher than those on routes entering the town.
Bus priority measures	Introduction of bus gates that prioritise bus movements at congested locations, such as the A16 south of Boston.	Existing	PTS	3, 6	The A16 to the south of Boston is a consistently busy route in both directions and is likely to cause congestion during the morning and afternoon peaks.
Circular bus routes in new developments	When planning new developments, consider circular bus routes rather than in/out routes which take longer for a service to operate the same route.	New	S	1, 3, 4, 5, 6	There is a low take up of the initiatives aimed at enabling access by sustainable means.
Improve bus waiting facilities	Provide or improve shelters, seating, raised access kerbs at all bus stops where there is space to accommodate.	New	PT	2, 3, 5	The bus station is not an attractive environment for users.
Sunday bus services	Introduce a Sunday bus service to benefit workers and to encourage shoppers	New	PT	1, 3, 4, 6	No bus services operating on Sundays and reduced service availability in the evenings.

Option	Description	New or existing	Source	Objective(s)	Issue/Opportunity
	without access to a car.				
Review public transport links to key employment areas	Explore bus provision to key employment areas close to the town, such as the Industrial Estates on Marsh Lane and Skirbeck Quarter to support shift workers during early and late hours.	New	PT/S	1, 5, 6	Public transport timetables do not take into account the distances people travel to work or their varied hours.
Increase peak time frequency of all bus services	Increase frequency of all bus services during morning and evening peak hours.	New	PT	1, 4, 5, 6	Overall poor frequency of bus services.
Increase peak time frequency of Into Town services	Increase frequency of Into Town services during the morning and evening peak hours.	New	PT	1, 4, 5, 6	Overall poor frequency of bus services.
Increase all day frequency of all bus services	Increase frequency of all bus services throughout the day	New	PT	1, 4, 5, 6	Overall poor frequency of bus services.
Increase all day frequency of Into Town services	Increase frequency of Into Town services throughout the day	New	PT	1, 4, 5, 6	Overall poor frequency of bus services.
Flexible ticketing options	Introduction of flexible bus tickets such as season tickets and travel cards. Explore ways in which these could be applied to the wider region.	New	PT	3	There is a low take up of the initiatives aimed at enabling access by sustainable means.
More direct rail routes	Lobby Train Operating Company to provide increased, more direct services and to connect to wider destinations.	New	S	1, 3, 4, 6	The range of direct destination reachable by train is poor. Improved access to wider geographies via public transport would enable access to employment opportunities further afield for those unable to access other forms of transport.
Double track the railway	Upgrade the existing single track sections between Sibsey and Hubberts Bridge to double track.	New	S	3	The journey time of some cross town movements in the peaks is more than twice the journey time under free flow conditions.
Rationalisation of rail timetables	Lobby Train Operating Company with regards to changing the	New	PT	1, 3	The range of direct destination reachable by train is poor.

Option	Description	New or existing	Source	Objective(s)	Issue/Opportunity
	timetables to assist interchange at Grantham for onward East Coast Main Line services.				
Relocate railway station	Relocate railway station to edge of the town with shuttle bus service link to town centre.	New	S		Traffic flows on main routes through the town are substantially higher than those on routes entering the town.
Utilise waterways	Utilise waterways for passenger and freight travel	New	S/PTS	4, 6	

4.4.3 Walking & Cycling

Option	Description	New or existing	Source	Objective (s)	Issue/Opportunity
Improve signage	Improve/introduce signage for pedestrians and cycle users to assist way-finding.	New	PT/S	3, 4	
New pedestrian and cycle bridges	<p>Increase pedestrian/cycle connectivity by building new bridges/upgrading existing bridges at the following locations:</p> <ul style="list-style-type: none"> • Across South Forty Foot Drain to link existing residential areas and future development areas. • Across Maud Foster Drain by at Windsor Crescent. • Across Maud Foster Drain at Hospital Lane/Norfolk Street. • Across River Witham north west of the town centre (as an alternative to the Fydell St bridge). 	New	PT	1, 3, 4, 5, 6	The waterways present significant barriers to movement across Boston and there are a limited number of crossing points for bicycle and motor vehicle traffic.
Increase town centre cycle parking	Increase and improve town centre cycle parking facilities.	New	PT	1, 3	

Option	Description	New or existing	Source	Objective (s)	Issue/Opportunity
Cycle hire/cycle share scheme	v	New	PT	1, 3, 4, 5, 8	
Park and Cycle	Provide cycle hire/share bikes at peripheral car parks to allow for Park and Cycle.	New	PT	1, 3, 8	
Review/improve crossing facilities on John Adams Way	Review existing crossing facilities and timings along John Adams Way to improve safety and connectivity for pedestrians and cycle users.	New	PT	1, 2	John Adams Way is a barrier to movement.
Cycle safety improvements as part of the 20mph zones	Utilise techniques such as centreline removal across the 20mph zones to reduce vehicle speeds and promote safety for people using cycles.	New	PT	2, 3, 4, 8	20% of all collisions in the strategy area involved cyclists and 22% involved pedestrians – significantly higher than the national average.
Improve pedestrian and cycle user safety at key junctions	Review facilities for people on foot and on cycles at junctions where collisions involving pedestrians and cycle users have been recorded: <ul style="list-style-type: none"> • A52/West Street • Fydell Street/Norfolk Street • A52/A16 	New	PT/S	1, 2, 3	20% of all collisions in the strategy area involved cyclists and 22% involved pedestrians – significantly higher than the national average. Several town centre links and junctions are collision cluster locations.
Introduce cycle route infrastructure on key radial routes	Introduce cycle route infrastructure on key radial routes into the town centre: <ul style="list-style-type: none"> • Spilsby Road • Skirbeck Road • Wyberton W Road/Chain Bridge Road 	New	PT	1, 2, 3, 4, 5, 6, 8	20% of all collisions in the strategy area involved cyclists and 22% involved pedestrians – significantly higher than the national average. Some key routes (serving key destinations) do not have any cycle infrastructure.
Review existing shared footway/cycleways	Review existing shared cycleway/footways and consider alternatives, such as segregation, where applicable.	New	PT/S	1, 2, 3, 4, 8	The proportion of people cycling at least once a week has declined.
Review links between leisure cycle routes and	Review existing linkages and consider provision of new cycle routes to tourist	New	S	1, 5, 8	Link leisure cycle routes with key leisure and tourist destinations.

Option	Description	New or existing	Source	Objective (s)	Issue/Opportunity
leisure/tourist destinations	destinations such as Boston Woods path network, Black Sluice trail, Coastal footpath and the RSPB reserve.				
Cycle storage on buses	Provide equipment for bicycles to be carried on buses.	New	S	1, 3	There is a lack of connectivity between modes.
Review cycle storage at schools	Review existing capacity and quality of cycle storage at schools and consider improving/increasing to usage.	New	S	1, 3	Car travel is one of the dominant travel to school modes.
New cycle routes on waterways	<ul style="list-style-type: none"> Provide a route from the residential areas east of Maud Foster Drain to employment sites on the west Provide a route between St Botolphs foot bridge/Carlton Road Rowing Club to improve connectivity to the town centre 	New	SG/PT	1, 2, 3, 8	Some key routes (serving key destinations) do not have any cycle infrastructure.
Equality Act Audit	Conduct an Equality Act Audit to assess improvements can made.	New	PT	1, 4	
Bus and rail station cycle facilities	Provide enhanced cycle facilities at bus and rail stations such as lockers, showers, secure parking to encourage more journeys to work by cycle.	New	PT	1, 6, 8	There is a lack of connectivity between modes.
Trip end cycle facilities	Offer match/part funding for cycle facilities (such as parking, showers and lockers) at trip end locations, such as workplaces and educational institutions.	New	PT	1, 3, 6, 8	The proportion of people cycling at least once a week has declined.

4.4.4 Freight

Option	Description	New or existing	Source	Objective (s)	Issue/Opportunity
Rail freight hub	Create a new rail freight hub on the edge of the town.	New	S	6	
Increased rail freight based.	Increase use of rail to transport freight to/from the area	New	PT	4, 6	

4.4.5 Parking

Option	Description	New or existing	Source	Objective	Issue/Opportunity
Review Traffic Regulation Orders in the town centre	Review TROs in the town centre to ensure they are working as effectively as possible.	New	PT	4	Traffic flows on main routes through the town are substantially higher than those on routes entering the town.
Rationalise town centre car parking	Review of the on and off-street car park provision within the town centre with a view to rationalising parking capacity into fewer, larger car parks.	New	PT	4, 5	The removal of small car parks in favour of fewer large car parks would release land for development /regeneration and could lead to better traffic management and greater control on where traffic goes.
Improve online and real time information	Improve real-time information on car park availability to help people make informed decisions. Explore possibilities of utilising smartphone capabilities.	New	PT/SG	4	Boston has a large number of car parks for a town of its size which encourages vehicular movements in both directions across the two river crossings. This is likely to add to congestion issues, particularly at peak times.
Review tariffs	Review parking tariffs to ensure that it aligns with the key priority of encouraging and facilitating sustainable transport. Use pricing to influence when people travel such as lower rates outside of the peak periods.	New	PT	4	The journey time of some cross town movements in the peaks is more than twice the journey time under free flow conditions.
Smart payments	Introduction of smart payments for car parks in the town centre such as using contactless bankcard or pay by phone payments.	New	PT	4	

Option	Description	New or existing	Source	Objective	Issue/Opportunity
Improve car park signage	Variable Message Signs (VMS) to direct drivers to the most appropriate car parks (where parking is available) from the main roads approaching the town.	Existing	PTS	4	Boston has a large number of car parks for a town of its size which encourages vehicular movements in both directions across the two river crossings. This is likely to add to congestion issues, particularly at peak times.
New Parking Strategy	Compile a new Parking Strategy to analyse the current situation regarding parking in Boston to identify problems and opportunities for improvement. Achieving a balance between the needs of residents to park, access to local employment and local retail and service providers, and the need to reduce trips by conventional cars throughout the Town.	New	PT	4	

4.4.6 Smarter Choices

Option	Description	New or existing	Source	Objective(s)	Issue/Opportunity
'Try for Free' Public Transport Campaign	Work with public transport operators to encourage use by offering free journeys to residents and employees (e.g. free return rail ticket from Boston to another Lincolnshire Station or free day pass on Into Town Service)	New	PT/OS	6, 8	Bus patronage levels in Lincolnshire have fallen since 2009/10, but have performed better than the East Midlands region. The large proportion of people travelling to work within Boston Town and Borough by car represents a clear opportunity for modal shift.
All schools to have up to date and active Travel Plans	Ensure all schools have an up to date and active Travel Plan that targets modal shift.	New	PT/OS	1, 3, 6, 8	6,651 pupils attend schools in Boston, generating significant movements of pupils and their parents, putting pressure on the transport network at the morning peak and period immediately prior to the standard PM peak.

Option	Description	New or existing	Source	Objective(s)	Issue/Opportunity
Develop a Business Travel Zone for Boston	Provide improved travel planning support to businesses in Boston to encourage sustainable travel for work-related journeys.	New	PT/OS	1, 3, 5, 6, 8	Car and van use is the dominant mode for work journeys wholly within Boston Town and Borough. The large proportion of people travelling to work within Boston Town and Borough by car represents a clear opportunity for modal shift.
Continued/Accelerated roll-out of Bikeability to schools	Accelerated drive in roll out of Bikeability and associated initiatives to Boston schools to encourage more pupils to cycle to school	Existing	S/OS	1, 2, 3	6,651 pupils attend schools in Boston, generating significant movements of pupils and their parents, putting pressure on the transport network at the morning peak and period immediately prior to the standard PM peak. Bikeability sessions are popular amongst primary schools.
Adult cycle training	Offer free adult cycle training	New	S/PT	1, 2, 3	There is a historic reduction in cycle flows in the last few years up to 2014. Promote cycling as a reliable and cheap mode of transport.
Increased Publicity Campaigns for Use of Public Transport	Introduction of publicity campaigns and initiatives to raise the profile of public transport and its benefits within Boston and to	New	PT/OS	1, 3, 6	Bus patronage levels in Lincolnshire have fallen since 2009/10, but have performed better than the East Midlands region. The large proportion of people travelling to work within Boston

Option	Description	New or existing	Source	Objective(s)	Issue/Opportunity
	encourage its use				Town and Borough by car represents a clear opportunity for modal shift.
Targeted travel planning including personalised travel planning for residential properties, all major employers and education establishments	Travel planning tailored to the needs/attitudes of particular segments within the target population with solutions focused upon engaging with those most amenable to change.	New	PT/OS	1, 3	The large proportion of people travelling to work within Boston Town and Borough by car represents a clear opportunity for modal shift. Wide range of existing bus services to the town centre, residential and rural areas.
Facilitate sustainable travel in new developments	Ensure all new developments have an active Travel Plan.	New	PT/OS	1, 3, 6, 8	The future planned development provides an opportunity to increase Council revenues and embed sustainable transport from the outset.
Employer funded public transport	Work with local employers to explore the possibility of co-funding bus services that would help transport their workforce.	New	PT/OS/S	1, 3, 4	A significant increase in the working population per household living in Boston will result in an increase in the number of commuting journeys per household at peak times. Lower earnings, meaning less access to private car travel, and the geographic isolation of Boston, coupled with relatively limited public transport networks, limits opportunities for the local population.
Borough-wide annual sustainable travel events/promotions	Promote sustainable travel initiatives such as 'Bike to Work week' and 'Walk to school month' with borough-wide events.	New	S	6, 8	There is a low take up of existing initiatives aimed at enabling access by sustainable means.

4.4.7 Land use

Option	Description	New or existing	Source	Objective(s)	Issue/Opportunity
Residential Development	Locate new housing developments adjacent to existing employment, education and services to reduce the need to travel.	New	Local Plan consultation/PT	1, 5, 6, 7, 8	Some of the employment areas are separated from other parts of the town by barriers, such as waterways. Travelling to and from many destinations requires one or more waterway crossings and there are a small number of bridges that people are funnelled onto.
Food retail provision	Construct one full-sized supermarket in the area beyond Clay Lake where commercial development is already approved to reduce number of cross-town trips to existing supermarkets all other side of town.	New	Local Plan consultation/PT	1, 5, 6, 8	The lack of food retail opportunities on the east of the town is likely to cause traffic movements across town as people from east of Boston access the food stores in the west. Travelling to and from many destinations requires one or more waterway crossings and there are a small number of bridges that people are funnelled onto.
Town Centre development	Make it a priority to develop town centre brownfield sites that facilitate sustainable travel, regenerate town centre and provide residential opportunities.	New	Local Plan consultation/PT	5, 6, 7, 8	Boston's inner urban area has high levels of deprivation. The increasing number of households suggests that Boston is undergoing a period of development. If this continues it presents an opportunity to gain funding from third parties for transport improvements.
Educational developments	Improve geographical balance of schools to reduce cross-town movements by building a new secondary school on the west of the town centre.	New	Local Plan consultation/PT	1, 5, 6, 8	All secondary schools are east of the River Witham resulting in cross-town movements for pupils living west of the River.

4.5 Sifting Methodology

Using experience from similar projects, an option sifting matrix has been developed to identify those options on the long list which are most likely to address the objectives and outcomes of the Transport Strategy and therefore the transport related needs of Boston, both now and in the future. This sifting matrix will be used to assess the options included on the long list, from which a short list of the more viable options will be identified and taken forward.

Whilst this sifting exercise will be objective led, additional criteria will be considered, under the headings Deliverability and Risks, in order to identify those options which have a realistic opportunity to be developed further and ultimately delivered in the future. Each option will be assessed against a number of criteria under the following headings;

- Objectives, as identified in Section 12 of Working Paper 2
- Deliverability, which includes the following criteria;
 - Cost,
 - Funding (includes identifiable sources, competition for funding)
 - Timescale for delivery, and
 - Feasibility (includes complexity, impact during delivery and third party land requirements)
- Risks, including the following criteria;
 - Political support
 - Public support, and
 - Environmental impact

For each of the criterion a score 0 to 4 will be allocated, 4 being a positive contribution or impact and 0 representing no contribution or a negative impact. The scoring system is set out in more detail, including the criteria for which scores will be allocated, in on the following page.

The total score for each option will calculated by summing the individual scores for each criterion and will be used to provide a method of comparison between options. Those with higher total scores will be taken forward on a shortlist for further detailed investigation and assessment, which will establish viability for inclusion in the final Transport Strategy document.

	4	3	2	1	0
Objectives & Outcomes	Fully contributes to the objective/outcome as a stand alone option	Significant contribution to the objective/outcome in combination with another option(s)	Goes some way to contributing to the objective/outcome as part of a package of measures	Minimal contribution to objective/outcome	Does not contribute to the objective/outcome identified
Cost	£0-£100K	£100K-£500K	£500K-£1M	£1M-£5M	£5M+
Funding	Existing funding source identified and available		Funding source(s) identified but not currently available (potential competition for funding from other schemes)		No funding source identified, may require complex funding assembly with expected strong competition from other schemes nationally/regionally to secure funding
Timescale for Delivery	0-1yr	1-2yrs	2-5yrs	5-10yrs	10yrs +
Feasibility (Design implications, space to accommodate etc)	Very simple to implement with very little or no impact during delivery	Low complexity to implement with minimal impact during delivery	Medium complexity option to implement with some impact/challenges during delivery	Medium/high complexity option to deliver with moderate impact during delivery with some challenges, third party land may be required	Major scheme highly complex implementation process with significant impact during delivery, necessitates third party land acquisition posing substantial challenges
Political Support	Political support for the option is highly likely (already identified)	Very Likely	Likely	Not guaranteed but may receive some support	Unlikely / Existing or strong expectation for opposition
Public Support	Public support for the option is highly likely (already identified)	Very Likely	Likely	Not guaranteed but may receive some support	Unlikely / Existing or strong expectation for opposition
Environmental impact	No environmental impact and goes some way to environmental improvements	No environmental impact expected	Minimal environmental impact	Some environmental impact	Significant impact on local environment

5 Option Sifting and Short-listing

5.1 Introduction

Using experience from similar projects, an option sifting matrix has been developed to identify those options on the long list which are most likely to address the objectives and outcomes of the Transport Strategy and therefore the transport related needs of Boston, both now and in the future. This sifting matrix has been used to assess the options included on the long list, from which a short list of the more viable options will be taken forward for more detailed assessment.

Whilst this sifting exercise has been objective and outcome led, additional criteria have been considered, under the headings of Deliverability and Risks, in order to identify those options which have a realistic opportunity to be developed further and ultimately delivered in the future. Each option has been assessed against a number of criteria under the following headings;

- Objectives, as identified in Chapter 3;
- Outcomes: the following outcomes have been identified for the strategy:
 - A reduction in carbon emissions from transport
 - A reduction in the use of the private car for accessing jobs, schools and the town centre, as a proportion of these journeys
 - A reduction in the amount of traffic entering the town centre core.
 - An increase in the level of service provided by public transport between Boston and other Lincolnshire urban areas.
 - An increase in the proportion of the population living within 400 metres of a bus stop providing a minimum frequency of one bus service per hour.
 - An increase in public transport patronage.
 - An improvement in the reliability of bus services.
 - An increase in the share of cycling and walking trips taken into the town centre.
 - A reduction in both the number and severity of road accident casualties.
 - A reduction in the number of accidents involving cyclists and pedestrians.

- An improvement in the perception of safety and security while travelling.
- Deliverability, which includes the following criteria;
 - Cost,
 - Funding (includes identifiable sources, competition for funding)
 - Timescale for delivery, and
 - Feasibility (includes complexity, impact during delivery and third party land requirements)
- Risks, including the following criteria;
 - Political support
 - Public support, and
 - Environmental impact

For each of the criterion a score 0 to 4 was allocated, 4 being a positive contribution or impact and 0 representing no contribution or a negative impact. The scoring system is set out in more detail, including the criteria for which scores have been allocated, in Appendix A.

The total score for each option was calculated by summing the individual scores for each criterion and has been used to provide a method of comparison between options. Those with higher scores for objectives and outcomes will be taken forward on a shortlist for further detailed investigation and assessment, which will establish the viability for inclusion in the final Transport Strategy document.

5.2 Option Sifting

5.2.1 Methodology

Each of 77 options were assessed on the four point scale detailed in Section 1.2 against each of the strategy objectives and outcomes and the deliverability and risk criteria to come up with a provisional score. The sifting criteria are contained in Appendix A and the results of this scoring are contained in Appendix B.

The options were then ranked in order from the highest to the lowest score. The results of the initial assessment are displayed below in *Table 5-1*.

5.3 Results

Table 5-1 – Options ranked by objectives, outcomes, deliverability and risk

Option	Total Score	Ranking
Facilitate sustainable travel in new developments through soft measures	54	1
Design residential developments to enable sustainable travel	51	2
Introduce cycle route infrastructure on key radial routes	45	3
Public transport hub	42	4
Increase all day frequency of all bus services	42	
Increase all day frequency of Into Town services	42	
Cycle safety improvements as part of the 20mph zones	42	
Develop a Business Travel Zone for Boston	42	8
Improve inter-urban bus service provision	41	9
Increase peak time frequency of all bus services	41	
Increase peak time frequency of Into Town services	41	
New cycle routes on waterways	41	
Continued/Accelerated roll-out of Bikeability to schools	41	
Develop town centre sites as a priority to facilitate sustainable travel	41	
Sunday bus services	40	15
All schools to have up to date and active Travel Plans	40	
Town centre public realm improvements	39	17
Bus station upgrade	39	
Improve pedestrian and cycle user safety at key junctions	39	
Option	Total Score	Overall ranking
Review cycle routes between leisure and tourism destinations	39	17
20mph Zones	38	20
More direct rail routes to wider destinations	38	
Adult cycle training	38	
Traffic calming and crossing facilities on Fydell Street/ Norfolk Street	37	24
New pedestrian and cycle bridges	37	
Equality Act Audit	37	
Review of town centre traffic management	36	27
Increase town centre cycle parking	36	

Consider introducing TROs for HGVs restrictions	35	
Review public transport links to key employment areas	35	
Targeted travel planning including personalised travel planning for residential properties, all major employers and education establishments	35	29
Build a new secondary school on west side of the town	35	
Design new developments to allow circular bus routes	34	
Improve bus waiting facilities	34	33
Journey end cycle facilities	34	
Review community transport provision	33	
Bus and rail station cycle facilities	33	36
Food retail provision on east side of the town	33	
Public realm improvements around John Adams Way	32	
Rationalisation of rail timetables	32	
Improve crossing facilities on John Adams Way	32	39
'Try for Free' Public Transport Campaign	32	
Increased Publicity Campaigns for Use of Public Transport	32	
Bus priority measures	31	
Review cycle storage at schools	31	44
Borough-wide annual sustainable travel events/promotions	31	
Cycle hire/cycle share scheme	30	
Park and cycle as part of park and ride	30	47
New Parking Strategy	30	
Option	Total Score	Overall ranking
Review on-street parking close to schools and the hospital.	29	50
Improve walking and cycling signage	29	
Junction improvements	28	52
Improve public transport signage	28	
Review existing shared footway/cycleways	26	
Cycle storage on buses	26	54
Review Traffic Regulation Orders in the town centre	26	
Review tariffs	26	
Introduce one-way route on London Road	25	58
Flexible ticketing options	25	

Increased rail freight based	25	
Boston Distributor Road	24	61
Improve online and real time information	24	
Employer funded public transport	24	
Rationalise town centre car parking	23	64
Daytime loading restriction	23	
Smart payments	21	66
Improve car park signage	21	
Convert Spalding Road/High Street into a gyratory	20	68
New link road into Docks and Skirbeck Quarter	19	69
Park and ride	18	70
Double track the railway between Sibsey & Hubberts Bridge	18	
Rail freight hub	18	
Provide new road bridge across the Haven	17	73
Utilise waterways for passenger and freight travel	17	
Bypass by upgrading existing road	15	75
Flyover to link the A52 with A1121 Boardsides	15	76
Relocate railway station	2	77

5.4 Short-List

5.4.1 Introduction

After ranking the 77 options against the strategy objectives and outcomes as well as deliverability and risk, those options with the lowest combined scores were identified. The following list represents the lowest scoring options and are suggestions for options that should be considered for exclusion from further analysis and inclusion in the Strategy:

- New link road into Docks and Skirbeck Quarter
- Park and Ride
- Double track the railway between Sibsey and Hubbert's Bridge
- Rail freight hub
- Provide new road bridge across the Haven
- Utilise waterways for passenger and freight travel
- Bypass by upgrading existing roads

- Flyover to link the A52 with the A1121 Boardsides
- Relocate railway station

The short-list of 68 options suggested to be taken forward for further analysis is presented below in Table 5-2.

Table 5-2 – Short-List of Options

Rank	Option	Description	Score	Type
1	Facilitate sustainable travel in new developments through soft measures	Ensure all new developments have an active Travel Plan.	54	Smarter Choices
2	Design residential developments to enable sustainable travel	Locate new housing developments adjacent to existing employment, education and services to reduce the need to travel.	51	Land use
3	Introduce cycle route infrastructure on key radial routes	Introduce cycle route infrastructure on key radial routes into the town centre: <ul style="list-style-type: none"> • Spilsby Road • Skirbeck Road • Wyberton W Road/Chain Bridge Road 	45	Cycling and walking
4	Public transport hub	New town centre public transport hub on location of existing bus station or new location. The hub would facilitate interchange between different modes of transport and improve safety, public realm, waiting areas and passenger information. The hub would reflect best practice to create a first-class facility.	42	Public transport
4	Increase all day frequency of all bus services	Increase frequency of all bus services throughout the day	42	Public transport
4	Increase all day frequency of Into Town services	Increase frequency of Into Town services throughout the day	42	Public transport
4	Cycle safety improvements as part of the 20mph zones	Utilise techniques such as centreline removal across the 20mph zones to reduce vehicle speeds and promote safety for people using cycles.	42	Cycling and walking
4	Develop a Business Travel Zone for Boston	Provide improved travel planning support to businesses in Boston to encourage sustainable travel for work-related journeys.	42	Smarter choices
5	Improve inter-urban bus service provision	Increase number and frequency bus services on inter-urban routes to nearby key destinations. Align services that visit the rail station with train times, providing a fully integrated public transport provision for the town.	41	Public transport

Rank	Option	Description	Score	Type
5	Increase peak time frequency of all bus services	Increase frequency of all bus services during morning and evening peak hours.	41	Public transport
5	Increase peak time frequency of Into Town services	Increase frequency of Into Town services throughout the day	41	Public transport
5	New cycle routes on waterways	<ul style="list-style-type: none"> Provide a route from the residential areas east of Maud Foster Drain to employment sites on the west Provide a route between St Botolphs foot bridge/Carlton Road Rowing Club to improve connectivity to the town centre 	41	Cycling and walking
5	Continued/Accelerated roll-out of Bikeability to schools	Accelerated drive in roll out of Bikeability and associated initiatives to Boston schools to encourage more pupils to cycle to school	41	Smarter choices
5	Develop town centre sites as a priority to facilitate sustainable travel	Make it a priority to develop town centre brownfield sites that facilitate sustainable travel, regenerate town centre and provide residential opportunities.	41	Land use
6	Sunday bus services	Introduce a Sunday bus service to benefit workers and to encourage shoppers without access to a car.	40	Public transport
6	All schools to have up to date and active Travel Plans	Ensure all schools have an up to date and active Travel Plan that targets modal shift.	40	Smarter choices
7	Town centre public realm improvements	Expand the Market Place public realm onto West Street and High Street by: reallocating space for pedestrians and commercial opportunities (e.g. footway café tables and seating), rationalising parking and loading and making landscape improvements. The individual elements of the scheme could be split into separate packages.	39	Highways and traffic management
7	Bus station upgrade	Upgrade to include improved waiting facilities and passenger information	39	Public transport
7	Improve pedestrian and cycle user safety at key junctions	Review facilities for people on foot and on cycles at junctions where collisions involving pedestrians and cycle users have been recorded: <ul style="list-style-type: none"> A52/West Street Fydell Street/Norfolk Street A52/A16 	39	Cycling and walking
7	Review cycle routes between leisure and tourism destinations	Review existing linkages and consider provision of new cycle routes to tourist destinations such as Boston Woods path network,	39	Cycling and walking

Rank	Option	Description	Score	Type
		Black Sluice trail, Coastal footpath and the RSPB reserve.		
8	20mph Zones	Review potential locations for 20mph zones.	38	Highways and traffic management
8	More direct rail routes to wider destinations	Lobby Train Operating Company to provide increased, more direct services and to connect to wider destinations.	38	Public transport
8	Adult cycle training	Offer free adult cycle training	38	Smarter choices
9	Traffic calming and crossing facilities on Fydell Street/ Norfolk Street	Consider implementing traffic calming and providing crossing facilities on Fydell Street/Norfolk Street to encourage lower speeds and improve safety for other road users.	37	Highways and traffic management
9	New pedestrian and cycle bridges	<p>Increase pedestrian/cycle connectivity by building new bridges/upgrading existing bridges at the following locations:</p> <ul style="list-style-type: none"> • Across South Forty Foot Drain to link existing residential areas and future development areas. • Across Maud Foster Drain by at Windsor Crescent. • Across Maud Foster Drain at Hospital Lane/Norfolk Street. • Across River Witham north west of the town centre (as an alternative to the Fydell St bridge). 	37	Cycling and walking
9	Equality Act Audit	Conduct an Equality Act Audit to assess improvements can made.	37	Walking and cycling
10	Review of town centre traffic management	Review existing traffic management measures including one-way routes and banned movements.	36	Highways and traffic management
10	Increase town centre cycle parking	Increase and improve town centre cycle parking facilities.	36	Cycling and walking
11	Consider introducing TROs for HGVs restrictions	Review HGV routing through the town centre and consider implementing TROs on unsuitable routes	35	Highways and traffic management
11	Review public transport links to key employment areas	Explore bus provision to key employment areas close to the town, such as the Industrial Estates on Marsh Lane and Skirbeck Quarter to support shift workers during early and late hours.	35	Public transport
11	Targeted travel planning including personalised	Travel planning tailored to the needs/attitudes of particular	35	Smarter choices

Rank	Option	Description	Score	Type
	travel planning for residential properties, all major employers and education establishments	segments within the target population with solutions focused upon engaging with those most amenable to change.		
11	Build a new secondary school on west side of the town	Improve geographical balance of schools to reduce cross-town movements by building a new secondary school on the west of the town centre.	35	Land use
12	Design new developments to allow circular bus routes	When planning new developments, consider circular bus routes rather than in/out routes which take longer for a service to operate the same route.	34	Public transport
12	Improve bus waiting facilities	Provide or improve shelters, seating, raised access kerbs at all bus stops where there is space to accommodate.	34	Public transport
12	Journey end cycle facilities	Offer match/part funding for cycle facilities (such as parking, showers and lockers) at trip end locations, such as workplaces and educational institutions.	34	Cycling and walking
13	Review community transport provision	Review community transport provision with a view to improving offer where the public transport network does not provide coverage.	33	Public transport
13	Bus and rail station cycle facilities	Provide enhanced cycle facilities at bus and rail stations such as lockers, showers, secure parking to encourage more journeys to work by cycle.	33	Cycling and walking
13	Food retail provision on east side of the town	Construct one full-sized supermarket in the area beyond Clay Lake where commercial development is already approved to reduce number of cross-town trips to existing supermarkets all other side of town.	33	Land use
14	Public realm improvements around John Adams Way	Reduce the barrier that John Adams Way imposes by improving the environment for other road users: introducing greenery/lighting; and removing excessive guard railing.	32	Highways and traffic management
14	Rationalisation of rail timetables	Lobby Train Operating Company with regards to changing the timetables to assist interchange at Grantham for onward East Coast Main Line services.	32	Public transport
14	Improve crossing facilities on John Adams Way	Review existing crossing facilities and timings along John Adams Way to improve safety and connectivity for pedestrians and cycle users.	32	Highways and traffic management

Rank	Option	Description	Score	Type
14	'Try for Free' Public Transport Campaign	Work with public transport operators to encourage use by offering free journeys to residents and employees (e.g. free return rail ticket from Boston to another Lincolnshire Station or free day pass on Into Town Service)	32	Smarter choices
14	Increased Publicity Campaigns for Use of Public Transport	Introduction of publicity campaigns and initiatives to raise the profile of public transport and its benefits within Boston and to encourage its use	32	Smarter choices
15	Bus priority measures	Introduction of bus gates that prioritise bus movements at congested locations, such as the A16 south of Boston.	31	Public transport
15	Review cycle storage at schools	Review existing capacity and quality of cycle storage at schools and consider improving/increasing to usage.	31	Cycling and walking
15	Borough-wide annual sustainable travel events/promotions	Promote sustainable travel initiatives such as 'Bike to Work week' and 'Walk to school month' with borough-wide events.	31	Smarter choices
16	Cycle hire/cycle share scheme	Introduce a cycle hire/cycle share scheme.	30	Cycling and walking
16	Park and cycle as part of park and ride	Provide cycle hire/share bikes at peripheral car parks to allow for Park and Cycle.	30	Cycling and walking
16	New Parking Strategy	Compile a new Parking Strategy to analyse the current situation regarding parking in Boston to identify problems and opportunities for improvement. Achieving a balance between the needs of residents to park, access to local employment and local retail and service providers, and the need to reduce trips by conventional cars throughout the Town.	30	Car parking
17	Review on-street parking close to schools and the hospital.	Review existing parking demand and on-street supply within the vicinity of schools and the hospital with a view to alleviating parking issues.	29	Car parking
17	Improve walking and cycling signage	Improve/introduce signage for pedestrians and cycle users to assist way-finding.	29	Cycling and walking
18	Junction improvements	Improvements to help improve traffic flow through the junctions forecast to be under pressure in the future, such as: A52/A16 A16/London Road A52/A1121	28	Highways and traffic management

Rank	Option	Description	Score	Type
18	Improve public transport signage	Improve signage for the bus and train stations for pedestrians travelling from the town centre	28	Public transport
19	Review existing shared footway/cycleways	Review existing shared cycleway/footways and consider alternatives, such as segregation, where applicable.	26	Cycling and walking
19	Cycle storage on buses	Provide equipment for bicycles to be carried on buses.	26	Cycling and walking
19	Review Traffic Regulation Orders in the town centre	Review TROs in the town centre to ensure they are working as effectively as possible.	26	Highways and traffic management
19	Review car parking tariffs	Review parking tariffs to ensure that it aligns with the key priority of encouraging and facilitating sustainable transport. Use pricing to influence when people travel such as lower rates outside of the peak periods.	26	Car parking
20	Introduce one-way route on London Road	Introduce a one-way northbound vehicle restriction on London Road to improve environment for cyclists on NCN 1	25	Highways and traffic management
20	Flexible ticketing options	Introduce a one-way northbound vehicle restriction on London Road to improve environment for cyclists on NCN 1	25	Public transport
20	Increased rail freight	Increased use of rail to transport freight to/from the area	25	Freight
21	Boston Distributor Road	New strategic route linking the A16 in the South of the town to the A16 in the north and servicing the new developments.	24	Highways and traffic management
21	Improve online and real time information	Improve real-time information on car park availability to help people make informed decisions. Explore possibilities of utilising smartphone capabilities.	24	Car parking
21	Employer funded public transport	Work with local employers to explore the possibility of co-funding bus services that would help transport their workforce.	24	Public transport
22	Rationalise town centre car parking	Review of the on and off-street car park provision within the town centre with a view to rationalising parking capacity into fewer, larger car parks.	23	Car parking
22	Daytime loading restriction	Restrict loading/unloading to outside of daytime hours	23	Highways and traffic management
23	Smart payments	Introduction of smart payments for car parks in the town centre such as using contactless bankcard or pay by phone payments.	21	Car parking

Rank	Option	Description	Score	Type
23	Improve car park signage	Variable Message Signs (VMS) to direct drivers to the most appropriate car parks (where parking is available) from the main roads approaching the town.	21	Car parking
24	Convert Spalding Road/High Street into a gyratory	The gyratory would have traffic going south on Spalding Road and north on High Street.	20	Highways and traffic management

The shortlisted options are separated under various option headings in the following tables.

Table 5-3 – Highways and traffic management options

Rank	Option	Description	Score
7	Town centre public realm improvements	Expand the Market Place public realm onto West Street and High Street by: reallocating space for pedestrians and commercial opportunities (e.g. footway café tables and seating), rationalising parking and loading and making landscape improvements. The individual elements of the scheme could be split into separate packages.	39
8	20mph Zones	Review potential locations for 20mph zones.	38
9	Traffic calming and crossing facilities on Fydell Street/ Norfolk Street	Consider implementing traffic calming and providing crossing facilities on Fydell Street/Norfolk Street to encourage lower speeds and improve safety for other road users.	37
10	Review of town centre traffic management	Review existing traffic management measures including one-way routes and banned movements.	36
11	Consider introducing TROs for HGVs restrictions	Review HGV routing through the town centre and consider implementing TROs on unsuitable routes	35
14	Public realm improvements around John Adams Way	Reduce the barrier that John Adams Way imposes by improving the environment for other road users: introducing greenery/lighting; and removing excessive guard railing.	32
14	Improve crossing facilities on John Adams Way	Review existing crossing facilities and timings along John Adams Way to improve safety and connectivity for pedestrians and cycle users.	32

Rank	Option	Description	Score
18	Junction improvements	Improvements to help improve traffic flow through the junctions forecast to be under pressure in the future, such as: A52/A16 A16/London Road A52/A1121	28
19	Review Traffic Regulation Orders in the town centre	Review TROs in the town centre to ensure they are working as effectively as possible.	26
20	Introduce one-way route on London Road	Introduce a one-way northbound vehicle restriction on London Road to improve environment for cyclists on NCN 1	25
21	Boston Distributor Road	New strategic route linking the A16 in the South of the town to the A16 in the north and servicing the new developments.	24
22	Daytime loading restriction	Restrict loading/unloading to outside of daytime hours	23
24	Convert Spalding Road/High Street into a gyratory	The gyratory would have traffic going south on Spalding Road and north on High Street.	20

Table 5-4 – Public Transport Options

Rank	Option	Description	Score
4	Public transport hub	New town centre public transport hub on location of existing bus station or new location. The hub would facilitate interchange between different modes of transport and improve safety, public realm, waiting areas and passenger information. The hub would reflect best practice to create a first-class facility.	42
4	Increase all day frequency of all bus services	Increase frequency of all bus services throughout the day	42
4	Increase all day frequency of Into Town services	Increase frequency of Into Town services throughout the day	42
5	Improve inter-urban bus service provision	Increase number and frequency bus services on inter-urban routes to nearby key destinations. Align services that visit the rail station with train times, providing a fully integrated public transport provision for the town.	41
5	Increase peak time frequency of all bus services	Increase frequency of all bus services during morning and evening peak hours.	41
5	Increase peak time frequency of Into Town services	Increase frequency of Into Town services throughout the day	41

Rank	Option	Description	Score
6	Sunday bus services	Introduce a Sunday bus service to benefit workers and to encourage shoppers without access to a car.	40
7	Bus station upgrade	Upgrade to include improved waiting facilities and passenger information	39
8	More direct rail routes to wider destinations	Lobby Train Operating Company to provide increased, more direct services and to connect to wider destinations.	38
11	Review public transport links to key employment areas	Explore bus provision to key employment areas close to the town, such as the Industrial Estates on Marsh Lane and Skirbeck Quarter to support shift workers during early and late hours.	35
12	Design new developments to allow circular bus routes	When planning new developments, consider circular bus routes rather than in/out routes which take longer for a service to operate the same route.	34
12	Improve bus waiting facilities	Provide or improve shelters, seating, raised access kerbs at all bus stops where there is space to accommodate.	34
13	Review community transport provision	Review community transport provision with a view to improving offer where the public transport network does not provide coverage.	33
14	Rationalisation of rail timetables	Lobby Train Operating Company with regards to changing the timetables to assist interchange at Grantham for onward East Coast Main Line services.	32
15	Bus priority measures	Introduction of bus gates that prioritise bus movements at congested locations, such as the A16 south of Boston.	31
18	Improve public transport signage	Improve signage for the bus and train stations for pedestrians travelling from the town centre	28
20	Flexible ticketing options	Introduce a one-way northbound vehicle restriction on London Road to improve environment for cyclists on NCN 1	25
21	Employer funded public transport	Work with local employers to explore the possibility of co-funding bus services that would help transport their workforce.	24

Table 5-5 – Cycle and Walking Options

Rank	Option	Description	Score
3	Introduce cycle route infrastructure on key radial routes	Introduce cycle route infrastructure on key radial routes into the town centre: <ul style="list-style-type: none"> • Spilsby Road • Skirbeck Road • Wyberton W Road/Chain Bridge Road 	45
4	Cycle safety improvements as part of the 20mph zones	Utilise techniques such as centreline removal across the 20mph zones to reduce vehicle speeds and promote safety for people using cycles.	42
5	New cycle routes on waterways	<ul style="list-style-type: none"> • Provide a route from the residential areas east of Maud Foster Drain to employment sites on the west • Provide a route between St Botolphs foot bridge/Carlton Road Rowing Club to improve connectivity to the town centre 	41
7	Improve pedestrian and cycle user safety at key junctions	Review facilities for people on foot and on cycles at junctions where collisions involving pedestrians and cycle users have been recorded: <ul style="list-style-type: none"> • A52/West Street • Fydell Street/Norfolk Street A52/A16 	
7	Review cycle routes between leisure and tourism destinations	Review existing linkages and consider provision of new cycle routes to tourist destinations such as Boston Woods path network, Black Sluice trail, Coastal footpath and the RSPB reserve.	39
9	New pedestrian and cycle bridges	Increase pedestrian/cycle connectivity by building new bridges/upgrading existing bridges at the following locations: <ul style="list-style-type: none"> • Across South Forty Foot Drain to link existing residential areas and future development areas. • Across Maud Foster Drain by at Windsor Crescent. • Across Maud Foster Drain at Hospital Lane/Norfolk Street. • Across River Witham north west of the town centre (as an alternative to the Fydell St bridge). 	37

Rank	Option	Description	Score
9	Equality Act Audit	Conduct an Equality Act Audit to assess improvements can made.	37
10	Increase town centre cycle parking	Increase and improve town centre cycle parking facilities.	36
12	Trip end cycle facilities	Offer match/part funding for cycle facilities (such as parking, showers and lockers) at trip end locations, such as workplaces and educational institutions.	34
13	Bus and rail station cycle facilities	Provide enhanced cycle facilities at bus and rail stations such as lockers, showers, secure parking to encourage more journeys to work by cycle.	33
15	Review cycle storage at schools	Review existing capacity and quality of cycle storage at schools and consider improving/increasing to usage.	31
16	Cycle hire/cycle share scheme	Introduce a cycle hire/cycle share scheme.	30
16	Park and cycle as part of park and ride	Provide cycle hire/share bikes at peripheral car parks to allow for Park and Cycle.	30
17	Improve walking and cycling signage	Improve/introduce signage for pedestrians and cycle users to assist way-finding.	29
19	Review existing shared footway/cycleways	Review existing shared cycleway/footways and consider alternatives, such as segregation, where applicable.	26
19	Cycle storage on buses	Provide equipment for bicycles to be carried on buses.	26

Table 5-6 – Freight Options

Rank	Option	Description	Score
20	Increased rail freight	Increased use of rail to transport freight to/from the area	25

Table 5-7 – Parking Options

Rank	Option	Description	Score
16	New Parking Strategy	Compile a new Parking Strategy to analyse the current situation regarding parking in Boston to identify problems and opportunities for improvement. Achieving a balance between the needs of residents to park, access	30

Rank	Option	Description	Score
		to local employment and local retail and service providers, and the need to reduce trips by conventional cars throughout the Town.	
17	Review on-street parking close to schools and the hospital.	Review existing parking demand and on-street supply within the vicinity of schools and the hospital with a view to alleviating parking issues.	29
19	Review car parking tariffs	Review parking tariffs to ensure that it aligns with the key priority of encouraging and facilitating sustainable transport. Use pricing to influence when people travel such as lower rates outside of the peak periods.	26
21	Improve online and real time information	Improve real-time information on car park availability to help people make informed decisions. Explore possibilities of utilising smartphone capabilities.	24
22	Rationalise town centre car parking	Review of the on and off-street car park provision within the town centre with a view to rationalising parking capacity into fewer, larger car parks.	23
23	Smart payments	Introduction of smart payments for car parks in the town centre such as using contactless bankcard or pay by phone payments.	21
23	Improve car park signage	Variable Message Signs (VMS) to direct drivers to the most appropriate car parks (where parking is available) from the main roads approaching the town.	21

Table 5-8 – Smart Choices Options

Rank	Option	Description	Score
1	Facilitate sustainable travel in new developments through soft measures	Ensure all new developments have an active Travel Plan.	54
4	Develop a Business Travel Zone for Boston	Provide improved travel planning support to businesses in Boston to encourage sustainable travel for work-related journeys.	42
5	Continued/Accelerated roll-out of Bikeability to schools	Accelerated drive in roll out of Bikeability and associated initiatives to Boston schools to encourage more pupils to cycle to school	41
6	All schools to have up to date and active Travel Plans	Ensure all schools have an up to date and active Travel Plan that targets modal shift.	40

Rank	Option	Description	Score
8	Adult cycle training	Offer free adult cycle training	38
11	Targeted travel planning including personalised travel planning for residential properties, all major employers and education establishments	Travel planning tailored to the needs/attitudes of particular segments within the target population with solutions focused upon engaging with those most amenable to change.	35
14	'Try for Free' Public Transport Campaign	Work with public transport operators to encourage use by offering free journeys to residents and employees (e.g. free return rail ticket from Boston to another Lincolnshire Station or free day pass on Into Town Service)	32
14	Increased Publicity Campaigns for Use of Public Transport	Introduction of publicity campaigns and initiatives to raise the profile of public transport and its benefits within Boston and to encourage its use	32
15	Borough-wide annual sustainable travel events/promotions	Promote sustainable travel initiatives such as 'Bike to Work week' and 'Walk to school month' with borough-wide events.	31

Table 5-9 – Land Use Options

Rank	Option	Description	Score
2	Design residential developments to enable sustainable travel	Locate new housing developments adjacent to existing employment, education and services to reduce the need to travel.	51
5	Develop town centre sites as a priority to facilitate sustainable travel	Make it a priority to develop town centre brownfield sites that facilitate sustainable travel, regenerate town centre and provide residential opportunities.	41
11	Build a new secondary school on west side of the town	Improve geographical balance of schools to reduce cross-town movements by building a new secondary school on the west of the town centre.	35
13	Food retail provision on east side of the town	Construct one full-sized supermarket in the area beyond Clay Lake where commercial development is already approved to reduce number of cross-town trips to existing supermarkets all other side of town.	33

6 Assessment of Short-listed Options

6.1 Introduction

This chapter reports the outputs from Stage 5 of the commission to produce the new Transport Strategy. This stage undertook an assessment of the potential impacts of the shortlisted options taken forward from the option sifting work in Stage 4.

As covered in Working Paper 4, the sifting process assessed the relative merits of the 77 options and undertook qualitative scoring of each based on their likely ability to deliver the strategy objectives and outcomes and issues related to deliverability and risk. An initial shortlist of 68 of the options was generated from the process and presented to the steering group.

At the subsequent steering group meeting, one of the discounted options, Boston East-West Relief Road, was inserted back into the shortlist following the agreement of the group members. It was agreed that this option would be worthy of modelling to assess its relative benefits compared to other highway schemes included in the shortlist.

The sifting process resulted in eight options being eliminated from any further assessment, these were:

- Park and Ride
- Double track the railway between Sibsey and Hubbert's Bridge
- Rail freight hub
- Provide new road bridge across the Haven
- Utilise waterways for passenger and freight travel
- Bypass by upgrading existing roads
- Flyover to link the A52 with the A1121 Boardsides
- Relocate railway station

6.1.1 Option Review

The options in the shortlist have been split into two separate sets: highway and non-highway options;

- Highway options
The highway options have been modelled, where feasible, using the Boston SATURN traffic model to assess the quantifiable impact of the option on the highway network. The outputs from the highway modelling have been used to provide an indication of the overall impact of options at a strategic level.

- Non-highway options:
Schemes aimed at affecting modal shift and demand management, for example improvements to public transport or walking and cycling facilities. Non-highway options, which cannot be tested using the traffic model, have been considered in terms of their impact on modal shift. Groups of interventions/options have been packaged together and their potential impacts on vehicle trip generation have been assessed based on examples of best practice from across the UK.

6.1.2 *Structure of the Chapter*

This chapter, following on from this introduction, presents the outputs from the highways modelling in Sections 6.4 to 6.11 and the outputs from the assessment of non-highway options in Section 6.12 onwards.

6.2 **Highway Options: Approach**

Within the agreed shortlist, the following are considered to be highway options:

- Town centre public realm improvements
- 20 mph zones
- Traffic calming and crossing facilities on Fydell Street/Norfolk Street
- Review of town centre traffic management
- Consider introducing TROs for HGV restrictions
- Public realm improvements on John Adams Way
- Junction improvements
- Review of TROs in the town centre
- Boston East-West Relief Road
- Introduce one-way route on London Road/High Street
- Daytime Loading Restrictions
- Convert Spalding Road/High Street into a gyratory
- Boston Distributor Road

A significant proportion of these options are either not suitable for assessment in a strategic traffic model (e.g. public realm improvements or junction improvements) or are not developed to a suitable level of detail to enable them to be modelled at this time (e.g. review of town centre traffic management, HGV restrictions, etc).

However, four of the above, more strategic options are considered suitable for assessment in the Traffic Model at this time; these are:

- Boston East-West Relief Road
- Introduce one-way route on London Road
- Convert Spalding Road/High Street into a gyratory
- Boston Distributor Road

6.3 Traffic Modelling

The Boston SATURN base model has been revalidated to 2013 (in June 2014) and provides Lincolnshire County Council with a tool through which the impacts of interventions on the highway network, in traffic terms, can be understood.

This commission has used the model, as used for the previous Boston Distributor Road testing in the autumn of 2015, to test the likely traffic impact of the appropriate shortlisted highway options taking into account background traffic growth and growth related to specific developments. The schemes have been assessed for the future year of 2036 in the AM and PM peak hour period.

The AM and PM peak hour Boston models provide an accurate representation of the current traffic demands in the wider Boston area. The AM and PM peak hour models are considered to be robust and provide a reliable basis for assessing the impact of the proposed schemes.

Full details of the development of the modelling scenarios used for this assessment are contained in the Boston Distributor Road Traffic Modelling Report (October 2015).

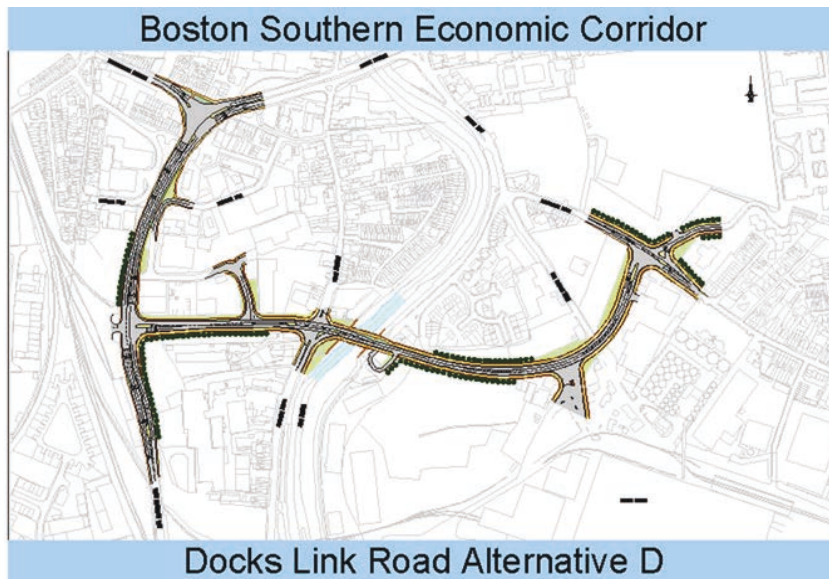
6.4 Forecasting

6.4.1 *Scheme Definition and Network*

The following information and assumptions have been applied for each of the options modelled:

- **Option 1 – Boston East-West Relief Road (known for the purposes of reporting as the BEWRR)**
An image of the Boston Southern Economic Corridor alignment was provided by LCC and is illustrated in below:

Figure 6-1 – Boston East-West Relief Road



- The alignment and junction types have been estimated based on the above image and adjusted based on the traffic flows resulting from initial runs of the model.
- The Boston East-West Relief Road has been assumed as a single carriageway route (approx. 7.3 metres wide) with a 40mph speed limit.
- Junctions on the road are mainly assumed to be signal controlled where the road intersects or terminates at existing roads.
- The existing A52 / A16 roundabout junction has been converted to three arm signal control.
- **Option 2 – Introduce one-way route on London Road/High Street (known for the purposed of reporting as the London Road One-way)**
 - London Road / High Street link converted to one way operation over its entire length.
 - The junction to the north with John Adams way would be retained as a priority control left out only.
 - It has been assumed London Road / High Street would be a single lane northbound with the road space released given to sustainable transport / public realm.
- **Option 3 – Convert Spalding Road/High Street into a gyratory (known for the purposed of reporting as the Gyratory)**

- London Road / High Street has been assumed to be two lanes northbound over its entire length.
 - Spalding Road A16 assumed to be two lanes southbound increasing to three at the junction with London Road
 - Junction of A16 Spalding Road and London Road converted to four arm signal control.
 - Junction of High Street and A16 John Adams Way converted to signal control with left and right turn permitted from High Street. All arms of the junction have two lane approaches.
- **Option 4 – Boston Distributor Road Eastern Alignment (known for the purposes of reporting as BDR)**
 - It has been assumed that the full BDR route would not be completed within the period of the Transport Strategy and emerging Local Plan up to 2036. Therefore, the sections linking the A16, south of Boston, to Punchbowl Lane, west of the town, have been included in this modelling.
 - The highway network assumed includes the existing network plus Quadrant 1, Quadrant 2, North Forty Foot roads and development, plus a bridge and associated infrastructure over Black Sluice, railway and A1121 Boardsides in 2036.
 - Overall the difference between the Reference Case (see below) and the Do-Something scenario including BDR is the addition of the bridge over the A1121 Boardsides, railway line and South Forty Foot Drain. It is assumed that the highway links of the BDR will be delivered by the developers of sites at Quadrant 1, Quadrant 2 and North Forty Foot.

6.4.2 *Forecast Scenarios*

The scenarios used in the traffic modelling have been taken from the Boston Distributor Road work completed in October 2015 (151029 BDR Traffic Modelling report v2.0, October 2015).

The impact of options is assessed through the comparison of a Reference Case (Do-Minimum) scenario, the situation without any of the options included, to the Do-Something, the situation with options included.

The Reference Case used for this modelling exercise is Scenario D from the BDR work completed in October 2015. Scenario D includes the existing highway network plus Quadrant 1, Quadrant 2 and the North Forty Foot roads and proposed development up to 2036.

The Do-Something scenarios (this is the situation with individual schemes included within the modelling) are as follows:

- For BEWRR, London Road One-way and the Gyratory: 2 and 3: Scenario D plus each of the options
- For BDR: Scenario E – Existing network plus Quadrant 1, Quadrant 2, North Forty Foot roads and development, plus a bridge and associated infrastructure over Black Sluice, railway and A1121 Boardsides in 2036.

Modelling has been undertaken for both AM and PM peak hours for each of the above scenarios.

6.4.3 *Proposed and Committed Developments*

The proposed and committed development in this option testing is as set out in the BDR Traffic Modelling Report and no changes have been made to traffic generation.

6.4.4 *Software Used*

The SATURN version 11.3.03G was used for the base model assessment and future year assessment.

6.4.5 *Analysis*

The following analysis has been undertaken for each of the scenarios and options detailed above:

- Overall Network Statistics
- Quickest journey times (via any route) between A16 South and A16 North, and A52 West and A52 East.
- Comparison of traffic volume to highway link capacity (V/C) at key junctions in Boston town centre and on the proposed scheme – this analysis shows the level of congestion at different junctions.
- Traffic flow difference (change in demand traffic flow in Boston town centre and surrounding network) between Reference Case and Do-Something (with options) scenarios
- Select Link Analysis at various locations on the critical links impacted by the scheme – this analysis shows the distribution and routing of traffic to and from a particular link (section of carriageway) within a model.

6.5 **Highway Options: Summary Statistics**

Network summary statistics provide high level information about the network and can serve as a general guide and comparison of network performance as a whole. However, they should be treated with some caution and used in conjunction with other outputs such as journey times and link or junction capacity. Table 6-1 below

presents the network statistics for each scenario including the Reference Case and the four options tested.

Table 6-1 – Network Summary Stats

Stat	Unit	Reference Case		Option 1 BEWRR		Option 2 London Road One way		Option 3 Gyratory		Option 4 BDR	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Transient Queues	PCU Hrs/Hr	455.8	421.6	474.3	450.2	452.1	430.4	461.4	429.6	454	426.2
Over Capacity Queues	PCU Hrs/Hr	272.2	303.3	206	139.8	543.1	396.2	669.9	580.9	186.4	203.9
Delay	PCU Hrs/Hr	274.5	220.6	266.1	220.7	276.6	231	270.5	217	273.7	223.3
Total Travel Time	PCU Hrs/Hr	2,352	2,170	2,289	2,036	2,603	2,277	2,079	2,413	2,278	2,104
Travel Distance	PCU KMs ('000s)	79.5	71.5	79.4	71.8	78.6	71.5	76.8	69.1	80.5	73.1
Overall Average Speed	KPH	33.8	33	34.7	35.3	30.2	31.4	28.4	28.6	35.3	34.7

The following table provides further clarity on the relative performance of options compared to the Reference Case. The information on over capacity queues, total travel time and overall average speed are of particular note. Over capacity queues relate to total amount of time, in the peak hours, that vehicles in the modelled area are delayed by queuing at junctions that are operating over their capacity. It can be seen from the following table that Options 1 (BEWRR) and 4 (BDR) generate a significant reduction in over capacity queues within the modelled highway network but Options 2 (London Road One-way) and 3 (Gyratory) result in very significant increases in queueing within the network. Options 1 and 4 also result in reductions in total travel time and increases in average speed on the network with generally the opposite occurring for Options 2 and 3.

Table 6-2 – Network Summary Stats – Percentage Change from Reference Case

Stat	Unit	Option 1 BEWRR		Option 2 London Road One way		Option 3 Gyratory		Option 4 BDR	
		AM	PM	AM	PM	AM	PM	AM	PM
Transient Queues	PCU Hrs/Hr	4%	7%	-1%	2%	1%	2%	0%	1%
Over Capacity Queues	PCU Hrs/Hr	-24%	-54%	100%	31%	146%	92%	-32%	-33%
Delay	PCU Hrs/Hr	-3%	0%	1%	5%	-1%	-2%	0%	1%
Total Travel Time	PCU Hrs/Hr	-3%	-6%	11%	5%	-12%	11%	-3%	-3%
Travel Distance	PCU KMs ('000s)	0%	0%	-1%	0%	-3%	-3%	1%	2%
Overall Average Speed	KPH	3%	7%	-11%	-5%	-16%	-13%	4%	5%

6.6 Journey Time Statistics

To assess the impact of the four schemes on journey times, three routes have been reviewed; these being the A52 and the A16 crossing the town from the edge of the urban areas and London Road (to specifically assess the impact of the One-way and Gyratory options).

Table 6-3 – A52 West to East Journey Times

Scenario	Reference Case		Option 1 BEWRR		Option 2 London Road One way		Option 3 Gyratory		Option 4 BDR	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
A16										
Time (secs)	712	720	564	534	641	690	551	534	713	719
Delay (secs)	329	336	183	149	263	307	166	145	333	335
Speed (KPH)	17.8	17.3	22.2	23.4	19.5	18.1	22.7	23.4	17.5	17.4
Time (% change)	-	-	-21%	-26%	-10%	-4%	-23%	-26%	0%	0%
Delay (% change)	-	-	-44%	-56%	-20%	-9%	-49%	-57%	1%	0%
Speed (% change)	-	-	25%	35%	10%	4%	28%	35%	-1%	0%
Via Fyde St										
Time (secs)	599	609	566	549	587	598	573	555	604	620
Delay (secs)	186	182	153	122	174	171	160	129	191	193
Speed (KPH)	22.4	22.0	23.7	24.4	22.8	22.4	23.4	24.1	22.2	21.6
Time (% change)	-	-	-5%	-10%	-2%	-2%	-4%	-9%	1%	2%
Delay (% change)	-	-	-18%	-33%	-6%	-6%	-14%	-29%	3%	6%
Speed (% change)	-	-	6%	11%	2%	2%	5%	10%	-1%	-2%

The table above indicates that BEWRR and the Gyratory show the greatest potential for improved journey times on the A52 route via the A16. All options except BDR show the potential for improved journey times.

Table 6-4 – A52 East to West Journey Times

Scenario	Reference Case		Option 1 BEWRR		Option 2 London Road One way		Option 3 Gyratory		Option 4 BDR	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
A16										
Time (secs)	696	583	635	576	752	683	793	630	697	587
Delay (secs)	310	192	226	161	361	291	396	227	311	195
Speed (KPH)	18.1	21.6	19.7	21.7	17.1	18.4	15.7	19.8	18.0	21.4
Time (% change)	-	-	-9%	-1%	8%	17%	14%	8%	0%	1%
Delay (% change)	-	-	-27%	-16%	16%	52%	27%	18%	0%	2%
Speed (% change)	-	-	9%	1%	-6%	-15%	-13%	-8%	0%	-1%
Via Fydell St										
Time (secs)	633	587	628	582	705	629	760	608	633	586
Delay (secs)	191	144	186	139	263	187	318	166	192	144
Speed (KPH)	21.9	23.7	22.1	23.9	19.7	22.1	18.3	22.9	21.9	23.7
Time (% change)	-	-	-1%	-1%	11%	7%	20%	4%	0%	0%
Delay (% change)	-	-	-3%	-3%	37%	29%	66%	15%	0%	0%
Speed (% change)	-	-	1%	1%	-10%	-7%	-17%	-3%	0%	0%

The table above indicates that on the reverse A52 east to west route only BEWRR is predicted to result in journey time reductions on the route via the A16. The journey time increases as a result of BDR are minor however.

Table 6-5 – A16 South to North Journey Times

Scenario	Reference Case		Option 1 BEWRR		Option 2 London Road One way		Option 3 Gytratory		Option 4 BDR	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
A16										
Time (secs)	635	830	548	610	714	763	1,462	1,550	570	717
Delay (secs)	315	506	214	272	395	440	1,108	1,192	250	393
Speed (KPH)	21.7	16.6	24.8	22.3	19.3	18.1	9.0	8.5	24.2	19.3
Time (% change)	-	-	-14%	-26%	13%	-8%	130%	87%	-10%	-14%
Delay (% change)	-	-	-32%	-46%	26%	-13%	252%	136%	-20%	-22%
Speed (% change)	-	-	14%	34%	-11%	9%	-59%	-49%	11%	16%
Via Fydell St										
Time (secs)	966	1,184	853	930	1,035	1,103	1,824	1,904	905	1,077
Delay (secs)	382	591	250	319	452	511	1,175	1,247	321	484
Speed (KPH)	18.8	15.4	21.3	19.6	17.6	16.5	10.4	10.0	20.1	16.9
Time (% change)	-	-	-12%	-21%	7%	-7%	89%	61%	-6%	-9%
Delay (% change)	-	-	-34%	-46%	18%	-13%	208%	111%	-16%	-18%
Speed (% change)	-	-	13%	27%	-7%	7%	-45%	-35%	7%	10%

Table 6-5 above indicates that both BEWRR and BDR are predicted to lead to reductions in journey time on the A16 route. The one-way is predicted to lead to increased journey times on the A16 S to N in the AM peak hour but decreases in the PM. The Gytratory is predicted to lead to substantial increases in both peaks.

Table 6-6 – A16 North to South Journey Times

Scenario	Reference Case		Option 1 BEWRR		Option 2 London Road One way		Option 3 Gyratory		Option 4 BDR	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
A16										
Time (secs)	604	488	555	476	849	756	886	640	605	493
Delay (secs)	261	139	204	117	503	408	512	271	263	145
Speed (KPH)	22	27	24	28	16	18	15	20	22	27
Time (% change)	-	-	-8%	-2%	41%	55%	47%	31%	0%	1%
Delay (% change)	-	-	-22%	-16%	92%	193%	96%	94%	1%	4%
Speed (% change)	-	-	8%	2%	-28%	-35%	-31%	-25%	0%	-1%
Via Fydell St										
Time (secs)	951	926	845	807	1,133	1,088	1,074	838	950	926
Delay (secs)	380	358	253	216	565	524	476	265	379	357
Speed (KPH)	19	20	22	23	16	17	17	22	19	20
Time (% change)	-	-	-11%	-13%	19%	17%	13%	-10%	0%	0%
Delay (% change)	-	-	-34%	-40%	49%	46%	25%	-26%	0%	0%
Speed (% change)	-	-	12%	14%	-16%	-14%	-9%	10%	0%	0%

The table above indicates that all options are predicted to result in increases in journey time on the A16 N to S routes with the exception of BEWRR; the Gyratory would also lead to improvements via Fydell Street in the PM peak.

Table 6-7 – A52 London Road Journey Times

Scenario	Reference Case		Option 1 BEWRR		Option 2 London Road One way		Option 3 Gyratory		Option 4 BDR	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
NB										
Time (secs)	206	402	125	134	1,644	155	1,036	1,195	142	287
Delay (secs)	128	324	40	49	1,566	77	955	1,114	65	209
Speed (KPH)	18.1	9.3	29.7	27.9	2.3	24.1	3.6	3.1	26.2	13.0
Time (% change)	-	-	-39%	-67%	698%	-61%	403%	197%	-31%	-29%
Delay (% change)	-	-	-69%	-85%	1121%	-76%	644%	244%	-50%	-35%
Speed (% change)	-	-	64%	200%	-87%	159%	-80%	-66%	45%	40%
SB										
Time (secs)	127	129	153	151					123	128
Delay (secs)	49	51	37	35					45	50
Speed (KPH)	29.3	29.0	24.3	24.6					30.4	29.2
Time (% change)	-	-	21%	18%					-3%	-1%
Delay (% change)	-	-	-24%	-31%					-9%	-2%
Speed (% change)	-	-	-17%	-15%					4%	1%

The table above shows journey times along the length of London Road between the terminal junction with the A16 roundabout to the junction with A16 John Adams Way. BWRR is predicted to result in journey time improvements northbound and increases southbound. The one-way and Gyratory are predicted to result in substantial increases in journey time northbound on London Road. Further investigation of the poor performance of these two schemes appears to suggest that in the one-way the additional traffic at the A52 / A16 roundabout junction causes blocking back to the London Road / A16 junction which has a negative impact on London Road journey times. In the Gyratory scenario the newly created signal junction at London Road / High street and A16 struggles to provide sufficient capacity for the traffic demand and therefore causes significant delays. BDR would improve the operation of London Road in both directions and in both peaks

6.7 Junction Performance Statistics

A summary table has been produced for maximum volume to capacity values at critical junctions on the network. These values are the maximum value based on all movements at the junction. The numbers relate to the maximum percentage of capacity than any arm of each junction is operating at. Generally, at 85% or above,

the flow of traffic will start to breakdown and at 100% or over, there is no more capacity for additional traffic on that arm.

Table 6-8 – Peak Hour Junction Capacity Performance Summary (2036)

Junction Description	Reference Case		Option 1 BEWRR		Option 2 London Road One way		Option 3 Gyratory		Option 4 BDR	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
A16 Sibsey Road/A52	75	61	78	63	74	61	67	52	74	63
A16/A1137	83	62	85	62	82	62	82	63	83	62
A16/South Square	107	102	103	99	99	92	103	82	107	102
A16/A52 John Adams Way	108	119	102	103	104	108	104	104	108	112
A52/A1121	103	103	103	103	103	103	103	103	97	98
A52 Swineshead /BDR E	74	88	61	77	87	101	79	80	58	70
A52 Swineshead Rd/ BDR	37	31	35	31	39	37	35	38	46	41
B1397 London Road/BDR Q1 access	64	60	62	62	64	40	44	49	58	51
B1397 London Road /BDR Q2	57	58	43	68	48	59	53	34	58	59
A16/BDR Q1 access	76	82	77	84	80	83	68	73	77	81
A1121/BDR Spur	88	94	92	99	84	82	100	102	90	95
BDR Spur / BDR North forty foot drains	46	44	42	40	50	51	46	45	35	35
BDR North forty foot drains Roundabout 1	27	24	24	20	32	33	34	33	30	33
BDR North forty foot drains Roundabout 2	37	31	34	28	40	40	42	40	38	39
BDR/Punchbowl Lane	41	38	38	35	45	50	40	41	39	38
BDR North forty foot drains Roundabout 3	8	14	8	17	8	14	13	12	8	14
High Street / John Adams Way A16	101	101	45	43	107	101	105	105	94	101
A16 Spalding Road / London Road RB	104	91	107	102	116	107	108	104	103	83
Skirbeck Rd / E-W Link	53	58	115	102	50	60	50	49	53	60

Table 6-8 table above indicates that at the critical J5 A16 / A52 John Adams Way junction all of the proposed schemes would resulting in lower values. The lowest values for AM and PM are predicted as a result of BEWRR followed closely by the Gyratory. At the High Street / John Adams Way junction, where a number of the schemes will have an impact, it is clear that the lowest values result from BEWRR followed by BDR, which shows a small benefit over the Reference Case. The one-way and Gyratory schemes are predicted to have higher values than the Reference Case scenario.

At A16 / South Square junction all of the proposed schemes are predicted to result in a small decrease in values, an improvement, with the exception of BDR which is predicted to result in the same values as the Reference Case.

The A16 Spalding Road and London Road junction is currently a roundabout but is converted to a four arm signal junction in the one-way option. Only the BDR scenario shows a small predicted improvement in over the Reference Case. All other options are predicted to result in higher values.

The following table provides further clarity on the level of impact of each option on the junctions. Where an option improves the performance operation of the junction, the table is highlighted in green; where there is a reduction in junction performance, the table is highlighted in red. In addition, where a junction has an arm operating above 100% of capacity, the text in the table is highlighted in bold.

With the exception of the A16/London Road junction, BEWRR and BDR do not reduce the performance of junctions where an arm is operating at or above capacity. However, there are a number of junctions for the one-way and Gyrotory options where there have a negative impact on such junctions. All options would improve operation of the key A52/A16 John Adams Way junction.

Table 6-9 – Peak Hour Junction Capacity Performance Summary (2036) – Percentage Change from Reference Case

Junction Description	Option 1 BEWRR		Option 2 London Road One way		Option 3 Gyratory		Option 4 BDR	
	AM	PM	AM	PM	AM	PM	AM	PM
A16 Sibsey Road/A52	4%	3%	-1%	0%	-11%	-15%	-1%	3%
A16/A1137	2%	0%	-1%	0%	-1%	2%	0%	0%
A16/South Square	-4%	-3%	-7%	-10%	-4%	-20%	0%	0%
A16/A52 John Adams Way	-6%	-13%	-4%	-9%	-4%	-13%	0%	-6%
A52/A1121	0%	0%	0%	0%	0%	0%	-6%	-5%
A52 Swineshead /BDR E	-18%	-13%	18%	15%	7%	-9%	-22%	-20%
A52 Swineshead Rd/ BDR	-5%	0%	5%	19%	-5%	23%	24%	32%
B1397 London Road/BDR Q1 access	-3%	3%	0%	-33%	-31%	-18%	-9%	-15%
B1397 London Road /BDR Q2	-25%	17%	-16%	2%	-7%	-41%	2%	2%
A16/BDR Q1 access	1%	2%	5%	1%	-11%	-11%	1%	-1%
A1121/BDR Spur	5%	5%	-5%	-13%	14%	9%	2%	1%
BDR Spur / BDR North forty foot drains	-9%	-9%	9%	16%	0%	2%	-24%	-20%
BDR North forty foot drains Roundabout 1	-11%	-17%	19%	38%	26%	38%	11%	38%
BDR North forty foot drains Roundabout 2	-8%	-10%	8%	29%	14%	29%	3%	26%
BDR/Punchbowl Lane	-7%	-8%	10%	32%	-2%	8%	-5%	0%
BDR North forty foot drains Roundabout 3	0%	21%	0%	0%	63%	-14%	0%	0%
High Street / John Adams Way A16	-55%	-57%	6%	0%	4%	4%	-7%	0%
A16 Spalding Road / London Road RB	3%	12%	12%	18%	4%	14%	-1%	-9%

6.8 Summary

A review of summary statistics on general network operation, journey times and junction operation has shown that BEWRR and BDR will have broadly positive impacts on the network, with the significantly greater benefits being generated by BEWRR.

It should be noted, as stated previously, that the sections of BDR modelled as part of this exercise do not constitute the full expected extent of the proposed road, from A16 south to A16 north. Only the section between the A16 south and Punchbowl Lane has been modelled and it would be expected that benefits of the full BDR would be greater. However, due to the highway links being delivered by developers,

it is not expected that all links of the full BDR would be delivered within the timescales of the Transport Strategy.

The impacts of the one-way and Gyratory options are significantly negative, due among other matters to the lack of junction capacity, therefore, it is recommended that these options are not taken forward for further development and are therefore excluded from the Strategy.

However, the results of supporting analysis highlights the importance of developing improvements to the A16/A52 junction and this should be included in the Strategy as a priority. This junction is particularly sensitive to changes in traffic flows and investigations should be undertaken into the most appropriate solution to improving this key junction within the town.

6.9 Highway Options: Spatial Analysis

Following on from the previous section, analysis of spatial outputs from the modelling has been undertaken for the two best performing options (BEWRR and BDR) to provide some understanding of how the scheme would affect traffic flows in the town.

6.10 Option 1 – Boston East-West Relief Road

6.10.1 Flow Difference Plots

The plots presented below illustrate the resulting flow difference on individual roads when BEWRR is inserted into the highway network.

Figure 6-2 and 5-3 show the wider Boston area road network, in the AM and PM peak hours respectively, while Figure 6-3 and 5-4 show the Boston Town Centre network in the two peak hours. Increases in flow are shown in green and decreases in blue.

The plots indicate increases in flow on A16 on the southern approach to the town and on the A52 to the west of its junction with the A16. There are also notable flow increases on the Fishtoft Road, Kingsway and Toot Lane corridor. There are notable decreases in flow on a number of roads within the urban area including the Freiston Road/Eastwood Road corridor and the Fydell Street/Norfolk Street corridor but also in area to the west of the town.

The figures suggest that traffic is diverting onto the BEWRR which is relieving the A16 John Adam's Way, which in turn allows more capacity for traffic to transfer to this route from the Fydell Street/Norfolk Street corridor in the north of the town centre. Rather than simply relieving John Adam's Way, this option enables the redistribution of traffic from a number of more minor roads onto more appropriate and suitable routes, relieving traffic from residential areas. Of particular note is the addition of this third river crossing provides relief to the bridge on Fydell Street, which has significant geometric constraints.

Figure 6-2 – AM BEWRR Flow Difference Boston

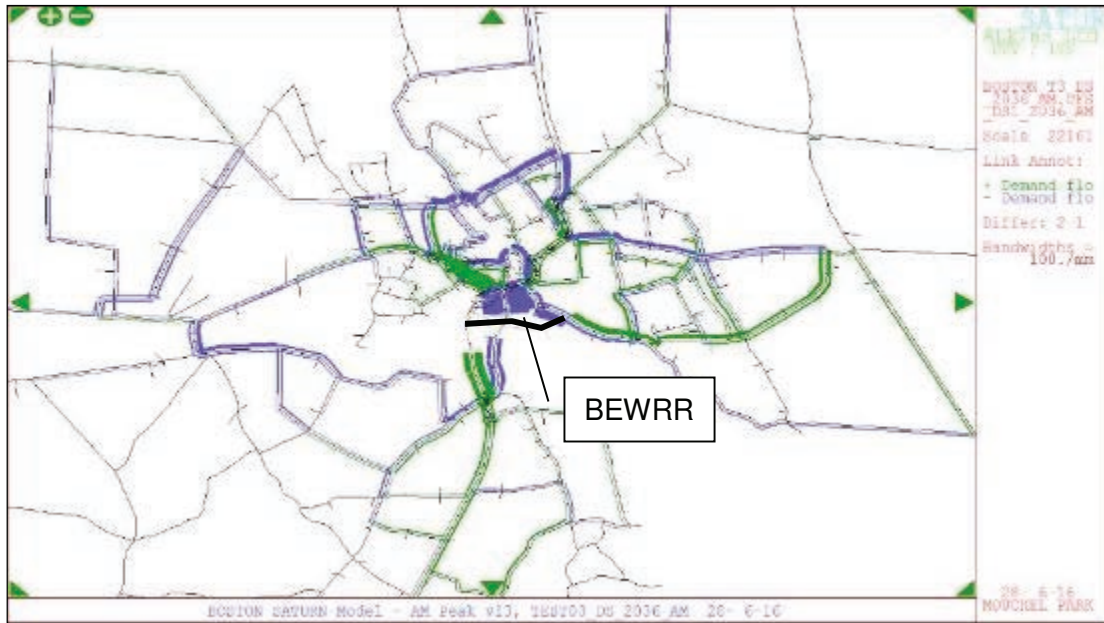


Figure 6-3 – AM BEWRR Flow Difference – Boston Town Centre

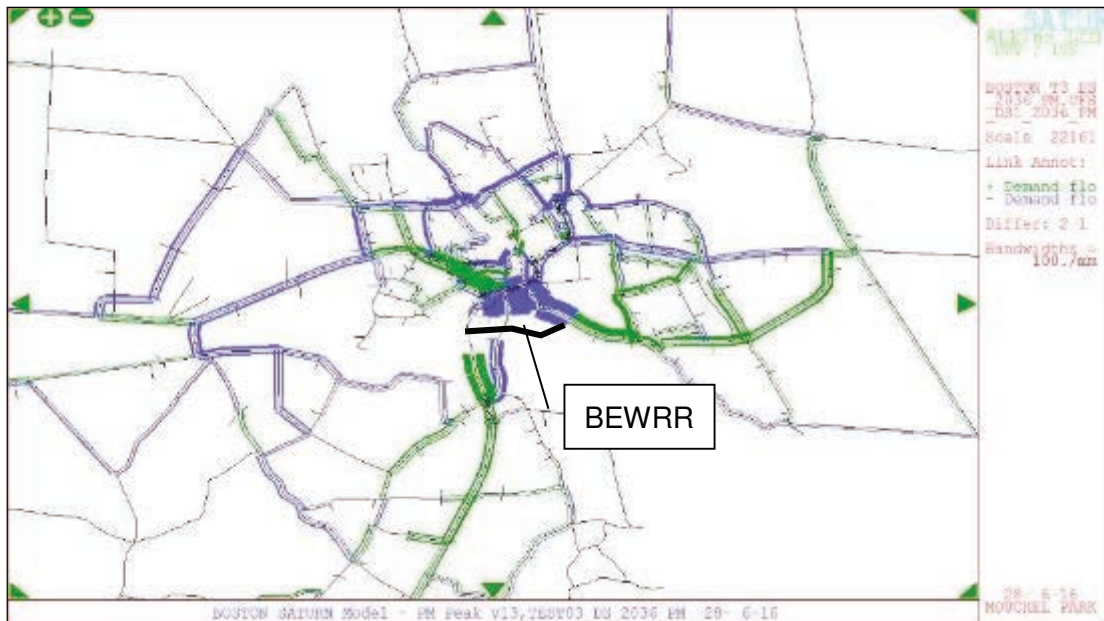


Figure 6-4 – PM BEWRR Flow Difference Boston

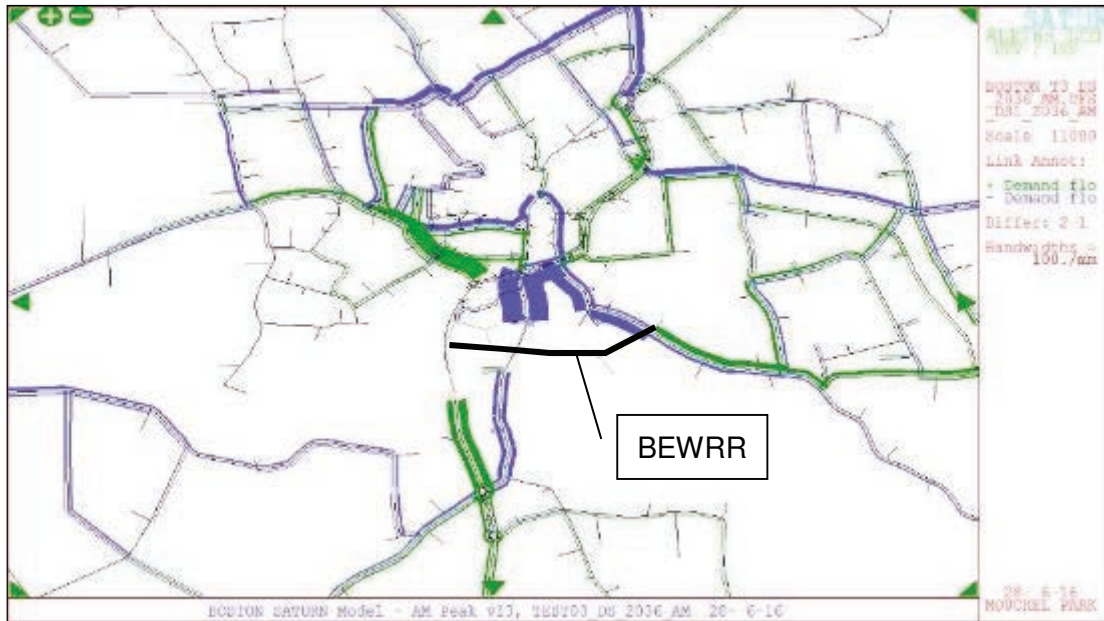
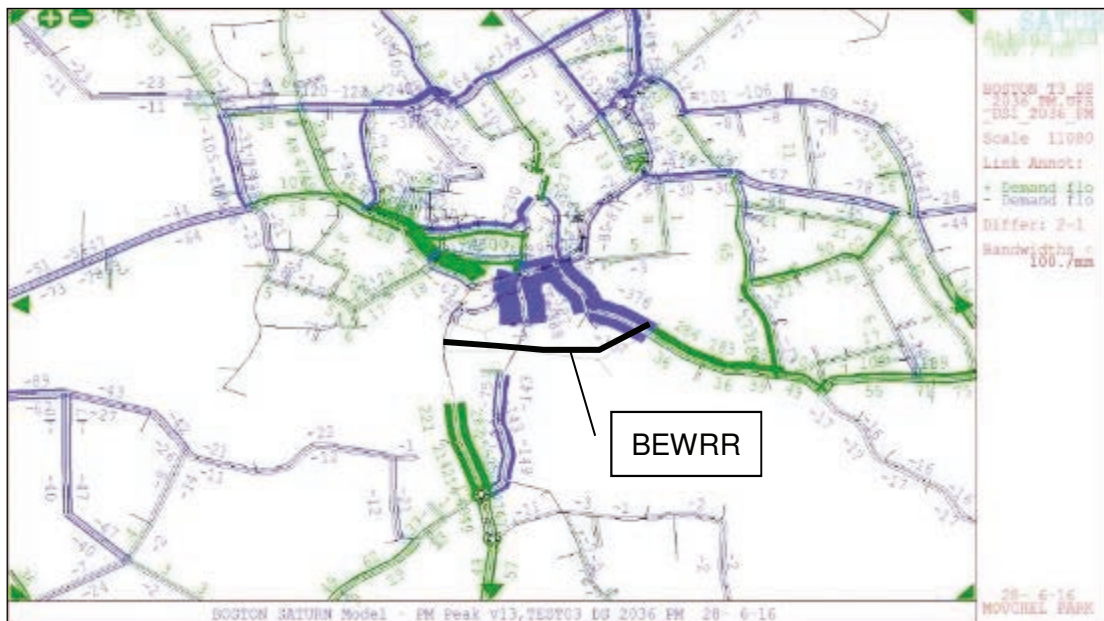


Figure 6-5 – PM BEWRR Flow Difference Boston Town Centre



6.10.2 Select Link Analysis

The figures below illustrate the select link analysis for the BEWRR. This analysis enables a specific link in the highway network to be selected, in this case the new bridge over The Haven, to identify the origin and destination of traffic using that link.

The select link analysis indicates that predominantly traffic using the BEWRR is travelling between the A16 south and Fishtoft Road with a smaller amount of traffic potentially using the BEWRR as a direct alternative to the existing A16 route through the town, relieving John Adam's Way. However, in the westbound direction, traffic

also using the route to pass between Fishtoft Road and A52 and areas to the west of Boston.

Figure 6-6 – AM BEWRR Select Link Analysis Eastbound

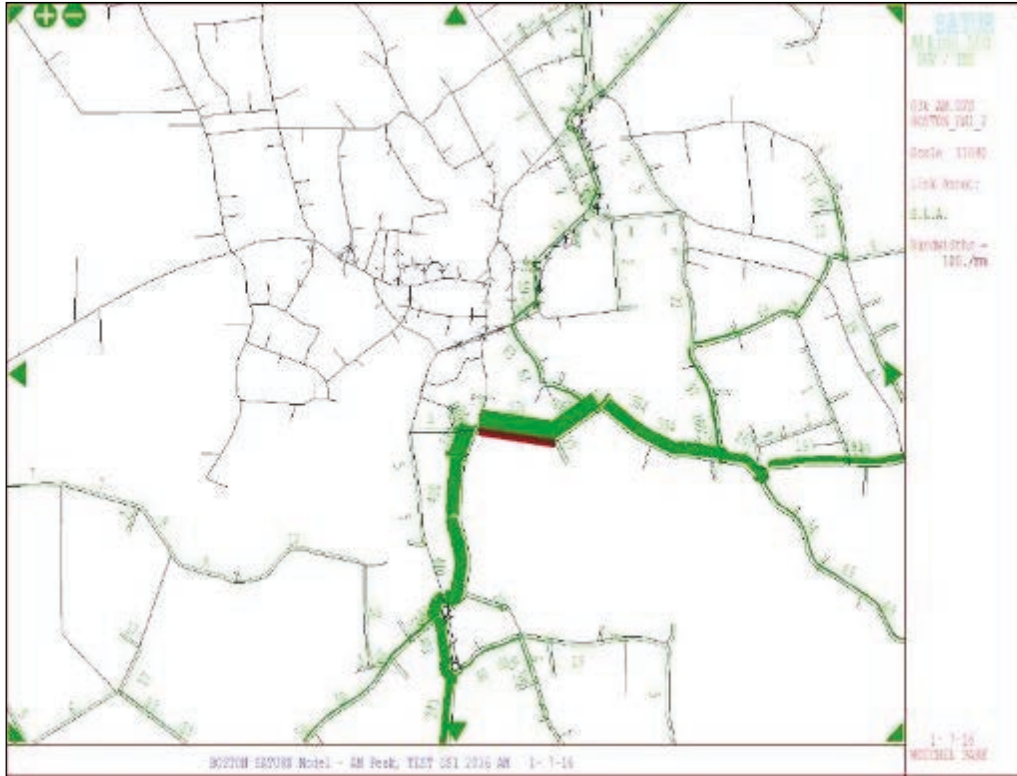


Figure 6-7 – AM BEWRR Select Link Analysis Westbound

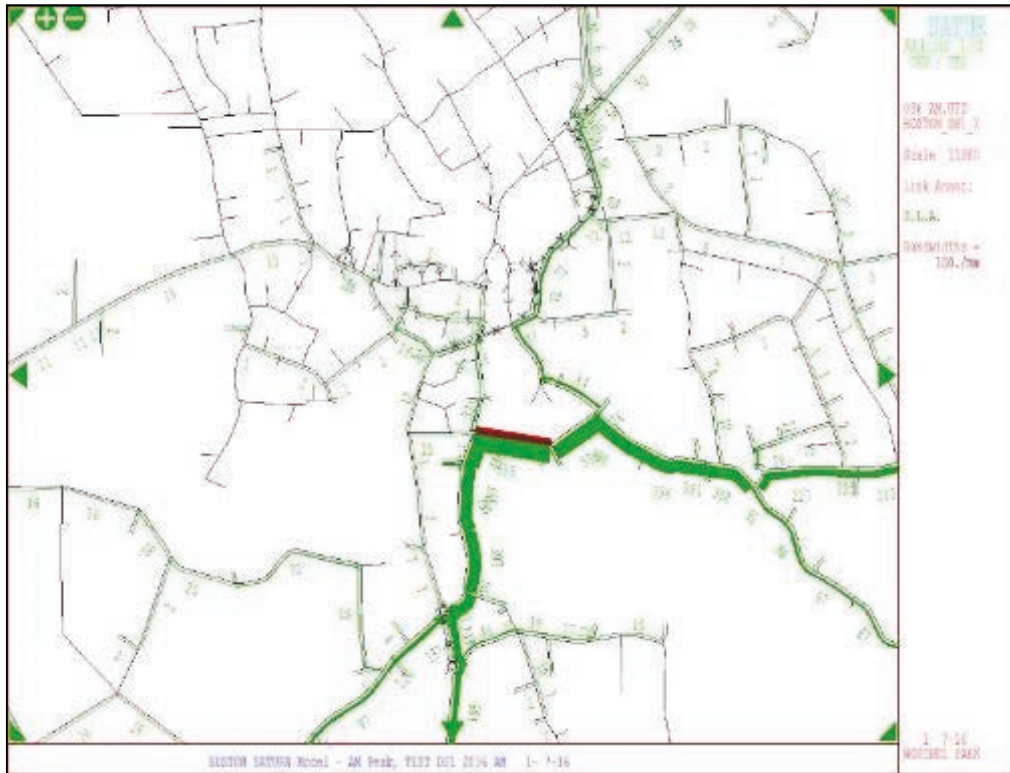


Figure 6-8 – PM BEWRR Select Link Analysis Eastbound

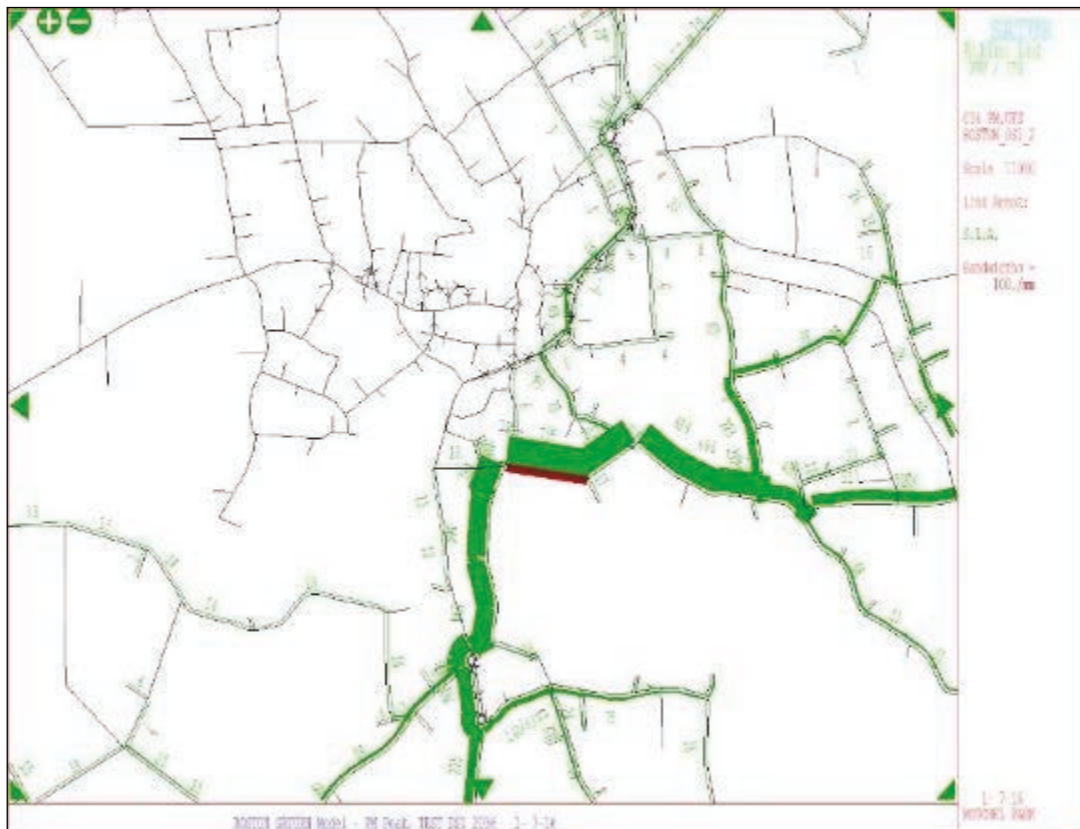
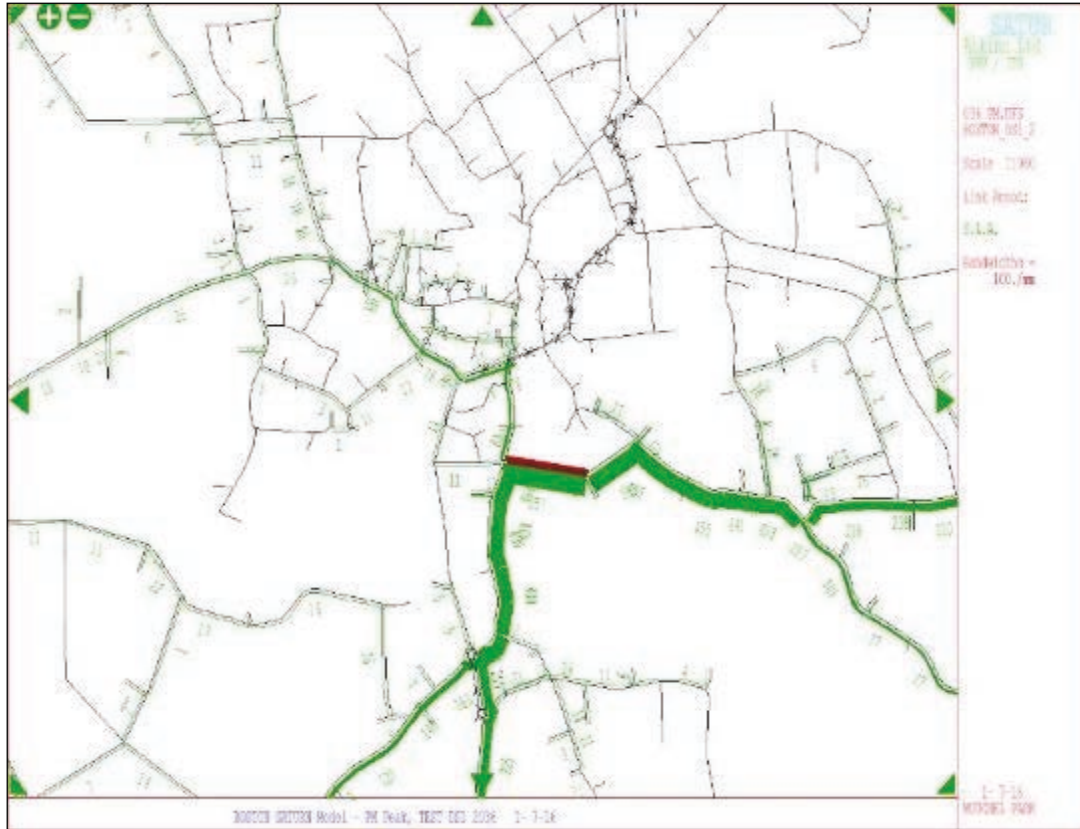


Figure 6-9 – PM BEWRR Select Link Analysis Westbound



6.11 Option 4 – Boston Distributor Road

6.11.1 Flow Difference Plots

The following flow difference plots show the difference with the addition of BDR to the highway network. As stated previously, as the links of BDR will be provided by developers, the difference between the Reference Case and the BDR option in this modelling exercise is the addition of the bridge over the A1121 Boarsides, the railway line and South Forty Foot Drain. Furthermore, the BDR between A16 south and Punchbowl Lane has been modelled for the purposes of this exercise rather than the full BDR between A16 south and A16 north as this is unlikely to be delivered during the course of the emerging Local Plan period up to 2036.

Figure 5-9 and 5-11 show the wider Boston area road network, in the AM and PM peak hours respectively, while Figures 5-10 and 5-12 show the Boston town centre network in the two peak hours. Again, increases in flow are shown in green and decreases in blue.

With the construction of the bridge, the figures show increases in traffic on the northern extent of BDR and on the A1121, A52 and Fen Road to the west of the town and some more minor increases on the Fydell Street/Norfolk Street corridor. The figures also show some relief of routes in the centre of the town including the A16 and London Road/High Street; the removal of some traffic from the A16 as it approaches the A52 will give capacity for traffic to divert off London Road. The most

significant relief is at the A1121/A52 junction, which is presently constrained both by the junction itself and by the level crossing. However, the overall impact on flows within the town centre is notably less than that of the BEWRR.

Figure 6-10 – Flow Difference BDR AM Boston

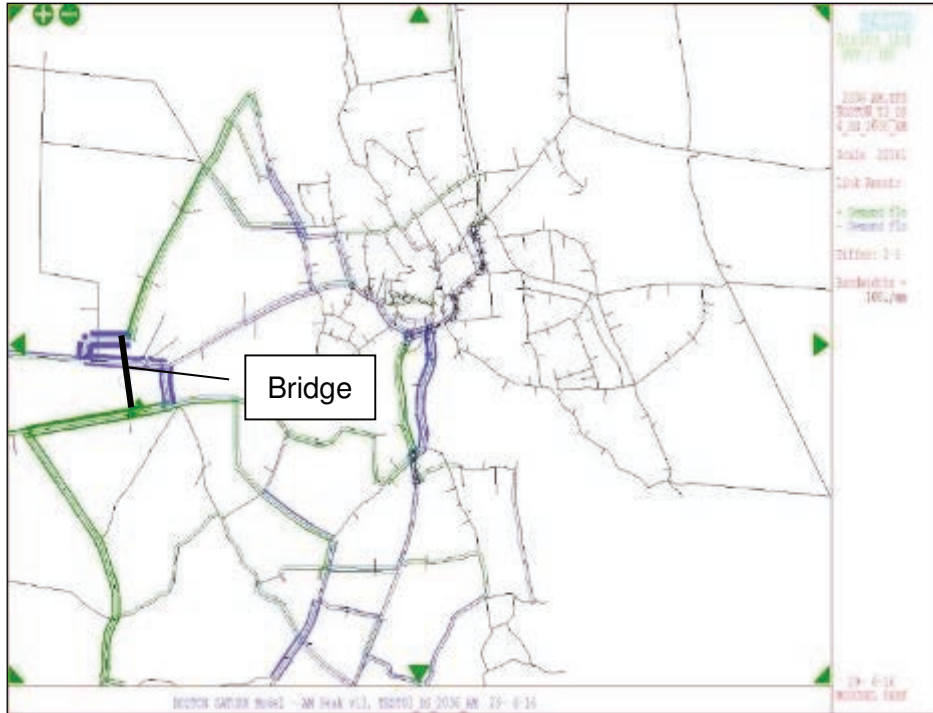


Figure 6-11 – Flow Difference BDR AM Boston Town Centre



Figure 6-12 – Flow Difference BDR PM Boston

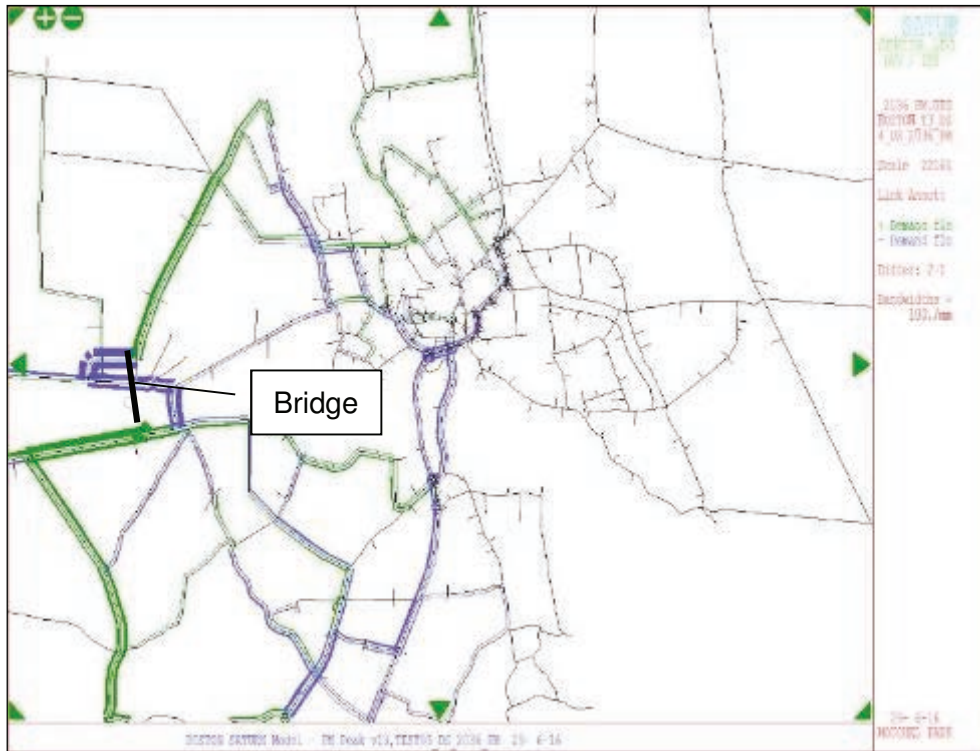
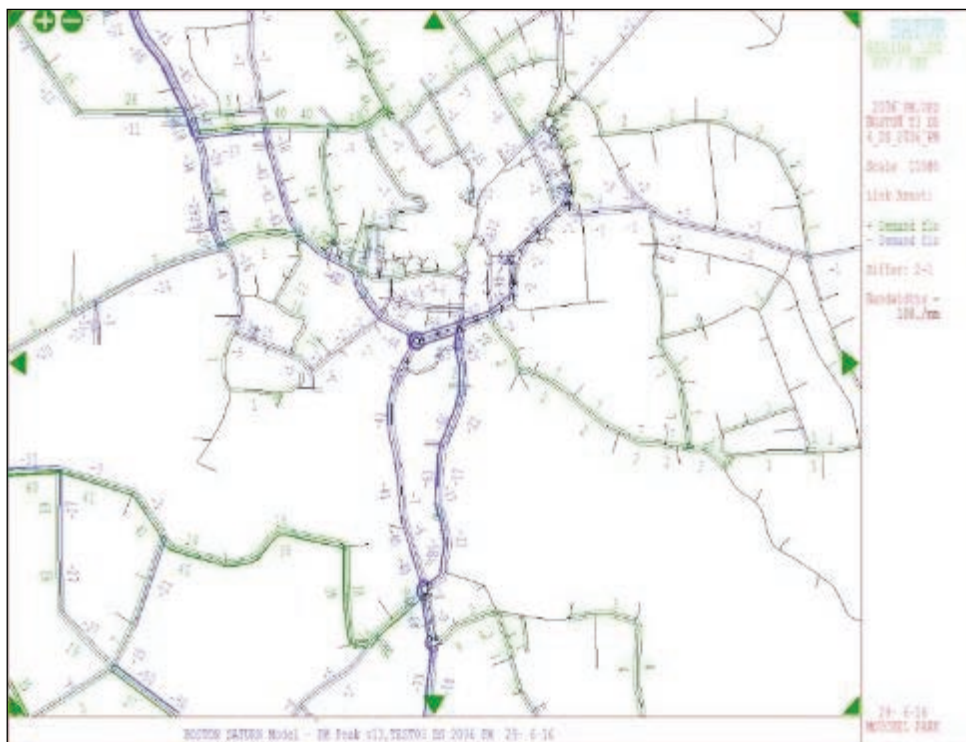


Figure 6-13 – Flow Difference BDR PM Boston Town Centre



6.11.2 Select Link Analysis

Figures 5-13 to 5-16 below provide select link analysis for the Boston Distributor Road Bridge northbound and southbound. The majority of traffic on the bridge

originates from vehicles travelling to and from Fen Road and West End Road in the south.

Figure 6-14 – Select Link Analysis BDR AM Northbound



Figure 6-15 – Select Link Analysis BDR AM Southbound



Figure 6-16 – Select Link Analysis BDR PM Northbound

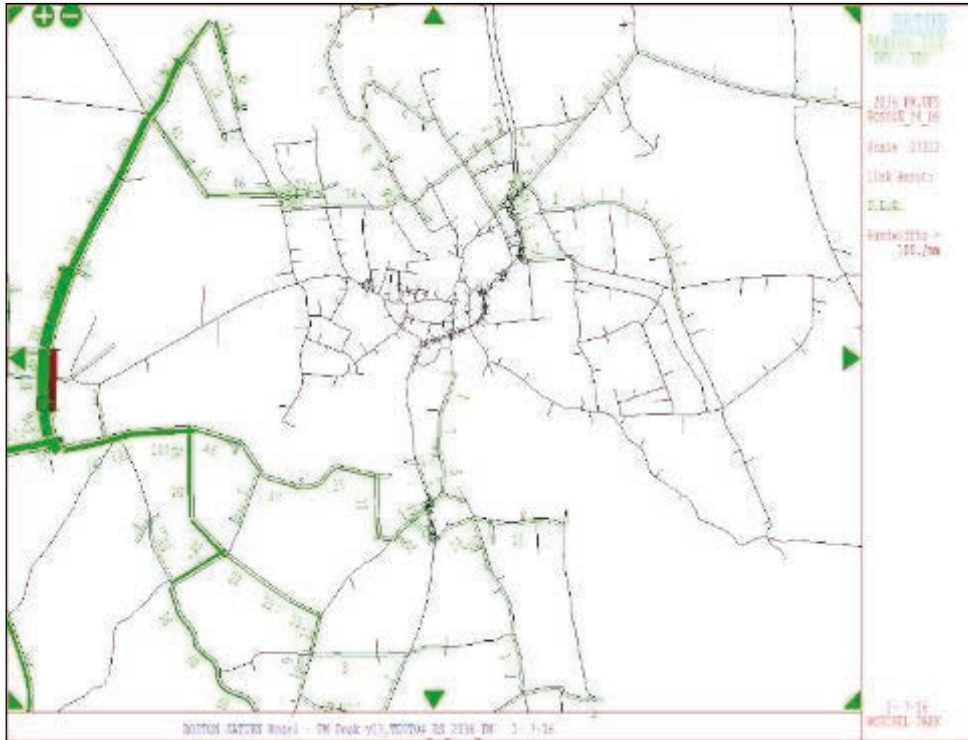


Figure 6-17 – Select Link Analysis BDR PM Southbound



6.12 Non-Highways Options: Approach

Using examples of best practice from government reports, an assessment has been made of the potential impact of non-highway related options on mode share.

Measures aimed at reducing demand for car trips such as Smarter Choices and improvements to public transport have been modelled by manipulating the SATURN model demand matrices. The SATURN matrices only contain vehicle trips; therefore where a measure is aimed at encouraging non-car usage this must be reflected in a corresponding drop in car trips.

Rather than try to attribute a defined decrease in car use to every individual measure, a package of similar measures which when combined could realistically affect modal shift has been assessed. Using this approach, six packages targeting specific land use types, areas of Boston or modes were identified and case studies were gathered to provide an evidence base for the reductions applied. The packages are as follows:

- Local bus.
- Major employment sites;
- Schools;
- Town Centre pedestrian and cycle improvements;

The short-listed options included in each of the packages is shown in the table below.

Table 6-10 – Packages and Options

Package	Options
Local Bus	Public transport hub Increase peak time frequency of Into Town services Bus station upgrade Review public transport links to key employment areas Improve bus waiting facilities ‘Try for Free’ Public Transport Campaign Increased Publicity Campaigns for Use of Public Transport Improve public transport signage Flexible ticketing options
Major Employment Sites	Develop a Business Travel Zone for Boston Employer funded public transport
Schools	Continued/Accelerated roll-out of Bikeability to schools All schools to have up to date and active Travel Plans

Package	Options
	Build a new secondary school on west side of the town Review cycle storage at schools
Town Centre Pedestrian and Cycle Improvements	Introduce cycle route infrastructure on key radial routes New cycle routes on waterways Town centre public realm improvements Adult cycle training New pedestrian and cycle bridges Increase town centre cycle parking Trip end cycle facilities Bus and rail station cycle facilities Borough-wide annual sustainable travel events/promotions Cycle hire/cycle share scheme Improve walking and cycling signage Cycle storage on buses

Public transport matrices or demand models are not available for the Boston traffic model. Active mode and public transport measures will therefore only be reflected by modelling their impact on car demand. A comparative study approach has been adopted which uses evidence from case studies and benchmarking to derive forecasts for modal shift from car.

TAG Unit A5.1: Active Mode Appraisal – DfT 2014 contains guidance on using the comparative method for forecasting, it advises

“The least complex and costly approach to estimating future levels of cycling and walking is through comparisons with similar schemes. Larger proposals are likely to have greater demand changes and afford better potential for comparison with existing schemes. Examples could include river crossings or the creation of other significant links in a network that reduce time and distance, or comprehensive urban centre networks that significantly change the balance between motor traffic and walking and cycling generalised costs.”

Reductions in car demand have been applied based on the origin and destination of the trip and the distance of the trip. For example, school travel planning reductions will only be applied to model zones which contain a school and only in the morning peak when a large number of trips would be made to and from a school. Similarly where a walking measure is proposed reductions to car trips will only be applied to journeys of less than 3km, as it is unrealistic to assume trips over greater distances would switch to active modes.

This approach has resulted in a combined trip reduction based on modal shift for the AM and PM peak periods in 2036. Table 5-2 below displays the percentage reduction in trips based on the four packages of travel demand management

interventions. It should be noted the modal shift reductions only take into account trips made within the Boston urban area.

Overall, the implementation of these options would generate a total mode shift away from car travel of 4% in the AM peak hour and 3.5% in the PM peak hour

Table 6-11 – Percentage Change in Car Demand by Package 2036

Package of Measures	Period	%
Local Bus	AM	-0.16%
	PM	-0.16%
Major Employment Sites	AM	-0.78%
	PM	-0.92%
Schools	AM	-0.39%
Town Centre Pedestrian and Cycle Improvements	AM	-2.63%
	PM	-2.38%
Total	AM	-3.96%
	PM	-3.46%

7 Pathways to Delivery

7.1 Introduction

The Pathways to Delivery are intended to provide a basis for the implementation of each of the measures. Key elements of delivery are included such as steps to delivery, timescales, indicative costs, lead and partner organisations. The Pathways have been designed so that they assist the responsible parties in taking the measures from the Strategy into implementation. Each of the measures can be updated as progress takes place helping the monitoring undertaken by the Strategy Delivery Group.

The Pathways are presented below under the relevant hierarchy of accessibility title: Influencing Travel Behaviour, Active Modes, Public Transport and Traffic Mitigation.

7.2 Influencing Travel Behaviour

Hierarchy of Accessibility	Influencing Travel Behaviour
Measure type	Land Use Planning
Measure	Residential development
Purpose of Intervention	To influence travel towards sustainable modes by ensuring new developments are well served by walking, cycling and public transport infrastructure and services for trips within and to/from the developments.
Detailed Interventions	Design residential development to facilitate sustainable travel including incorporating retail, services, education and employment and with good links to existing provision. Include provision to reduce the need to travel such as high speed internet connectivity.
Steps to Delivery	Incorporate policies in Local Plan Influence developer plans at an early stage – pre-application discussions Secure provision through planning conditions, S106 Agreements and Travel Plans Monitor of implementation including of Travel Plans
Timescales	Ongoing
Cost	Varies by development
Funding	Private developers
Lead Organisation	Boston Borough Council
Partner Organisations	Private Developers Lincolnshire County Council Bus Operators
Consultation Requirements	Statutory consultation through the planning process.
Risks	Attracting developer investment Developer buy-in
Links to Other Measures	Town centre development Educational development Food retail provision

	Improvements to bus infrastructure Consistent and direct walking and cycling routes Crossing infrastructure for walking and cycling Providing convenient and secure bike storage Facilitating sustainable travel
Measurement of Success Strategy Outcomes	Ou5, Ou6, Ou7

Hierarchy of Accessibility	Influencing Travel Behaviour
Measure type	Land Use Planning
Measure	Town centre development
Purpose of Intervention	To influence travel towards sustainable modes by ensuring new developments are well served by walking, cycling and public transport infrastructure for trips within the town centre and to/from the developments.
Detailed Interventions	Through the planning process make it a priority to develop town centre brownfield sites that facilitate sustainable travel, regenerate town centre and provide residential opportunities.
Steps to Delivery	Incorporate policies in Local Plan Influence developer plans at an early stage – pre-application discussions Secure provision through planning conditions, S106 Agreements and Travel Plans Monitor of implementation including of Travel Plans
Timescales	Ongoing
Cost	Varies by development
Funding	Private developers
Lead Organisation	Boston Borough Council
Partner Organisations	Private Developers Lincolnshire County Council Bus Operators
Consultation Requirements	Statutory consultation through the planning process.
Risks	Attracting developer investment Developer buy-in
Links to Other Measures	Residential development Educational development Food retail provision Improvements to bus infrastructure Consistent and direct walking and cycling routes Crossing infrastructure for walking and cycling Providing convenient and secure bike storage Facilitating sustainable travel
Measurement of Success Strategy Outcomes	Ou1, Ou2, Ou5, Ou6, Ou7

Hierarchy of Accessibility	Influencing Travel Behaviour
Measure type	Land Use Planning
Measure	Educational development
Purpose of Intervention	To influence travel towards sustainable modes by ensuring new developments are well served by walking, cycling and public transport infrastructure for trips within and to/from the developments.
Detailed Interventions	<p>Improve geographical balance of schools to reduce cross-town movements by building a new secondary school on the west of the town. Presently there are no secondary schools on the western side of the River Witham/The Haven resulting in longer journey across limited crossing points of this barrier to movement. A new secondary school would provide parents with the choice of sending pupils to a nearer school and reduce travel distances, encouraging more sustainable travel and reducing traffic across the bridges.</p> <p>A new school is most likely to be delivered through the development of large residential sites on the west of the town which are likely to be of a combined scale sufficient to require the provision of additional educational facilities.</p>
Steps to Delivery	<p>Incorporate policies in Local Plan</p> <p>Influence developer plans at an early stage – pre-application discussions</p> <p>Secure provision through planning conditions, S106 Agreements and Travel Plans</p>
Timescales	Medium to long term
Cost	Over £5m (capital)
Funding	Developers
Lead Organisation	Boston Borough Council
Partner Organisations	Lincolnshire County Council Children's Services Lincolnshire County Council
Consultation Requirements	Statutory consultation through the planning process.
Risks	<p>Not finding a suitable location</p> <p>No funding availability or other priorities for developer-sourced funding</p> <p>Public opposition</p>
Links to Other Measures	<p>Residential development</p> <p>Educational development</p> <p>Food retail provision</p> <p>Improvements to bus infrastructure</p> <p>Consistent and direct walking and cycling routes</p> <p>Crossing infrastructure for walking and cycling</p> <p>Providing convenient and secure bike storage</p> <p>Facilitating sustainable travel</p>
Measurement of Success Strategy Outcomes	Ou1, Ou2, Ou3, Ou6, Ou7

Hierarchy of Accessibility	Influencing Travel Behaviour
Measure type	Land Use Planning
Measure	Food retail provision
Purpose of Intervention	To influence travel towards sustainable modes by ensuring new developments are well served by walking, cycling and public transport infrastructure for trips within and to/from the developments.
Detailed Interventions	At present all large-scale supermarkets are located to the west of the River Witham/The Haven which generates significant movements across the limited number of crossing points, adding to congestion. Construct one full-sized supermarket to the east of the town where commercial development is already approved to reduce number of cross-town trips to existing supermarkets on the western side of the town.
Steps to Delivery	Identify location for a new food retail store Incorporate policies in Local Plan Secure developer Secure store operator
Timescales	Short term/Medium Term
Cost	Over £5m (capital)
Funding	Private developer and store operator
Lead Organisation	Boston Borough Council
Partner Organisations	Private developer Store operator Lincolnshire County Council
Consultation Requirements	Statutory consultation through the planning process.
Risks	Not finding a suitable location Not finding a developer Not finding a store operator Public opposition
Links to Other Measures	Residential development Educational development Food retail provision Improvements to bus infrastructure
Measurement of Success Strategy Outcomes	Ou1, Ou6

Hierarchy of Accessibility	Influencing Travel Behaviour
Measure type	Travel Planning & Marketing
Measure	Targeted travel planning including personalised travel planning for residential properties, all major employers and education establishments
Purpose of Intervention	To influence travel towards sustainable modes by implementing soft measures to support the hard infrastructure measures in facilitating and encouraging the use of sustainable modes.
Detailed Interventions	Travel planning tailored to the needs/attitudes of particular segments within the target markets with solutions focused upon engaging with those most amenable to change.
Steps to Delivery	Decide the geographical scope of the measure Decide on the target segments Collect and analyse baseline data Identify challenges and opportunities Develop measures Pilot test measures Full implementation
Timescales	Short term
Cost	Under £100,000 (revenue)
Funding	DfT funding bids Local Transport Plan Private developers Major employers Educational establishments
Lead Organisation	Lincolnshire County Council
Partner Organisations	Private developers Major employers Educational establishments Delivery organisations Boston Borough Council
Consultation Requirements	None
Risks	Not securing funding Not having a high engagement rate
Links to Other Measures	Develop a Business Travel Zone for Boston Facilitate sustainable travel in new developments Borough-wide sustainable travel events/promotions All schools to have up to date and active Travel Plans
Measurement of Success Strategy Outcomes	Ou2, Ou3, Ou4, Ou6

Hierarchy of Accessibility	Influencing Travel Behaviour
Measure type	Travel Planning & Marketing
Measure	Develop a Business Travel Zone for Boston
Purpose of Intervention	To influence travel towards sustainable modes by implementing soft measures to support the hard infrastructure measures in facilitating and encouraging the use of sustainable modes.
Detailed Interventions	Provide improved travel planning support to businesses in Boston to encourage sustainable travel for work-related journeys (including commuting, business travel and freight movements).
Steps to Delivery	Identify geographical scope of the BTZ Identify key businesses to engage with Collect and analyse baseline data Identify challenges and opportunities Develop measures Pilot test measures Full implementation
Timescales	Short term
Cost	Under £100,000 (revenue)
Funding	Lincolnshire County Council Boston Borough Council Businesses DfT Funding opportunities Developers
Lead Organisation	Lincolnshire County Council
Partner Organisations	Employers Boston Borough Council
Consultation Requirements	None
Risks	Not successfully engaging businesses Not securing funding
Links to Other Measures	Targeted travel planning including personalised travel planning for residential properties, all major employers and education establishments Facilitate sustainable travel in new developments Borough-wide sustainable travel events/promotions All schools to have up to date and active Travel Plans
Measurement of Success Strategy Outcomes	Ou2, Ou3, Ou4, Ou6

Hierarchy of Accessibility	Influencing Travel Behaviour
Measure type	Travel Planning & Marketing
Measure	Facilitate sustainable travel in new developments
Purpose of Intervention	To influence travel towards sustainable modes by implementing soft measures to support the hard infrastructure measures in facilitating and encouraging the use of sustainable modes.
Detailed Interventions	Ensure that all developments that require a Travel Plan have a high quality plan, with associated infrastructure when submitting for planning permission Ensure that Travel Plans are operational and being monitored
Steps to Delivery	Incorporate policies in Local Plan Influence developer plans at an early stage – pre-application discussions Secure provision through planning conditions and S106 Agreements Undertake planned and structured monitoring
Timescales	Short term and ongoing
Cost	None (Part of planning application)
Funding	Private developers
Lead Organisation	Boston Borough Council
Partner Organisations	Private developers Lincolnshire County Council
Consultation Requirements	None
Risks	Not engaging businesses Not securing funding Lack of robust monitoring
Links to Other Measures	Targeted travel planning including personalised travel planning for residential properties, all major employers and education establishments Facilitate sustainable travel in new developments Borough-wide sustainable travel events/promotions
Measurement of Success Strategy Outcomes	Ou2, Ou3, Ou4, Ou6

Hierarchy of Accessibility	Influencing Travel Behaviour
Measure type	Travel Planning & Marketing
Measure	Borough-wide sustainable travel events/promotions
Purpose of Intervention	To influence travel towards sustainable modes by implementing soft measures to support the hard infrastructure measures in facilitating and encouraging the use of sustainable modes.
Detailed Interventions	Promote sustainable travel initiatives such as 'Bike to Work week' and 'Walk to school month' with borough-wide events.
Steps to Delivery	Identify a calendar of events Identify delivery partners Develop programme of events and promotions Deliver programme of events and promotions Review and monitor
Timescales	Ongoing
Cost	Under £100,000 (revenue)
Funding	Lincolnshire County Council Boston Borough Council Businesses including events organisations (e.g. festivals, etc). This is a potential sponsorship opportunity. DfT Funding opportunities Bus and Train operators
Lead Organisation	Lincolnshire County Council
Partner Organisations	Boston Borough Council Businesses Bus and Train operators School
Consultation Requirements	None
Risks	Not securing delivery partners Not securing funding Non-engagement
Links to Other Measures	Targeted travel planning including personalised travel planning for residential properties, all major employers and education establishments Facilitate sustainable travel in new developments
Measurement of Success Strategy Outcomes	Ou2, Ou3, Ou4, Ou6

Hierarchy of Accessibility	Influencing Travel Behaviour
Measure type	Travel Planning & Marketing
Measure	All schools to have up to date and active Travel Plans
Purpose of Intervention	To influence travel towards sustainable modes by implementing soft measures to support the hard infrastructure measures in facilitating and encouraging the use of sustainable modes.
Detailed Interventions	Ensure all schools have an up-to-date and active Travel Plan that targets modal shift. Also ensure that all new schools adopt and implement Travel Plans as part of the planning process.
Steps to Delivery	Engage with schools Review status of any existing Travel Plans Provide support to schools with development of new/updated Travel Plans Review and monitor
Timescales	Short term and ongoing
Cost	Under £100,000 (revenue)
Funding	Lincolnshire County Council Schools
Lead Organisation	Lincolnshire County Council (Boston Borough Council – as part of the planning process for new schools)
Partner Organisations	Schools Lincolnshire County Council Children's Services
Consultation Requirements	None
Risks	Schools not adequately engaging Lack of resources in schools to implement
Links to Other Measures	Targeted travel planning including personalised travel planning for residential properties, all major employers and education establishments Borough-wide sustainable travel events/promotions
Measurement of Success Strategy Outcomes	Ou2, Ou3, Ou4, Ou6

7.3 Active modes

Hierarchy of Accessibility	Active Modes
Measure type	Disabled Users
Measure	Equality Act Access Audit
Purpose of Intervention	To improve the accessibility of transport modes so that they comply with the Equality Act Access Act.
Detailed Interventions	Conduct an Equality Act Access Audit to assess what improvements can be made.
Steps to Delivery	Decide on the scope of the audit Conduct audit Develop list of required improvements Design and Feasibility study Business case Statutory procedures Detailed design Procurement Full approval Construction Review and monitor
Timescales	Medium term
Cost	Under £100,000 (revenue) for the audit. Resulting works costs are unknown (capital)
Funding	Boston Borough Council Lincolnshire County Council
Lead Organisation	Lincolnshire County Council
Partner Organisations	Boston Borough Council Disability groups
Consultation Requirements	Potential consultation with disability groups
Risks	Lack of funding
Links to Other Measures	Bus station upgrade Public transport hub Improve bus waiting facilities
Measurement of Success Strategy Outcomes	Ou2, Ou3, Ou5, Ou11

Hierarchy of Accessibility	Active Modes
Measure type	Pedestrian and cycle user safety
Measure	Improve pedestrian and cycle user safety at key junctions
Purpose of Intervention	To address safety issues for pedestrians and cycle users at key junctions
Detailed Interventions	<p>Review facilities for people on foot and on cycles at junctions where clusters of collisions involving pedestrians and cycle users have been recorded:</p> <ul style="list-style-type: none"> • A52/West Street • Fydell Street/Norfolk Street • A52/A16
Steps to Delivery	<p>Undertake non-motorised user safety appraisals at junctions where collision clusters identified.</p> <p>Identify potential safety improvements</p> <p>Design and Feasibility study</p> <p>Business case</p> <p>Statutory procedures</p> <p>Detailed design</p> <p>Procurement</p> <p>Full approval</p> <p>Construction</p> <p>Review and monitor</p>
Timescales	Medium term
Cost	£100,000 to £500,000 for individual schemes (capital)
Funding	Lincolnshire County Council
Lead Organisation	Lincolnshire County Council
Partner Organisations	<p>Boston Borough Council</p> <p>Sustrans</p> <p>Local cycling groups</p> <p>Disability groups</p>
Consultation Requirements	None
Risks	<p>Safety record worsens post-improvements (reputational risk)</p> <p>Poor design without consultation and new layout ignored</p>
Links to Other Measures	Introduce cycle route infrastructure on key radial routes
Measurement of Success Strategy Outcomes	Ou6, Ou9, Ou10, Ou11

Hierarchy of Accessibility	Active Modes
Measure type	Pedestrian and cycle user safety
Measure	Cycle safety improvements as part of the 20mph zones
Purpose of Intervention	To ensure cycle safety improvements are an integral part of the 20mph zones
Detailed Interventions	Utilise techniques such as centreline removal across the 20mph zones to reduce vehicle speeds and promote safety for people using cycles.
Steps to Delivery	Identify 20mph zones Identify key cycle journey corridors within 20mph zones Design and Feasibility study Business case Statutory procedures Detailed design Procurement Full approval Construction Review and monitor
Timescales	Medium Term
Cost	Under £100,000 per scheme (capital)
Funding	Lincolnshire County Council
Lead Organisation	Lincolnshire County Council
Partner Organisations	Boston Borough Council Sustrans Local cycling groups
Consultation Requirements	As part of Traffic Order process or general scheme development process
Risks	Lack of support for 20mph zones
Links to Other Measures	20mph zones
Measurement of Success Strategy Outcomes	Ou6, Ou9, Ou10, Ou11

Hierarchy of Accessibility	Active Modes
Measure type	Pedestrian and cycle user safety
Measure	Trip end cycle facilities
Purpose of Intervention	To help facilitate cycle use by providing increased opportunities for people to store their cycle and cycle equipment at destinations.
Detailed Interventions	<p>Town centre: Increase and improve town centre cycle parking facilities.</p> <p>Schools: Review existing capacity and quality of cycle storage at schools and consider improving/increasing to usage.</p> <p>Bus and Railway Stations: Provide enhanced cycle facilities at bus and rail stations such as lockers, showers, secure parking to encourage more journeys to work by cycle.</p> <p>Offer match/part funding for cycle facilities (such as parking, showers and lockers) at trip end locations, such as workplaces and educational institutions.</p>
Steps to Delivery	<p>Confirm existing provision and identify locations for new facilities</p> <p>Feasibility design</p> <p>Business case</p> <p>Detailed design</p> <p>Procurement</p> <p>Full approval</p> <p>Construction</p> <p>Review and monitor</p> <p>Identify funding pot for match funding at workplaces</p> <p>Support businesses</p> <p>Review and monitor</p>
Timescales	Short term/Medium Term
Cost	Under £100,000 per scheme (capital/revenue)
Funding	<p>DfT funding opportunities</p> <p>Lincolnshire County Council</p> <p>Boston Borough Council</p> <p>Schools</p> <p>Businesses</p> <p>Train operators</p> <p>Sustrans</p>
Lead Organisation	Lincolnshire County Council
Partner Organisations	<p>Boston Borough Council</p> <p>Schools</p> <p>Businesses</p> <p>Train operators</p> <p>Sustrans</p>
Consultation Requirements	Consultation with schools, businesses, train operators, cycle groups
Risks	<p>Lack of funding</p> <p>Lack of engagement from employers</p>
Links to Other Measures	Cycle Route Infrastructure

Measurement of Success Strategy Outcomes	Ou6
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Hierarchy of Accessibility	Active Modes
Measure type	Promoting Walking and Cycling
Measure	Continued/Accelerated roll-out of Bikeability to schools
Purpose of Intervention	To improve the cycling skills of children to encourage and facilitate cycling to school and embed cycling as a mode of choice as they grow up
Detailed Interventions	Accelerated drive in the roll out of Bikeability and associated initiatives to Boston schools to encourage more pupils to cycle to school
Steps to Delivery	Establish baseline of Bikeability activity in schools Develop programme of increased delivery Implement new programme Review and monitor
Timescales	Short term
Cost	Under £100,000 (revenue)
Funding	Lincolnshire County Council Boston Borough Council Sponsors
Lead Organisation	Lincolnshire County Council
Partner Organisations	Boston Borough Council Bikeability providers Schools Sustrans
Consultation Requirements	None
Risks	Lack of funding Lack of support from schools
Links to Other Measures	Targeted travel planning including personalised travel planning for residential properties, all major employers and education establishments All schools to have up to date and active Travel Plans Cycle Route Infrastructure
Measurement of Success Strategy Outcomes	Ou2, Ou6

Hierarchy of Accessibility	Active Modes
Measure type	Promoting Walking and Cycling
Measure	Adult cycle training
Purpose of Intervention	To support people wishing to cycle by offering different levels of cycle training
Detailed Interventions	Offer free adult cycle training to encourage more people to take up cycling and increase the safety and confidence of cyclists. The approach to providing cycle training needs to be specific to Boston but could be run by specialist cycle training providers. Cycle training could be provided to individuals on request or to groups (such as businesses, clubs or community groups),
Steps to Delivery	Identify most appropriate approach to cycle training for Boston Publicise the cycle training Establish levels of interest Provide training Review and monitor including gaining feedback from attendees
Timescales	Short term and ongoing
Cost	Under £100,000 (revenue)
Funding	Lincolnshire County Council Boston Borough Council Sponsors
Lead Organisation	Lincolnshire County Council
Partner Organisations	Adult cycle training providers Employers Clubs and community groups
Consultation Requirements	None
Risks	Lack of funding Lack of engagement
Links to Other Measures	Targeted travel planning including personalised travel planning for residential properties, all major employers and education establishments Cycle Route Infrastructure
Measurement of Success Strategy Outcomes	Ou2, Ou6

Hierarchy of Accessibility	Active Modes
Measure type	Cycle Route Infrastructure
Measure	Introduce cycle route infrastructure on key radial routes
Purpose of Intervention	To facilitate cycling on key routes by providing infrastructure that addresses the key barrier to cycling of safety.
Detailed Interventions	Introduce cycle route infrastructure on key radial routes into the town centre: <ul style="list-style-type: none"> • Spilsby Road • Skirbeck Road • Wyberton W Road/Chain Bridge Road
Steps to Delivery	Identify routes Audit routes Develop and appraise options (including consultation) Business case Statutory procedures Detailed design Procurement Full approval Construction Review and monitor
Timescales	Medium term
Cost	£100,000 to £500,000 for individual schemes (capital)
Funding	Lincolnshire County Council Private developers DfT funding opportunities
Lead Organisation	Lincolnshire County Council
Partner Organisations	Boston Borough Council Private developers Cycling groups
Consultation Requirements	Stakeholder consultation throughout development process Statutory consultation as part of implementation
Risks	Lack of funding Lack of support Unwillingness to reallocate highway space to build quality cycle infrastructure
Links to Other Measures	Trip end cycle facilities Promoting walking and cycling Pedestrian and cycle user safety
Measurement of Success Strategy Outcomes	Ou1, Ou2, Ou3, Ou6, Ou9, Ou10, Ou11

Hierarchy of Accessibility	Active Modes
Measure type	Cycle Route Infrastructure
Measure	New cycle routes on waterways
Purpose of Intervention	Enhance the cycle network by utilising off highway routes along the town's waterways.
Detailed Interventions	Provide a route from the residential areas east of Maud Foster Drain to employment sites on the west. Provide a route between St Botolphs foot bridge/Carlton Road Rowing Club to improve connectivity to the town centre.
Steps to Delivery	Audit routes Develop and appraise options (including consultation) Business case Statutory procedures Detailed design Procurement Full approval Construction Review and monitor
Timescales	Short to medium term
Cost	£100,000 to £500,000 for individual schemes (capital)
Funding	Lincolnshire County Council Private developers DfT funding opportunities
Lead Organisation	Lincolnshire County Council
Partner Organisations	Boston Borough Council Private land owners Private developers Cycling groups
Consultation Requirements	Stakeholder consultation throughout development process Statutory consultation as part of implementation
Risks	Lack of funding Lack of support Land ownership
Links to Other Measures	Trip end cycle facilities Promoting walking and cycling Pedestrian and cycle user safety
Measurement of Success Strategy Outcomes	Ou1, Ou2, Ou3, Ou6, Ou11

Hierarchy of Accessibility	Active Modes
Measure type	Cycle Route Infrastructure
Measure	New pedestrian and cycle bridges
Purpose of Intervention	Enhance the cycle network by utilising off highway routes along the town's waterways.
Detailed Interventions	<p>Increase pedestrian/cycle connectivity by building new bridges/upgrading existing bridges at the following locations:</p> <ul style="list-style-type: none"> • Across South Forty Foot Drain to link existing residential areas and future development areas. • Across Maud Foster Drain by at Windsor Crescent. • Across Maud Foster Drain at Hospital Lane/Norfolk Street. • Across River Witham north west of the town centre (as an alternative to the Fydell St bridge).
Steps to Delivery	<p>Develop and appraise options (including consultation)</p> <p>Business case</p> <p>Statutory procedures</p> <p>Detailed design</p> <p>Procurement</p> <p>Full approval</p> <p>Construction</p> <p>Review and monitor</p>
Timescales	Short to Long term
Cost	£100,000 to £1m (capital) depending on location and design
Funding	<p>Lincolnshire County Council</p> <p>Private developers</p> <p>DfT funding opportunities</p>
Lead Organisation	Lincolnshire County Council
Partner Organisations	<p>Boston Borough Council</p> <p>Private developers</p> <p>Private land owners</p> <p>Cycling groups</p>
Consultation Requirements	<p>Stakeholder consultation throughout development process</p> <p>Statutory consultation as part of implementation</p>
Risks	<p>Lack of funding</p> <p>Lack of support</p> <p>Land ownership</p>
Links to Other Measures	<p>Trip end cycle facilities</p> <p>Promoting walking and cycling</p> <p>Pedestrian and cycle user safety</p>
Measurement of Success Strategy Outcomes	Ou1, Ou2, Ou3, Ou6, Ou11

Hierarchy of Accessibility	Active Modes
Measure type	Cycle Route Infrastructure
Measure	Review links between leisure cycle routes and leisure/tourist destinations
Purpose of Intervention	To identify where better cycle routes could support leisure and tourism destinations.
Detailed Interventions	Review existing linkages and consider provision of new cycle routes to tourist destinations such as Boston Woods path network, Black Sluice trail, Coastal footpath and the RSPB reserve.
Steps to Delivery	Audit routes Develop and appraise options (including consultation) Business case Statutory procedures Detailed design Procurement Full approval Construction Review and monitor
Timescales	Short to medium term
Cost	£100,000 to £500,000 for individual schemes (capital)
Funding	Lincolnshire County Council DfT funding opportunities Leisure and tourism destinations Local Enterprise Partnership
Lead Organisation	Lincolnshire County Council
Partner Organisations	Boston Borough Council Leisure and tourism destinations.
Consultation Requirements	None
Risks	Lack of support
Links to Other Measures	Trip end cycle facilities Promoting walking and cycling Pedestrian and cycle user safety
Measurement of Success Strategy Outcomes	Ou2, Ou3, Ou6

Hierarchy of Accessibility	Active Modes
Measure type	Cycle Route Infrastructure
Measure	Review existing shared footway/cycleways
Purpose of Intervention	To review if existing provision is fit for purpose and consider alternative options.
Detailed Interventions	Review the use and safety of existing shared cycleway/footways and consider alternatives, such as segregation, where applicable. The safety of the interaction of pedestrians and cyclists on such routes was raised by disability groups during consultation.
Steps to Delivery	Audit existing provision Develop alternative options where applicable (including consultation) Business case Statutory procedures Detailed design Procurement Full approval Construction Review and monitor
Timescales	Medium term
Cost	Dependent on review outcome
Funding	Lincolnshire County Council
Lead Organisation	Lincolnshire County Council
Partner Organisations	Disability groups Cycling groups Sustrans
Consultation Requirements	Consultation with cycling and disability groups
Risks	Lack of support
Links to Other Measures	Promoting walking and cycling Pedestrian and cycle user safety
Measurement of Success Strategy Outcomes	Ou2, Ou3, Ou6

Hierarchy of Accessibility	Active Modes
Measure type	Cycle Route Infrastructure
Measure	Review/improve crossing facilities on John Adams Way
Purpose of Intervention	To review if existing provision is fit for purpose and consider alternative options.
Detailed Interventions	Review existing crossing facilities and timings along John Adams Way to improve safety and connectivity for pedestrians and cycle users.
Steps to Delivery	Audit existing provision Develop alternative options where applicable Business case Statutory procedures Detailed design Procurement Full approval Construction Review and monitor
Timescales	Medium term
Cost	Under £100,000 (capital)
Funding	Lincolnshire County Council
Lead Organisation	Lincolnshire County Council
Partner Organisations	Cycling groups Sustrans Disability groups
Consultation Requirements	None
Risks	Lack of support
Links to Other Measures	Promoting walking and cycling Pedestrian and cycle user safety Review existing shared footway/cycleways
Measurement of Success Strategy Outcomes	Ou2, Ou3, Ou6, Ou9, Ou10

Hierarchy of Accessibility	Active Modes
Measure type	Cycle Route Infrastructure
Measure	Improve signage
Purpose of Intervention	The improve wayfinding to make it easier for people to travel around Boston on foot and by cycle.
Detailed Interventions	Improve/introduce signage for pedestrians and cycle users to assist way-finding.
Steps to Delivery	Audit existing provision Conduct gap analysis Develop new signage strategy Business case Statutory procedures Detailed design Procurement Full approval Construction Review and monitor
Timescales	Short term
Cost	Under £100,000 (capital)
Funding	Lincolnshire County Council Private developers Boston Borough Council
Lead Organisation	Boston Borough Council
Partner Organisations	Private developers Lincolnshire County Council
Consultation Requirements	Not required but will take place at various stages throughout the development of the new signage strategy.
Risks	Lack of support Lack of funding
Links to Other Measures	Promoting walking and cycling
Measurement of Success Strategy Outcomes	Ou6

Hierarchy of Accessibility	Active Modes
Measure type	Cycle Hire
Measure	Cycle hire/cycle share scheme
Purpose of Intervention	To facilitate cycling for a range of trip purposes by providing a cycle hire/share scheme within the town.
Detailed Interventions	Investigate opportunities for the introduction of the cycle hire/share/loan scheme in Boston to encourage cycling within the town. The appropriate scheme for the town could range from cycle hire with docking stations around the town to loaning cycles to individuals to travel to work.
Steps to Delivery	Review existing schemes e.g. Lincoln, Norwich Identify business case for Boston scheme Secure funding partners Secure operator Implement Monitor and review
Timescales	Short to medium term
Cost	Cost is dependent on the specific scheme implemented
Funding	Lincolnshire County Council Boston Borough Council DfT funding opportunities Private developers Sponsors
Lead Organisation	Boston Borough Council or Lincolnshire County Council
Partner Organisations	Private developers Lincolnshire County Council Boston Borough Council Sponsors Businesses
Consultation Requirements	Not required but will take place at various stages throughout the development of the scheme.
Risks	Lack of support Lack of funding
Links to Other Measures	Promoting walking and cycling Cycle route infrastructure Trip-end cycle facilities Pedestrian and cycle user safety
Measurement of Success Strategy Outcomes	Ou1, Ou2, Ou3, Ou6

Hierarchy of Accessibility	Active Modes
Measure type	Public Realm
Measure	Town centre public realm improvements
Purpose of Intervention	Improve the town centre public realm to attract investment and enhance the area for people on foot and cycle.
Detailed Interventions	Expand the Market Place public realm onto West Street and High Street by: reallocating space for pedestrians and commercial opportunities (e.g. footway café tables and seating), rationalising parking and loading and making landscape improvements. The individual elements of the scheme could be split into separate packages.
Steps to Delivery	Identify options Appraise options Prioritise options Business case Statutory procedures Detailed design Procurement Full approval Construction Review and monitor
Timescales	Medium to long term
Cost	Over £5m (capital)
Funding	Lincolnshire County Council Boston Borough Council Private developers Local Enterprise Partnership
Lead Organisation	Lincolnshire County Council
Partner Organisations	Boston Borough Council Private developers Architects/Landscape architects/Designers Lincolnshire County Council Businesses
Consultation Requirements	Statutory consultation through the planning process.
Risks	Lack of support Lack of funding
Links to Other Measures	Trip-end cycle facilities Cycle route infrastructure Bus Interchange Traffic management Land use planning
Measurement of Success Strategy Outcomes	Ou1, Ou2, Ou3, Ou6, Ou10, Ou11

Hierarchy of Accessibility	Active Modes
Measure type	Public Realm
Measure	Public realm improvements around John Adams Way
Purpose of Intervention	Improve the area around John Adams Way for people on foot or cycle to reduce the barrier that the road imposes.
Detailed Interventions	Reduce the barrier that John Adams Way imposes by improving the environment for other road users: introducing greenery/lighting; and removing excessive guard railing.
Steps to Delivery	Audit the site Identify options Appraise options Prioritise options Business case Statutory procedures Detailed design Procurement Full approval Construction Review and monitor
Timescales	Medium to long term
Cost	Over £5m (capital)
Funding	Lincolnshire County Council Boston Borough Council Private developers LEP funding
Lead Organisation	Lincolnshire County Council
Partner Organisations	Boston Borough Council Private developers Businesses
Consultation Requirements	Statutory consultation through the planning process.
Risks	Lack of support Lack of funding
Links to Other Measures	Traffic management Land use planning Pedestrian and cycle user safety
Measurement of Success Strategy Outcomes	Ou6, Ou10, Ou11

Hierarchy of Accessibility	Active Modes
Measure type	Cycling and buses
Measure	Cycle storage on buses
Purpose of Intervention	To facilitate cycle use for more journeys by integrating this mode with buses.
Detailed Interventions	Investigate with bus operators the potential to provide cycle storage on buses.
Steps to Delivery	Review best practice Engage with bus operators to review feasibility
Timescales	Short term
Cost	Under £100,000 (capital)
Funding	Lincolnshire County Council Bus operators DfT funding opportunities
Lead Organisation	Lincolnshire County Council
Partner Organisations	Bus operators
Consultation Requirements	None
Risks	Lack of support from operators Lack of support Lack of funding
Links to Other Measures	
Measurement of Success Strategy Outcomes	Ou2, Ou4

7.4 Public Transport

Hierarchy of Accessibility	Public Transport
Measure type	Bus Interchange
Measure	Bus station upgrade
Purpose of Intervention	To improve the current bus station to make it more attractive for passengers and operate better for bus operators.
Detailed Interventions	Upgrade to include improved waiting facilities and passenger information
Steps to Delivery	Audit existing bus station Engage with operators Identify improvements Business case Statutory procedures Detailed design Procurement Full approval Construction Review and monitor
Timescales	Medium term
Cost	£100,000 to £500,000 (capital)
Funding	Lincolnshire County Council Boston Borough Council Bus operators
Lead Organisation	Lincolnshire County Council
Partner Organisations	Boston Borough Council Bus operators
Consultation Requirements	Consultation with public to take place as part of option development
Risks	Lack of funding Lack of operator support
Links to Other Measures	
Measurement of Success Strategy Outcomes	Ou2, Ou4, Ou8, Ou11

Hierarchy of Accessibility	Public Transport
Measure type	Bus Interchange
Measure	Public transport hub
Purpose of Intervention	To create and new hub that integrates public transport modes, in particular bus services and creates an attractive environment for users.
Detailed Interventions	New town centre public transport hub on location of existing bus station or new location. The hub would facilitate interchange between different modes of transport and improve safety, public realm, waiting areas and passenger information. The hub would reflect best practice to create a first-class facility.
Steps to Delivery	<ul style="list-style-type: none"> Identify potential locations for hub Develop outline plans Engage with operators Identify funding sources Public consultation Business case Statutory procedures Detailed design Procurement Full approval Construction Review and monitor
Timescales	Long term
Cost	£1m to £5m (capital)
Funding	<ul style="list-style-type: none"> Lincolnshire County Council Boston Borough Council Private developers Bus operators DfT funding opportunities Local Enterprise Partnership
Lead Organisation	Lincolnshire County Council
Partner Organisations	<ul style="list-style-type: none"> Boston Borough Council Bus operators
Consultation Requirements	Consultation with public to take place as part of option development and through statutory consultation process
Risks	<ul style="list-style-type: none"> Lack of funding Inability to find private developer Lack of operator support Lack of public support
Links to Other Measures	<ul style="list-style-type: none"> Bus Services to Major Development Sites Improved Bus Service Provision Rail Promoting Public Transport
Measurement of Success Strategy Outcomes	Ou2, Ou4, Ou5, Ou8, Ou11

Hierarchy of Accessibility	Public Transport
Measure type	Bus Interchange
Measure	Improve bus waiting facilities
Purpose of Intervention	To increase the accessibility and attractiveness of bus use by improving bus waiting facilities across Boston.
Detailed Interventions	Provide or improve shelters, seating, information, lighting, raised access kerbs at all bus stops where there is space to accommodate.
Steps to Delivery	Audit current facilities Prioritise improvements Develop details plans Business case Statutory procedures Detailed design Procurement Full approval Construction Review and monitor
Timescales	Short term/medium term
Cost	Under £100,000 (capital)
Funding	Boston Borough Council Lincolnshire County Council Bus operators DfT funding opportunities Private developers
Lead Organisation	Boston Borough Council
Partner Organisations	Bus operators Lincolnshire County Council
Consultation Requirements	None.
Risks	Lack of funding Constraints at bus stop locations to prevent improvements
Links to Other Measures	Bus Infrastructure Bus Services to Major Development Sites Improved Bus Service Provision Promoting Public Transport
Measurement of Success Strategy Outcomes	Ou2, Ou4, Ou5, Ou8, Ou11

Hierarchy of Accessibility	Public Transport
Measure type	Bus Infrastructure
Measure	Bus priority measures
Purpose of Intervention	To increase bus service reliability as part of making services more attractive.
Detailed Interventions	Introduction of measures that prioritise bus movements at congested locations, such as the A16 south of Boston. Such measures may include bus lanes, gates, bus only routes, vehicle detection at signals. Large new developments provide opportunities to build in bus priority
Steps to Delivery	Survey routes to identify delay points Engage bus operators Develop and appraise options Business case Statutory procedures Detailed design Procurement Full approval Construction Review and monitor
Timescales	Medium to long term
Cost	Cost dependant on individual measures and locations
Funding	Boston Borough Council Lincolnshire County Council DfT funding opportunities Local Enterprise Partnership Private Developers
Lead Organisation	Lincolnshire County Council
Partner Organisations	Bus operators Boston Borough Council
Consultation Requirements	None
Risks	Lack of funding Constraints within the highway network
Links to Other Measures	Bus Infrastructure Bus Services to Major Development Sites Improved Bus Service Provision Promoting Public Transport
Measurement of Success Strategy Outcomes	Ou2, Ou4, Ou5, Ou8

Hierarchy of Accessibility	Public Transport
Measure type	Bus Infrastructure
Measure	Improve signage
Purpose of Intervention	To increase bus service reliability as part of making services more attractive.
Detailed Interventions	Improve signage for the bus and train stations for pedestrians travelling within the town centre.
Steps to Delivery	Survey existing provision Develop signage strategy Implement Business case Detailed design Procurement Full approval Construction Review and monitor
Timescales	Short term
Cost	Under £100k (capital)
Funding	Boston Borough Council Lincolnshire County Council
Lead Organisation	Lincolnshire County Council
Partner Organisations	Boston Borough Council
Consultation Requirements	None
Risks	Lack of funding
Links to Other Measures	Bus Infrastructure Improved Bus Service Provision Promoting Public Transport Rail
Measurement of Success Strategy Outcomes	Ou2, Ou4, Ou5

Hierarchy of Accessibility	Public Transport
Measure type	Bus Services to Major Development Sites
Measure	Circular bus routes in new developments
Purpose of Intervention	To facilitate bus travel in new developments
Detailed Interventions	When planning new developments, design to allow circular bus routes which are easier for operators to operate routes more efficiently.
Steps to Delivery	Incorporate policies in Local Plan Influence developer plans at an early stage – pre-application discussions and engage with operators Secure provision through planning conditions and S106 Agreements Monitor and review
Timescales	Long term
Cost	Developer funded
Funding	Private developers
Lead Organisation	Boston Borough Council
Partner Organisations	Lincolnshire County Council Private developers Bus operators
Consultation Requirements	None
Risks	Lack of developer agreement Lack of bus operator engagement
Links to Other Measures	Bus Infrastructure Improved Bus Service Provision Promoting Public Transport
Measurement of Success Strategy Outcomes	Ou2, Ou4, Ou5, Ou7

Hierarchy of Accessibility	Public Transport
Measure type	Bus Services to Major Development Sites
Measure	Review public transport links to key employment areas
Purpose of Intervention	Support employment areas through improved public transport links
Detailed Interventions	Explore bus provision to key employment areas close to the town, such as the Industrial Estates on Marsh Lane and Skirbeck Quarter to support shift workers during early and late hours.
Steps to Delivery	Engage with bus operators Engage with businesses Engage with private developers Develop proposals Business case Procurement Full approval Implement Review and monitor
Timescales	Short to medium term
Cost	Costs dependant on proposal to be implemented
Funding	Businesses Private developers Bus operators Lincolnshire County Council Boston Borough Council
Lead Organisation	Lincolnshire County Council
Partner Organisations	Boston Borough Council Businesses Private developers Bus operators
Consultation Requirements	None
Risks	Lack of bus operator interest Lack of employer interest Lack of private developer interest Lack of funding to support services
Links to Other Measures	Bus Infrastructure Improved Bus Service Provision Promoting Public Transport
Measurement of Success Strategy Outcomes	Ou2, Ou4, Ou5, Ou7

Hierarchy of Accessibility	Public Transport
Measure type	Community Transport
Measure	Review community transport provision
Purpose of Intervention	Assess if community transport services can be improved in terms of their coverage.
Detailed Interventions	Review community transport provision with a view to improving offer where the public transport network does not provide coverage.
Steps to Delivery	<ul style="list-style-type: none"> Review current network Engage operators Perform gap analysis Identify feasible improvements Develop proposals Business case Procurement Full approval Implement Review and monitor
Timescales	Short term
Cost	Costs dependant on proposal to be implemented
Funding	Lincolnshire County Council Bus operators
Lead Organisation	Lincolnshire County Council
Partner Organisations	Boston Borough Council Bus operators
Consultation Requirements	Consultation and engagement with users
Risks	<ul style="list-style-type: none"> Lack of funding Lack of engagement with operators Lack of engagement with users
Links to Other Measures	
Measurement of Success Strategy Outcomes	Ou2, Ou4, Ou7

Hierarchy of Accessibility	Public Transport
Measure type	Improved Bus Service Provision
Measure	Employer funded public transport
Purpose of Intervention	Support public transport access to employment
Detailed Interventions	Work with local employers to explore the possibility of co-funding bus services that would help transport their workforce.
Steps to Delivery	Identify potential partner employers Engage with employers Engage with operators Develop proposals Support employers through procurement and implementation Review and monitor
Timescales	Short to medium term
Cost	Employer funded
Funding	Employers
Lead Organisation	Lincolnshire County Council
Partner Organisations	Boston Borough Council Businesses Bus operators
Consultation Requirements	None
Risks	Lack of funding Lack of engagement with employers Lack of engagement with operators
Links to Other Measures	Bus Services to Major Development Sites
Measurement of Success Strategy Outcomes	Ou2, Ou4, Ou7

Hierarchy of Accessibility	Public Transport
Measure type	Improved Bus Service Provision
Measure	Improved bus services
Purpose of Intervention	Improve bus network coverage and provision to promote further use
Detailed Interventions	<p>Review opportunities to secure additional capital or revenue funding to improve the provision of bus services within Boston and inter-urban services between the town and other centres. This should include opportunities to improve both peak period and all-day services and the introduction of Sunday services.</p> <p>Align services that visit the railway station with train times, providing a fully integrated public transport provision for the town.</p>
Steps to Delivery	<p>Review network</p> <p>Perform gap analysis</p> <p>Engage operators</p> <p>Identify potential capital and revenue funding opportunities</p> <p>Develop potential network</p> <p>Develop proposals</p> <p>Business case</p> <p>Procurement</p> <p>Full approval</p> <p>Implement</p> <p>Review and monitor</p>
Timescales	Short to medium term
Cost	Costs dependant on improvements identified
Funding	<p>Lincolnshire County Council</p> <p>Bus operators</p> <p>DfT funding opportunities</p> <p>Private Developers</p>
Lead Organisation	Lincolnshire County Council
Partner Organisations	<p>Boston Borough Council</p> <p>Bus operators</p> <p>Private developers</p>
Consultation Requirements	None
Risks	<p>Lack of funding</p> <p>Lack of bus operator engagement</p>
Links to Other Measures	<p>Bus Services to Major Development Sites</p> <p>Bus Infrastructure</p> <p>Bus Interchange</p> <p>Promoting Public Transport</p> <p>Rail</p>
Measurement of Success Strategy Outcomes	Ou2, Ou4, Ou5, Ou7, Ou8

Hierarchy of Accessibility	Public Transport
Measure type	Promoting Public Transport
Measure	'Try for Free' Public Transport Campaign
Purpose of Intervention	Increase public transport use
Detailed Interventions	Work with public transport operators to encourage use by offering free journeys to residents and employees (e.g. free return rail ticket from Boston to another Lincolnshire Station or free day pass on Into Town Service)
Steps to Delivery	Engage with public transport operators Develop scope of the programme Develop proposals Business case Full approval Implement Review and monitor
Timescales	Short term
Cost	Under £100k (revenue)
Funding	Lincolnshire County Council Boston Borough Council Bus operators Sponsors
Lead Organisation	Lincolnshire County Council
Partner Organisations	Boston Borough Council Bus operators
Consultation Requirements	None
Risks	Lack of funding Lack of bus operator engagement Lack of uptake by users
Links to Other Measures	Bus Services to Major Development Sites Bus Infrastructure Bus Interchange Improved Bus Service Provision Rail
Measurement of Success Strategy Outcomes	Ou2, Ou4, Ou5, Ou7

Hierarchy of Accessibility	Public Transport
Measure type	Promoting Public Transport
Measure	Increased Publicity Campaigns for Use of Public Transport
Purpose of Intervention	Increase public transport use
Detailed Interventions	Introduction of publicity campaigns and initiatives to raise the profile of public transport and its benefits within Boston and to encourage its use.
Steps to Delivery	Engage with public transport operators Develop scope of the campaigns Business case Full approval Implement Review and monitor
Timescales	Short term
Cost	Under £100k (revenue)
Funding	Lincolnshire County Council Boston Borough Council Bus operators Sponsors
Lead Organisation	Lincolnshire County Council
Partner Organisations	Boston Borough Council Bus operators
Consultation Requirements	None
Risks	Lack of funding Lack of bus operator engagement Lack of uptake by users
Links to Other Measures	Bus Services to Major Development Sites Bus Infrastructure Bus Interchange Improved Bus Service Provision Rail
Measurement of Success Strategy Outcomes	Ou2, Ou4, Ou5, Ou7

Hierarchy of Accessibility	Public Transport
Measure type	Promoting Public Transport
Measure	Flexible ticketing options
Purpose of Intervention	Increase public transport use through better ticketing options
Detailed Interventions	Introduction of flexible bus tickets such as season tickets and travel cards. Explore ways in which these could be applied to the wider region.
Steps to Delivery	Engage with public transport operators Develop range of options Business case Full approval Implement Review and monitor
Timescales	Short to medium term
Cost	Costs yet to be identified
Funding	Lincolnshire County Council Bus operators
Lead Organisation	Lincolnshire County Council
Partner Organisations	Bus operators
Consultation Requirements	None
Risks	Lack of funding Lack of bus operator engagement Need for co-ordination with the wider county
Links to Other Measures	Bus Services to Major Development Sites Bus Infrastructure Bus Interchange Improved Bus Service Provision Rail
Measurement of Success Strategy Outcomes	Ou2, Ou4, Ou5, Ou7

Hierarchy of Accessibility	Public Transport
Measure type	Rail
Measure	More direct rail services
Purpose of Intervention	Increase rail use for a range of trip purposes
Detailed Interventions	Lobby Train Operating Company to provide increased, more direct services and to connect to wider destinations. The bidding process for the next franchise provides an opportunity to engage with operators to improve services
Steps to Delivery	Engage with Train Operating Company Engage with Department for Transport
Timescales	Short to long term
Cost	Costs to train operator. However, business cases could be developed to support the improvement of services – under £100k (revenue).
Funding	Department for Transport Train Operating Companies Lincolnshire County Council
Lead Organisation	Lincolnshire County Council/Boston Borough Council
Partner Organisations	Department for Transport Train Operating Companies
Consultation Requirements	None
Risks	Lack of support from Train Operating Company Lack of feasibility in terms of timetabling
Links to Other Measures	Rationalisation of rail timetables
Measurement of Success Strategy Outcomes	Ou4, Ou8

Hierarchy of Accessibility	Public Transport
Measure type	Rail
Measure	Rationalisation of rail timetables
Purpose of Intervention	Increase rail use for a range of trip purposes
Detailed Interventions	Lobby Train Operating Company with regards to changing the timetables to assist interchange at Grantham for onward East Coast Main Line services.
Steps to Delivery	Engage with Train Operating Company Engage with Department for Transport
Timescales	Short to long term
Cost	Costs to train operator. However, business cases could be developed to support the improvement of services – under £100k (revenue).
Funding	Department for Transport Train Operating Companies Lincolnshire County Council
Lead Organisation	Lincolnshire County Council/Boston Borough Council
Partner Organisations	Department for Transport Train Operating Companies
Consultation Requirements	None
Risks	Lack of support from Train Operating Company Lack of feasibility in terms of timetabling
Links to Other Measures	More direct rail services
Measurement of Success Strategy Outcomes	Ou4, Ou8

7.5 Traffic mitigation

Hierarchy of Accessibility	Traffic Mitigation
Measure type	Parking
Measure	Parking Strategy
Purpose of Intervention	Reorganise parking provision to improve efficiency for both users and operator
Detailed Interventions	Develop a new parking strategy for the town to improve optimise the provision and management of parking and to integrate parking into the wider transport strategy. A range of issues could be considered including parking provision, tariffs, infrastructure, traffic management, private non-residential, residents' parking zones, sustainable travel, co-ordination, enforcement, monitoring and reviewing
Steps to Delivery	Undertake study to produce parking strategy
Timescales	Short term
Cost	Under £100k (revenue). Capital schemes may result from strategy
Funding	Boston Borough Council
Lead Organisation	Boston Borough Council
Partner Organisations	Lincolnshire County Council Car park operators Businesses
Consultation Requirements	Consultation with stakeholders during strategy development process
Risks	Lack of support from businesses Lack of support from members Lack of support from the public
Links to Other Measures	Traffic Management Land Use Planning Public Realm
Measurement of Success Strategy Outcomes	Ou1, Ou3, Ou11

Hierarchy of Accessibility	Traffic Mitigation
Measure type	Safety
Measure	Investigate improvements at collision cluster sites
Purpose of Intervention	Reduce the number and severity of road traffic collisions
Detailed Interventions	<p>Undertake safety studies at collision cluster sites to identify improvements. Clusters of collisions have been identified at specific junctions and on longer corridors. Specific clusters within the urban area include:</p> <ul style="list-style-type: none"> • A52 Sleaford Road corridor; • junction of Spalding Road and London Road junction; • A16 John Adams Way corridor; • Fydell Street / Norfolk Street corridor; • West Street / High Street / Town Bridge corridor; and, • Wide Bargate.
Steps to Delivery	<p>Identify cluster sites Undertake safety studies Develop improvement options Business case Detailed design Procurement Full approval Implement Review and monitor</p>
Timescales	Short term to medium term
Cost	Costs to be identified for each scheme
Funding	Lincolnshire County Council
Lead Organisation	Lincolnshire County Council
Partner Organisations	Lincolnshire Road Safety Partnership
Consultation Requirements	None
Risks	<p>Constraints in improving cluster sites Opposition to improvements</p>
Links to Other Measures	Traffic Management
Measurement of Success Strategy Outcomes	Ou9, Ou10, Ou11

Hierarchy of Accessibility	Traffic Mitigation
Measure type	Traffic Management
Measure	20mph zones
Purpose of Intervention	Improve the environment and safety by reducing motor vehicle traffic speeds in certain locations
Detailed Interventions	Review potential locations for 20mph zones, particularly in locations where accident issues are known and around schools
Steps to Delivery	Review potential locations Develop options Period of consultation Business case Statutory procedures Detailed design Procurement Full approval Implement Review and monitor
Timescales	Short term
Cost	Under £100,000 (revenue)
Funding	Lincolnshire County Council
Lead Organisation	Lincolnshire County Council
Partner Organisations	-
Consultation Requirements	Statutory consultation when schemes go forward for implementation
Risks	Lack of member support Lack of public support Lack of funding
Links to Other Measures	Safety Pedestrian and cycle safety Cycle route infrastructure
Measurement of Success Strategy Outcomes	Ou9, Ou10, Ou11

Hierarchy of Accessibility	Traffic Mitigation
Measure type	Traffic Management
Measure	Junction improvements
Purpose of Intervention	Improve traffic flow and junction performance by future proofing junctions
Detailed Interventions	<p>Improvements to help improve traffic flow through the junctions forecast to be under pressure in the future, such as:</p> <ul style="list-style-type: none"> • A52/A16 • A16/London Road • A52/A1121 <p>Priority should be given to the A52/A16 junction.</p>
Steps to Delivery	<p>Identify potential improvements</p> <p>Design and feasibility study including traffic modelling</p> <p>Business case</p> <p>Planning application</p> <p>Statutory procedures</p> <p>Detailed design</p> <p>Procurement</p> <p>Full approval</p> <p>Construction</p> <p>Monitor and review</p>
Timescales	Short term
Cost	£100,000 to £500,000
Funding	Lincolnshire County Council
Lead Organisation	Lincolnshire County Council
Partner Organisations	Boston Borough Council
Consultation Requirements	None
Risks	<p>Constraints in terms of what can be done to the sites</p> <p>Lack of funding</p>
Links to Other Measures	<p>Safety</p> <p>Pedestrian and cycle safety</p> <p>Cycle route infrastructure</p> <p>Bus Infrastructure</p>
Measurement of Success Strategy Outcomes	Ou3, Ou5, Ou9, Ou10, Ou11

Hierarchy of Accessibility	Traffic Mitigation
Measure type	Traffic Management
Measure	Review of town centre traffic management
Purpose of Intervention	Improve operation of the town centre
Detailed Interventions	Review traffic management in the town centre, alongside the new Parking Strategy. The review should include TROs, HGV and loading restrictions (including daytime restrictions), one-way routes, banned movements and bus priority. Traffic management within the town should make best use of the network, reduce traffic penetration, improve safety and the environment, support business and enhance the attractiveness of the town.
Steps to Delivery	<ul style="list-style-type: none"> Review existing traffic management Engage with businesses and residents Develop options for improvement Integrate with Parking Strategy Business case Statutory procedures Detailed design Procurement Full approval Implement Review and monitor
Timescales	Short term
Cost	£100,000 to £500,000
Funding	Lincolnshire County Council
Lead Organisation	Lincolnshire County Council
Partner Organisations	<ul style="list-style-type: none"> Boston Borough Council Town centre business
Consultation Requirements	None
Risks	<ul style="list-style-type: none"> Lack of business support Lack of resident support Lack of funding
Links to Other Measures	Parking Strategy
Measurement of Success Strategy Outcomes	Ou1, Ou2, Ou5

Hierarchy of Accessibility	Traffic Mitigation
Measure type	Traffic Management
Measure	Traffic calming and crossing facilities on Fydell Street/Norfolk Street
Purpose of Intervention	Improve the environment and safety along Fydell Street and Norfolk Street
Detailed Interventions	Consider implementing traffic calming and providing crossing facilities on Fydell Street/Norfolk Street to encourage lower speeds and improve safety for other road users.
Steps to Delivery	Review existing situation Identify issues and opportunities Business case Statutory procedures Detailed design Procurement Full approval Implement Review and monitor
Timescales	Short to medium term
Cost	Under £100,000
Funding	Lincolnshire County Council
Lead Organisation	Lincolnshire County Council
Partner Organisations	Boston Borough Council Lincs Road Safety Partnership
Consultation Requirements	Statutory consultation through TRO process
Risks	Lack of funding Lack of public support
Links to Other Measures	Safety Pedestrian and cycle safety
Measurement of Success Strategy Outcomes	Ou9, Ou10, Ou11

Hierarchy of Accessibility	Traffic Mitigation
Measure type	Traffic Management
Measure	Review on-street parking close to schools and the hospital.
Purpose of Intervention	Assess if on-street parking is causing issues
Detailed Interventions	Review existing parking demand and on-street supply within the vicinity of schools and the hospital with a view to alleviating parking issues.
Steps to Delivery	Review parking demand and supply Engage with schools and the hospital Identify issues and opportunities Develop options Business case Statutory procedures Detailed design Procurement Full approval Implement Review and monitor
Timescales	Short term
Cost	Under £100,000
Funding	Lincolnshire County Council
Lead Organisation	Lincolnshire County Council
Partner Organisations	Boston Borough Council Schools Pilgrim Hospital
Consultation Requirements	Statutory consultation through TRO process
Risks	Lack of funding Lack of public support
Links to Other Measures	Safety Pedestrian and cycle safety
Measurement of Success Strategy Outcomes	Ou9, Ou10, Ou11

Hierarchy of Accessibility	Traffic Mitigation
Measure type	Major Schemes
Measure	Boston Distributor Road
Purpose of Intervention	Service and facilitate new development
Detailed Interventions	<p>The Boston Distributor Road (BDR) will be a new route linking the A16 in the South of the town to the A16 in the north and servicing the new developments on available land to the west of the town. Its aim is to provide access to major development sites whilst also relieving the existing highway network within the town centre through the provision of additional highway capacity and crossings of watercourses and railway lines.</p> <p>The current approach to delivering BDR is for the highway links and junctions to be provided as part of new developments with those links initially operating as distributor roads for those sites. To form a continuous route between the A16 to the north and south of the town, additional infrastructure will be required in the form of bridges (and associated links) across watercourses and railway lines. Within the period of the new Local Plan, up to 2036, is it likely that development sites sufficient to provide half the BDR will be brought forward. If this is the case, one bridge will be required; that being a single span over the South Forty Foot Drain, A1121 and Boston to Sleaford railway line. This Pathway is focussed on the delivery of that bridge as well as working with developers to secure the other links and junctions.</p>
Steps to Delivery	<ul style="list-style-type: none"> Include in Local Plan Engage developers Develop outline designs Business cases Statutory procedures Detailed design Procurement Full approval Implement Review and monitor
Timescales	Long term
Cost	Over £5m (£30m+)
Funding	<ul style="list-style-type: none"> Private developers Lincolnshire County Council Boston Borough Council DfT funding opportunities Local Enterprise Partnership
Lead Organisation	Lincolnshire County Council
Partner Organisations	<ul style="list-style-type: none"> Boston Borough Council Private developers
Consultation Requirements	Consultation through the statutory procedures
Risks	<ul style="list-style-type: none"> Private developments not coming forward Design and construction constraints Planning objections
Links to Other Measures	<ul style="list-style-type: none"> Traffic Management Land Use Planning Improved Bus Service Provision

	Cycle Route Infrastructure
Measurement of Success Strategy Outcomes	Ou1, Ou3

Hierarchy of Accessibility	Traffic Mitigation
Measure type	Major Schemes
Measure	Boston East-West Relief Road
Purpose of Intervention	Provide a new east-west connection across Boston.
Detailed Interventions	<p>New link road from the A16 Spalding Road, across the River Witham to Skirbeck Road.</p> <p>This scheme has been assessed alongside the BDR in the development of the Strategy. The traffic modelling showed that the BEWRR has the potential to deliver greater benefits to the town during the period of the local plan (up to 2036) than BDR, due to the greater relief it provides to traffic within the main urban area. It could therefore have a higher priority than BDR, however, this should be kept under review in relation to the delivery of developments that may contribute to BDR.</p>
Steps to Delivery	<p>Feasibility study</p> <p>Outline Design</p> <p>Business cases</p> <p>Statutory procedures</p> <p>Detailed design</p> <p>Procurement</p> <p>Full approval</p> <p>Implement</p> <p>Review and monitor</p>
Timescales	Long term
Cost	Over £5m (£30m/£40m)
Funding	<p>Lincolnshire County Council</p> <p>Private developers</p> <p>Department for Transport</p>
Lead Organisation	Lincolnshire County Council
Partner Organisations	<p>Boston Borough Council</p> <p>Private developers</p> <p>DfT funding opportunities</p> <p>Local Enterprise Partnership</p>
Consultation Requirements	Statutory consultation through the planning process
Risks	<p>Lack of funding</p> <p>Design and construction constraints</p> <p>Planning objections</p>
Links to Other Measures	<p>Traffic Management</p> <p>Land Use Planning</p> <p>Cycle Route Infrastructure</p> <p>Improved Bus Service Provision</p>
Measurement of Success Strategy Outcomes	Ou1, Ou3, Ou5, Ou6

Hierarchy of Accessibility	Traffic Mitigation
Measure type	Inter-modal freight
Measure	Work with operators to increase the use of rail for freight
Purpose of Intervention	Increase the amount of freight transport by rail.
Detailed Interventions	There may be opportunities to increase the use of rail for the movement of freight to, from and through Boston. The Port of Boston currently has a train per day taking freight from the port and this could be increased if there was demand either from the port or other businesses. There are also plans for a new intermodal freight terminal near to Spalding which could support the movement of freight from road to rail.
Steps to Delivery	Review potential for increasing rail freight Identify issues and opportunities Engage with Port of Boston Engage with Network Rail Engage Freight Operating Companies
Timescales	Long term
Cost	None to the Councils
Funding	Businesses
Lead Organisation	Lincolnshire County Council
Partner Organisations	Boston Borough Council Port of Boston Rail Freight Companies Hauliers Businesses
Consultation Requirements	None
Risks	Loss of infrastructure Lack of engagement Lack of funding
Links to Other Measures	Traffic Management Major Schemes
Measurement of Success Strategy Outcomes	Ou1, Ou3