

Thetford Network Improvement Strategy

April 2020



Norfolk County Council

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Executive Summary

The Thetford Network Improvement Strategy (TNIS) has been produced in collaboration with stakeholders and has identified potential measures to help address existing transport network constraints and transport improvements to facilitate the growth identified in the emerging Breckland Local Plan, which is at an advanced stage. The emerging Local Plan runs to 2036 and the proposals in this strategy will help sustainably deliver the growth identified by Breckland District Council during this period. Various activities were undertaken to gather evidence and information to compile the TNIS: an internal meeting with officers across a range of departments; an external stakeholder workshop; and scoping of potential study work to identify priorities. This feedback generated two prime objectives the TNIS would look to address:

- Identifying key cycle corridors in Thetford and identifying potential improvements for the routes considered to offer the greatest opportunity to increase cycle use
- Understanding capacity and network issues at network pinch points and key junctions including Nuns' Bridges Road, A11 junctions and the A134 north/south route, and how these are likely to change with the addition of extra development to identify measures to alleviate issues.

In response, consultants were commissioned to produce a Walking and Cycling Corridors technical note and Network Pinch Point Assessment and Key Junction Testing technical note. This does not mean that these are the only issues in Thetford. Indeed, in our study work we were made aware of a number of others including issues of parking and accessibility at the rail station, and parking in the town centre itself. However, it was agreed that the focus of the work would look to address the points set out above, which came strongly out of our evidence and engagement work.

Key findings from the study include:

- A walking and cycle route on London Road from the commercial area in the west of the town to the town centre would likely be the most well-used option for the town.
- The Thetford Sustainable Urban Extension (SUE, development of circa 5,000 houses in the north of the town) will lead to additional traffic using the A11 trunk road. The agreed direct mitigation package for the A11 addresses these issues but could result in a perception that the A11 serves its function for longer-distance traffic less well.
- Growth will also create issues on the A134 south of the town, Nuns' Bridges Road and junctions within the town.
- Ways to mitigate these issues include: signage to parking and key destinations within the town could be improved in order to reduce traffic routing via unsuitable routes and routes prone to congestion; improvements to heavy goods vehicle (HGV) restriction enforcement; speed limit reductions on Nuns' Bridges Road
- Further study work would be needed to identify what a solution to the network issues might be. The work would need to consider the potential for a new link in the south of Thetford that would connect the A134 around the south east of the town.

Based on the feedback from stakeholders and findings from the study work the Action Plan recommends areas where consideration should be given in the form of short, medium and long-term actions. Norfolk County Council (NCC) will identify funding opportunities for the delivery of some short- term schemes that can be delivered within the next two years. Given the nature of funding using NCC led proposals would allow for schemes to be delivered within the time allocation. In the medium and longer- term it will be critical for NCC to work collaboratively with local partners to deliver other opportunities.

Table 1 provides some short, medium and long-term actions. The Action Plan in Chapter 8 provides the individual schemes suggested.

Table 1: Short, medium and long-term actions

Timescale	Cycling and Walking routes	Network Pinch Points and Key Junctions
Short-term	Norfolk County Council and partners to identify potential funding opportunities for feasibility work to progress section improvements set out in the consultants Cycling and Walking study for Route A.	<p>The study indicates the impact of the current traffic and future development around the town on various junctions and what high level transport infrastructure would be required to mitigate this impact. This evidence can be used by Norfolk County Council, Breckland District Council and Thetford Town Council to inform future planning.</p> <p>Further feasibility work will be carried out looking at the potential for a link and upgrades to existing roads to link the A134 from Bury St Edmunds via Hurth Way and Mundford Road to the A134 in the north.</p>
Medium-term	The Route A improvements are developed into schemes that can then be used as projects when seeking contributions from new development or external funding opportunities.	Norfolk County Council alongside partners can use this study to develop potential mitigation improvements further so the costs and work required are fully understood. This would provide a better understanding of what improvements are feasible in the town.
Long-term	Look to identify suitable funding streams to develop suitable schemes on Routes B and C and take forward to delivery.	The impact of growth beyond the emerging Local Plan needs to be fully understood. Any new housing allocation for the town beyond the emerging Local Plan period of 2036 will have a transport infrastructure impact. Any growth will need to be fully evaluated and options chosen with the least detrimental impact felt on the town.

Chapter 1: Introduction

Norfolk has a population of around 891,000 people. The majority live in Norwich and the 21 market towns both inland and along the coast. Market towns act as service centres to their surrounding rural populations within the rural county. Norfolk's market towns are also employment centres, commuter towns, retirement centres and/ or shopping destinations. Many retain a historic core and are generally supported by seasonal tourism.

Several market towns still hold regular markets; however, some have suffered in recent years due to online shopping and the decline of agriculture or other significant industries (eg fishing and textiles). The environment the town provides for people to live, work, shop, play and move about in, the very basis of modern human activity, is fundamental to how a town functions for those who use it.

Norfolk County Council is undertaking a series of transport network improvement strategies in the market towns to examine current and future issues within the town and understand the role that transport infrastructure can have in ensuring that towns continue to thrive. These network improvement strategies will look at short, medium and long-term interventions and provide evidence to inform longer- term planning policy making.

Thetford

Thetford is Norfolk's largest market town and fourth largest urban area, located in Breckland on the Norfolk and Suffolk border as shown in Figure 1. Thetford is located along the A11 and has a rail station providing links to Norwich, Cambridge and London. In total Thetford has a population of just over 24,000. (The Thetford Sustainable Urban Extension (SUE) is likely to add around 15,000 to this figure.) It has a relatively young population with 32% below 25 compared to 27% in Norfolk. The SUE, to the north of the town and where housebuilding has recently started, will eventually bring forward another 5,000 homes. Thetford has seen over 1,500 homes completed since 2001. In Thetford around a quarter of households do not own a vehicle (24%) compared to Breckland (16%). Thetford has a vibrant high street, strong leisure offer and has several historical assets. Norfolk County Council's *Norfolk Market Town Report 2018* identifies Thetford as having over 200 town centre business premises, nine of which were vacant which is below the Norfolk average.

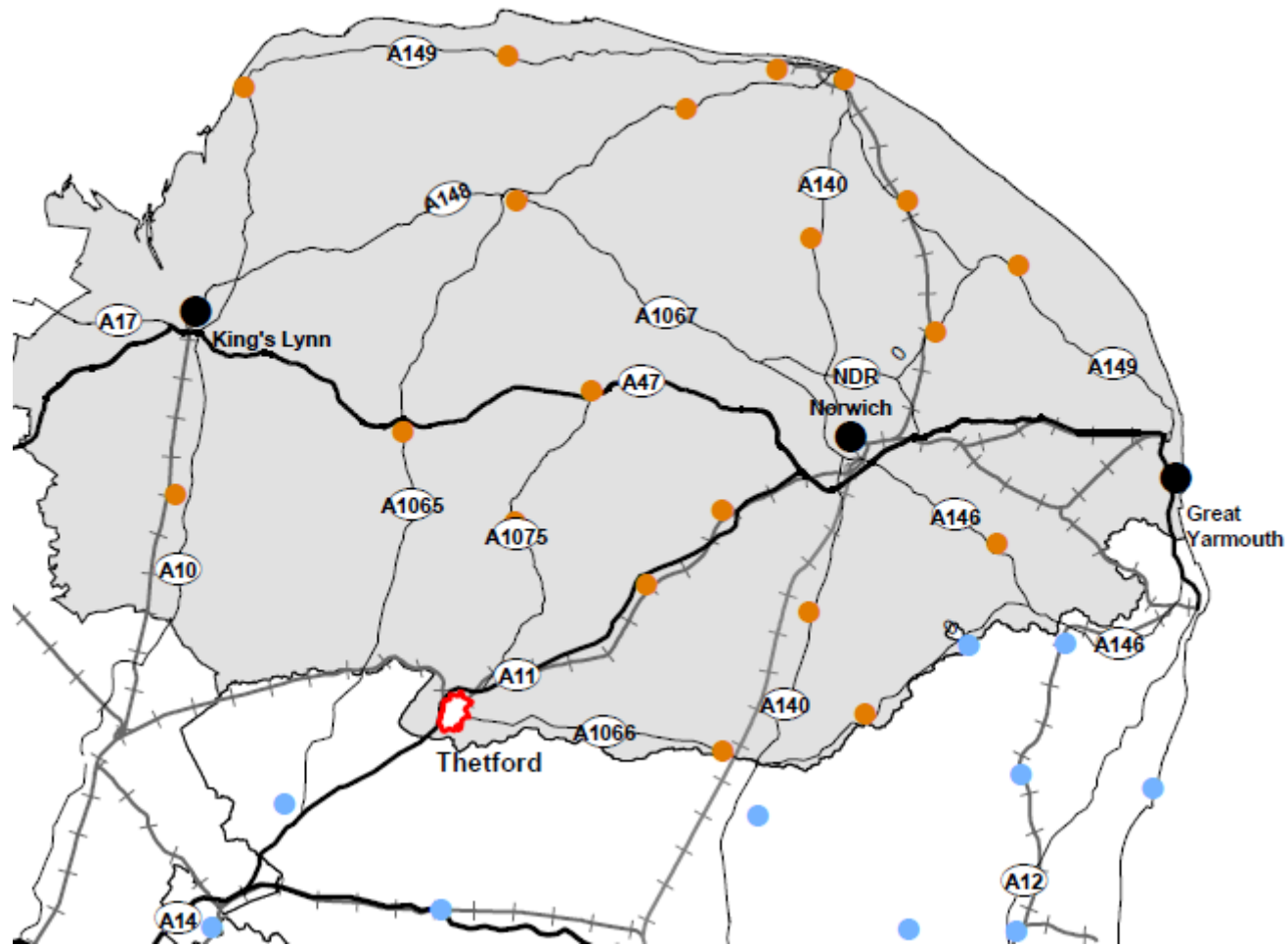


Figure 1: Locational map of Thetford

Chapter 2: Strategy and Policy Context

The following policies and strategies have been identified as setting the context and baseline for this Network Improvement Strategy.

National Policy

The new National Planning Policy Framework (NPPF) has a chapter dedicated to ensuring vitality of town centres stating that “Planning policies and decisions should support the role that town centres play at the heart of local communities, by taking a positive approach to their growth, management and adaptation”. A range of considerations are set out in paragraph 85 with some being of particular relevance to this strategy:

- Promote their long-term vitality and viability
- Centres can grow and diversify in a way that can respond to rapid changes
- Town centres are accessible and well connected.

National policy recognises the importance of towns acting as service centres particularly in rural areas serving both the local and tourist population.

Norfolk and Suffolk Economic Strategy

The Norfolk and Suffolk Economic Strategy identifies the following sectors as being key to the Norfolk economy: energy, life sciences and biotech, ICT, tech and digital creative, advanced agriculture, food and drink, financial services and insurance, visitor economy- tourism, heritage and culture, transport, freight and logistics, construction and development and advanced manufacturing and engineering.

Local Transport Plan 3

Norfolk’s third Local Transport Plan, Connecting Norfolk, sets out the strategy and policy framework for transport up to 2026. This is used as a guide for transport investment in Norfolk as well as being considered by other agencies when determining planning or delivery decisions. The strategy is accompanied by an Implementation Plan, setting out the measures to be delivered over the short-term. Connecting Norfolk is driven by the views of local people and stakeholders and addresses the challenges we face in Norfolk. The transport vision is: “A transport system that allows residents and visitors a range of low carbon options to meet their transport needs and attracts and retains business investment in the county”.

Six strategic aims underpin the vision, they are: maintaining and managing the highway network; delivering sustainable growth; enhancing strategic connections; reducing emissions; improving road safety; and improving accessibility.

Breckland Local Plan Policy

The Breckland Local Plan, which is currently subject to Examination sets out the strategy and policies that will deliver sustainable development up until the year 2036. The plan sets out a strategic vision for Breckland which includes the following:

- By 2036 Breckland’s settlements and its wider rural area will have developed in a sustainable manner appropriate for the rural nature of the district;

- The economy will be diversified and well connected, with a growing skilled workforce and population
- New development will be directed to locations that are co-ordinated with transport provision, have good access to support existing services, community facilities and open space
- New employment will not only be located to take advantage of the improved transport links offered by the A11 and A47 corridors and partnership work with adjacent local authorities but be directed to the most sustainable locations.

The following policies have the most relevance to the Thetford Network Improvement Strategy:

- Policy TR 01 Sustainable Transport Network - The Council will work in partnership to promote a safe, efficient and convenient sustainable transport system
- Policy TR 02 Transport Requirements - Developments should be of high quality, sustainable in design, construction and layout as well as offering maximum flexibility in the choice of travel modes for all potential users.

Figure 2 provides a map of the Breckland Local Plan allocations in Thetford.

The Little Ouse Water Space Study 2016

This study aims to encourage the sustainable development of the River Little Ouse Corridor for the benefit of the widest possible range of people. The Water Space Study is intended to provide partner organisations, potential funders and other interested parties with a framework for promoting river related projects, which will help stimulate long-term regeneration of the river corridor within the Thetford area. The study aims to help redefine Thetford as a 'riverside destination' and develop water and land based activities along the River Little Ouse, to inform and complement Thetford Town Council's and other key partners' vision for the regeneration of the river in both the short and long terms, and to identify opportunities to promote access to new or enhanced water-based activities. The study proposes a variety of schemes which will help to achieve the sustainable development of the corridor. This includes a variety of park and walk/cycle/glide proposals for the Little Ouse Corridor. This study has been considered in the TNIS.

Other strategies

There are a number of other plans and strategies that have been produced in recent years in Thetford:

- Thetford Car Park survey 2016
- Thetford Town Centre Masterplan 2013
- Thetford Area Action Plan 2012
- Thetford Loops 2010.

Work complete, underway or planned

In addition to the plans and strategies, other work has been undertaken or is ongoing.

- New Thetford Bus Station
- New Thetford car park signage
- Breckland District Council's Market Town Initiative

- Thetford Enterprise Park development
- Thetford Sustainable Urban Extension (SUE) development
- New A1066 Mundford Road/ Wyatt Way roundabout
- Power and Water supplies improvements.

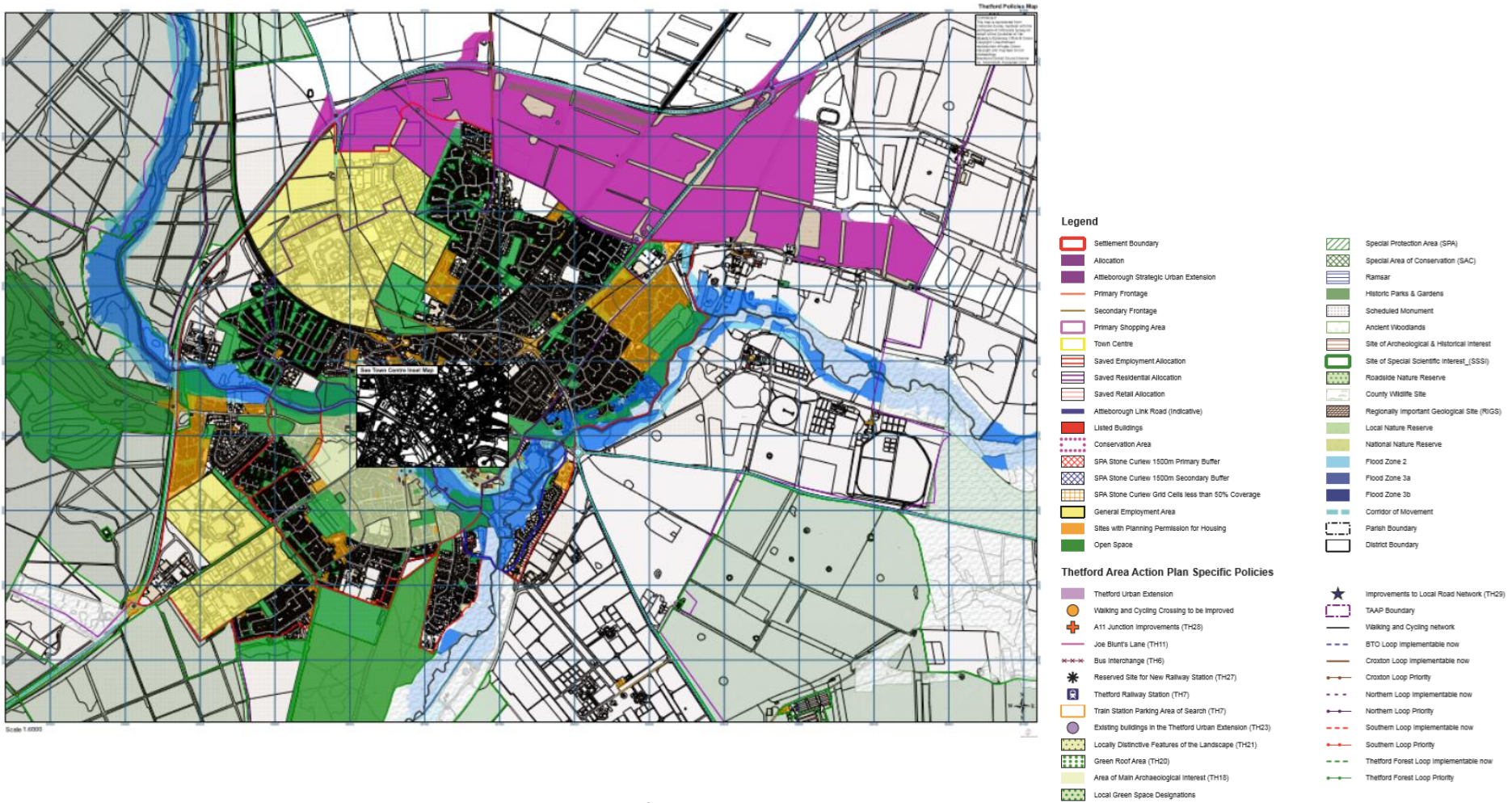


Figure 2: Breckland Local Plan allocations in Thetford

Chapter 3: Thetford Background

Thetford is situated in the south of Norfolk within the planning authority of Breckland District Council.

Thetford is 30 miles south west of Norwich and 31 miles south east of King's Lynn. The market town lies on the A11 trunk road providing good road links to Norwich, the Norfolk Coast, the Broads, Bury St Edmunds and Cambridge. In 1989 the A11 bypass of Thetford was completed to the north and west. The A11 is a major route connecting Norfolk with Cambridge and down to London. In 2014 the last section of the A11 single carriageway was dualled. The primary traffic routes through the town are the A1066 and A134. Other important roads include Croxton Road, A1075, Norwich Road and London Road.

Thetford Forest lies to the west of Thetford. Safe walking and cycling links are limited due to the physical barrier presented by the A11. Thetford holds a market every Tuesday and Saturday. There are significant employment areas to the north and south west of Thetford. Thetford is located near a number of regional walking and cycling trails.

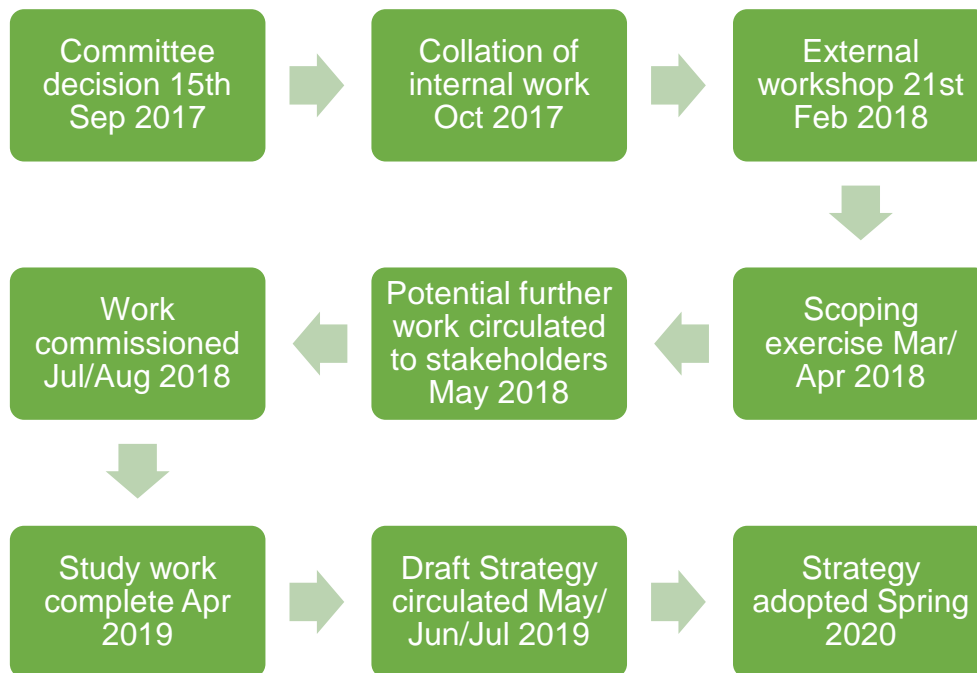
Thetford has a population of just over 24,000. (The SUE is likely to add around 15,000 to this figure.) It has a relatively young population with 32.1% below 25 compared to 27.2% in Norfolk

Of the circa 24,000 people living within the built-up area of Thetford 3.76% cycle to work and 3.43% use public transport (bus and rail), this is slightly lower than the average across Norfolk and shows that there is scope to develop these sustainable networks. However, the walking and car share mode shares for travel to work by Thetford residents are quite a bit higher than the Norfolk average (16.81% Thetford based walking trips versus 12.61% across Norfolk, and 10.19% car share trips in Thetford versus 5.84% across Norfolk). As a net result, the percentage of driver-based trips in Thetford (63.81%) is lower than the Norfolk average (68.39%).

Thetford is an important urban centre serving a large and important farmer hinterland and traditionally much of its employment linked to the manufacture of steam engines in the late 19th and early 20th centuries.

Chapter 4: Programme of activity

The purpose of the network improvement strategies is to identify issues build a strong evidence base and help to bring forward solutions that support the delivery of future housing and jobs growth. To develop the understanding of the transport issues in Thetford, Norfolk County Council held stakeholder workshops, carried out site visits and liaised with other council colleagues to gather a range of views on which to base the strategy. The programme of activity and timeline of events is set out below.



Chapter 5: Transport in Thetford Today

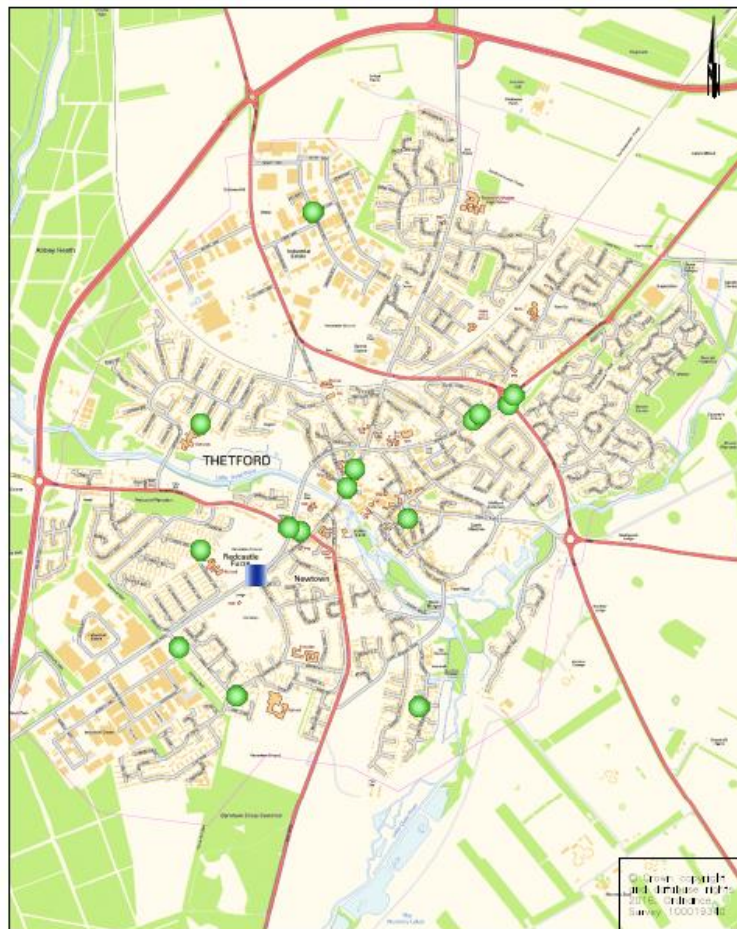
As set out in Chapter 3, the county council's Environment, Development and Transport Committee agreed to commission market town network improvement strategies in 2017. Members agreed the reports would look to: understand current transport problems and issues; understand the future situation (principally growth proposals and their impacts on transport); and develop an Action Plan. The Committee agreed the scope of issues that would be looked at in the studies. This chapter provides a summary of each item set out in the scope and what the relevant issues and concerns are in Thetford. This also includes areas where there is not a transport issue or where further work is not proposed. It sets out the scope items including casualties, parking, congestion, cycling and public transport. For each of these the strategy lists what work is already underway and the potential further work options.

Casualties

The county council highways team provided information on cyclist, motor traffic and pedestrian collisions where these resulted in an injury. (The police only compile records of injury collisions since there is a requirement that these are reported in law. No record is maintained for collisions where no injury resulted, eg minor bumps.) The number of collisions across the three modes of transport are typical for a market town and the maps below identify both slight and serious injuries. It should be noted that this collision data is relevant to the date which this study was carried out. The county council will continue to monitor and report updates on the collision data as part of the review of the Action Plan.

Collisions involving cyclists

There have been 15 collisions over a five-year period resulting in slight injury and one serious injury as shown in Figure 3. There is no particular hotspot of collisions, but the key areas are the town centre and along Norwich Road. Given the amount of collisions and their location no further work is proposed for cyclist collisions but cycle corridor improvements are suggested later in this strategy as the study is focussing on improving and increasing the provisions for cycling in the town.



Thetford Area
 01/08/2012 - 31/07/2017
 Collisions involving cyclists

■ Collision resulting in serious injury
● Collision resulting in slight injury

Figure 3: Serious and slight collisions involving cyclists in Thetford

Collisions involving motor vehicles

There were 14 collisions over the five-year period looked at when this stage of the study was completed resulting in serious injury as shown in Figure 4. There are more collisions involving motor vehicles but again, as explained above, this is typical of a market town for this period of time. Whilst there is no single hotspot of collisions they are concentrated along the key routes in and out of the town and in the town centre. Collisions appear to be focused along the A134, the town centre, A1066 and Norwich Road.

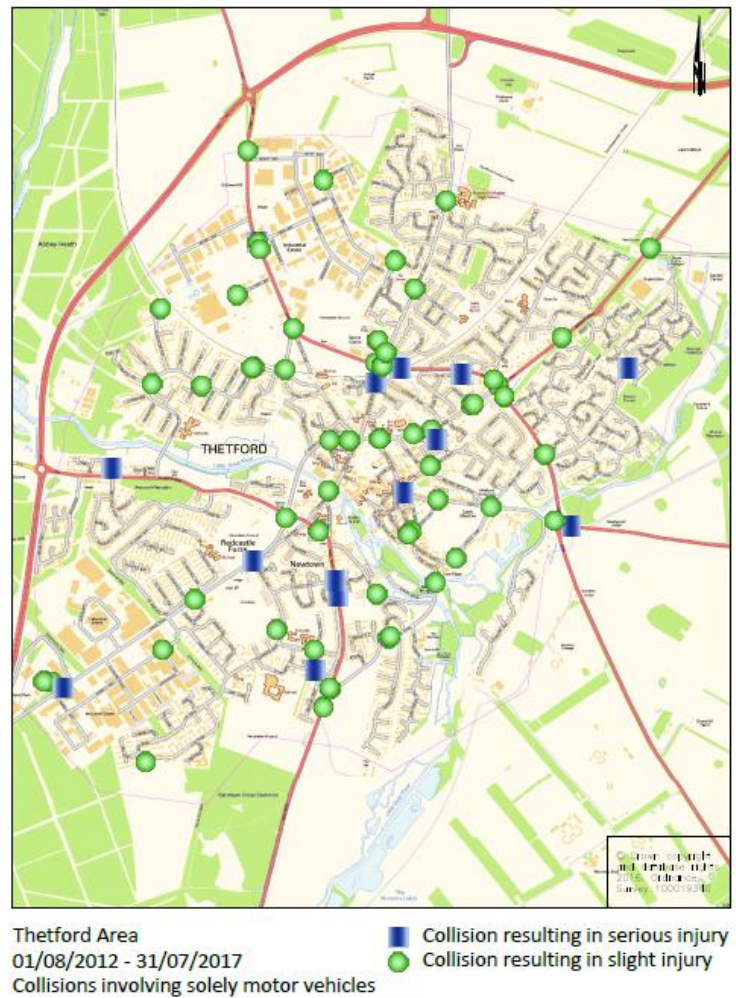


Figure 4: Serious and slight collisions involving motor vehicles in Thetford

Collisions involving pedestrians

There were 14 collisions over a five-year period resulting in slight injury and six in serious injury as shown in Figure 5. There have been more collisions involving pedestrians than cyclists, but their locations follow a similar pattern, reflecting the areas where there is more pedestrian and cyclist activity. The largest proportion is within the town centre where you would expect the greatest concentration of pedestrians to be.



Figure 5: Serious and slight collisions involving pedestrians in Thetford

In summary, the casualty data for Thetford is typical for a market town but has identified areas where collisions have occurred more frequently. These areas are the town centre and along the A134 and A1066. The analysis has not identified any areas within the town where interventions should be considered to address casualty problems as no pattern of collisions has been shown. The county council will continue to monitor the issue.

Action: It was agreed that the study would not consider casualty reduction.

Parking

Breckland District Council published their car park data survey in 2016. The survey looked at 15 car parks within Thetford with all but one situated between the A134 and A1066. All the car parks surveyed are free and are shown on Figure 6. The names and spaces are shown in Table 2. During a typical day most Thetford's car parks are reaching overcapacity. The smaller sized car parks such as The Link, Cage Lane, St. Giles Lane and The Market Place are frequently fully occupied by mid-morning.

Parking at Thetford Station is also a problem for the town, as can be seen from Figure 6 below. Although parking facilities at the station are recognised as an issue, they are not something that has been considered as part of this study. There have been suggestions that parking to the north of the station could be a possibility however this is on private land and has access issues, therefore ruling this out as a possibility. Parking issues will be looked at separately to this study by the county council and the district.

Issues at the station also include problems on the station approach, particularly on the north side, and difficulty of passing from one side to the other by road and over the foot bridge. The council has been trying to resolve these issues through working with the rail industry to secure additional investment.

The provision of off-street car parking is a matter for private operators or the district council, and we are aware that the issues are being considered: The Little Ouse Water Space Study for example suggests the creation of additional parking on the west of the town with 'park and glide' into the town centre. However, following discussions with stakeholders on the scope of the study, it was agreed that car parking would not be looked at further in the NIS.



Figure 6: Car parks surveyed in Thetford in Breckland District Council's car park data survey 2016.

One key issue with the car parks is ensuring they are signed and routed most effectively as traffic naturally funnels to a few pinch points. In 2017 Norfolk County Council undertook a car park signage study, which looked at connections into the town centre from the wider area. This piece of work resulted in new signs being set up around the town to improve the flow of traffic, reduce unnecessary journeys occurring through misdirection and improve the immediate experience for visitors so that they can confidently move around the town. These signs were successfully completed in 2017.

One other issue that came up was that drivers who do not know the town can find it difficult to find an alternative car park if they have arrived at a car park to find it full. Smart car parking apps, so that drivers can know which car parks have spaces, were suggested. This is picked up in the later section on Intelligent Traffic Systems on page 28.

Table 2: Names and spaces of Thetford car parks in Breckland District Council's car park survey.

Number	Car park	Total spaces
14	St Nicholas Street	38
15	Land at Minister Gate	136
16	The Link	26
17	Tanner Street North	56
18	Tanner Street South	70
19A	School Lane (N)	22
19B	School Lane (S)	60
20	Whitehart Street	41
21	Cage Lane	26
22	Bury Road	30
23	Market Place	21
24	Pike Lane	89
25	St Giles (E)	39
26A	St Giles Lane (W-A)	25
26B	St Giles Lane (W-B)	

Action: No further action as part of this study as during the stakeholder engagement it was agreed that the TNIS would focus on walking and cycling corridors, network pinch point assessments and key junction testing.

Congestion

The AM and PM peak traffic speed maps below (Figures 7, 8, 9 and 10) show key areas of congestion in the morning along a large section of London Road and at the London Road/ A134 traffic lights. The A11 junctions have a direct impact on traffic flow in and out of the town.

In the PM peak congestion worsens along London Road and at the London Road/ A134 traffic lights. This data indicates that routes are congested at the A11/A134/A1066 roundabout, Norwich Road, Croxton Road, Vicarage Road and Station Road.

Concerns were expressed at stakeholder meetings regarding the routing of traffic in the town, particularly traffic seeking to travel north-south around the west of the town and using Nuns' Bridges Road, which was considered unsuitable for the volumes of traffic being experienced. In addition, concerns were expressed regarding the suitability (or otherwise) of this road for articulated vehicles (even though there was found to be a clearly signed prohibition). Previous studies had also indicated an unresolved issue with heavy goods vehicles (HGVs) using the A134 through Thetford. HGVs travelling south are prohibited from using A134 Bury Road and diverted via Elveden Road between the A11 and A134 Bury Road. Finally, there was concern about the low bridge at Station Lane between Canterbury Way and Mundford Road. However, on inspection, this was found to be clearly signed.

Transport assessments have previously been undertaken for the Thetford Sustainable Urban Extension to understand the impacts of the 5,000 new homes. As a result, suitable mitigation measures were agreed. More detail is given later in the report, Chapter 7. This study has not attempted to repeat or cover the same ground as the agreed assessments and mitigation. Instead, it has built on the information given in these and expanded the work to give a broader understanding of issues across the whole of the town, including existing and future traffic issues not associated with the development.

Action:

It was agreed that, as part of the study, the council would:

- **Commission a Network Pinch Point and Key Junctions Assessment to identify capacity and network issues at network pinch points and key junctions for traffic trying to access and exit the town. This includes Nuns' Bridges Road, how this is likely to change with the addition of extra development and will identify measures to alleviate issues.**
- **Findings from these studies can be found in Chapter 7.**

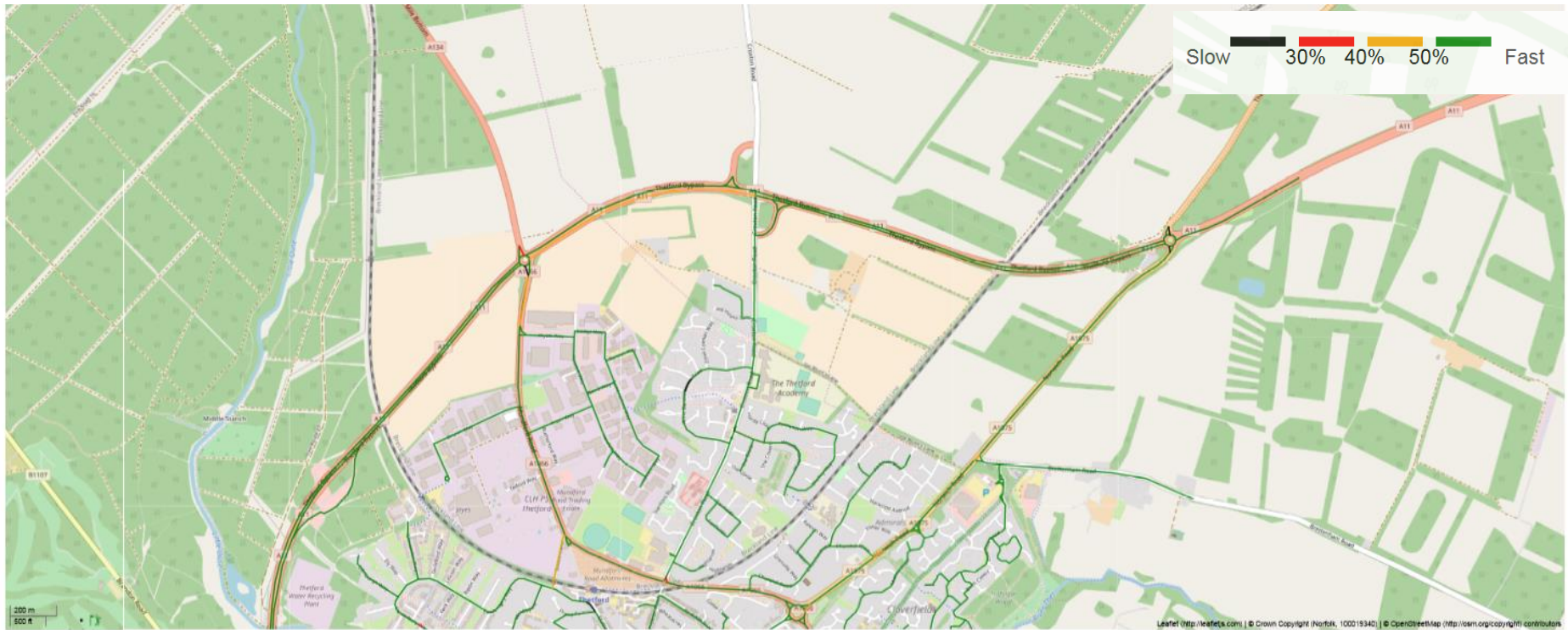


Figure 7: Thetford north traffic speeds AM peak (07-09) September to December 2015 excluding school holidays

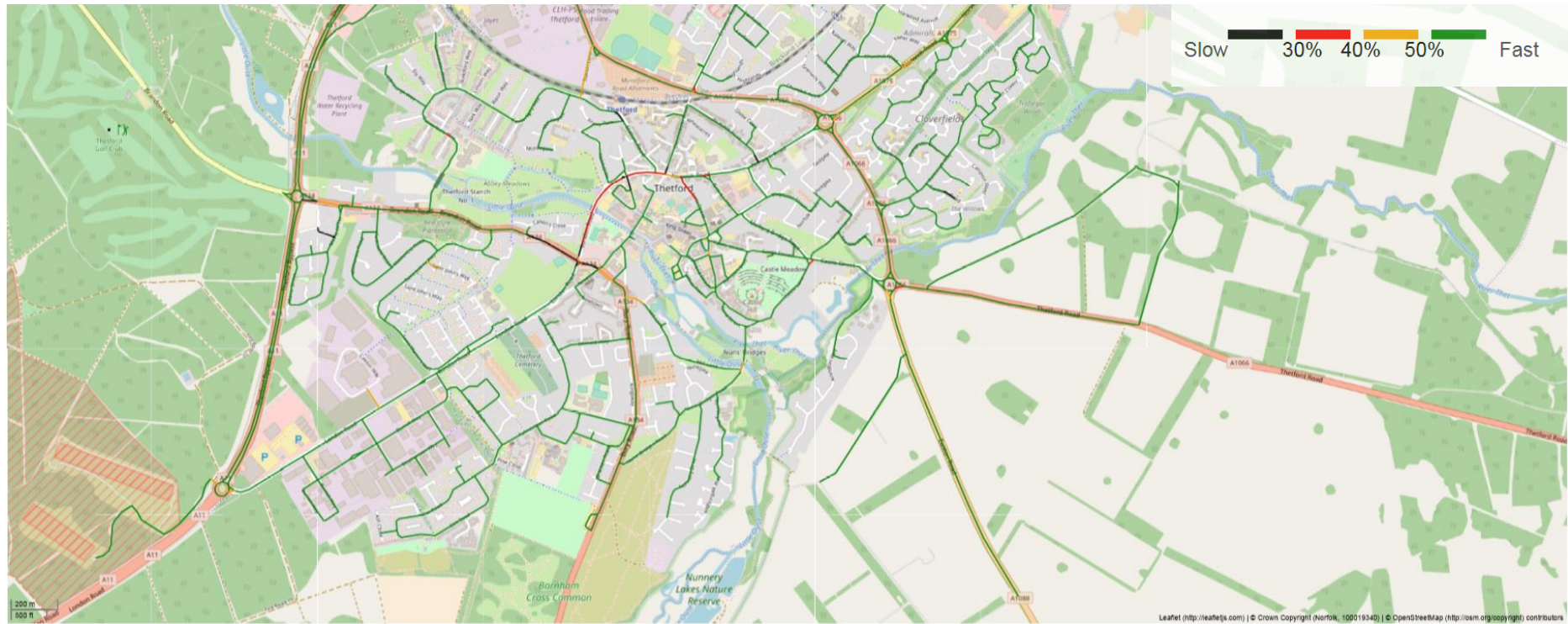


Figure 8: Thetford south traffic speeds AM peak (07-09) September to December 2015 excluding school holidays

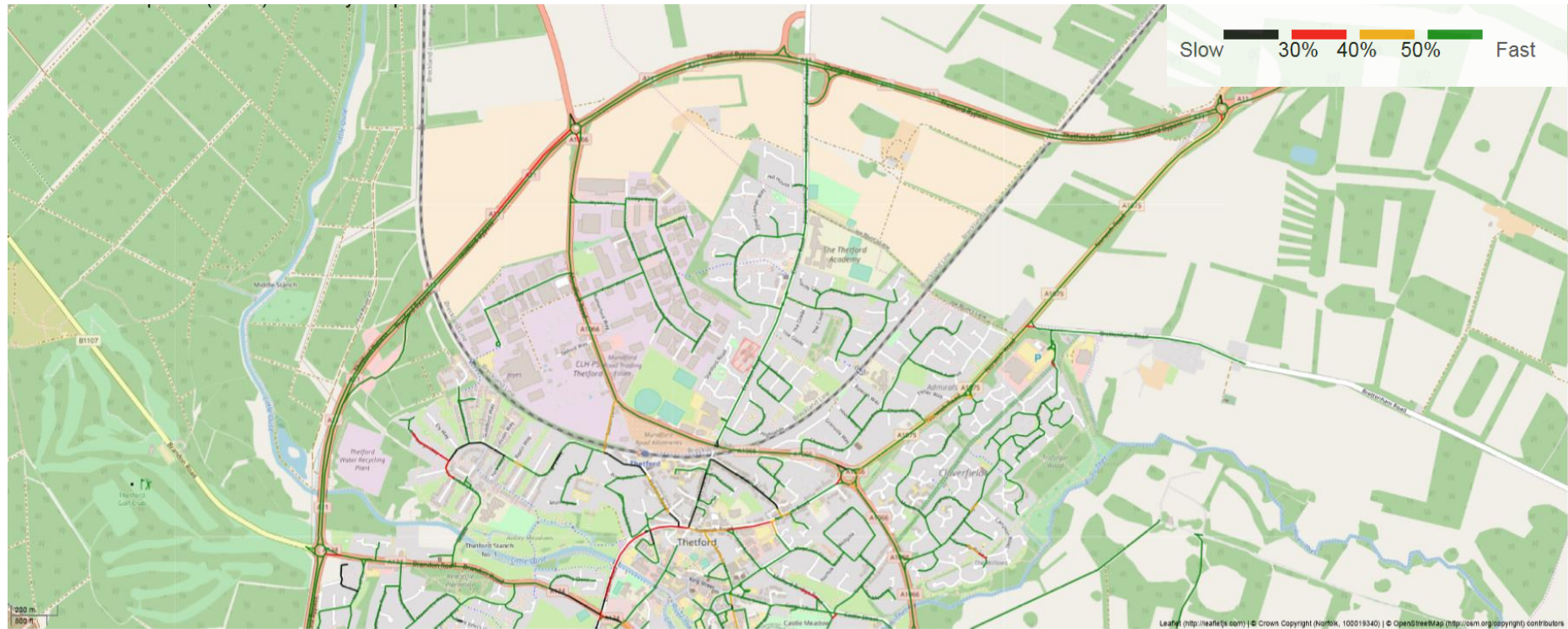


Figure 9: Thetford north traffic speeds PM peak (16-18) September to December 2015 excluding school holidays

Access

Norfolk County Council used software analysing what areas can access the town via bus within 30 minutes. The software only used Norfolk's bus service data so does not show the routes from Suffolk. However, accessibility from Thetford to Suffolk was considered. It was found there are good links to Bury St Edmunds from the town. The maps below show accessibility levels to key locations within the town (Figure 11), employment areas (Figure 12) and higher education facilities (Figure 13). It should be noted that, where the maps are blank (ie in areas not highlighted red, orange or green) there is no public transport access into the town within 30 minutes.

Bus accessibility outside of Thetford is concentrated along the A134. Comparing the maps there is greater accessibility for shopping points and higher education facilities than the employment sites. Accessibility is mainly focused in Thetford and with most of the surrounding areas having a 30-minute travel time this may discourage residents in surrounding areas from using the buses to travel to Thetford for work over the car. There is no bus that runs from Thetford to Norwich along the A11, probably due to the frequent railway service. It has been reported that this causes issues for older residents who are unable to use their bus passes on the train service.

Thetford has good rail connectivity with services from Norwich to Cambridge, allowing onward trips to London. There are also services from Norwich through Thetford to Stansted Airport, and connections at Ely allow onward travel to Birmingham, Sheffield, Manchester, Peterborough and Liverpool. It was agreed by stakeholders that rail improvements would not be included in the scope of the TNIS.

This issue was not considered further due to, amongst other issues, it not coming to the fore from stakeholders as a major concern. Public transport accessibility, especially in rural areas, is also a county wide matter that is currently the subject of a Member-led Task and Finish Group set up by the county council.

Action: Given the rural nature of Norfolk the levels of accessibility were not seen as a particular issue for this strategy, stakeholders also did not raise this as an issue. These issues will continue to be considered by Norfolk County Council on a countywide basis.

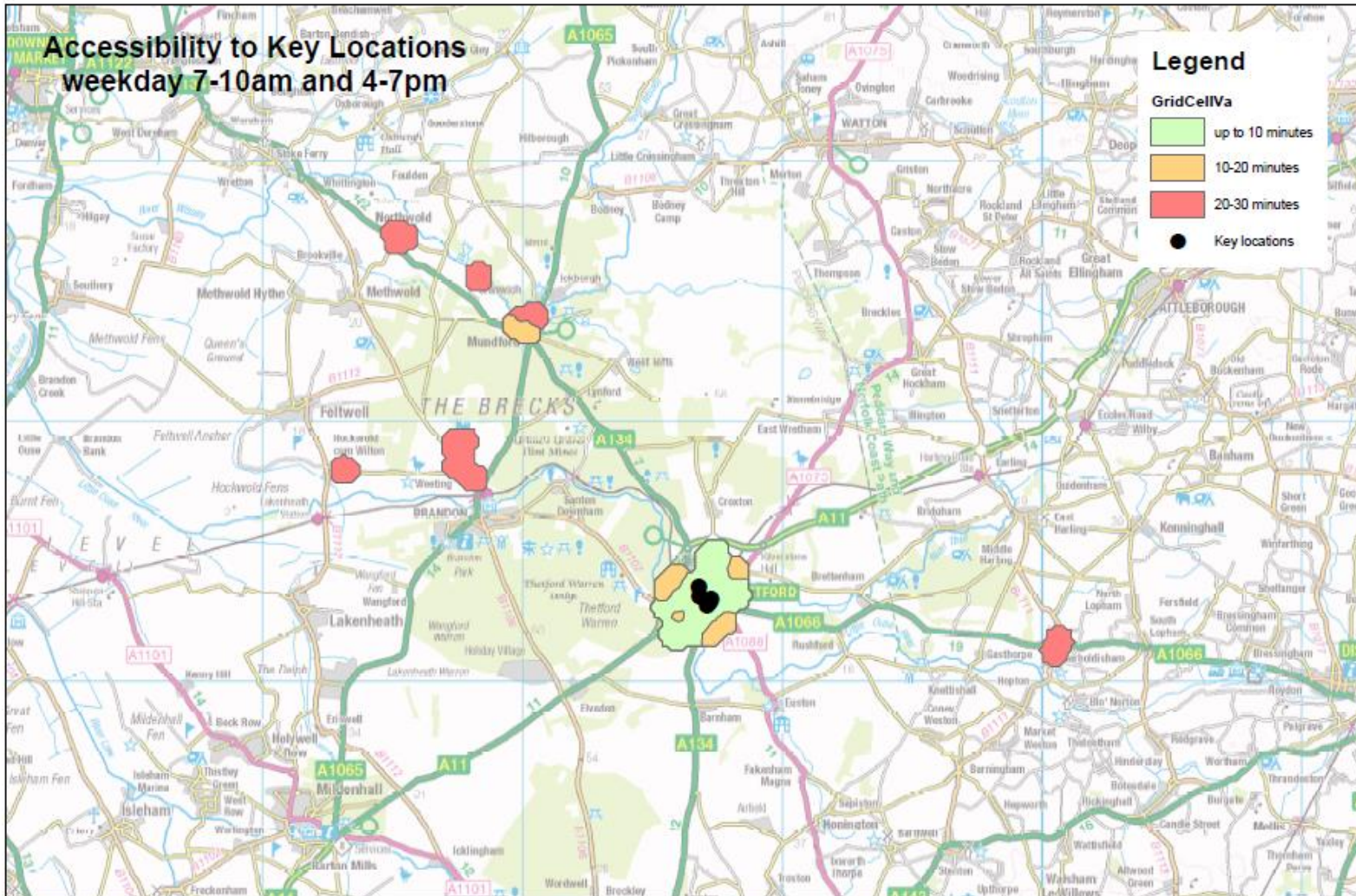


Figure 11: Public Transport accessibility to key locations in Thetford (from locations in Norfolk only)



Figure 12: Public Transport Accessibility to employment sites Thetford (from locations in Norfolk only)

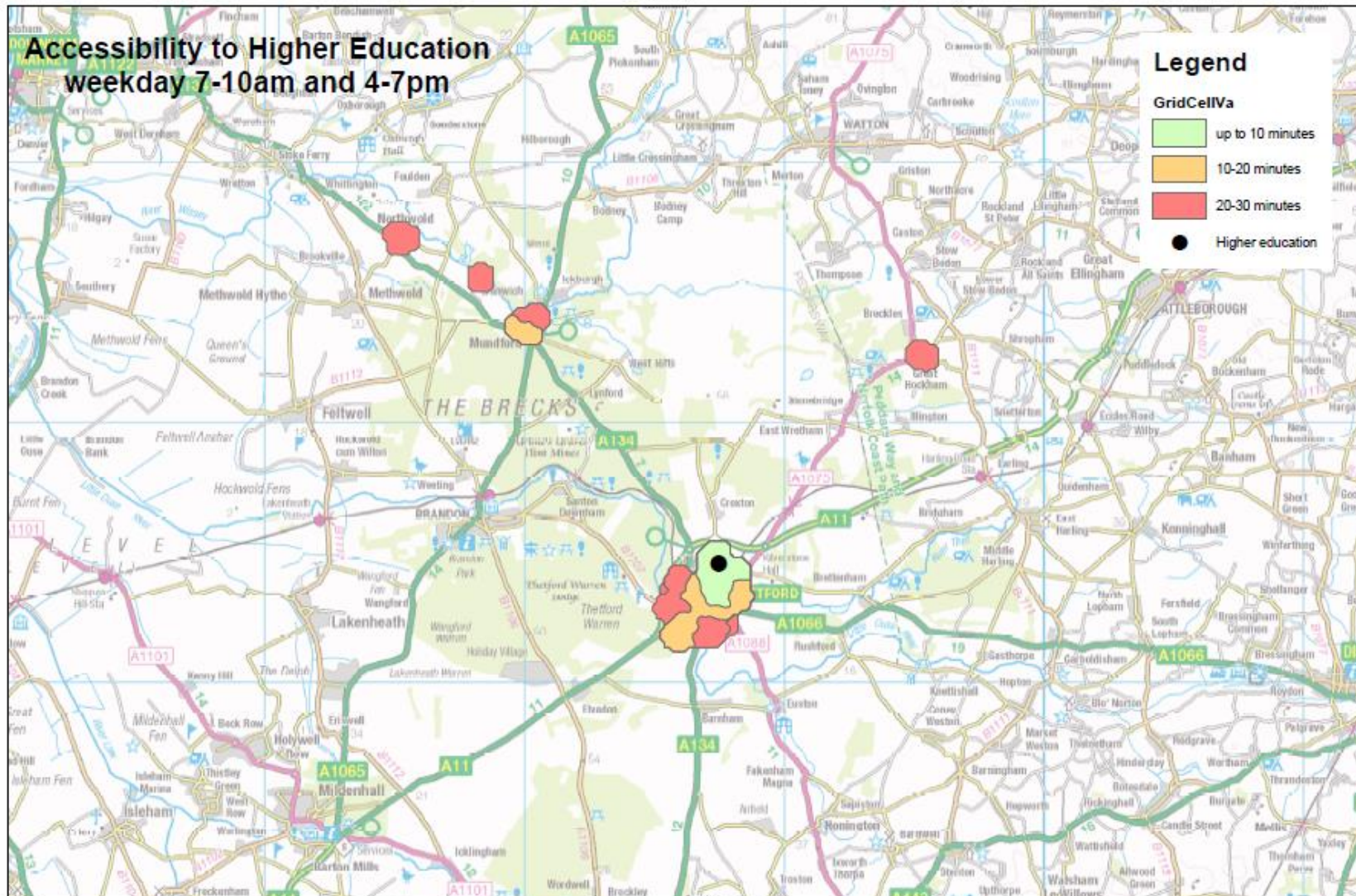


Figure 13: Public Transport accessibility to higher education Thetford (from locations in Norfolk only)

Oxford-Cambridge Corridor

Government has identified the economic potential of the Cambridge to Oxford arc and is investing in infrastructure to ensure better connectivity. This includes a new east-west rail route connecting the two cities and upgrading both the A14 and A428 road connections. Extending the road and rail connections into Norfolk will ensure that Norfolk, too, can benefit from increased connectivity and the economic benefits this would bring.

During the study, stakeholders raised a number of concerns with regard to this connectivity including the provision of an all-movements junction at the A11/A14 (to allow traffic from Felixstowe to turn onto the A11 into Norfolk, and vice-versa) and an improvement of the A140 Ipswich to Norwich route, which, it is stated, would lead to fewer heavy goods vehicles using the A134 to Thetford where, as noted in this study, there are existing issues.

An all-movement junction at the A11/A14 is one that Norfolk County Council has previously supported. Because the A11 and A14, as can be seen in Figure 14, are both trunk roads, these are not the responsibility of the county council but managed and maintained on behalf of government by Highways England. An improvement would therefore need to be prioritised and funded by government. This is something the county council will continue to work on and is not considered further in this study.

The A140 and A134 are roads having equal status. They both form part of the Major Road Network. This is a category of road that sits between the trunk road network and the more local A roads and form economically and regionally important roads in England.

The county council supports measures to ensure that both these roads can accommodate the traffic that would be expected to use them, commensurate with their identified position in the road hierarchy. For this reason, the study considers the Thetford A134 issues in some detail; see Chapter 7.

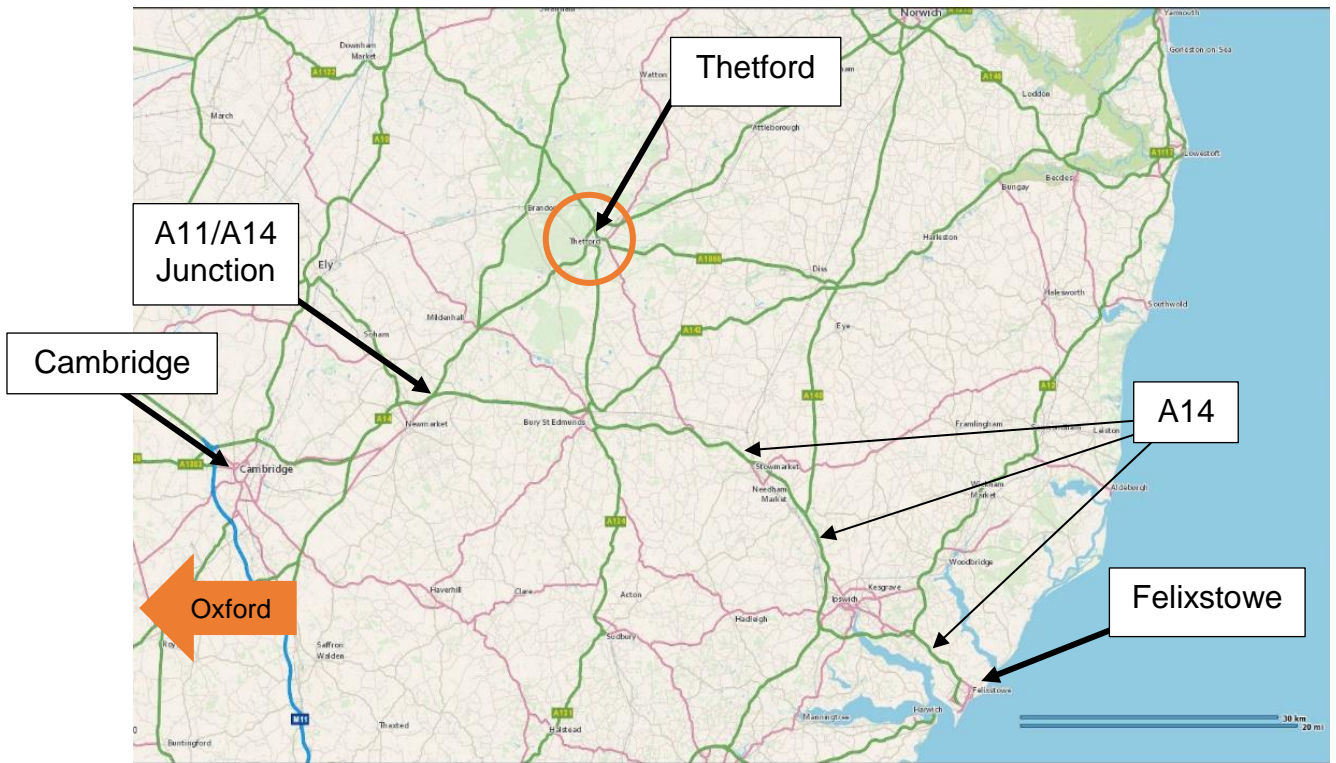


Figure 14: Map showing Thetford in relation to the A11/A14 junction and the Oxford-Cambridge Corridor.

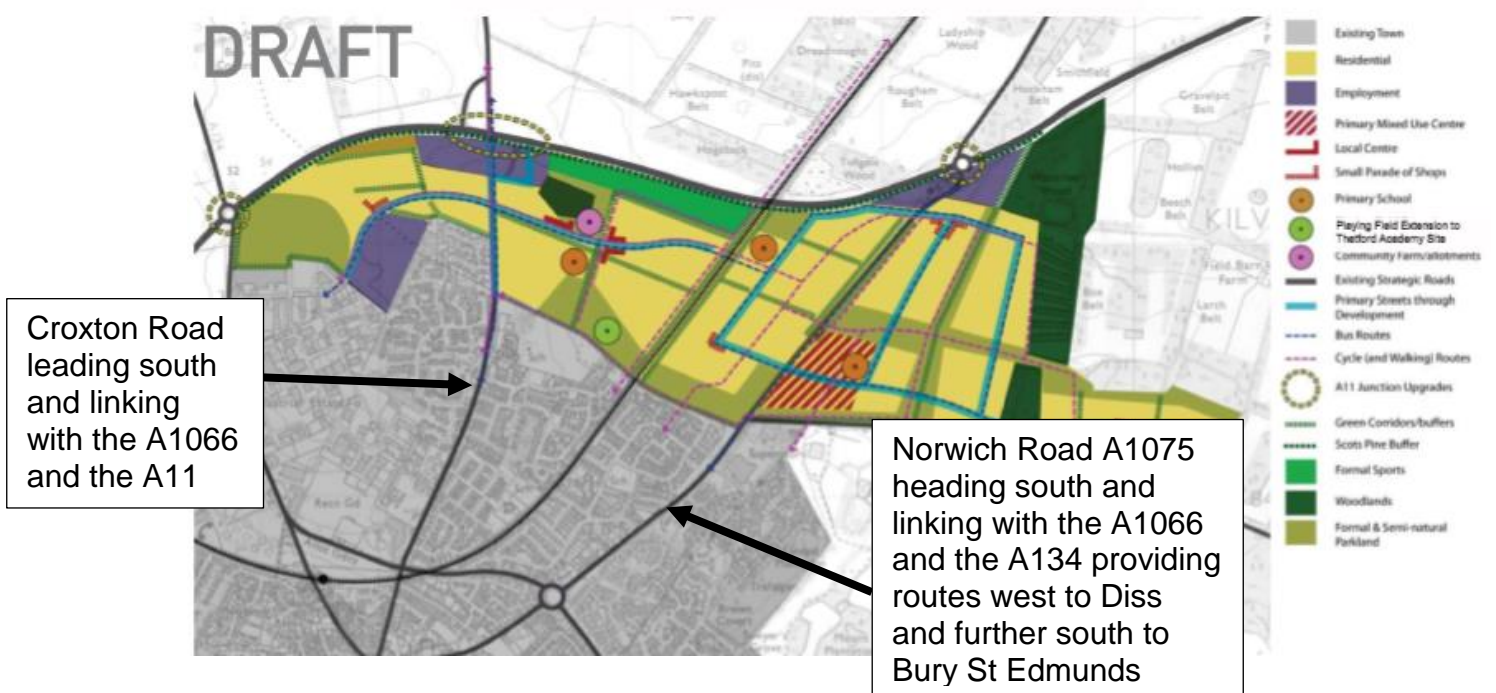


Figure 15: Map showing the Thetford SUE and the main routes south of the A11 and the development.

Cycling and walking

Sustrans' National Cycle Network (NCN) Route 13 passes through Thetford. The majority is on roads shared with traffic. NCN Route 13 currently enters Thetford on-road and is unmarked (ie it is not shown by signs or road markings) from the north via Croxton and Croxton Road, it passes through the town's historic core which is pedestrianised at King Street, before transitioning to an off-road path through the Mallow Road residential area and exiting the town to the east via Kilverstone.

Pedestrian permeability is high in Thetford. Nearly all roads have adjacent footways and several pedestrian-only links are located through the town in both residential areas and in the town centre. Transport volumes within the town core are also restricted by strategic road closures and pedestrian zones which creates a good environment for pedestrian and cycle movements. Thetford was re-designed as a cycling and walking-friendly town in the 1960s during a major period of housing growth.

Of the circa 24,000 people living within the built-up area of Thetford 4% cycle to work and 17% walk. Given the potential opportunities to increase cycling which could also reduce congestion in the town further work is proposed looking at cycle corridors.

Action: As part of the NIS it was agreed to commission a cycle corridor study, to identify key locations people want to travel to within the town; to generate three routes; and identify what improvements need to be made to make these routes suitable for cyclists. Findings from this study can be found in Chapter 7.

Intelligent transport systems

The Norfolk and Suffolk Integrated Transport Strategy, developed by New Anglia Local Enterprise Partnership to support its economic strategy, has developed a long-term vision considering economic and technological changes including digital connectivity, autonomous vehicles and new forms of public and shared transport. Thetford is located on the Norwich Cambridge Tech corridor along the A11 between Norwich and Cambridge and the strategy will focus on these corridors to ensure the ongoing growth ambitions of the region. The strategy sets out what transport could look like by 2030, 2040 and beyond:

2030:

- Digitally connected transport networks underway and digital connectivity improved across the region allowing people to access opportunities from home including reliable home and remote working.
- Key pinch points addressed, network capacity improved and better operational regimes will boost network capacity and make journeys more reliable and resilient.
- Agile transport solutions in the Local Enterprise Partnership's priority places and better access to information will lead to 'peak' travel spread and allow people to make informed and personal travel choices with more certainty.
- Smart car parking apps so that drivers can know which car parks have space.

2040:

- Connected and autonomous cars, trucks and buses will be the norm, improving safety and contributing to the smooth running of the network.
- Traditional bus service provision will have reduced but will be supplemented by on demand, responsive services that offer efficiencies.
- The move away from fossil fuels will be largely complete supported by alternative generation and storage solutions with communities benefitting from associated air quality improvements.

Beyond:

- Digital access to services (including health and social care) and opportunities (including education and training) will help people be more productive on the move.
- Direct rail access between key centres with faster journey times and higher capacity, and local lines will have benefitted from more reliable rolling stock and improved customer experience.
- New service models will reduce costs and provide new services for hard to reach communities and on-account, seamless, barrier-less payment technologies will facilitate Mobility as a Service (MaaS).

Whilst some of these transport improvements may seem far into the future we are already seeing cars with built in navigation and abilities to park so we need to be aware of the technological advancements ahead and ensure any improvements suggested in this Strategy will not only have an impact on the ability to move around Thetford today but are also helping future proof the town for the changes set out above.

Place making

The quality of the public realm is an important element of a town's identity and selling points, with national policy stating that competitive town centres need to provide customer choice, a diverse retail offer and reflect the individuality of town centres. Breckland District Council has a Market Town Initiative (July 2017) with Action Plans for each town covering a marketing strategy, publicity campaign and promoting businesses.

This work sufficiently covers place making and as this strategy is focused on transport it is not suggested that it does further work on place making but ensures that any transport improvements such as cycling improvements will promote the town centre and improve access.

Chapter 6: The Future

The scope of the Network Improvement Strategy includes a consideration of the longer-term transport issues for Thetford. As set out in Chapter 2, the consideration of growth to 2036 has been identified through the Breckland Local Plan.

A consideration of the strategic transport issues associated with longer-term growth will provide transport evidence that can be used to inform the Local Plan review should it look at growth options.

The growth and additional 5,000 houses planned for Thetford was incorporated into the Network Pinch Point Assessment and Key Junction Testing work.

Chapter 7: Our Findings

The summary of transport issues in Thetford, as set out in Chapter 5, was circulated to both the internal and external consultees for comment, asking (given the resource and budget constraints for the study) what would be their top priorities for any transport improvements in Thetford. The feedback from this consultation generated a list of transport issues with the main two areas focused around congestion and accessibility, and cycling and walking. Therefore, the Thetford Network Improvement Strategy has looked to address these areas of concern by:

- Identifying key cycle corridors in Thetford and identifying potential improvements for the routes considered to offer the greatest opportunity to increase cycle use
- Identifying capacity and network issues at network pinch points and key junctions including Nuns' Bridges Road, how this is likely to change with the addition of extra development and identify measures to alleviate issues.

These issues meet the aims of the study by considering the impacts of planned growth around the town and giving an understanding of the infrastructure needed to accommodate requirements. They are not the only issues in the town, but are the ones that were agreed by the various stakeholders as being the most appropriate to look at further given – amongst other things – the objectives of the market town study programme, the issues arising from stakeholder workshops, budgetary constraints and the desire that the studies should lead to tangible schemes that could be delivered on the ground. There is also evidence to suggest that improvements to cycle infrastructure help to increase the amount of people cycling. A study by academics at the University of Cambridge which was included in the Preventive Medicine journal found that improvements to cycle infrastructure accounts for 85% of increased cycle use, hence providing a further justification for this to be part of the study.

For these objectives study work was externally commissioned to produce the:

- Walking and Cycling Corridors technical note
- Network Pinch Point Assessment and Key Junction Testing technical note.

Cycling and walking corridors

Three corridor options were developed with the aim of connecting residential, employment areas, schools and the town centre while creating a joined-up Thetford cycle network. The corridor options also take account of potential growth in Thetford. These three corridors have been identified on the basis that they are the ones on which people are most likely to cycle. An overview of the three routes can be found in Figure 16, with Figures 17, 18 and 19 showing each route individually. The routes are:

- **Route A**- London Road, from the commercial area at the west of the town to the town centre
- **Route B**- Croxton Road, connecting the SUE (west), existing residential areas, the Thetford Academy and town centre

- **Route C-** Kilverstone, connecting the SUE (east), Kilverstone, other residential areas and the town centre.

A high-level assessment of potential improvements to each corridor has been carried out. Where possible, segregation has been pursued on each route to cater for more vulnerable road users, eg school children. However, this is not always possible. Where necessary each segregated corridor section can be accompanied by on-street measures to enhance the experience for cyclists who choose to stay on-road, eg advance stop lines and traffic calming.

A comparative assessment was carried out of the three corridors where they were ranked against:

- Proportion of existing town served
- Strategic site options and Local Plan allocations served
- Level of cycle provision and priority
- Leisure route potential
- Flexibility of route
- School connectivity
- Employment / retail / leisure connectivity
- Impact on vehicular traffic.

The assessment concluded that cycle route A, London Road, should be taken forward for further assessment. However, this will depend on funding, land ownership constraints and a few other factors. The improvements suggested by this work can be found in Chapter 8. Although Routes B and C have not been taken forward as part of this study, the work undertaken to date will provide a basis for any future work as and when budgets permit. Work is also currently underway to progress some improvements on Route B.

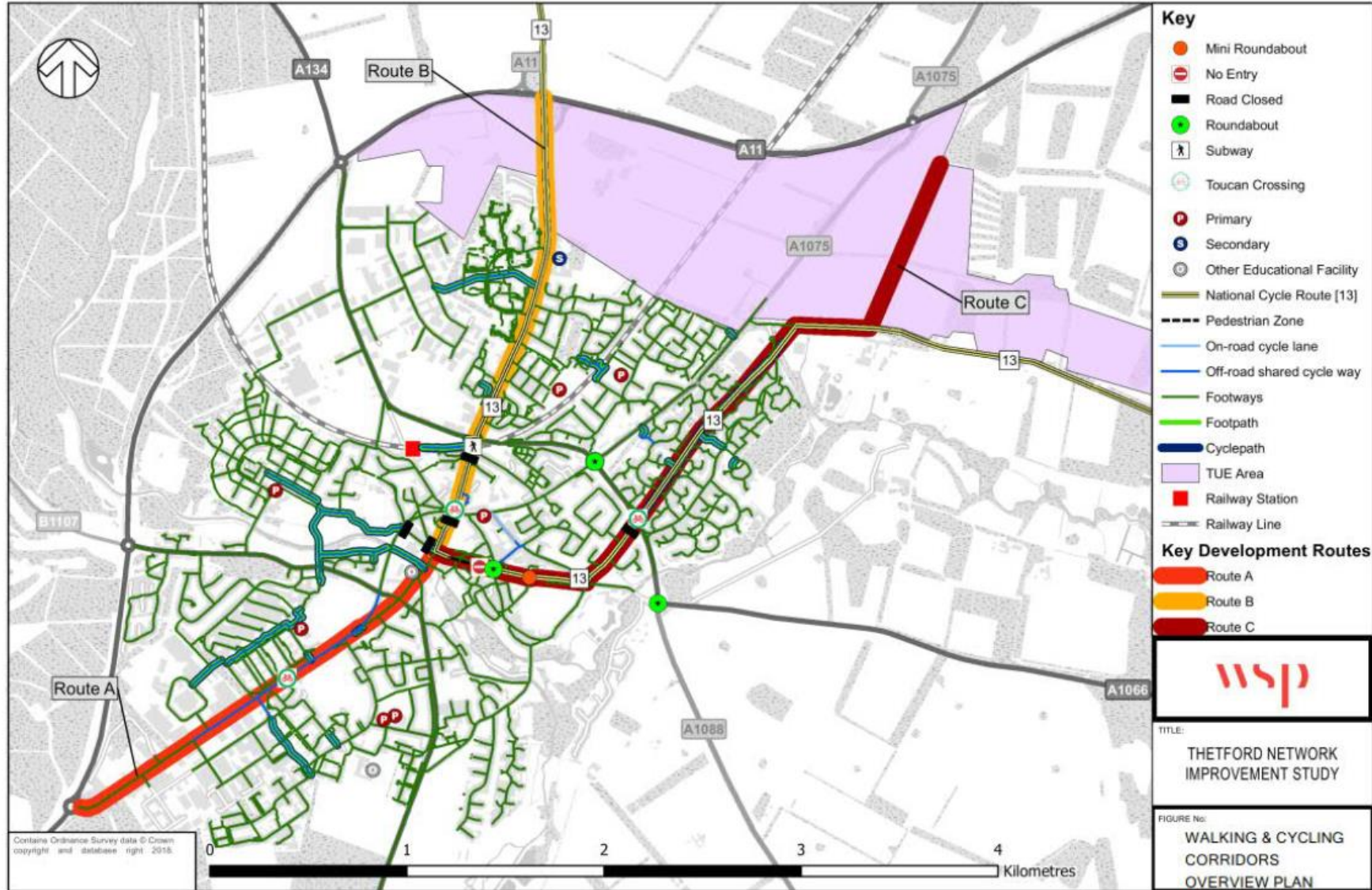


Figure 16: Overview of the three cycling and walking routes identified

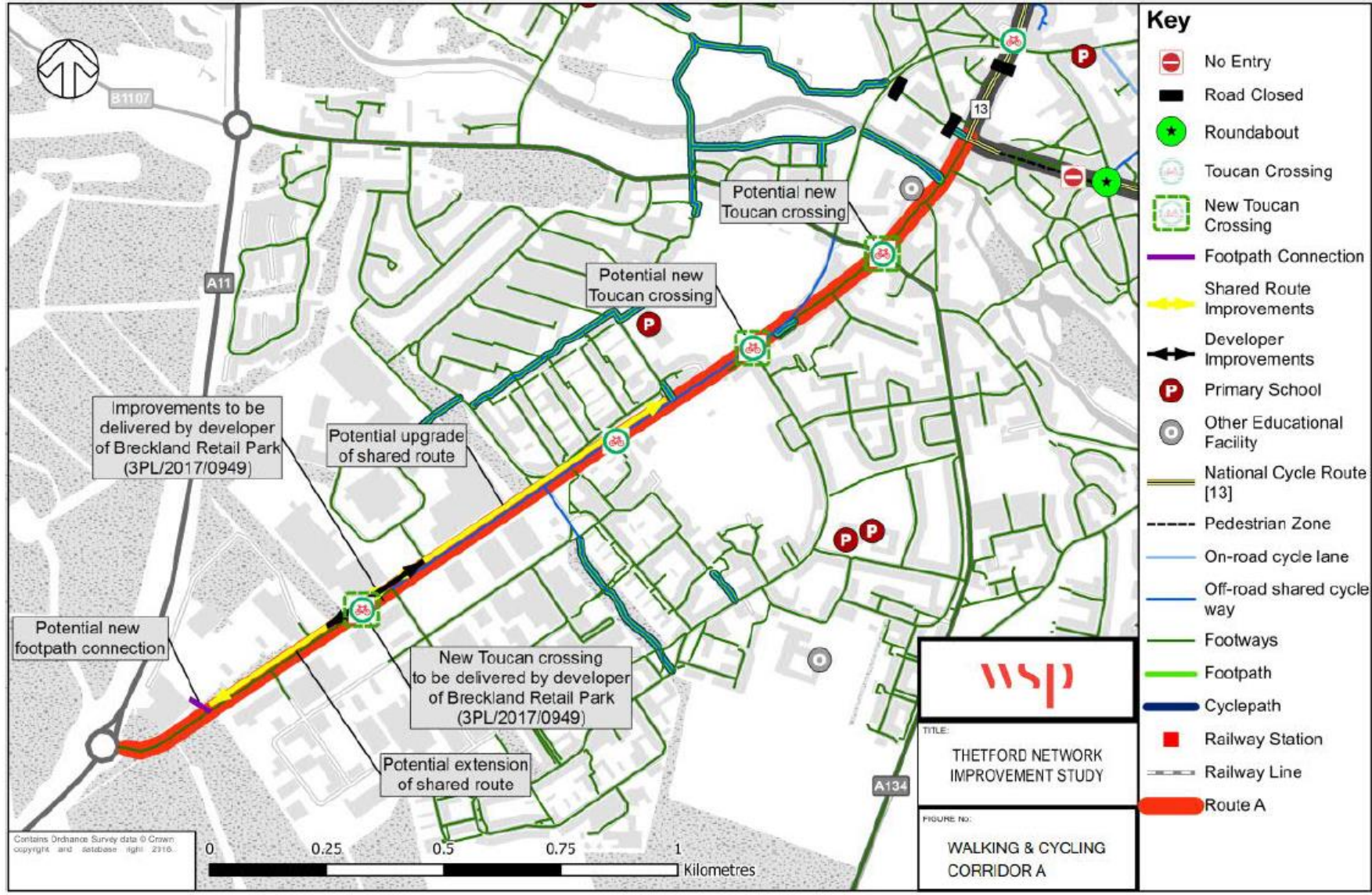


Figure 17: Cycling and Walking Route A (London Road)

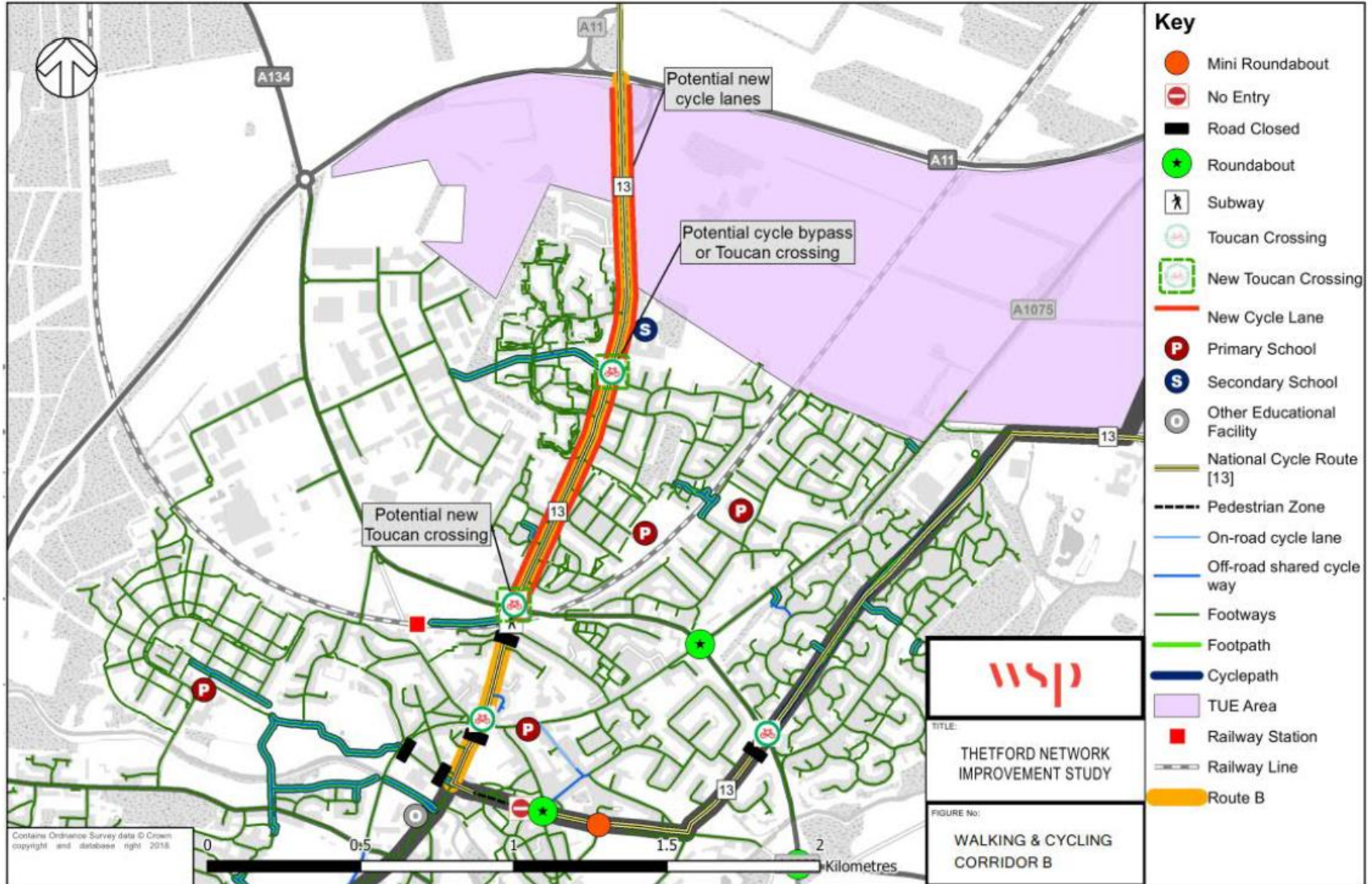


Figure 18: Cycling and Walking Route B (Croxton Road)

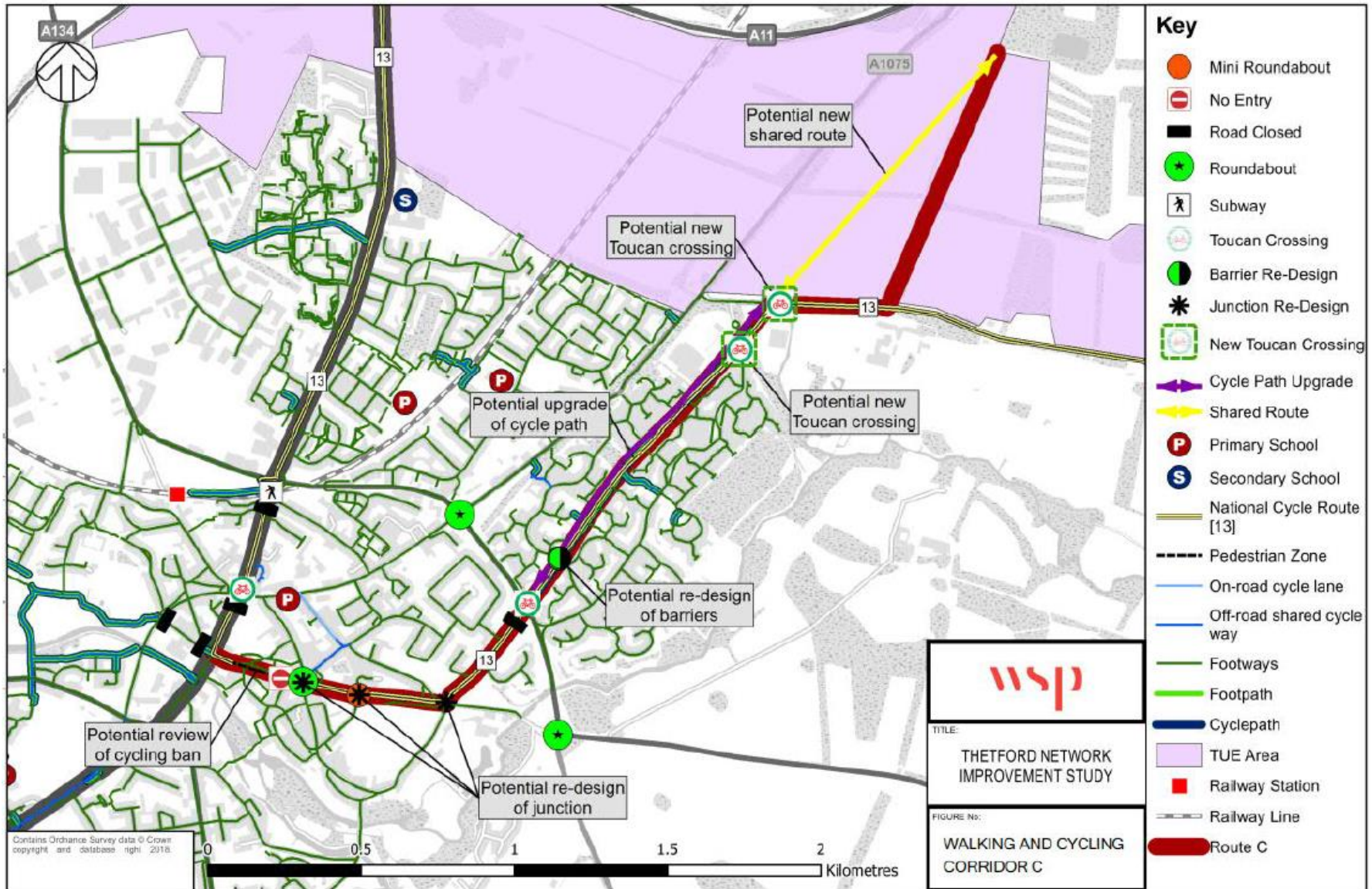


Figure 19: Cycling and Walking Route C (Kilverstone)

Network Pinch Points and Key Junctions

The technical note used traffic data commissioned as part of this strategy to carry out capacity assessments of three key junctions in the town and assess the pinch points on the transport network in Thetford. It set out the existing conditions within the town and aimed to forecast future conditions following the construction of the Thetford SUE. The technical note assessed the performance of key junctions in the future forecast year of 2036, analysing its impact on the identified pinch points using future scenario modelling. The forecast to 2036 assumed 4,905 additional households and 940 additional jobs in Thetford as a result of the Thetford SUE. That is, the study assumed completion of the Thetford SUE by 2036, although in reality it is likely that fewer houses would actually be completed.

There is a **summary** of the main findings of this section on Page 44.

Figure 20 shows each of the survey areas which are discussed in the paragraphs below.

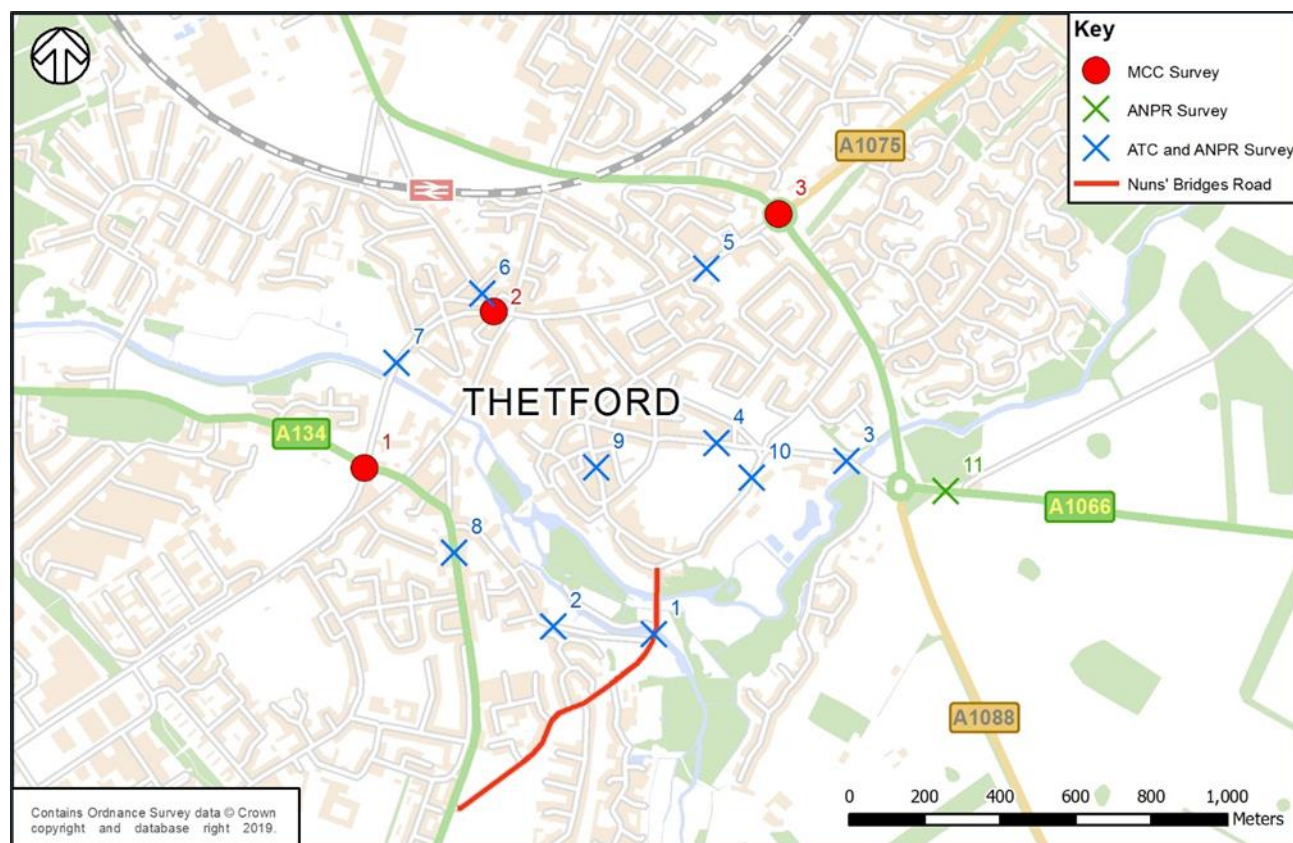


Figure 20: Locations of Nuns' Bridges Road, Automatic Traffic Counts, Manual Classified Counts and Automatic Number Plate Recognition.

Nuns' Bridges Road

Historically, Nuns' Bridges Road would have formed the main gateway into the town from the south. Nowadays, the A134 routes around the west of the town, providing an alternative means of reaching a destination within Thetford. However, Nuns' Bridges Road remains a well-used link between the south of Thetford, town centre and A1066 to the east. The A1066, A134 and A11 combine to provide strategic links

around the town centre. However, no strategic link exists between the south and east of Thetford, with only Nuns' Bridges Road providing a means of making this movement without taking a convoluted route.

A series of traffic surveys were commissioned and undertaken during 2018. These comprised Manual Classified Turning Counts (MCC), Automated Traffic Counts (ATC) and Automatic Number Plate Recognition (ANPR) surveys. The locations of these are explained below.

Manual Classified Counts (MCCs)

MCCs were carried out at three junctions within the town, undertaken on Monday 20 August 2018 during the typical AM and PM peak periods (07:00-10:00 and 16:00-19:00 respectively).

MCC 1: A134 Brandon Road / London Road / A134 Bury Road

This junction is situated where the A134 and London Road meet, to the west of Thetford town centre. It is a signalised crossroad with a temporary pedestrian crossing facility on the southern London Road arm, which is activated by a key possessed by local schools to enable children to cross safely.

MCC 2: London Road / Station Road

This junction is situated approximately 500m north-east along London Road from MCC 1 and forms the main vehicular access to Thetford Railway Station, around 300m to the north.

MCC 3: A1075 / Norwich Road / A1066 Mundford Road / A1066 Hurth Way

London Road becomes Norwich Road east of MCC 2, and approximately 750m north east, meets the A1066 and A1075 via a roundabout junction with a diameter of around 79m. This junction provides an important link for traffic routing to or through Thetford.

Automated Traffic Counts (ATCs)

ATCs were carried out at 10 sites within the town, undertaken continuously between Friday 10 August 2018 and Thursday 30 August 2018, and aggregated to 15-minute intervals. The ATC survey sites were located on Thetford's key internal road network, to establish traffic flows in and around the town centre.

Automatic Number Plate Recognition (ANPR)

ANPR surveys were carried out in the same locations as the ATC surveys, on Thursday 06 November 2018, with the addition of one site on the A1066. ANPR cameras uniquely identify each vehicle based on its Vehicle Registration Mark (VRM), allowing the inbound movement (ie towards Thetford) of each vehicle to be matched with the outbound (ie away from Thetford) movement. This enabled the analysis of route choices between origins and destinations, and its impact on key pinch points within the town, particularly Nuns' Bridges Road.

Baseline

The data focuses on the peak hourly traffic flow periods, to assess the performance of the three MCC surveyed junctions and the performance of the wider highway network when demand is greatest. Typically, the highway network experiences a

weekday morning and an afternoon peak period. Analysis of the traffic survey data showed that the weekday AM and PM peak hourly periods in Thetford were 07:45-08:45 and 17:00-18:00 respectively.

Nuns' Bridges Road has an average weekday observed two-way traffic flow of 679 vehicles in the AM peak hour (of which, five vehicles are Heavy Goods Vehicles (HGVs)) and 747 vehicles in the PM peak hour (of which, five vehicles are HGVs). Due to the constrained nature of Nuns' Bridges Road and short passing spaces between each of the three bridges, the route in its current state is unsuitable for HGVs. The use of this route by HGVs increases the likelihood of congestion or damage to the Grade II listed structures, as well as for residents on roads such as Ford Street. The total traffic volumes on Nuns' Bridges Road are of a similar magnitude to those observed on the eastern Castle Street site (ATC Site 3), which provides the main access into Thetford town centre from the A1066 and A1088, to the east and south-east respectively. Castle Street [E] exhibits 789 vehicles in the AM peak hour and 822 vehicles in the PM peak hour; however, only four HGV vehicles in total across both peak hours.

Norwich Road and London Road provide a key link through Thetford, connecting to the A134 and A1066 with additional links to the A11. These roads demonstrate the highest average weekday two-way traffic flow, with vehicle volumes in excess of 900 in the AM peak hour and 1,000 in the PM peak hour. Given that peak hour traffic flows approximate to 10% of daily traffic, the resultant daily traffic of 9,000-10,000 vehicles match the flow ranges for a typical single carriageway rural road. Since Norwich Road and London Road are in an urban setting, with numerous feeder roads and junctions, this represents a high volume of traffic, likely to result in bottlenecks at junctions and delays for road users.

Apart from the A134 Bury Road, Norwich Road and London Road carry the highest number of HGVs with a total of 13 in the AM peak hour and 15 in the PM peak hour across both sites. The A134 Bury Road provides the strategic connection from the A11, south to Bury St Edmunds, skirting to the west of the town centre. The average weekly two-way flow remains below 900 vehicles in both the AM and PM peak hours, but with a higher volume of HGV movements (28 and 12 movements respectively).

The remainder of the sites demonstrate average weekday observed two-way traffic flows of less than 600 vehicles in both peak hours, with a small number of HGV movements. Minor roads within the town centre exhibit lower volumes of vehicles, with Guildhall Street only recording 96 vehicles in the AM peak hour.

Assessment

The three MCC junctions surveyed were modelled to predict and assess their capacities in different scenarios.

MCC 1: A134 Brandon Road / London Road / A134 Bury Road

During both AM and PM periods, the junction operates above its practical capacity but below its theoretical capacity. This means that although the junction can accommodate the traffic demand, there are significant queues and delays in each peak period. The A134 Brandon Road / London Road / A134 Bury Road signalised junction is currently operating at capacity and has very little capability to

accommodate additional traffic, this forms a major pinch point at the western gateway to the town.

MCC 2: London Road / Station Road

The junction modelling results show that the London Road / Station Road priority junction is operating within capacity with relatively short delays experienced by vehicles giving way, and a low level of queueing.

MCC 3: A1075 / Norwich Road / A1066 Mundford Road / A1066 Hurth Way

The modelling outputs for this junction illustrate the A1075 / Norwich Road / A1066 Mundford Road / A1066 Hurth Way roundabout currently operates with considerable reserve capacity during the peak periods. There is scope for some increase in traffic flows in the future without requiring interventions to increase capacity.

Future Development impact and mitigation

The next section looks at the network and what the capacity may be looking to 2036 and with the new 5,000 dwellings development. It also suggests some potential mitigation measures.

MCC 1: A134 Brandon Road / London Road / A134 Bury Road

The junction operates over capacity in both the AM and PM peak hours in the 2036 future scenario with the Thetford SUE site.

Mitigation

The A134 Brandon Road / London Road / A134 Bury Road signalised junction is operating at capacity in the 2018 observed scenario, and over-capacity in the 2036 future scenario including the introduction of development trips associated with the Thetford SUE. Potential physical interventions at this junction are limited due to it being spatially constrained in all directions; however, two potential mitigation measures are outlined in the following paragraphs.

One potential measure to increase capacity and reduce queueing on the A134 Brandon Road arm would be to widen the approach to accommodate two-lanes. Additional modelling work would need to be undertaken to assess this alternative layout and to optimise signal timings. It is estimated that the cost associated with widening the A134 Brandon Road arm would be within the region of £170,000-£250,000, depending upon the scale of utilities work required.

Another potential measure to increase capacity would be to change the junction type from a signalised junction to a roundabout. It is estimated that the cost associated to altering the junction type to a roundabout would be within the region of £0.9-£1.2 million, excluding the cost of utilities work required. Additional works would be required to understand the feasibility and deliverability of implementing a roundabout solution, as this is likely to necessitate third party land beyond the current highway boundary.

MCC2: London Road / Station Road

The junction will be operating very close to capacity during the 2036 future scenario PM peak hour including the Thetford SUE development.

Mitigation

The model results indicate that the junction is operating within capacity in the 2018 observed scenario, with relatively short delays and a low level of queueing; however in the 2036 future scenario including the introduction of development trips associated with the Thetford SUE, right-turning vehicles from London Road would cause queueing of approximately 60m in both the 2036 AM and PM peak hours, potentially blocking back onto the adjacent frequently used toucan crossing (used by 198 and 158 pedestrians or cyclists during the AM and PM peak hours respectively on the day surveyed).

The introduction of a right-turn lane in this location could alleviate queueing and reduce delays. The estimated cost associated with providing a right-turn lane on London Road would be within the region of £250,000-£500,000, depending on the scale of utilities works and land purchase requirements.

The feasibility of implementing a right-turn lane would be dependent upon the extent of the highway boundary in the area. In addition, spatial constraints may mean that the displacement of parking along the north of London Road may be required; the feasibility and potential areas for re-provision, if required, would need to be assessed.

It should also be noted that various stakeholders are looking at the possibility of additional car parking being created at Mundford Road on a minimal number of allotments. This would help mitigate traffic issues around the Station Road junction by allowing some train passengers to access the station from the north and park in this location.

MCC 3: A1075 / Norwich Road / A1066 Mundford Road / A1066 Hurth Way

The model results indicate that the junction operates over capacity during both peak periods in the 2036 forecast scenario with the proposed Thetford SUE development.

Mitigation

The A1075 / Norwich Road / A1066 Mundford Road / A1066 Hurth Way roundabout is operating with appreciable reserve capacity in the 2018 observed scenario but is over-capacity in the 2036 future scenario including the introduction of development trips associated with the Thetford SUE. Phase 1 of the Thetford SUE is expected to deliver improvements to this junction. An indicative layout of the proposed improvements has been prepared by Laurence Walker Ltd. The layout proposed by Laurence Walker Ltd looks to signalise the existing roundabout and provide a “cut-through” lane through the centre of the roundabout to accommodate the heaviest turning movement.

It is estimated that the cost associated to upgrade the existing roundabout would be within the region of £1.0-£1.5 million, excluding the cost of utilities work and additional land required. Additional works would be required to understand the feasibility and deliverability of implementing this proposed layout, as well as undertaking further junction capacity assessments to ensure that the layout can provide enough capacity to accommodate the future demand, including the Thetford SUE development.

The effect of redesigning this junction on walking and cycling connectivity should also be considered, and enhancements made wherever possible.

Allowing a right turn into Cloverfield along the A1066 has been suggested by some stakeholders so as to reduce the amount of traffic movements around the roundabout nearest the former Ark Pub as cars currently have to travel along the A1066 and then come back on themselves to access Cloverfield.

Wider network

The Thetford SUE development has a varied impact on ATC survey locations. Traffic to and from the development from locations to the west, north and east are largely routed along the A11. The remaining traffic has an origin or destination either within Thetford town centre or to the south. The fastest route between the south and the Thetford SUE site is via Castle Street, Castle Lane and Nuns' Bridges Road, and these are the links with the greatest development flows.

Nuns' Bridges Road is forecast to have an average weekday two-way traffic flow of 679 vehicles in the AM peak hour and 747 vehicles in the PM peak hour, with the additional Thetford SUE development trips increasing the volume of traffic to approximately 1,200 vehicles in both peak hours. This volume of traffic is of a similar magnitude to that of London Road, which provides a key link through the centre of Thetford connecting to the A134 and A1066 with additional links to the A11. London Road is comparatively free flowing, with no width constraints. Therefore, given the constrained nature of Nuns' Bridges Road, bottlenecks on the single carriageway bridges are likely to occur, resulting in lengthy delays.

The Thetford SUE is also forecast to have an increase on total vehicle volumes on Castle Street (up to 1,400 vehicles), Norwich Road (up to 1,700 vehicles) and Castle Lane (up to 1,000 vehicles), which is consistent with the key strategic north / south routes accessing the Thetford SUE development. All these traffic volumes are towards the maximum threshold of capacity for a single carriageway road and given the urban setting and number of junctions on each, is likely to result in delays.

The Thetford SUE development is forecast to have a limited impact on Castle Street [W], with a maximum two-way flow of approximately 500 vehicles in the PM peak. Castle Street provides a direct access into Thetford Town Centre from the A1066 to the west. The Thetford SUE development is not forecast to have an impact on the remaining sites, with levels remaining at forecast background levels. Mill Lane, Station Road and Guildhall Street have flows below 300 vehicles across both peak hours.

Mindful of the junction capacity assessments and traffic flow impacts identified above, some other possible interventions to mitigate these impacts have been considered.

Mitigation

Nuns' Bridges Road

Nuns' Bridges Road comprises three Grade II listed bridges spanning the Little Ouse and River Thet. The three bridges are single carriageway, with passing places

between each, constraining capacity and requiring considerate driving during busy periods.

Future traffic growth on Nuns' Bridges Road, is likely to cause lengthy queues and delays on this route. As a key link between the east and south of Thetford, there are no alternative viable routes for vehicles in this location, except the congested Norwich Road and London Road. Junction capacity assessments undertaken along this route demonstrate that in 2036, each junction is likely to be operating at or over capacity, without interventions.

In the absence of an alternative, Nuns' Bridges Road is likely to become saturated, with Norwich Road and London Road becoming the only viable choice, exacerbating the congestion already predicted on these routes. Since the Grade II listed bridges are constrained spatially and of special interest, warranting every effort to preserve them, the potential for improvements to the existing route are minimal. An alternative route to bypass Nuns' Bridges Road could be considered, to connect the A1066 to the east with the A134, possibly via the A1088.

ANPR and ATC data analysis showed that between 4,000 and 6,000 daily trips route between the south and east of Thetford (both directions), many of which route via Nuns' Bridges, but also via Norwich Road and the A134. An alternative arrangement for this travel desire line could reduce the existing flows on Nuns' Bridges Road to between 1,000 and 3,000 daily trips, reduced from approximately 7,000 observed using this route on an average weekday. The remaining traffic on Nuns' Bridges Road would be for more localised trips, rather than trips to / from other parts of Thetford or strategic traffic. In addition, this would also be likely to result in trip reassignment away from Norwich Road and London Road, reducing traffic volumes at each of the junctions tested within the Technical Note.

Summary

In summary, Thetford SUE will lead to additional traffic using the A11 trunk road, as noted above. The agreed direct mitigation package for the A11 suitably addresses all peak issues on the trunk road arising from the planned growth. This package is to introduce 50mph speed limits on the A11 around Thetford and impose traffic signalisation of the roundabout junctions. However, proposals to enhance the already approved development-related schemes is borne out of a desire to ensure there is no detriment to journey times and the strategic function of the trunk road at all other times allowing for other traffic growth, congestion on other important routes.

Also, as noted above, there are issues on the A134 to the south of the town, traffic volumes on Nuns' Bridges Road and junctions within the town.

These issues could be considered individually. However, there is merit in considering the issues as a whole with a view to looking at whether there is a strategic solution that might overcome them. Further study work would be needed to identify what a solution might be. The study work would need to consider, amongst other things, the potential for a new link in the south of Thetford that would connect the A134 (part of the Major Road Network) around the south east of the town. At this time no particular route has been identified but the technical work has identified a desire line from the south to the east. This would effectively link the A134 from Bury St Edmunds via

Hurth Way and Mundford Road to the A134 in the north. This would overcome the issues of north-south local traffic currently using Nuns' Bridges Road, as well as providing a through route for traffic on the A134, avoiding the current HGV restrictions and diversions on the existing route. It would need to be taken forward in conjunction with measures addressing the additional traffic likely on the A11 arising from the SUE. If such a route could be established, it might be possible to rationalise, or take traffic away from, some of the existing junctions on the A11 Thetford Bypass, making a solution more affordable to take forward. This is one potential option to address the congestion issues within Thetford, but further study work need to consider all options and link in with currently identified work. The cost of this mitigation measure would be largely dependent on the type of options generated and the route alignment, which would require an extensive feasibility study. A route in this location has been previously considered, with its environmental impact identified as a major constraint.

Other interventions

Some further interventions which could help the local highway network operation, either short-term or following implementation of the Thetford SUE, are outlined in the following sections:

Improve signage to parking and key destinations

Signage to parking and key destinations within the town could be further improved in order to reduce traffic routing via Nuns' Bridges Road. Since Nuns' Bridges Road is often a route chosen by satellite navigation systems as it is the most direct, signage for more suitable and less congested alternative routes could be considered. The cost associated with improving signage throughout the town would be dependent upon the number of key routes and parking areas to be incorporated within the strategy.

Improve HGV restriction enforcement

Improved enforcement of HGV restrictions in Thetford, particularly via the A134 and Nuns' Bridges Road could be considered. There is an existing southbound HGV restriction on the A134 Bury Road; however, it is widely regarded that this restriction is not adhered to. This is evidenced by traffic data on this route which showed that some 200 HGVs per day routed southbound on the A134 Bury Road. On the assumption that two routes are reviewed, the estimated cost associated with HGV restriction enforcement is approximately £20,000 (including design fees).

Speed Limit Reduction – Nuns' Bridges Road

A speed limit reduction, to 20mph with associated calming measures, could be enforced on Nuns' Bridges Road and onward routes in Thetford. The cost associated with reducing the speed limit would be dependent upon the number of routes and the number and type of calming measures implemented. A lower speed limit with clear signage at each end of Nuns' Bridges Road could have the following impacts:

- Improve road safety
- Reduce the volume of traffic using Nuns' Bridges Road
- Reduce the risk of damage to the Grade II listed bridges
- Discourage the route being suggested by satellite navigation systems

- Improve the walking and cycling environment and connectivity to off-road walking and cycling routes, including the riverside and National Cycle Network (NCN) Route 13, with onward connections to Thetford SUE.

Chapter 8: Action Plan

The emerging Breckland Local Plan 2011-2036 identifies the SUE at Thetford (5,000 dwellings), Attleborough and locations within or adjacent to the market towns of Dereham, Swaffham and Watton as areas for development.

Based on the feedback from stakeholders and findings from the study work the Action Plan recommends areas where consideration should be given in the form of short, medium and long-term actions (Table 4 and 5). The county council has funding committed to the delivery of short-term schemes that can be delivered within the next two years. The list of schemes proposed through this strategy can be found in Table 6. In the medium and longer-term it will be critical for the council to work collaboratively with local partners to deliver on other opportunities.

The county council will continue to work together with Breckland District Council on developing the plan for the town further.

Table 4: Potential cycling and walking improvements

Potential cycling and walking improvements
<p>Short-Term</p> <p>Thetford enjoys a higher on average percentage of walking trips to work in part due to the compact nature of the town (circa 4km across) and the relatively friendly street layout (particularly in the town centre), however levels of cycling within the town are below average. The percentage of car sharing for work journeys in Thetford is also higher than average. Most likely because of the high walking and car share mode shares the driver mode share within the town for the journey to work is lower than average at 63.81% (compared to 68.39% across Norfolk). However, analysis of short (sub 4.5 km/ 3 miles/ 20 minutes cycle time) journeys to work in the town is circa 50% and are by private car or van.</p> <p>Action: Norfolk County Council and partners to identify potential funding opportunities for feasibility work to progress section improvements set out in Cycling and Walking technical note for Route A.</p>
<p>Medium-Term</p> <p>The cycling and walking route A improvements are developed into schemes that can then be used as projects when seeking contributions from new development or external funding opportunities.</p> <p>This new corridor will provide more direct cycling options. With an improved cycle link in place more focus could be given to pedestrian links through the town with an aim to encourage a shift for the journey to school for example away from private cars.</p>

Long-Term

Further work is done on cycling and walking on routes B and C to start to identify and develop suitable interventions and bring forward to delivery, dependent on suitable funding streams.

Table 5: Potential Network Pinch Point and Key Junction improvements

Potential Network Pinch Point and Key Junction improvements

Short-Term

The study indicates the impact of the current traffic and future development around the town on various junctions and what high level transport infrastructure would be required to mitigate this impact. This evidence can be used by Norfolk County Council, Breckland District Council and Thetford Town Council to inform future planning.

Further feasibility work will be carried out looking at the potential for a link and upgrades to existing roads to link the A134 from Bury St Edmunds via Hurth Way and Mundford Road to the A134 in the north.

Medium-Term

The county council alongside partners can use this study to develop potential mitigation improvements further so the costs and work required are fully understood. This would provide a better understanding of what improvements are feasible in the town.

Long-Term

The impact of growth beyond the emerging Local Plan needs to be fully understood. Any new housing allocation for the town beyond the emerging Local Plan period of 2036 will have a transport infrastructure impact. Any growth will need to be fully evaluated and options chosen with the least detrimental impact felt on the town.

Table 6: List of potential improvements set out in the technical notes

Improvement/change	Detail	Time to complete	Cost
Cycling and Walking			
Cycling and walking Route A	Opportunity to extend shared use foot/cycleway west to the Forest Retail Park along with route clearing in places.		It is envisaged that the cost for Route A are in the region of £300-450k
Cycling and walking Route A	The approved plans for Breckland Retail Park (currently being built) shows a 3m wide shared footway and Toucan crossing of London Road. The connection to the western end of the Retail Park is unsigned and not on the pedestrian desire line. Opportunity to add signage and realign path to the desire line. The pedestrian crossing of the vehicle entrance to the Retail Park needs to be widened to accommodate shared use.		
Cycling and walking Route A	London Road presents a barrier for pedestrians and cyclists and just one Toucan is located on the London Road Corridor. Opportunity for Toucan crossing near Caxton Way (Breckland Retail Park to provide this).		
Cycling and walking Route A	Opportunity for Toucan Crossing to Newtown/Icknield Way; this crossing is directly on the desire line (residential to town).		
Cycling and walking Route A	Status of route between St Martin's Way and Caxton Way although indicated shared use is unclear to the user on the ground which is poorly surfaced and narrow in places. Opportunity to upgrade the western footway to an official cycleway and make the signage/markings clearer.		
Cycling and walking Route A	The existing crossing of St Martin's Way needs to be widened so that it can accommodate shared (pedestrian and cyclist) use.		
Cycling and walking Route A	Newtown to Bridge Street involves crossing the busy (40mph) A134 Bury Road (traffic can be more intense during closures of the A11). The existing uncontrolled crossing is not directly on the desire line of pedestrians and cyclists between Newtown and Bridge Street. Opportunity to upgrade crossing to a Toucan directly on the desire line.		

Network Pinch Points and Key Junctions (Chapter 7 contains more details around the mitigation and costs, as these do not include further feasibility work, third party land, utilities costs etc)			
A134 Brandon Road / London Road / A134 Bury Road	Widen the A134 Brandon Road arm approach to accommodate two-lanes. Additional modelling work would need to be undertaken to assess this alternative layout and to optimise signal timings.		£170,000-£250,000
	Change the junction type from a signalised junction to a roundabout.		£0.9- £1.2m
London Road / Station Road	Introduction of a right-turn lane on London Road.		£250,000-£500,000
A1075 / Norwich Road / A1066 Mundford Road / A1066 Hurth Way	Upgrade the existing roundabout		£1.0- £1.5m
Nuns' Bridges Road	There is a desire line between the south and east of Thetford. An alternative route to bypass Nuns' Bridges Road could be considered, to connect the A1066 to the east with the A134, possibly via the A1088.		Costs would be largely dependent on the type of options generated and the route alignment, which would require an extensive feasibility study. A route in this location has been previously considered, with its environmental

			impact identified as a major constraint.
	Signage to parking and key destinations within the town could be improved in order to reduce traffic routing via Nuns' Bridges Road. Since Nuns' Bridges Road is often a route chosen by Satellite Navigation systems as it is the most direct, signage for more suitable and less congested alternative routes could be considered.		The cost associated with improving signage throughout the town would be dependent upon the number of key routes and parking areas to be incorporated within the strategy.
Heavy Goods Vehicles restrictions	Improve enforcement of HGV restrictions in Thetford, particularly via the A134 and Nuns' Bridges Road. There is an existing southbound HGV restriction on the A134 Bury Road; however, it is widely regarded that this restriction is not adhered to. This is evidenced by traffic data on this route which showed that some 200 HGVs per day routed southbound on the A134 Bury Road.		On the assumption that two routes are reviewed, the estimated cost associated with HGV restriction enforcement is approximately £20,000 (including design fees).
Speed Limit Reduction	A speed limit reduction, to 20mph with associated calming measures, could be enforced on Nuns' Bridges Road and onward routes in Thetford.		The cost associated with reducing the speed limit

			would be dependent upon the number of routes and the number and type of calming measures implemented.
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