

# Norwich Western Link Project

## **Technical Report**

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# 1 Executive Summary

The Norwich Northern Distributor Road (NDR) is under construction and will open in late 2017 or early 2018. Although originally planned to link the A47 (west) to the A47 (east), the western link between A47 (west) and A1067 was dropped because of concerns about its impact on the natural environment of the Wensum Valley.

Since then, there has been sustained local pressure for provision of a Norwich Western Link (NWL) - in order to ease perceived traffic problems in the local area.

This report considers the strategic background to the proposal, the strength of the evidence supporting it, the gaps in the appraisal to date, and the possible difficulties in delivering a scheme. It concludes by setting out a series of actions to support the next stage of development for the NWL project.

The strategic background includes the Local Transport Plan (LTP3) which sets out the county's transport strategy to 2026, the Norwich Area Transport Strategy (NATS) and the Joint Core Strategy, which identifies locations for new housing and employment growth to provide 37,000 new homes and 27,000 new jobs by 2026. The Greater Norwich City Deal (2013) includes an ambitious commitment to deliver an additional 13,000 new jobs. A review and roll forward of the Local Plan for Broadland, Norwich and South Norfolk was started in 2016, this will identify future development sites. Options surrounding a new Food Hub at Easton are currently being considered and there are also plans by Highways England for major improvements to the A47.

Although the NDR is expected to provide the capacity to handle most of this growth, there is uncertainty about how people in the Norwich western quadrant will be affected. Monitoring of the local roads in the area post NDR opening will confirm the impacts on the local road network in this area. Some mitigation is proposed, but its effects have not been fully assessed. The evidence base needs to be updated, ideally as part of a NDR Monitoring and Evaluation Plan to determine the scale of residual problems, but this cannot be completed until the NDR is open.

The Wensum Valley is a Special Area of Conservation (SAC) under the habitats directive, and a NWL is likely to have a large, or very large, adverse impact. For a scheme to be acceptable:

- 1) there must be no feasible alternative;
- 2) there must be an "Imperative reason of overriding public interest"; and
- 3) all necessary compensatory measures must be secured.

Further discussions have been held with the Environment Agency and Natural England, and neither agency has ruled out the possibility of an acceptable scheme being devised.

Possible route options were investigated in 2014. Upon review of the routes within western central and eastern corridors, it is our opinion that a central option is likely to offer the best solution. However, further work needs to be done to identify and assess the problems, define the objectives of a NWL and then develop options, including non-car and low cost options, either as alternatives to, or in combination with, a road-based scheme.

Work to date has not examined the value for money for a NWL. A full WebTAG compliant economic assessment, based on updated data and new traffic modelling, will be needed as part of any future appraisal.

For a scheme to be delivered, a business case would need to be prepared for submission to either the New Anglia Local Transport Body or to the Department for Transport (DfT). It would need to set out a compelling case for the scheme and must provide evidence that:

- There is a real problem to be solved.
- The scheme is part of a coherent wider strategy.
- A full range of options has been considered, and the best scheme has been selected.
- The scheme represents high or very high value for money.
- The scheme is feasible and affordable, and can be delivered within the planned timescale.

This report sets out the work that could be undertaken in both the short and medium term to progress the potential issues associated with the SAC and environmental designations, and to progress a staged appraisal in line with DfT requirements, including development of a business case to DfT standards, seeking funding for an appropriate scheme.

A tentative programme envisages some preliminary work prior to the opening of the NDR, with the main appraisal taking place after 2018, potentially leading to a Full Business Case in 2022.

## 2 Introduction and Background to the Western Link

### 2.1 Background

The Norwich Area Transportation Strategy (NATS), as updated in 1997, set out plans for transport improvements designed to enhance the economic health of the area and meet people's individual transport needs by improving accessibility for residents, workers and visitors. The NATS was reviewed in 2002, partly because of changes in government policy, but also to reflect updated development plans and proposed housing and economic growth. The revised NATS included proposals for new park and ride sites; and reflected concerns about traffic congestion and perceptions that previous policies could be seen as "anti-car"<sup>1</sup>.

Public consultation on the revised NATS in 2003 showed strong support for transport improvements to the north and west area of Norwich. In particular there was support for a Northern Distributor Road (NDR) extending from the A47 in the west and running around the northern side of Norwich to re-join the A47 at Postwick in the east. A revised NATS was agreed in 2004 and this included the provision of the NDR. Its stated aims were to reduce the impacts of high volumes of traffic and congestion in Norwich. Further consultation on the NATS was undertaken in 2004 and 2005, and feedback was sought on a variety of route options for a NDR. These included a number of different options for the western section, between the A47 west and the A1067, through the Wensum Valley. Because of the sensitive environment in the River Wensum Special Area of Conservation (SAC), possible impacts and potential mitigation measures were assessed for the various options.

On 19 September 2005, Norfolk County Council's Cabinet considered the consultation responses and agreed an adopted route for the NDR. This excluded a link between A47 to the west and the A1067. The main reason for the exclusion of a link across the Wensum Valley was due to its status as a SAC, protected due to its international importance in biodiversity conservation. A route for the NDR excluding this section, as shown on Figure 2-1 overleaf, has been taken forward through the planning process, and the scheme is currently under construction.

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<sup>1</sup> NDR DCO Document ref 5.1: Pre-application consultation report

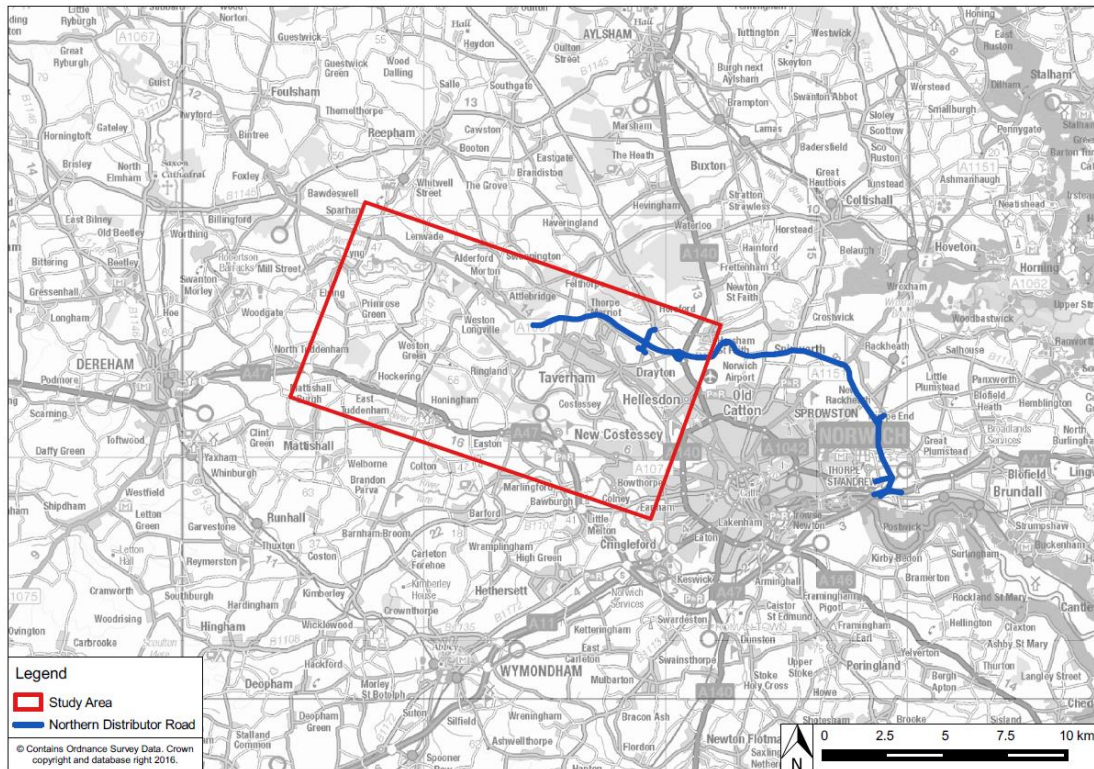


Figure 2-1: Plan of Norwich showing the NDR alignment

## 2.2 A47 – A1067 Western Link Road Scoping Study (2014)

Although the NDR is presently being constructed without a link between the A47 and A1067, consultation responses on the NDR scheme have continued to indicate local support for an intervention. In particular, support has been expressed for a new link road, which is referred to throughout this report as the Western Link Road (WLR).

In 2014 Mott MacDonald was commissioned to investigate potential route options for a WLR, and they produced the A47-A1067 Western Link Road Scoping Study in September 2014. As well as identifying route options, the NATS traffic model was used to assess the strategic impacts on patterns of traffic movement. A high level review of environmental constraints was undertaken and initial cost estimates were prepared. The Scoping Study considered how a WLR scheme could be progressed.

On 18 September 2014, Norfolk County Council’s Environment, Development and Transport (EDT) Committee noted the outcomes of the Scoping Study and recognised that the timetable would depend on the delivery of the NDR and on government decisions about planned improvements to the A47. The Committee agreed that the next stage of feasibility work should take account of these, and also consider wider public transport and non-motorised user impacts, and the role of complementary measures to reduce traffic on existing routes.

## 2.3 Review of Norwich Western Link project (2016)

Mouchel was appointed to review work previously undertaken on a Western Link, and to assess the need for intervention in this area. The brief for this work is included at Appendix A.



Mouchel has reviewed available evidence<sup>2</sup>, engaged with local Parish Councillors<sup>3</sup> and met with statutory environmental bodies<sup>4</sup> to consider:

- The need for transport intervention in the western quadrant of Norwich;
- The case for a Western Link, including a review of previously identified issues and objectives;
- Local considerations that could influence the project including the NDR and associated mitigation measures, Highways England's plans to dual the A47 between Easton and North Tuddenham, environmental designations and the development of Local Plan;
- The possible options to progress; and
- How any assessment could be taken forward.

The broad study area is shown in Figure 2-2 below, in the western quadrant of Norwich. It includes the key radial routes: A1074 (Dereham Road) / A47 and A1067 (Drayton High Road), and the land bounded by:

- The A47 trunk road;
- The A1067 near Bawdeswell at the northern most edge;
- The A140 at Norwich International Airport to the east; and
- Watton Road/Earlham Road (near the University of East Anglia) at the south.

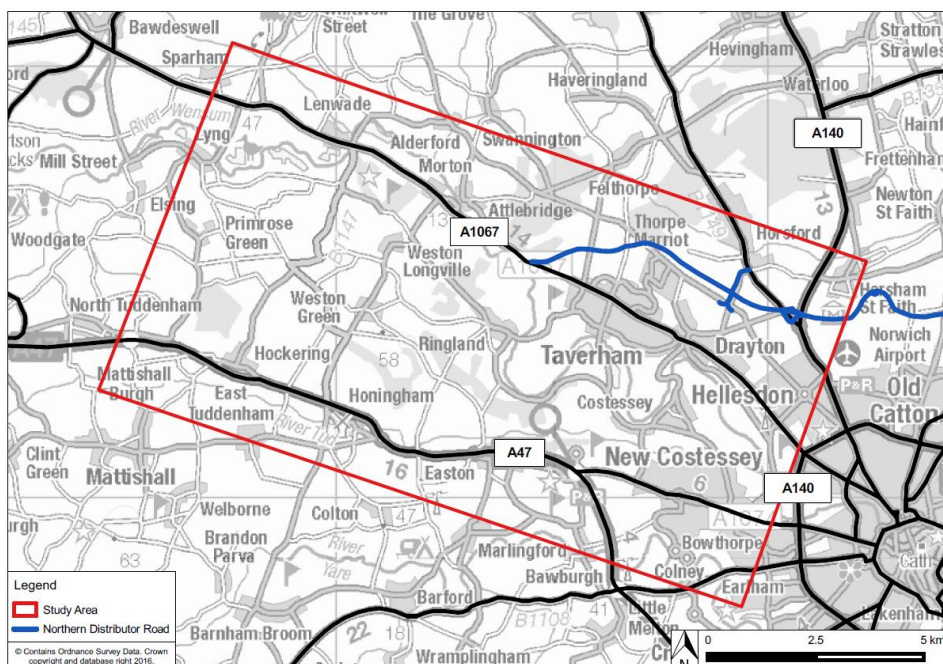


Figure 2-2: Study area for the Norwich Western Link project

<sup>2</sup> Listed in Appendix B

<sup>3</sup> See section 4.4

<sup>4</sup> See section 9.6.1

This review has been undertaken in general accordance with Stage 1 of the Department for Transport (DfT) Transport Appraisal Process, which comprises the following steps:

- Step 1: Understanding the current situation
- Step 2: Understanding the Future Situation
- Step 3: Establishing the Need for Intervention
- Step 4: Identifying Objectives (and defining the Geographic Area)
- Step 5: Generating Options

## 3 Policy & Strategy context

### 3.1 Introduction

This section aligns with Step 1 of the DfT Transport Appraisal Process and reviews a number of national, regional and local policy and strategy documents to identify relevant priorities and objectives at both a national and sub-national level.

### 3.2 Relevant policy and strategy context

**National Planning Policy Framework** (published in 2012) replaced the former Planning Policy Guidance Notes and Statements 1 to 25 (including PPG 13: Transport). At the heart of NPPF is a presumption in favour of sustainable development. A set of core land-use planning principles have been identified for planning and decision making processes. Planning should: actively manage patterns of growth to make the fullest possible use of public transport, walking and cycling, and to focus significant development in locations which are, or can be, sustainable. In the context of transport, the NPPF says that transport has a role to play in facilitating sustainable development, as well as contributing to wider sustainability and health objectives. NPPF suggests smarter use of technologies to reduce the need to travel, and to devise transport systems which favour sustainable transport modes, giving people a real choice about how they travel.

**Creating Growth, Cutting Carbon** (2011) is a White Paper setting out the Department for Transport's vision "*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, it notes that two-thirds of all journeys are five miles or under and could be made by means other than the private car. Research shows that a substantial proportion of drivers are willing to travel less by car, and the White Paper aims to offer choices that will deliver a shift in behaviour. It reflects the Government's commitment to ending top-down decision making and the steps taken to hand back, to the local level, responsibility for developing local solutions.

**The Localism Bill** was submitted to Parliament in December 2010 and became an Act in November 2011. It 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 powers to set policies that are more sensitive to their local areas.

**National Infrastructure Delivery Plan 2016-2021** (March 2016) sets out the government's plans for economic infrastructure over a five year period alongside plans to support delivery of housing and social infrastructure. It reflects the government's commitment to invest over £100 billion by 2020-21 to drive wider economic benefits, including:

- supporting growth and creating jobs in the short term as projects are built – especially where public investment is used to attract private investment;
- raising the productive capacity of the economy in the long term as the benefits of new infrastructure are felt; reduced transaction costs; larger and more integrated labour and product markets; and better opportunities to collaborate and innovate;
- driving efficiency – enabling greater specialisation and economies of scale; and
- boosting international competitiveness – attracting inward investment and enabling trade with foreign partners.

**Value for money assessment: Advice note for Local Transport Decision**

**Makers** (December 2013) provides guidance to help promote sound decision making and ensure that the value for money of schemes is appropriately considered. It is for local decision makers to determine the most appropriate criteria for prioritising their own spend on transport and the level of analysis required. Value for money should nevertheless always be a factor in such decision making, and in approving funding for individual schemes at all stages. The principles of Value for Money assessment also apply to funding bids submitted to central government.

**Highways England Strategic Business Plan** (December 2014) sets out eight key areas which the Government will measure: Making the network safer; Improving user satisfaction; Supporting the smooth flow of traffic; Encouraging economic growth; Delivering better environmental outcomes; Helping cyclists, walkers and other vulnerable users; Achieving real efficiency; and Keeping the network in good condition. To do this the Plan states that the focus will be to Modernise, Maintain and Operate with the desired outcomes being: Supporting Economic Growth through: Safe and Serviceable Network; More Free Flowing Network; Improved Environment; and More Accessible and Integrated Network.

**New Anglia Strategic Economic Plan** (published in 2014) outlines the New Anglia Local Enterprise Partnership's (LEP) ambition to transform the economy of Norfolk and Suffolk. This includes delivering 90,000 jobs, 10,000 new businesses and 117,000 new houses in the whole LEP area. The Greater Norwich area is one of the main locations proposed for this growth. It notes that improvements to transport infrastructure are required to facilitate growth on this scale, and the Norwich Northern Distributor Road (NDR) is highlighted as fundamental to unlocking this growth potential. The NDR will provide additional capacity, relieve congestion and improve connectivity to the A47/A11 and Norwich International Airport. Junction improvements at Postwick and Longwater are also identified as vital to the delivery of housing and employment.

**Norfolk County Council's Local Transport Plan 3** (LTP3, adopted in 2011) describes the county's transport strategy and policy framework for the period to 2026. Norfolk's transport vision is for:

*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.*

The LTP identifies six strategic aims which underpin the vision:

- maintaining and managing the highway network;
- delivering sustainable growth;
- enhancing strategic connections;
- reducing emissions;
- improving road safety; and
- improving accessibility.

The LTP envisages that investment in new infrastructure will be focused on a small number of strategic improvements linked to major housing or economic growth, and strategic connections. It notes the need for a Norwich Northern Distributor Road (NDR) to facilitate economic growth in the Greater Norwich area. The LTP also sees protection of the environment as important, and advocates reducing the traffic impacts of growth to negate detrimental impacts on the road network or on communities. It supports active and healthier travel options for short journeys to schools, services and places of employment, as well as tackling traffic problems that lead to poor air quality.

The LTP notes that growth in the Norwich area is significantly constrained. It considers that a NDR, running from the A47 in the east at Postwick to the A1067 in the north-west, is vital to help unlock development to the north-east of the city and to improve connectivity between north Norfolk and the strategic road network.

**The Norwich Area Transportation Strategy (NATS)**, published in its most recent form in 2006, has been prepared by Norfolk County Council (NCC) in partnership with Norwich City Council, Broadland District Council and South Norfolk Council. The strategy covers the city of Norwich, its suburbs and the first ring of surrounding villages. The document sets out a transportation strategy for the Norwich Area up to 2021 to help deliver the growth and address problems such as congestion. The strategy also promotes sustainable travel choices and recognises the need to maintain the economic health of the Norwich Area. Through the production of the NATS a preferred route for the NDR was agreed, this excluded a link between the A47 west and A1067.

**The Joint Core Strategy for Broadland, Norwich and South Norfolk** (adopted in 2011, with amendments adopted in 2014) sets out the long-term vision and objectives for the area covering the area of Broadland, Norwich and South Norfolk Councils working together with NCC as the Greater Norwich Development Partnership (GNDP). It identifies broad locations for new housing and employment growth and changes to transport infrastructure as well as other supporting community facilities. The Core Strategy states that 37,000 additional homes and 27,000 new jobs are to be provided by 2026.

Policy 6 of the Core Strategy, which refers to Access and Transportation, states that the transportation system will be enhanced to develop the role of Norwich as a Regional Transport Node, particularly through the implementation of the NATS. It says that this will be achieved through a number of interventions including, but not limited to: the NDR; significant improvement to the bus, cycling and walking network; enhancements to the Norwich Park & Ride system; concentrating development close to essential services; and protecting the function of strategic transport routes.

A review and roll forward of the Local Plan for Broadland, Norwich and South Norfolk was started in 2016. The timetable for the production of this Greater Norwich Local Plan (GNLP) envisages full public consultation in 2017, pre-submission publication in 2019, with examination and adoption in 2020. The GNLP will need to be consistent with the requirements of the NPPF and the Government's Planning Policy Guidance (PPG). The NPPF advises plan-making authorities that a local plan should include "strategic policies to deliver the provision of infrastructure for transport". The PPG advises that "Local Plans should aim to meet the infrastructure needs of the area where this is consistent with policies in the (NPPF) as a whole"; and goes on to advise that a robust transport evidence base for a local plan "will establish evidence that may be useful in enabling other highway and transport authorities/service providers to support and deliver the transport infrastructure that conforms to the Local Plan."

The **Greater Norwich City Deal** (published in 2013). Greater Norwich has been defined by the local signatories to this deal as covering the area represented by Norwich City Council, South Norfolk District Council and Broadland District Council. The City Deal includes a commitment to deliver 13,000 additional jobs across Greater Norwich over and above the existing ambitious target of 27,000 set out in Joint Core Strategy.

**Broadland District Council (BDC) Site Allocations Development Plan Document (DPD)** (adopted May 2016) and **South Norfolk Council (SNC) Site Allocations and Policies Document** (adopted October 2015) set out housing allocations in respective policy areas, these allocations incorporate the study area. The BDC Site Allocations DPD refers to the Norwich Policy Area which includes the city of Norwich, part of South Norfolk and part of Broadland District. In Broadland, a number of fringe parishes are defined: Taverham, Drayton, Hellesdon, Old Catton, Sprowston and Thorpe St Andrew. These form part of the Norwich Policy Area and have a combined allocation of between 1,462 and 1,662 new houses. The SNC Site Allocations and Policies Document states that the settlement of Easton has a housing allocation of 900 dwellings, and Costessey has a housing allocation of 500 dwellings and 13.3 hectares of land allocated for employment uses.

### 3.3 Summary

#### Policy & Strategy:

*Key priorities / objectives include:*

- Transport investment to facilitate sustainable development
- Enabling significant growth in jobs, businesses and housing
- Reducing the traffic impacts of growth, in particular environmental impacts, to negate a detrimental effect on the road network and communities
- Enhancing strategic connections and improving accessibility
- Responding to local needs and developing locally-led solutions
- Delivering value for money
- Supporting significant growth in the Norwich Policy Area
- Reducing carbon emissions and improving air quality
- Encouraging more walking, cycling and public transport trips
- Improving safety, user satisfaction, and efficiency

## 4 Current Situation

### 4.1 Introduction

The first step of the DfT's Transport Appraisal Process includes a review the current situation, to identify how transport works in the area, if there are any problems to be addressed, and any opportunities to be seized. This review is essential, as it provides the main evidence of the need, or lack of need, for intervention.

This section looks at what is currently known about transport in the study area, in order to identify some of the main problems and challenges, and to identify possible opportunities that should be explored. The review is based upon readily available information, previous studies, and consultation with stakeholders. No transport surveys were commissioned and no new traffic modelling has been undertaken at this stage. Where there is a gap in the information available, this is highlighted.

### 4.2 Context

The Norwich urban area has a population of around 210,000 and is one of the largest in the East of England region. Norwich is the largest labour market in the region accounting for approximately 60% of all jobs in Norfolk and as such creates large volumes of movements of goods and people. The study area is described in section 2.3 above.

#### 4.2.1 *Land use*

The study area has a mixture of land uses, including: rural farmland, parkland, the River Wensum, River Tud, residential areas (including the new development at Queen's Hills of over 2,000 dwellings), and Longwater Business & Retail Park. The study area also includes the Wensum Valley and a number of environmental designations including a Special Area of Conservation (SAC), designated due to its international importance in biodiversity conservation. The River Wensum, running through the study area, is designated as both an SAC and as a Site of Special Scientific Interest (SSSI). The 2014 Scoping Study sets out the significance of these designations in detail and they are discussed further in section 4.5 of this report.

#### 4.2.2 *Demographics*

The 2011 Census data shows that Norfolk has an ageing population with a higher proportion of people over 60 than either the regional or national average. At the time of the census around 68% of the Norwich population was of working age (16-74), which is lower than the East Midlands average of around 72% and the England average of around 70%.

Norwich has varying levels of multiple deprivation, which measure income, employment, education, health, crime, barriers to housing services and the living environment. Most of the study area is not deprived.



### 4.2.3 Travel behaviour

There is a high level of car ownership in the study area as shown by Figure 4-1 below, which illustrates the percentage of households with one vehicle (top plan) and the percentage of households with 2 or more vehicles (bottom plan). The car also represents the dominant mode of travel to work, with about 75% of residents travelling to work by car, as shown in Table 4-2. However, 60% of journeys are under 10km which suggests a high level of car use for short journeys.

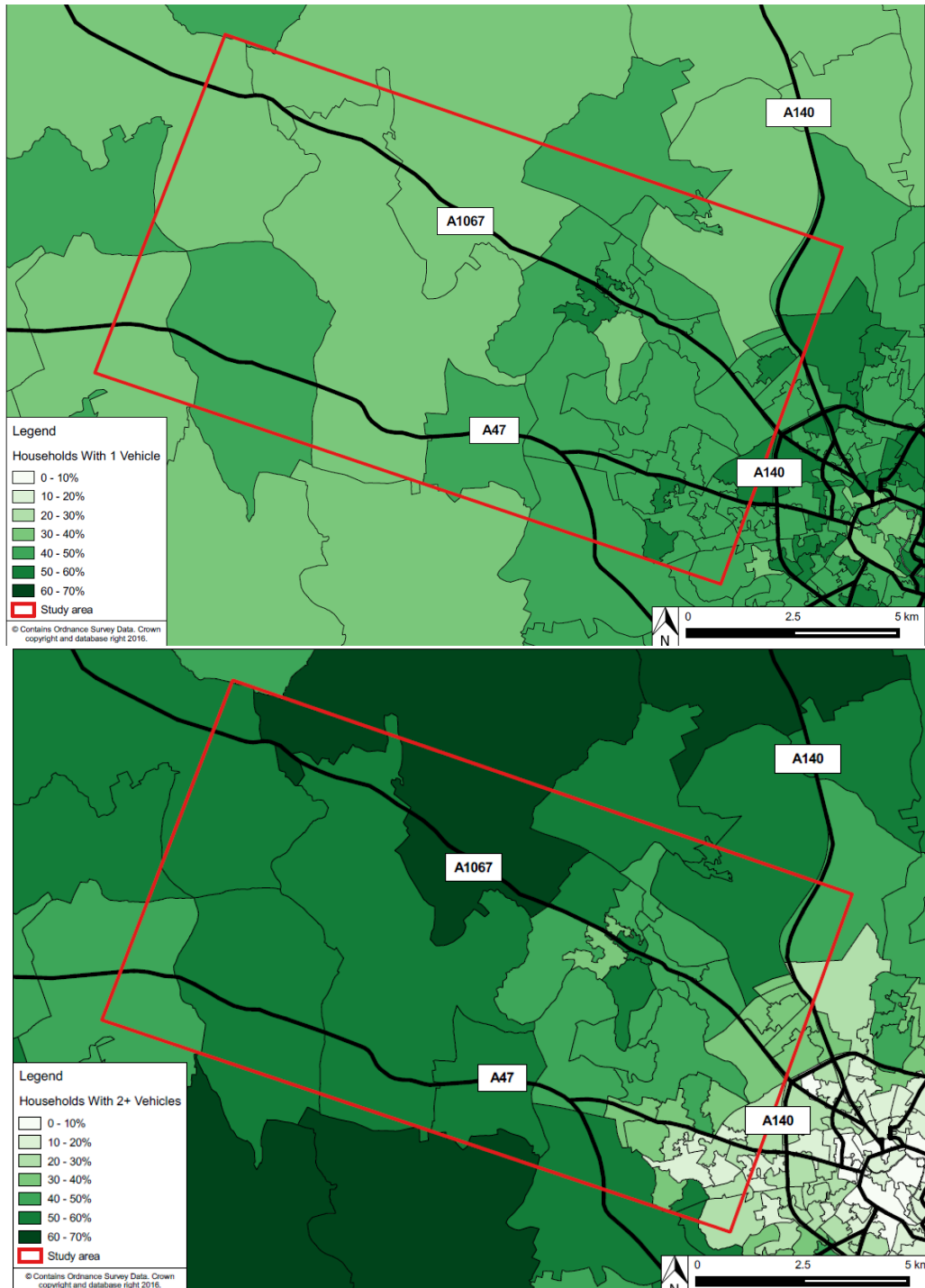


Figure 4-1: Levels of car ownership in the study area

< 2 km	2 – 10 km	> 10 km	Work from Home	Other
13%	24%	24%	10%	8%

Table 4-1: Average distance travelled to work in the study area (All usual residents aged 16 to 74, excluding those working from home or not in employment, source 2011 Census)

Mode	Percentage
Train	0.6%
Bus or Coach	7.8%
Taxi	0.4%
Motorcycle or Scooter	1.5%
Driving a Car or Van	69.3%
Passenger in a Car or Van	5.8%
Bicycle	5.3%
Walk	8.6%
Other	0.7%

Table 4-2: Average mode share to work in study area (All usual residents aged 16 to 74, excluding those working from home or not in employment, source 2011 Census)

### 4.3 Transportation context

#### 4.3.1 Highway Network

The study area is bounded to the south by the A47 which forms part of the Strategic Road Network and provides a link from Great Yarmouth in the east, via Norwich towards King’s Lynn, Peterborough and the A1. To the north of the study area is the A1067 which provides a key radial route from Norwich to surrounding residential communities and out to the market town of Fakenham.

Within the study area there are a limited number of routes which connect the A47 and A1067. These are rural single carriageway roads and pass through residential areas including Costessey, Taverham, Ringland and Weston Longville. Recently, improvements have been delivered along Sandy Lane, Walnut Tree Lane, Wood Lane, Stone Road and Lyn Road to provide an enhanced link between the A47 and North Norwich for HGV movements, primarily to reduce long standing HGV traffic problems in Hockering. Since the improvements, this route is now designated as a B-road in the route hierarchy.

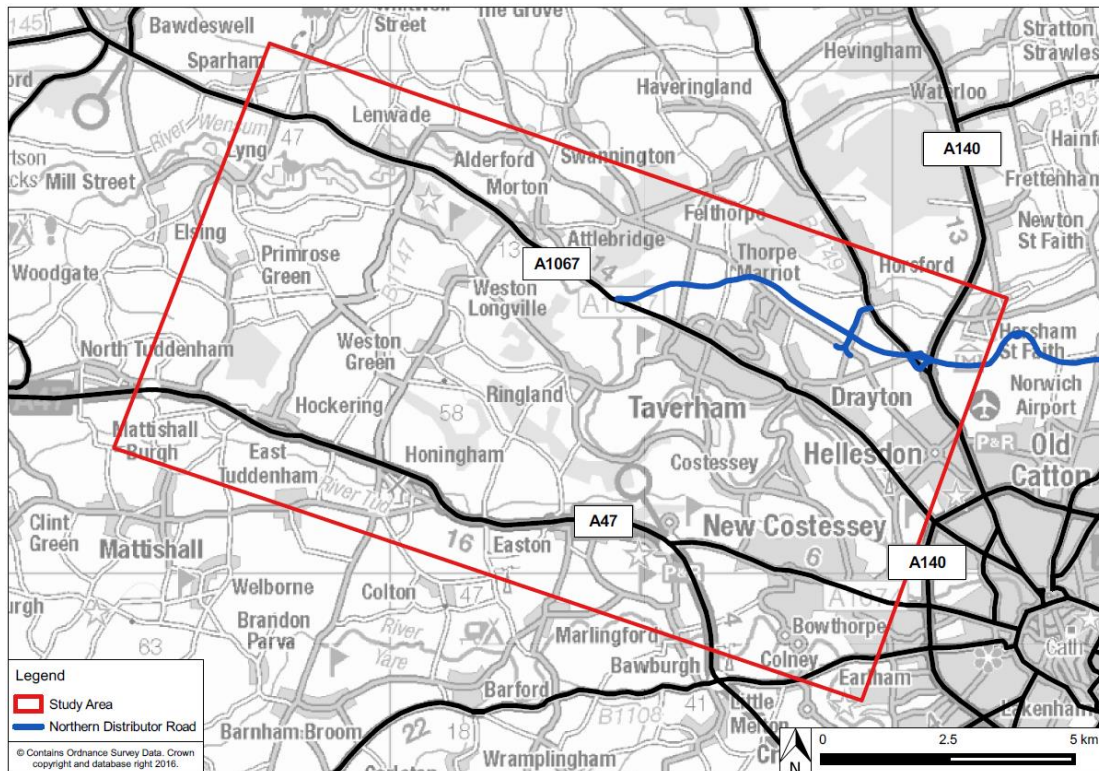


Figure 4-2: Study area showing local highway network and NDR alignment

The “current situation” in relation to the highways network is, of course, about to change soon as the Norwich NDR is currently under construction, and is due to open in 2017/18. This makes it difficult to assess the strength of case for a NWL at the present time. On the one hand, the NDR will significantly increase network capacity, providing a greatly improved route for many trips whilst relieving traffic pressures and congestion on existing routes. On the other hand, the lack of a western link to the A47 means that there will still be an “obvious” gap in the network, and a lack of orbital connectivity, even after the NDR has opened.

An assumption that the NDR will encourage more traffic to ‘rat run’ on unsuitable routes, impacting on local communities is, presumably, part of the reason for local support for an intervention. The traffic effects of the NDR will only be evident after its opening to traffic; however, results from previous NDR traffic modelling are discussed below.

#### 4.3.2 Traffic data

Any business case for a NWL will need to provide clear evidence of the problems which exist at present, or may be expected in future. A key part of this evidence should be from traffic counts, journey time surveys etc. within the study area. Anecdotal evidence of problems is useful, but not sufficient.

Depending on the extent and quality of existing data, this may need to be updated, with improved data. The NDR is expected to open in late 2017 / early 2018, so it may be possible to enhance the detail of the NDR Monitoring and Evaluation Plan to

provide more detail in the Wensum Valley area – i.e. a more detailed “before and after” study in this area.

The NDR Traffic Forecasting Report Volume 1 gave information about existing and forecast traffic flows on the local roads in the area with and without the NDR scheme, as shown in Table 4.3.

24 hour two-way flows	2012	2017 DM	2017 DS	2032 DM	2032 DS	NDR Change 2017	NDR Change 2032
Low Road (A81)	4000	4600	4000	4900	4100	-13%	-16%
Costessey Lane (A89)	3300	4000	3800	4800	4900	-5%	2%
Taverham Lane (A25)	5700	5700	4700	6200	4700	-18%	-24%
Ringland Road (A31)	3600	4900	3500	8000	6300	-29%	-21%
C167 Weston Longville (A105)	1400	1700	3300	3100	5500	94%	77%
C173 Lenwade to Hockering (A106)	3000	3400	3500	3300	3600	3%	9%
<b>Total</b>	<b>21000</b>	<b>24300</b>	<b>22800</b>	<b>30300</b>	<b>29100</b>	<b>-6%</b>	<b>-4%</b>

Table 4-3: Forecast traffic flows between the A1067 and A47(T) (source: NDR Traffic Forecasting Report Volume 1)

Traffic modelling work carried out for the NDR demonstrated that there were forecast traffic reductions of 6% in 2017 and 4% in 2032 on local routes connecting A1067 and A47(T). However, traffic flows were forecast to increase on C167 Weston Longville.

The following table contains traffic count data taken from 15 sites recorded on Wednesday 14<sup>th</sup> October 2015. Flows are listed by direction and include figures from the AM Peak Period (0800-0900), the PM Peak Period (1700-1800) and the total flows over the 24 hour period. Furthermore, the table also shows the percentage of vehicles recorded travelling over the posted speed limits within the 24 hour period. Location of the data sites is shown in Figure 4-3.

This data is not conclusive and does not highlight a significant issue of high traffic flows along these routes. However, it does illustrate issues of speeding on certain routes and also suggests there could be some ‘rat-running’.

Site	Road Name	Direction	Speed Limit	AM Peak	PM Peak	24hr Flows	No. > Speed Limit	% > Speed Limit
1	The Common	Northbound	30	71	89	876	245	28%
		Southbound	30	120	86	949	174	18%
2	Weston Hall Road	Northbound	60	185	199	1,990	10	1%

Site	Road Name	Direction	Speed Limit	AM Peak	PM Peak	24hr Flows	No. > Speed Limit	% > Speed Limit
		Southbound	60	169	208	2,023	2	0%
3	Marle Hill Road	Northbound	60	148	201	1,575	48	3%
		Southbound	60	157	154	1,490	24	2%
4	Honingham Road	Northbound	30	140	120	1,224	339	28%
		Southbound	30	126	45	1,054	283	27%
5	Paddys Lane	Northbound	60	95	134	1,235	0	0%
		Southbound	60	106	122	1,174	2	0%
6	Heath Road	Northbound	30	113	113	1,041	654	63%
		Southbound	30	58	57	601	432	72%
7	Lynn Road	Northbound	60	88	46	694	14	2%
		Southbound	60	130	143	1,309	2	0%
8	Wood Lane	Northbound	60	261	271	2,894	0	0%
		Southbound	60	235	206	2,354	0	0%
9	Stone Road	Northbound	60	53	99	689	3	0%
		Southbound	60	120	86	949	0	0%
10	Heath Road	Northbound	60	111	90	822	20	2%
		Southbound	60	74	138	1,035	13	1%
11	Breck Lane	Northbound	60	-	30	77	0	0%
		Southbound	60	24	3	71	0	0%
12	Rectory Road	Eastbound	60	35	19	200	1	1%
		Westbound	60	8	30	198	0	0%
12A	Rectory Road	Eastbound	60	30	17	150	0	0%
		Westbound	60	10	22	154	1	1%



Site	Road Name	Direction	Speed Limit	AM Peak	PM Peak	24hr Flows	No. > Speed Limit	% > Speed Limit
13	Sandy Lane	Northbound	60	8	11	123	0	0%
		Southbound	60	6	22	132	0	0%
43	Low Road	Northbound	60	75	253	1,775	0	0%
		Southbound	60	448	125	2,437	0	0%

Table 4-4: 2015 traffic count data

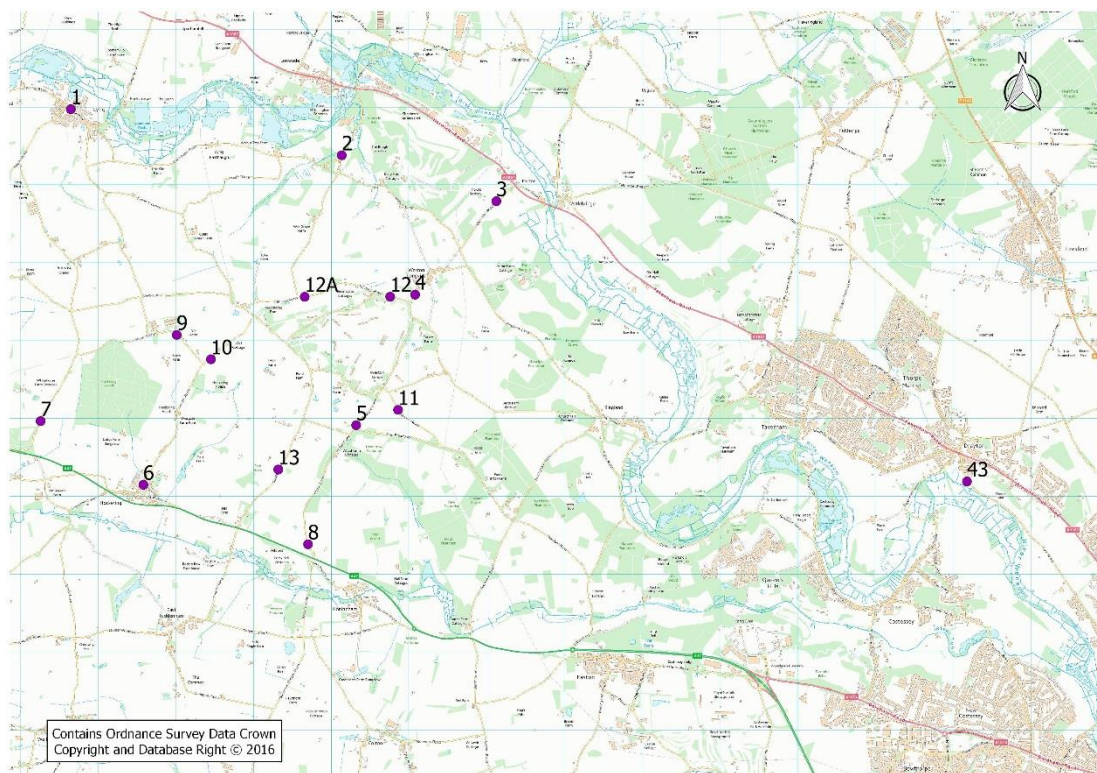


Figure 4-3: Traffic count monitoring sites

The Monitoring and Evaluation Plan (MEP) for NDR, prepared in August 2015, states that monitoring of NDR will take place in year 1 and year 5 of the NDR implementation. The plan sets out proposals for monitoring traffic on local roads between the A1067 and A47, and is planned during Oct/Nov 2018. The locations under consideration are shown in Figure 4-4.

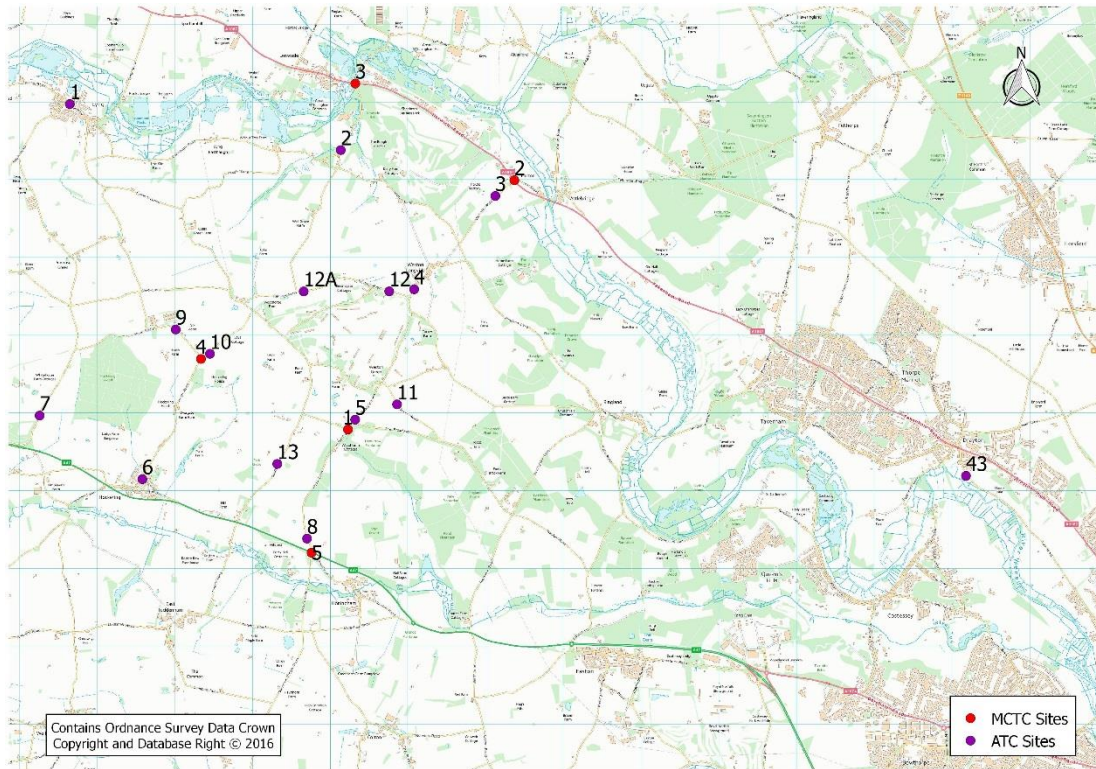


Figure 4-4: NDR Traffic Monitoring and Evaluation Sites in Wensum valley area (source: NDR Monitoring and Evaluation Plan August 2015)

### 4.3.3 Cycle Network

Cycling facilities in the study area include the National Cycle Network (NCN) Route 1 which passes to the north of Queen’s Hills, and on to Drayton, Thorpe Marriot and further north, as shown in Figure 4-5. There are no other dedicated cycling facilities in the study area.

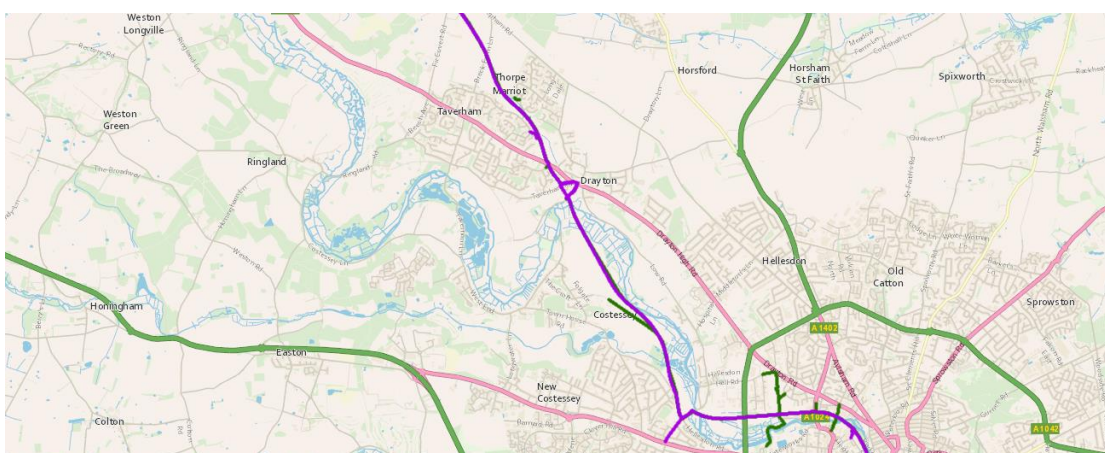


Figure 4-5: National Cycle Network Route 1 (purple line)

### 4.3.4 Public Transport network

The bus network in the study area is largely radial, providing routes to/from Norwich city centre along key corridors. The main routes serving the study area are shown in Figure 4-6 and include:



- Services 21, 22 covering Norwich to Bowthorpe, along Dereham Road/Bowthorpe Road
- Services 23A, 23B, 24A, 24B – Norwich to Queens Hills and Costessey, along Dereham Road
- Services 28, 28A, 29, 29A, 29B covering Norwich to Drayton/Taverham along Drayton Road and Drayton High Road.

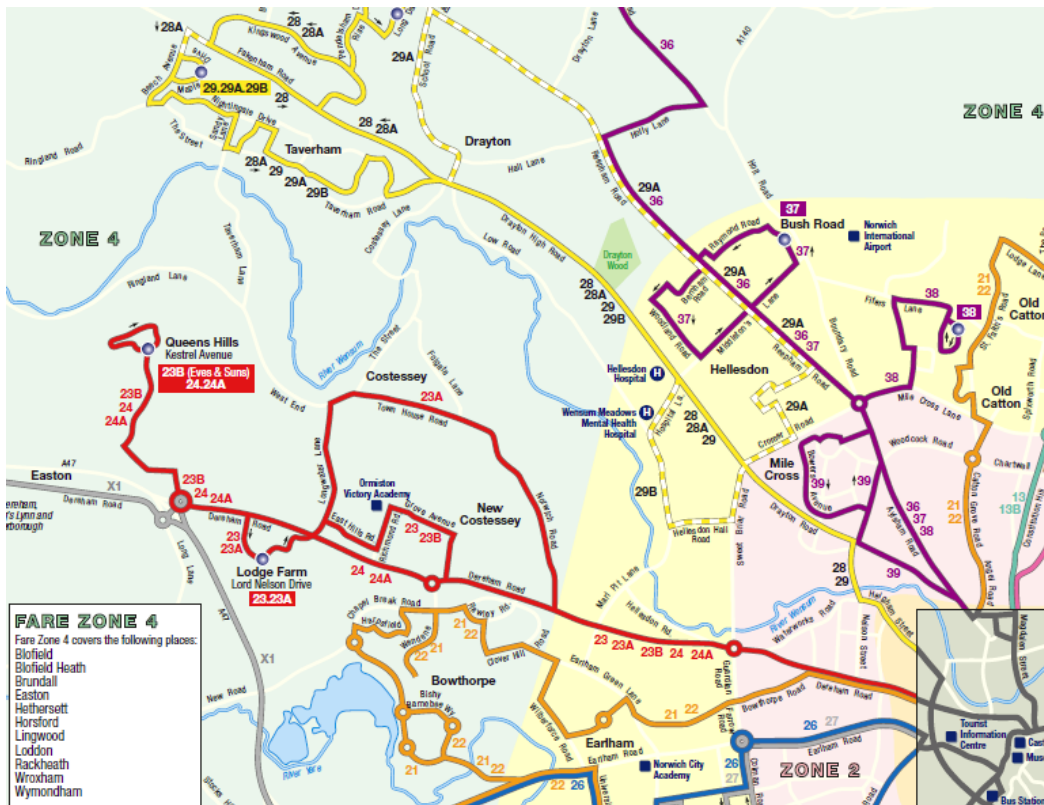


Figure 4-6: Bus services in western Norwich – [www.firstgroup.com/uploads/maps/Norwich\\_20Sept.pdf](http://www.firstgroup.com/uploads/maps/Norwich_20Sept.pdf)

A significant length of bus priority has been recently implemented on Dereham Road and Newmarket Road.

Currently, there are six Park and Ride sites located around Norwich, of which five serve the city centre (see Figure 4-7 below). In September 2015 Konectbus won a contract to operate all six Park and Ride sites as well as Norwich bus station. Costessey Park & Ride is located near the study area, next to the Royal Norfolk Showground. From September 2015, this Park & Ride service will only serve Norfolk and Norwich University Hospital and The University of East Anglia. This means residents of western Norwich or users arriving from the west would need to use Thickthorn Park & Ride or the Airport Park & Ride sites to access the city centre. The latter would result in journeys across the study area. It is not known whether further transport intervention in the western quadrant could benefit existing and potential users of the Park & Ride sites.





Figure 4-7: Norwich Park and Ride facilities. (Source: Norfolk County Council website).

#### 4.3.5 Walking Network

Footways are in place adjacent to the roads in many of the more urban areas of the study area. In the more rural areas, such as Ringland, footways are not available everywhere. In addition there are numerous Public Rights of Way within the study area, including footpaths and bridleways in Bowthorpe, Costessey, Drayton, Ringland. Pedestrian crossing points are generally on main roads and at key locations and junctions.

#### 4.3.6 Accidents

Within the study area, there have been a number of recorded road traffic accidents, primarily along the main arterial routes to or from Norwich city centre. It should be noted that these records only represent injury accidents recorded by the police and do not take into account 'damage only' accidents.

In the five years from 2011 to 2015, there were 663 recorded collisions in the study area, involving 898 casualties:

Severity	Collisions	Casualties
Fatal	8	10
Serious	109	120
Slight	546	768
<b>Total</b>	<b>663</b>	<b>898</b>

Table 4-5 Accidents and casualties Study Area 2011-2015

Of the 898 casualties, 77 (9%) were pedestrians and 90 (10%) were cyclists. 72 casualties (8%) arose from accidents involving motorcycles. Road traffic accident

clusters (based on 5 year accident plot 2011-2015) have been identified at the following locations:

- A47 Longwater junction
- Dereham Road (A1074), junction with Longwater Lane
- Dereham Road (A1074), roundabout junction with Wendene
- Dereham Road (A1074), junction with Norwich Road
- Drayton High Road (A1067) junction with Boundary Road
- A410 in the vicinity of the airport
- Middletons Lane

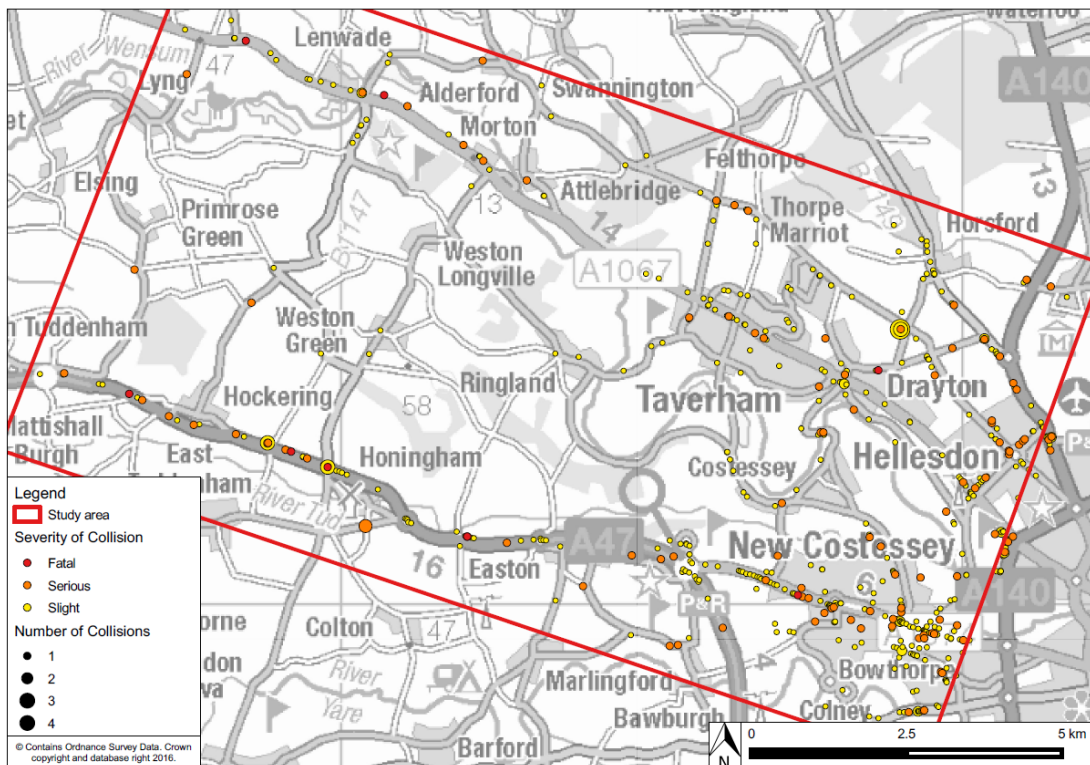


Figure 4-8: Collisions by severity

#### 4.4 Consultation on transportation Issues

The concerns of local stakeholders regarding transportation issues in the study area are well documented and were raised during the recent NDR public examination process. As part of this project, Mouchel held additional consultations with local Parish Councils and stakeholders to seek further comments on the main transportation issues in the study area. In March 2016, two ‘drop-in’ sessions were held, one at Costessey Hall and one at Hall for All in Weston Longville. These sessions were well attended with representatives from: Morton; Weston Longville; Hockering; Taverham; Easton; Ringland; Costessey; Wensum Valley Alliance; CPRE and Friends of the Earth.

These consultations confirmed several key concerns about transport issues:

- Volume of traffic ‘rat-running’ through local villages (including Costessey, Ringland and Weston Longville);

- Lack of connectivity between the A47 and proposed NDR;
- Number of HGVs using routes through villages, even where this is signed as inappropriate or forbidden (e.g. weight limits and width restrictions);
- Unsafe environment for pedestrians due to lack of footways/pedestrian routes within the area;
- The need to accommodate extra traffic associated with new developments planned or aspired to, in particular planned residential develop and the proposed Food Hub near Easton; and
- Lack of connectivity by public transport especially around, rather than in to, Norwich (e.g. to University and Hospital areas).

Many people who raised these points also expressed concern that these issues might be exacerbated by the opening of the NDR and the proposed dualling of the A47. However, some expressed the view that mitigation works associated with the NDR may improve matters; and others commented that the NDR may take traffic off A1067 Fakenham Road (southeast of the junction with the NDR), making it easier for local traffic to use it. These varying beliefs need to be tested objectively using robust traffic modelling and/or by direct observation and survey-based evidence.

Location specific transport problems were also raised:

- Longwater junction is considered to have significant safety and capacity problems; and
- Queen's Hills and its single point of access results in congestion, on the road network which affects the local community.

In addition to the 'drop-in' sessions, written representation was received from the Wensum Valley Alliance (dated 24<sup>th</sup> May 2016), as summarised below:

- Concerns that a link road would destroy the Wensum Valley;
- Opinions that there is potential for an effective bus service using improved, existing roads taking in settlements to the north and south of the Wensum;
- Views that specific pinchpoints in the area are the major problem;
- Reference to benefit cost analysis and the environmental impact of the scheme;
- Reference to the previous public consultation being in 2003/04; and
- Questions regarding how the scheme would be funded.

As part of Norfolk County Council's AtoBetter programme (which seeks to reduce single occupancy car journeys and promote the use of sustainable transport modes to get more people walking, cycling, using public transport and car sharing) a residential survey of Queen's Hills, Costessey was undertaken to gain feedback on transport issues felt by people living in that area. The key findings were:

- Improvements to the walking and cycling environment would encourage travel by these modes;

- Improved bus service frequency, reliability and infrastructure (such as bus stops and real time information) together with discounted ticketing were the main features that would encourage travel by bus;
- A need for additional access to Queen's Hills for all modes was raised;
- High traffic speeds on estate roads was considered a problem; and
- Longwater junction an issue when the A47 is congested.

#### 4.5 Environmental Designations

A number of high level constraints have been identified, which relate to:

- Cultural heritage, particularly listed buildings, scheduled ancient monuments and conservation areas;
- Ecology, particularly European Sites such as SACs, SPAs, and SSSIs; and
- Water, particularly, Source Protection Zones (SPZ) and flood zones.

High level constraints are deemed to be those of national designation that are readily available from the Environment Agency's website or the Magic.gov.uk website, hosted by Defra.

The ecology constraints have also identified the presence of:

- Local Nature Reserves (LNR)
- National Nature Reserves (NNR)
- Roadside Nature Reserves (RNR)
- Ancient woodland
- County Wildlife Sites (CWS)

The River Wensum rises some distance to the north-west of Norwich at South Raynham and flows roughly south-east to its confluence with the River Yare in Norwich. In April 2005 most of the Wensum (effectively from its source as far as Hellesdon Mill on the western outskirts of Norwich) was designated as a Special Area of Conservation ("SAC") under the Habitats Directive. For the most part the SAC is confined to the watercourse or river channel itself but in places some riparian land is also part of the designation.

The reason for the SAC designation is that the Wensum hosts an Annex I habitat (water courses of plain to montane levels with particular floating vegetation) and four Annex II species: the white-clawed crayfish, the bullhead (a fish), the brook lamprey (a fish), and the Desmoulin's whorl snail. The white-clawed crayfish (*Austropotamobius pallipes*) is designated in Annex II as a priority species.

In 2005, comments on the proposed NDR, including a Western Link Road, were received from English Nature, the Environment Agency, English Heritage and the Countryside Agency. Since 2005 the Countryside Agency and English Nature's responsibilities have been incorporated into a new body named Natural England. Similarly, in 2015 English Heritage was divided into two parts; Historic England

became the government's advisor on statutory functions, whilst the English Heritage Trust would operate historic properties owned by the state.

Given that English Heritage, in 2005, did not object to the principle of a Western Link we have focused on Natural England (NE) and the Environment Agency (EA) in our review of the position of statutory bodies

### Natural England

English Nature's original response to the consultation for the NDR from January 2005 can be summarised as follows:

- English Nature had no preference on the route of a WLR, but this is because all of the options had been identified as having 'very large adverse' or 'large adverse' impacts. They therefore believed that it was not appropriate to have a preference as none of the options were in accordance with their policy of ensuring no damage or loss to statutory sites.
- Appropriate Assessment, also known as Habitats Regulations Assessment (HRA) which needs to be undertaken where there is the potential for a plan or a project to adversely affect a European Site, as listed in the Habitats Directive, would be required for any project that is likely to have a significant effect. They recommend that this is undertaken as early as possible.
- They would welcome the opportunity to discuss the proposals in greater detail.

### Environment Agency

Key points to note from the EA's 2005 response to the NDR, which incorporated the options for a WLR are as follows:

- The EA consider that it "*would be very difficult or impossible to design and put in place mitigation measures that adequately addressed the impacts of a road scheme on ecology and nature conservation.*"
- The EA were, like English Nature, unable to indicate a preference for any particular route given that all the WLR options had a very large adverse impact on ecology and nature conservation.
- However, based upon the assessment of its lesser impacts on rivers and floodplain habitats (i.e. fewer river crossings) it was noted that the "*purple route (see Figure 9-1) appears the best option.*"
- Any design for a WLR will need to attenuate surface water runoff to a greenfield rate with Sustainable Urban Drainage System (SUDS) to adequately control pollution risk.
- Any crossing of the River Wensum should be a split carriageway viaduct to prevent excessive shading of the river habitat.

It is clear that the Wensum Valley is a very sensitive area, and that it would be difficult to design a new road through the area which is acceptable in environmental

terms. As things stand there are questions, either about its deliverability, or about the balance between its benefits (which have not yet been fully quantified) and its potential environmental impacts. Further work is needed and this is considered further in Chapters 9 and 10.

## 4.6 Summary

### Existing Situation:

#### *Key issues from review:*

- Mix of land uses including established communities, new residential developments, farm land, business park, Wensum Valley and SAC means number of different local views
- Demographic information highlights a high level of car ownership and reliance on the car for short and long journeys
- Strategic connectivity issues unclear
- Radial highway and bus routes, limited orbital connections
- Local Park & Ride site does not serve the city centre
- Lack of walking and cycling provision
- Accident clusters
- Environmental Designations in particular the Wensum Valley SAC

#### *Key issues from initial consultation:*

- Rat-running through villages
- High number of HGVs
- Unsafe for pedestrians
- Impact of growth and planned schemes unknown / unclear
- Poor orbital connectivity for all modes
- Poor public transport connectivity
- Issues at Longwater junction and with access to / from Queen's Hills

## 5 Future Situation

### 5.1 Introduction

The second step of the DfT's Transport Appraisal Process is to consider the future situation and the anticipated changes that will affect transport in the area. This will help identify any problems that might be anticipated as a result of planned growth, and any further opportunities. This exercise is essential, as it provides further confirmation of the need, or lack of need, for intervention.

This section begins by considering the growth that is expected to take place in the area, and then reviews future transport proposals and their potential impact on travel patterns and behaviours in the area.

### 5.2 Planned Growth

The urban area of Norwich has a population of over 200,000 and is one of the largest in the East of England. It is the region's highest ranking retail centre and a major regional centre for employment, tourism, and culture. The area has excellent education facilities and its strengths include specialisms in biotechnology, food processing, financial services and creative industries.

Norwich is a major focus for housing, employment, leisure and educational growth in the East of England. The Joint Core Strategy for Broadland, Norwich and South Norfolk (adopted in December 2014) states that, between 2008 and 2026, at least 36,820 new homes will be built including approximately 33,000 in the Norwich area. About 27,000 new jobs will be created. The delivery of the development on this scale will significantly influence traffic flows and travel patterns in the Norwich area, and add further stress on the existing transport network.

Within the study area, Easton / Costessey has been identified as a major growth location, with plans to accommodate 1,000 new dwellings and enhanced local services. The Easton / Costessey area is also a prime location to accommodate some of the 1,800 units in the Norwich Policy Area that the Joint Core Strategy does not attribute to a particular settlement (SNC Site Allocations & Policies Document).

There are proposals to develop a food and agricultural hub at Easton (known as the Food Hub), which, when fully complete (according to an EIA Scoping Report prepared in 2014), is expected to provide 3,000-5,000 jobs and host multiple businesses and a range of complimentary uses connected to the agri-food sector. Broadland District Council has commenced drafting a Local Development Order (LDO) which will effectively grant planning permission for food processing developments on a site of approximately 20ha. It is anticipated that the draft LDO will be consulted on in early autumn and it could be subsequently adopted in early 2017.

Further development of the Greater Norwich Local Plan (GNLP) is ongoing and a call for sites is currently underway. This will eventually lead to formal allocation of sites for housing and employment for the period up to 2036. The timetable for the



production of the GNLP envisages full public consultation in 2017, pre-submission publication in 2019, and examination and adoption in 2020.

A high-level review of developments considered likely to have an impact on the traffic in the study area (outside of Norwich) has been carried out for this report. It includes consideration of site allocation policies and neighbourhood plans, sites with existing planning permission, as well as aspirational sites. Sites with planning permission but mostly completed were excluded. Figure 5-1 shows the location of planned developments in the area up to 2026.

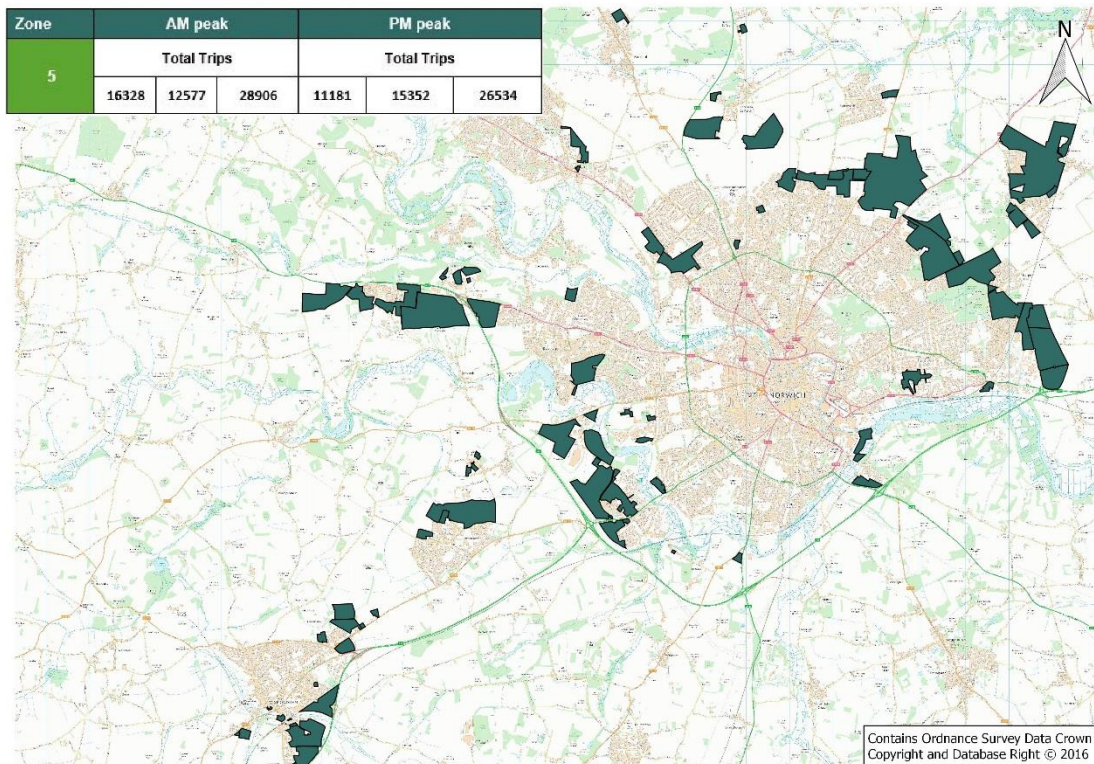


Figure 5-1: Development sites in the Greater Norwich area (the areas highlighted green represent growth areas)

The number of trips that would be generated by the development of these sites has been estimated using TRICS, which is an industry standard database of trip rates for developments. TRICS is used in the United Kingdom for transport planning purposes, specifically to quantify the trip generation of new development. It indicates that there could be approximately 55,000 additional trips on the transport network in peak periods (28,906 in AM and 26,534 in PM), which would have a substantial impact.

As illustrated above significant growth is planned in the Norwich area and this will inevitably have an impact on the existing transport network creating both challenges and opportunities. In particular, the planned growth in housing and employment at Easton will generate additional travel demand within the study area. The TRICS analysis suggests this could be approximately 4,000 additional trips in total, in the peak periods. As the growth is planned adjacent to the A47 it is expected that once



the development is complete a high proportion of trips will be made on the A47 and it is expected that a new access point on the A47 will be provided. However, analysis of the transport impacts has yet to be undertaken.

The New Anglia LEP has identified a number of growth locations across its region, illustrated below. Growth in these locations will stimulate travel demand. Norwich is a focal point of the region's transport network.

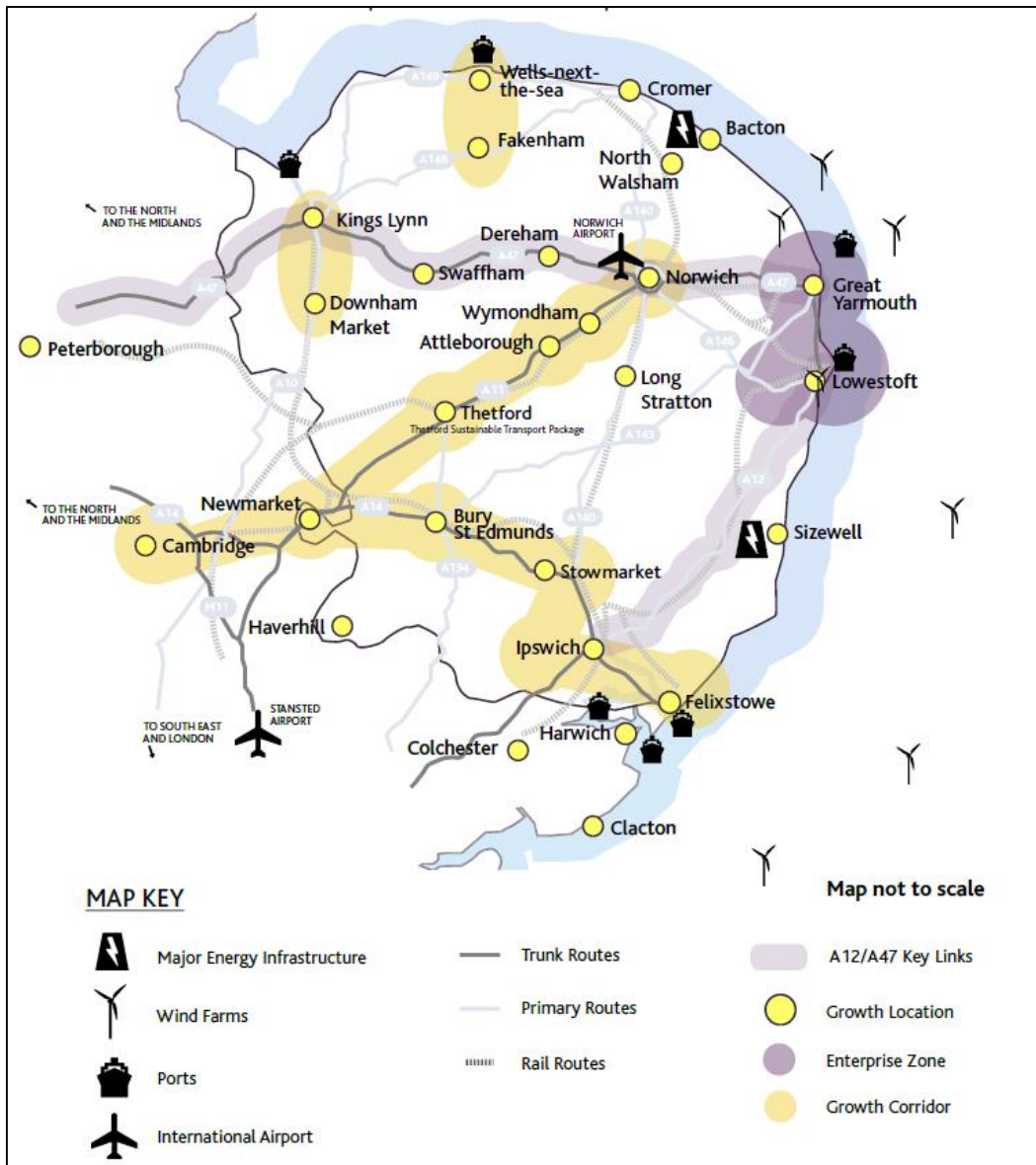


Figure 5-2: New Anglia Growth locations (source: New Anglia LEP Strategic Economic Plan)

The NDR and other measures delivered through the NATS will provide extra highway capacity and improved connectivity to help support growth. However, given the likely scale of growth, and the pressures it will bring, it is possible that additional measures will be needed beyond the delivery of the NDR and the current NATS. Any additional measures will need to consider connectivity to growth sites, strategic connectivity for longer distance traffic and connectivity to/from Norwich International Airport.

### 5.3 Proposed transportation schemes

A number of planned or proposed transport schemes could affect the study area:  
 These are illustrated below in Figure 5-3 and described in subsequent paragraphs.

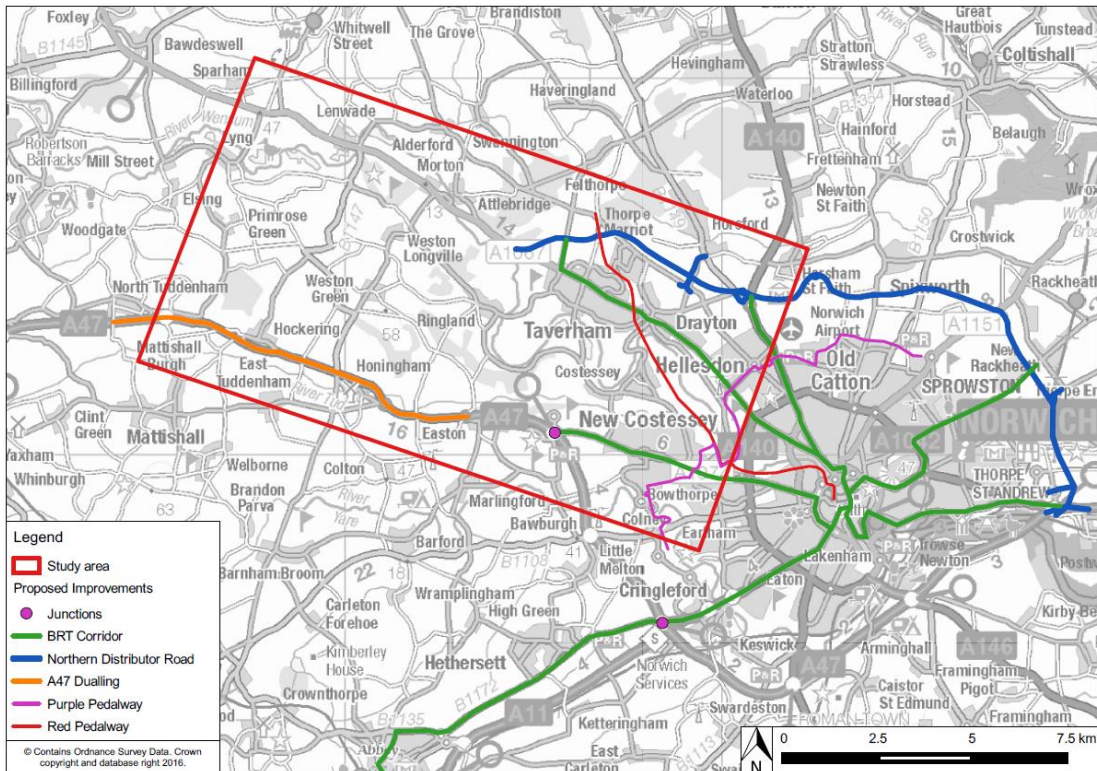


Figure 5-3: Proposed transportation schemes

#### 5.3.1 Highway and Traffic Management Schemes

The key highway and traffic management schemes in / near the study area are:

- Norwich Northern Distributor Road (NDR)
- Mitigation measures associated with the NDR
- Improvements at Longwater junction
- Additional access to Queen's Hills
- A47 dualling between Easton and North Tuddenham
- A47 / A11 Thickthorn Junction improvement

#### Northern Distributor Road (NDR)

The NDR will be a 20km dual carriageway and strategic road connecting the A47 at Postwick, east of Norwich, to the A1067 north of Taverham. It will form part of the national road network and will help distribute traffic around the north side of Norwich, reducing traffic on the outer ring road north of the city and on nearby radial routes and local roads. The NDR will help unlock important developments, providing better transport links to the Norwich Growth Triangle area, and between Norwich International Airport and the Great Yarmouth Enterprise Zone.

The NDR is under construction and expected to open in late 2017 / early 2018.

### Traffic management mitigation measures associated with the NDR

There are a number of mitigation measures to be discharged as part of the Development Control Order (DCO) for the NDR to help minimise any adverse impacts.

The DCO imposes Requirements (Schedule 2), intended to reduce adverse effects on the villages and communities in the study area, including:

- Requirement 26 refers to the need for a signed route between A47 west of Norwich and the NDR/Norwich airport.
- Requirement 27 provides for a scheme of traffic management measures to ensure rat-running through Weston Longville and Hockering is minimised, including speed limits, flashing signs, road humps, pinch-points and other physical barriers or impediments.
- Requirement 28 refers to rat-running measures for Ringland, Costessey, Taverham and Drayton, including enhancement of existing traffic calming measures, enforcement of weight restrictions on roads over the River Wensum and speed reductions.
- Requirement 29 requires monitoring of traffic levels through Lyng, with traffic measures to be implemented should such monitoring identify an increase in traffic that could be associated with the NDR.

These measures are designed to reduce potential adverse effects following the opening of the NDR. However, if they are effective enough to deter additional drivers from using local routes through villages in the western quadrant, it is reasonable to assume that they may also deter some existing drivers from these routes. However, the potential impact of these measures on existing traffic flows and future traffic flows (post NDR) has not been modelled or assessed to date.

These mitigation measures will be complete in 2017.

### A47 Dualling between Easton and North Tuddenham

Highways England and their consultants are currently identifying potential route options to upgrade the existing single carriageway A47 to dual carriageway with the provision of new junctions.

The work is currently at the options stage, and until the Council knows the preferred junction strategy and route for dualling it will be difficult to assess the impact it may have on the study area or the potential interaction it may have with any future improvements in the western quadrant. The resultant route and junction strategy could result in an increased or decreased traffic flow between the A47 (west) and the A1067, NDR and North Norfolk.

As part this project, Highways England's consultants are undertaking traffic surveys to update and enhance the NATS traffic model to enable the options to be tested.

The updated model and option consultation are expected in 2017. Construction is expected to start in 2020.

#### A47 / A11 Thickthorn Junction improvement

Highways England is developing a number of improvement options to address congestion and cater for future traffic demands at the A47/ A11 Thickthorn junction.

Options are due to be consulted on in 2017, with construction expected to start in 2020.

#### Improvements at Longwater junction

The Joint Core Strategy for Greater Norwich identifies significant development in the vicinity of Longwater and Easton. Congestion at the Longwater Interchange and nearby junctions provide a significant constraint to growth. A preferred option for improvement at Longwater junction has not yet been determined and further feasibility work is required. This will be considered by Highways England as part of its work on the A47 Easton to North Tuddenham dualling scheme.

Options are due to be published for consultation in 2017, with construction expected to start in 2020.

#### Access to Queen's Hills

The Queen's Hills development can only be accessed via the Longwater retail development area. Without an alternative access, residents face significant delay at the congested Longwater junction, and have raised concerns about this issue. As part of a new *Next* retail store development, a segregated left turn lane from William Frost Way to Dereham Road has been implemented, which helps with the accessibility issue.

As part of the Queen's Hills development site a bus gate has been constructed linking the development to Ringland Lane. This will provide a new link for bus users, pedestrians and cycle users which may help to reduce congestion and access issues at Longwater junction. Notwithstanding the bus gate, an additional access for all modes is also under consideration, although route feasibility and option identification work has not yet been done.

It is expected that the bus gate will open in late 2016 or 2017. Timescales for the additional access are unknown.

### 5.3.2 *Public Transport schemes*

A bus-based public transport system linking major facilities with existing residential areas or planned growth areas is a major component of the NATS. It incorporates six Bus Rapid Transit (BRT) corridors, with other well-used routes that link major

services and facilities, identified as Core Bus Routes. The BRT routes are shown in Figure 5-4 below and these include:

1. Dereham Road
2. Newmarket Road
3. Salhouse Road / Gurney Road
4. Yarmouth Road / Thorpe Road
5. Cromer Road / Aylsham Road
6. Drayton Road.

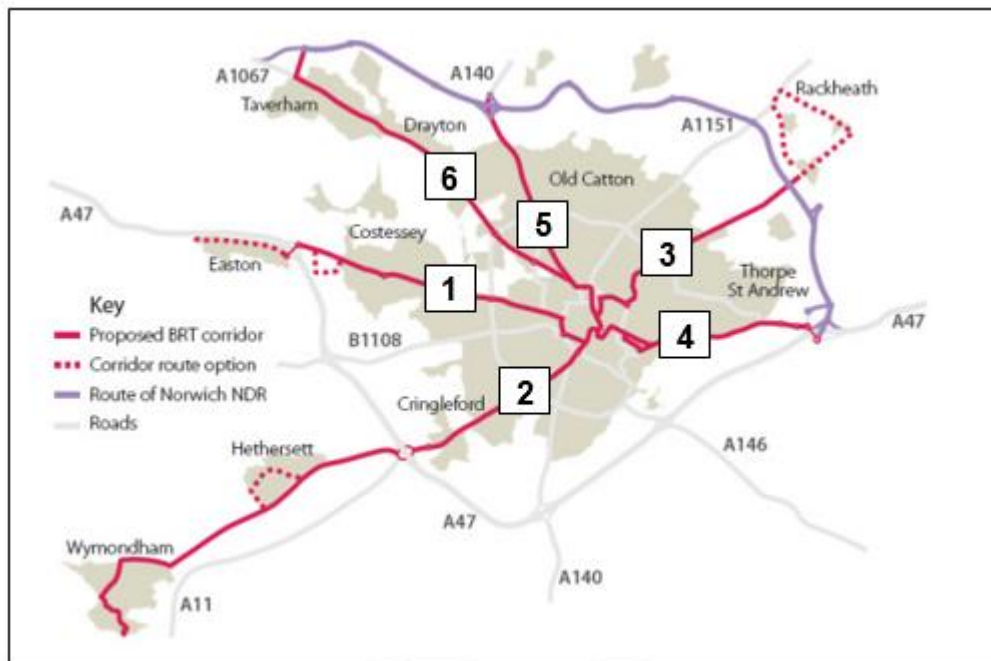


Figure 5-4 – Bus Rapid Transit routes in Norwich (source: NATS Implementation Update, 2013)

The timing of the proposal will depend on a number of factors including passenger demand from existing or new markets, the availability of funding, as well as the delivery of the NDR.

It should be noted that certain BRT corridors are dependent on the NDR to provide the necessary priority for buses on radial routes. Whilst traffic signal priority can be delivered on all corridors, some will only benefit from the full potential of bus priority through key junctions once levels of general traffic have been reduced following the opening of the NDR.

There are currently six Park & Ride sites around Norwich, of which five serve the city centre. The option of an additional site at Drayton was previously considered and rejected. A site was allocated (South Norfolk Local Plan, Site Specific Allocations, 2015) at Trowse and it will be kept under consideration for possible delivery of future Park & Ride services if sufficient demand occurs. In May 2010, Postwick Park and Ride was granted a planning permission to expand from 500 parking spaces to 1,000. The access infrastructure to the Park & Ride has been delivered as part of the recent Postwick Hub junction improvement.



### 5.3.3 *Walking and Cycling*

No major pedestrian improvements are planned for the north-west Norwich area.

In August 2013, the Department for Transport awarded a £5.2m Cycle City Ambition grant to Norwich City Council, which announced its objective to double the level of cycling over the following ten years (2013 - 2023). A further round of funding became available to the Cycling Cities and Norwich was successful in the second bid valued at 8.4m. Proposed routes are shown in Figure 5-3.

1. **Phase One** - £5.2m of improvements to Pink Pedalway and the connections leading to it. Pink Pedalway runs from the Norfolk & Norwich University Hospital and University of East Anglia, via the city centre, to Heartsease and Broadland (completion in 2015).
2. **Phase Two** - £8.4m of funding to make further improvements to Yellow Pedalway running between Norwich International Airport and Lakenham, as well as Blue Pedalway connecting Sprowston to Wymondham.

Norfolk County Council and Norwich City Council aspire to improve routes as and when funding becomes available.

Date	Route
2013 - 2015	Pink Route
2015 - 2018	Blue Pedalway
2015 - 2018	Yellow Pedalway
2019 - 2021	Green Pedalway
2021 - 2023	Red Pedalway (in proximity to Wensum Valley)
2023 – 2025*	Orange Pedalway
2025 – 2027*	Purple Pedalway (in proximity to Wensum Valley)

Table 5-1 – Timescale for the improvements to Norwich cycling routes. (\* Aspirational)

The above sequence of works is subject to change if development activity presents an opportunity to accelerate the creation or upgrading of parts of the network.

As illustrated in Figure 5-3 the Red and Purple Pedalways are located close to the Wensum Valley. The Red Pedalway connects Drayton and Whitlingham, and the Purple Pedalway forms an Outer circuit route connecting with other cross city routes. Further funding will have to be sought to cover the cost of the improvements to these routes.

### 5.3.4 *Travel Choices*

Travel Choices play an important role in supporting modal shift from car to more sustainable modes, and further measures will be introduced as part of the NATS Implementation Plan (NATSIP), subject to funding.

Future delivery includes the Better Bus Area initiative which enables employees to access live travel information from their desktops. Norfolk County Council is also working towards reducing single occupancy car journeys and promoting the use of sustainable transport modes through the “AtoBetter” programme which aims to get more people walking, cycling, using public transport and car sharing.

#### 5.4 Summary of timescales

A number of schemes are proposed across the western quadrant as highlighted above and the indicative timing of their completion is set out in Table 5-2.

Scheme	Estimated Date of Completion
Easton Residential Development	2019 onwards
Food Hub - Local Development Order	2017
Food Hub - Construction	2018/19
Northern Distributor Road	Late 2017 / Early 2018
Northern Distributor Road Mitigation Measures	2017
A47 North Tuddenham to Easton	2021
A47 / A11 Thickthorn junction	2021
Salhouse / Gurney Road BRT	2019
Dereham Road BRT	2022
Newmarket Road BRT	2022
Red Pedalway	2023
Purple Pedalway	2027

Table 5-2 – Timeline of Proposed Transportation Schemes

#### 5.5 Summary

Future Situation:
<p><i>Key issues:</i></p> <ul style="list-style-type: none"> <li>• Impact of growth, especially at Easton and Food Hub is expected to result in greater demand for movement / travel</li> <li>• Impact of growth, will create new origins and destinations and this is likely result in different travel patterns</li> <li>• Impact of growth, the timescales for developments to come forward is unclear</li> <li>• Impact of multiple transport schemes and interventions will change travel patterns by providing alternative routes</li> <li>• Impact of multiple transport schemes and interventions will change travel choice and behaviour</li> </ul>

- Impact of multiple transport schemes and interventions will not be fully known until the schemes are complete

*Potential opportunities:*

- Ensure developer contributions enable multi-modal transport improvements
- Ensure new development delivers sustainable growth to minimise need to travel where possible
- Ensure planned / future transport schemes maximise benefit for western quadrant and support growth



## 6 Need for Intervention

### 6.1 Introduction

The third step of the DfT's Transport Appraisal Process is to establish whether there is a need for an intervention (scheme), based on the analysis of the current and expected future transport-related problems, and their underlying causes.

DfT guidance makes it clear that this stage should not focus exclusively on problems and their solutions, but also on opportunities for improvement where investment could yield a positive outcome.

At this early stage, the high level review has identified a number of existing transport problems, although in many cases the evidence base for these will need to be improved to meet the standards required by DfT for a business case. Similarly, whilst there are reasons to believe that these problems may worsen in future, or that new problems will arise, there is a need for up-to-date modelling to check the extent of this. This is a normal part of the appraisal process.

As well as identifying problems, the process will also involve determining the extent to which the intervention (scheme) is likely to solve them. For example, if an existing route is congested, and the scheme provides a faster, high capacity alternative, the problem is likely to be solved. However, it must not be assumed that – just because a problem exists – the scheme will resolve it fully. This depends on the underlying cause of the problem and whether it is susceptible to improvement. For example, only with detailed analysis is it possible to determine how effectively a scheme would, say, reduce accidents or improve air quality.

Considering opportunities, on completion of the NDR the connection to/from the A47 (west) will still involve the use of local roads through existing communities. There is an opportunity to create a new link between the A47 and A1067 providing better access between the west and north and to the airport, and better access to development. There are existing orbital routes in this quadrant, but their relatively low quality and rural nature suggests that a new link would provide real benefits to traffic. This is often the case where a potential road scheme provides a better option, but the question then becomes: will the benefits of the new link outweigh the cost (financial and environmental) of building it. This crucial question can only be answered by more detailed traffic modelling and analysis, and it is not possible to predict the outcome. Again, this is a normal part of the appraisal process.

It is clearly possible that a new link road could help to facilitate some of the growth and new development planned or envisaged for Norwich. It must, however, be noted that the improvements already planned (NDR and A47 dualling) will provide extra capacity, and a detailed analysis will be needed to determine the extent to which additional capacity in the Norwich western quadrant is needed. DfT guidance on “dependent development” is quite restrictive, and our experience is that it is often more difficult than expected to demonstrate that a scheme is “needed” to facilitate

planned development, or to quantify economic benefits over and above the direct transport benefits. This is an issue with most transport appraisals and not unique to the NWL project.

Also, the appraisal needs to consider whether there may be opportunities to address some of the problems in other ways, including non-road options. These may offer partial solutions at lower cost, or may be complementary to the main scheme, enhancing its benefits for, say, pedestrians or cycle users. We would normally undertake a detailed “Active Modes Appraisal” in line with WebTAG guidance to quantify this.

With these observations in mind, the main problems and opportunities highlighted during the high level review are set out below.

## 6.2 Issues identified in the high level review

The need for transport interventions to accommodate the significant growth planned in the city is acknowledged in the Norwich Area Transportation Strategy Implementation Plan (Transport for Norwich). The transport system is currently under strain and further demands will add pressure over time. The NATS concludes that a fit-for-purpose transport network is required in order to facilitate and support a vibrant and growing regional centre, to help deliver economic growth and to meet the key objectives set out in local strategy documents. These include objectives relating to climate change, growth and regeneration, improved accessibility, quality of life and health and improved safety and security.

As noted above, the NDR and projected A47 improvements will help meet some of these objectives, and the timing of the NDR in particular makes it difficult to determine what further intervention is needed and, if so, how and when it should be delivered.

The dominant mode for travel to work is by car, especially in the more rural areas in the western quadrant and in the defined study area. However, it will be important that any new infrastructure is able to accommodate and encourage non-car modes of transport, in order to provide access to jobs and key services and facilities.

The main issues identified include:

### Existing problems

- Traffic congestion and delay, including delay to HGVs and other traffic making orbital journeys.
- The existing transport network appears to be under strain and at capacity in some areas. It is feared that this may stifle economic growth if the resulting demand for travel cannot be accommodated.
- Lack of connectivity by public transport around, rather than into, Norwich (e.g. to University and Hospital areas) due to a lack of orbital public transport links.

- Concern about traffic 'rat-running' through local villages, in particular Costessey, Ringland and Weston Longville.
- Concern about HGVs using routes through villages, even where this is signed as inappropriate or forbidden e.g. weight limits and width restrictions.
- Lack of provision for pedestrians and cyclists in the Wensum Valley area.
- Road traffic accidents.

#### Future challenges

- There are plans and aspirations for significant growth in housing and employment in Norwich, including the proposed Food Hub at Easton. These development areas need to have good access.
- Fears that rat running will be even more of a problem when NDR is open.
- Lack of connectivity:
  - between the A47 (west) and the NDR, though both will be part of the national road network; and
  - to the Airport from West (e.g. between Food Hub / UEA / NRP and Airport).

#### Opportunities

- To provide enhanced connectivity between the A47 (west) and the NDR – reducing journey times and providing an appropriate route standard for strategic traffic.
- To remove traffic from unsuitable routes.
- Potential to unlock growth sites in western quadrant of Norwich.
- To make better provision for pedestrians, cyclists and public transport as part of any intervention.

#### Constraints

- Need to accommodate a mixture of land uses and demands, including residential and business, within Norwich western quadrant.
- A range of environmental concerns have been expressed about any new construction within the Wensum Valley SAC – these will need to be investigated in detail.

#### Uncertainties / unknowns

- Uncertain impact of NDR on demand and route choice – this will not be known with certainty until after it opens.
- Uncertain impact of planned growth on demand and route choice.

- Unknown impact of potential growth (i.e. to 2036) on demand and route choice.

### 6.3 Conclusion – the need for intervention

- There is considerable “circumstantial” evidence that an intervention to link the A47 and the NDR is needed.
- There is support for a link, and potential for this to accommodate, or otherwise benefit, pedestrians, cycle users and public transport.
- A new link would address some of the identified problems.
- There is a lack of robust evidence of the severity of existing problems (e.g. congestion, delay). This does not mean that problems do not exist, but there is a need to test assertions with better evidence from surveys (existing problems) and modelling analysis (future problems).
- There would be significant environmental challenges in designing an acceptable road link, and more work is needed to see how these might be overcome.
- There is clearly an opportunity to generate benefits for road users, local residents and businesses by providing a NWL, but there is a need for further work to test whether these would outweigh the financial and environmental costs involved, and, if so, to determine when the scheme should be provided and on what alignment.

As stated above, this is a normal situation in the early stages of a transport appraisal, and the DfT Transport Appraisal process provides a robust and rigorous framework for generating and testing options and – over time – producing greater certainty and confidence about the need for an intervention.

## 7 Provisional Objectives

### 7.1 Introduction

This section of the report sets out possible objectives for the scheme, based on identified policies, problems and opportunities. In line with Step 4 of the DfT Transport Appraisal Process, the objectives are structured as:

- High level or strategic objectives
- Specific or intermediate objectives
- Operational objectives

Given the lack of robust evidence, as discussed in the preceding section, it is not prudent to define, select and adopt firm objectives at this stage. Nevertheless, there is an amount of anecdotal, circumstantial and wide ranging evidence on the need for some transport interventions. The objectives set out below therefore build from those established previously and take into account the challenges and opportunities already highlighted. It is proposed that these objectives may continue to steer future work, but also that they should be subject to critical review as additional evidence is gathered into the full nature and extent of transport problems and requirements within the area.

### 7.2 High level, or strategic, objectives

- To support economic growth by:
  - improving the efficiency of the transport network; and
  - enabling planned development of employment and commercial sites.
- To support planned housing provision;
- To improve strategic connectivity on the national road network;
- To improve the resilience of the strategic and local road network;
- To improve connectivity and accessibility for all modes; and
- To improve the quality of life for local communities

### 7.3 Specific, or intermediate, objectives:

- To reduce congestion and delay;
- To reduce journey times, and improve journey time reliability;
- To provide traffic relief for the residential areas of Costessey, Ringland and Weston Longville;
- To reduce the number of HGVs using unsuitable minor roads, in particular those through Costessey, Ringland and Weston Longville;
- To improve access to Norwich Airport from the west ;
- To improve access to Queen's Hills and Longwater business park;
- To improve access to existing and planned developments for all modes;
- To reduce road accident casualties;
- To reduce pedestrian and cycle casualties;
- To improve conditions for people walking and cycling;
- To reduce emissions of greenhouse gases; and
- To encourage provision and use of orbital public transport routes.

#### 7.4 Operational objectives

- To link the A47 west and the Norwich NDR;
- To reduce overall journey times and vehicle kilometres in the Norwich area;  
and
- To reduce environmental impact to acceptable levels and to provide appropriate mitigation of, or compensation for, any adverse environmental impacts.

Targets will need to be developed related to the objectives at a later stage of the appraisal process. Wherever possible these should be quantitative. These will feed into a Monitoring and Evaluation Plan associated with the emerging business case for the scheme.

## 8 Interventions

### 8.1 Introduction

Although the completion of the NDR will create a clear *opportunity* to link the A47 and A1067, and such a scheme could help meet the *objectives*, it is important not to simply assume that a road-based solution is necessary or in itself sufficient. DfT guidance makes it clear that non road-based options should be considered as part of the appraisal process. Even if these are unlikely to meet all the objectives, they may prove worth considering, especially if they are more affordable. Alternatively, options may be identified which could add value to a road-based scheme.

Step 8 of the DfT Transport Appraisal Process would be the production of an Options Assessment Report (OAR) and this would normally describe how the proposed scheme has been prioritised from an initial “long list” of options in a sequential process of option testing and refinement.

At this stage, we have provided a high level summary of the types of option that could be considered at the long-list stage, some of which could be taken forward for more detailed appraisal or combined with other options to enhance their benefits. Five categories have been considered:

- Highways and traffic management
- Walking
- Cycling
- Public Transport
- Green infrastructure and open space

### 8.2 Highway and Traffic Management

- New link road between A47 and A1067 with new crossing of River Wensum
- New link road between A47 and A1067 using existing crossing of River Wensum
- Charging for use of existing or new bridges / routes
- Improvements to existing routes including localised widening to increase capacity
- Junction improvements to maximise capacity, address safety issues and improve traffic flow
- Improved signing and lining (possibly including Variable Message Signing) - to improve route choice and decision making
- Signals coordination/timing - to improve traffic flow and possibly prioritise other modes to encourage modal shift from the car
- Speed limit changes – to improve traffic flow and safety
- Traffic Management schemes e.g. one-ways, traffic restrictions – to reduce rat running and reduce any adverse impact of parking on traffic flows / capacity (possibly including Variable Message Signing).

### 8.3 Walking

- New/Improved crossing points this could include controlled and uncontrolled crossings e.g. Pelican/Puffin crossings, pedestrian refuge islands – to improve safety for pedestrians crossing roads
- New and/or Wider footways/footpaths – to better cater for pedestrians and those with disabilities.
- Street lighting improvements – to improve safety and attractiveness of walking to encourage more walking
- Improved wayfinding/signage and development of networks for clear direction to key areas

### 8.4 Cycling

- New/Improved crossing points this could include Toucan crossings – to improve safety for cyclists crossing roads
- New links to key facilities and services e.g. schools and employment areas (this could include on and off carriageway routes)
- New/improved cycle parking facilities to encourage cycling as a viable mode
- Encouragement of facilities for cyclists in new developments including cycle parking, routes and changing facilities
- Improved wayfinding/signage and development of networks for clear direction to key areas

### 8.5 Public Transport

- New bus services providing orbital connections
- Bus priority at traffic signals – to improve journey time and reliability and encourage greater use
- Carriageway reallocation for buses (if sufficient space) – to improve journey time and reliability and encourage greater use
- Upgrade of bus stops to improve waiting environment for passengers
- Provision of real time information at bus stops.

### 8.6 Green Infrastructure/Open Space

- Public realm enhancements – this can make areas more inviting to pedestrians and cyclists encouraging use of those modes
- Green space enhancements – to encourage use of active modes by making journey quality much improved e.g. improved paths/bridges etc. through areas of open space.



## 9 Review of Previous Work

### 9.1 Introduction

This section focusses on the 2014 Scoping Report and considers the case for investment in a proposed Western Link Road by reviewing its purpose, the options, possible value for money, deliverability, and the scope for alternatives. This will be used to identify the work required should the council wish to progress.

### 9.2 Previous Study Objectives

Although the NDR was being progressed without the inclusion of a link between the A47 and A1067, consultation on the NDR scheme continued to indicate a desire for a new link, termed the Western Link Road (WLR).

It was anticipated that a route could enhance strategic connections and address specific local concerns including the need to:

- Improve strategic connectivity;
- Provide relief to traffic problems at Taverham, Costessey, Ringland, Weston Longville and Hockering areas, associated with through traffic on the local roads;
- Improve access to the Queen's Hills residential development, served via a single access, to the Longwater Interchange.

In addition to these local objectives, a wider list of general transport and Government objectives contained in the DfT's Early Assessment and Sifting Tool (EAST) was also considered. These included issues such as facilitating housing delivery, reducing carbon emissions, accessibility amongst vulnerable groups, addressing severance and environmental issues.

Many of the underlying concerns that led to the local objectives remain, as identified earlier in this report. Furthermore, in addition to considering Queen's Hills access as an objective, other local concerns should also be considered.

In terms of strategic connectivity it is important to note that work undertaken for the NDR planning process concluded that the NDR scheme currently under construction would achieve the objectives set within the NATS for the NDR, without the inclusion of a link between the A47 and A1067.

However, it should be noted that upon completion the NDR will form part of the national road network, and furthermore, there is a clear commitment to dual the A47 between Easton and North Tuddenham. As such a link between the A47 and the NDR would provide a strategic connection and effectively function as part of the national road network.

### 9.3 Previous Study Options

A preliminary assessment of alternatives for a new western link was carried out during 2004/2005, as part of the Stage 2 assessment of the NDR. However, in 2005, as part of the development of the NDR project, Cabinet agreed that the NDR should be built only from the A47 at Postwick to the east of Norwich to the A1067. The main reason for not including a link across the Wensum Valley was due to its status as a Special Area of Conservation (SAC), protected due to its international importance in biodiversity conservation.

The consultation on the NDR, which is now under construction, showed a strong desire for a link between A1067 and A47. A 2014 Scoping Study assessed a total of 13 route options for a potential link. The alignments considered, labelled green, orange, blue, red, brown and purple options, are shown in Figure 9-1.

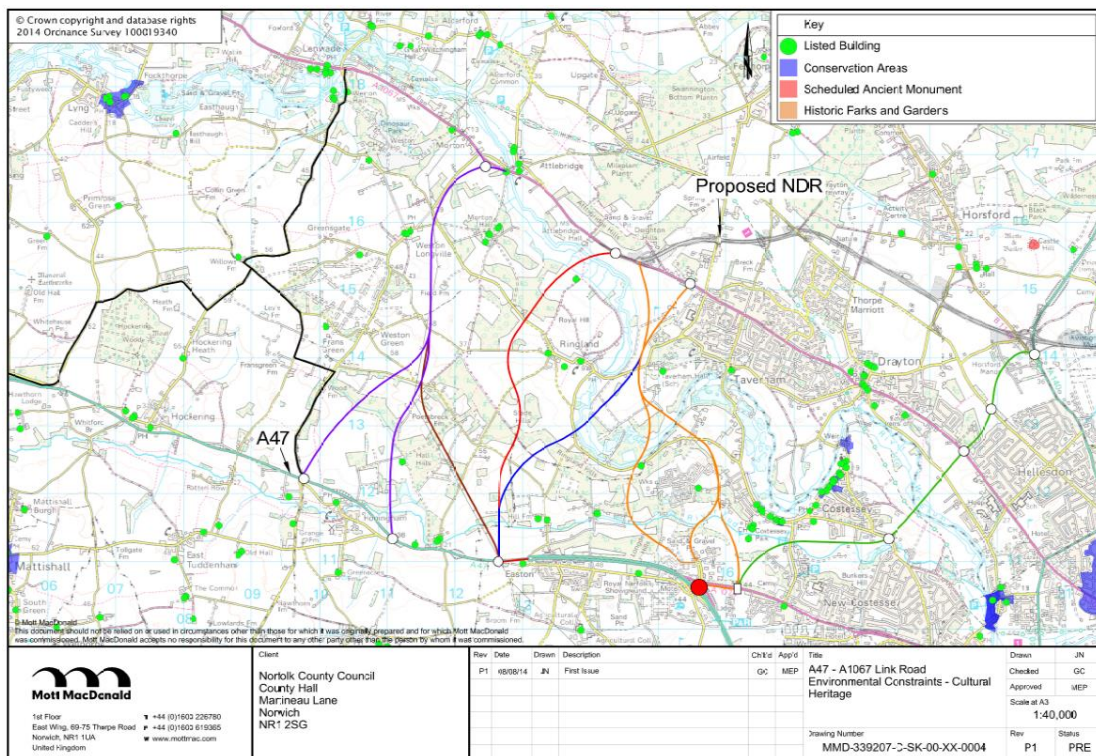


Figure 9-1: A1067 to A47 Route Options (source: 2014 Scoping Study)

#### 9.3.1 Public Transport

In the Scoping Study it was noted that there is a requirement to consider a public transport option (or options) as an alternative to road building. Therefore criteria were set for a bus service, including: providing an alternative to the car between A1067 and A47; minimising overlap with existing services; providing a link to key trip attractors; and being realistic in terms of service level relative to potential patronage.

A single option was derived, see Figure 9-2, which required one additional bus, to extend the existing park and ride service between the Costessey Park and Ride and the University Hospital area, such that it would also serve Costessey and Taverham and, potentially, the Queen's Hills/Longwater area. The Scoping Study concluded that this option would improve access within these areas, but would not address

traffic concerns in the villages further west, namely Weston Longville and Weston Green in the Wensum Valley. It was also likely to have a neutral or slightly positive impact on the environment.

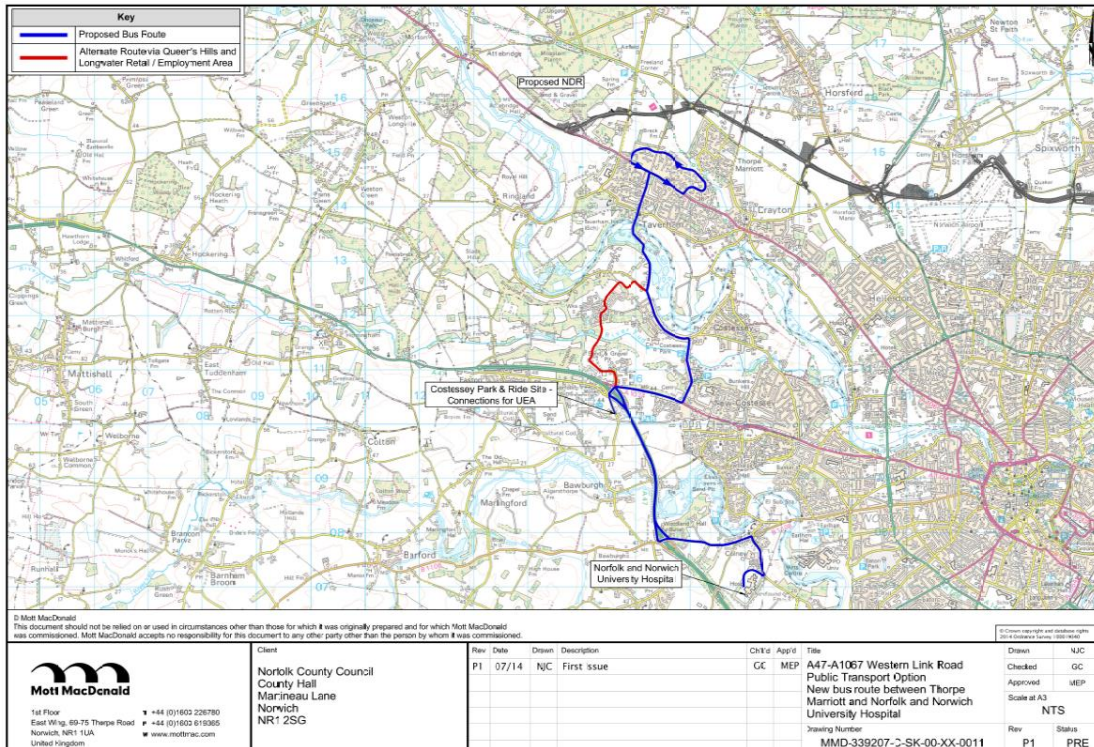


Figure 9-2: A1067 to A47 Public transport option (source: 2014 Coping study)

### 9.3.2 Eastern Road Options

The report assessed several options (green and orange) which would pass through the eastern end of the Wensum Valley. These routes were found to provide the greatest benefits in terms of the local objectives of traffic reduction and the potential to improve Queen's Hills accessibility.

### 9.3.3 Central Road Options

The report considered two routes (red and blue) which pass nearer to Ringland. These were considered to have good strategic connections, and were likely to successfully reduce traffic in the western villages and offer some relief to the Costessey and Taverham areas.

### 9.3.4 Western Road Options

The report also considered three variants at the western end, passing closer to Weston Longville (brown and purple routes). These were considered to be the least effective in providing traffic relief to Taverham, Costessey and Ringland and would not create the necessary conditions for a second access to Queen's Hills to be considered. The report noted that although not separately considered, this conclusion would also apply to further offline improvement of the Lenwade-Hockering (signed HGV) route.



### 9.3.5 *Summary*

The Scoping Study concluded that:

- The Orange and Green routes provided the greatest benefits, as they would fulfil local objectives to remove through traffic from local roads between A1067 and A47, achieving alternate access to Queen's Hills and strategic connectivity.
- The Red and the Blue routes were less effective in meeting the objectives.
- The Purple and Brown routes were least effective in achieving the local objectives.

The Study recommended that further work should focus on Red, Blue, Orange and Green route options, or any other variation of these routes.

## 9.4 **Environmental considerations**

There are two main environmental approval processes that will need to be followed for a Western Link.

- Appropriate Assessment, also known as Habitats Regulations Assessment (HRA) which needs to be undertaken where there is the potential for a plan or a project to adversely affect a European Site, as listed in the Habitats Directive. Special Protection Areas (SPAs), SACs and Ramsar sites are the designations commonly referred to as European Sites.
- Planning permission or Development Consent, depending upon whether this would be a County decision or deferred to Secretary of State (SoS) through the DCO process.

The Scoping Study did not specifically address the fact that these are two separate approval processes and it is important to highlight that obtaining the approval for one does not necessarily lead to a grant of the other. We have therefore attributed the greatest weight in this report to how to manage the HRA process and procedures, and the evidence that will need to be provided.

Any planning application submitted to the planning authority, be that the County or the SoS, is likely to be deemed Environmental Impact Assessment (EIA) development and therefore will need to be accompanied by an Environmental Statement (ES). A development will be deemed EIA development when it exceeds certain thresholds of, amongst others, size or area, and where the development has the potential to cause significant effects upon the environment. Given the potential land take from an internationally significant ecological habitat, the potential for any significant effects certainly exists and it is Mouchel's opinion that a Western Link would be a near certain EIA development.

### 9.4.1 *Review of the 2014 Scoping Study*

The Scoping Study thoroughly details the constraints resulting from the designation of part of the Wensum Valley as a SAC, noting that this is a European designation and that any scheme that may affect it would be subject to detailed 'tests'. It also

notes and lists other environmental and landscape designations within the Wensum Valley Area.

In contextualizing what the SAC designation means, in Appendix 4 of the Scoping Study, Summary of Environmental Impacts, the report notes that the Wensum is the only river designated as a SAC in the East of England. For comparison, it notes that it would compare with a Grade 1 Listed Building of similar importance to Norwich Cathedral.

We are in broad agreement with the Scoping Study, and whilst we would recommend a review and update of some baseline areas, we believe that they have adequately presented at a suitably high level the process that would need to be followed and the evidence that would need to be gathered. Key points from the review are as follows:

- Section 4.4.3 of the Scoping Study identifies the three sequential tests that must be met in order to allow a scheme that will adversely affect a European Site to progress. These tests are:
  - There must be no feasible alternative
  - There must be an “Imperative reason of overriding public interest”
  - All necessary compensatory measures must be secured
- Section 4.4.4 of the Scoping Study expands upon these three points and we believe that this does not require any further detail to identify to NCC the statutory processes that would need to be followed.

## 9.5 Mouchel view of the potential options and alternate solutions

Of the options considered for a link road it is our opinion that a central option is likely to offer the preferred corridor because:

- it would provide the most direct link between the NDR and A47 and therefore deliver the greatest transport benefit for strategic traffic;
- the eastern options are now largely limited by the Queen’s Hills development; and
- the western options do not appear to achieve the stated objectives.

However, significant additional work would be required to test and identify the benefits of different options and, notwithstanding the potential benefits, it is important to remember that any scheme must pass the environmental ‘tests’. In that regard, all but the purple and brown routes were found to have a ‘probable direct or indirect impact on the River Wensum, either during construction or operation, for which there is no mitigation’. The brown and purple routes (and by association, off-line improvements to the Lenwade-Hockering route) were considered likely to have impacts, but for which there may be mitigation. The public transport option was the only option considered which would be likely to be neutral or beneficial in its environmental impacts.

The 2014 Scoping Study did not consider options in combination and no modelling assessment has been undertaken to consider the options with the planned traffic management mitigation measures.

In light of the work undertaken and described in this report we consider there are a number of options to be considered, as outlined in Chapter 8. However, the options need to be developed and informed by:

1. A clear evidence base to fully understand and quantify both local and strategic problems; and
2. A set of robust objectives for transport intervention(s) that address(es) the problems.

The options can then be evaluated against the objectives and appraised to identify the likely business case for intervention based on a number of strategic, economic, financial, commercial and management considerations.

## 9.6 Mouchel view of Deliverability

There are a number of factors that need to be considered when contemplating the deliverability of a WLR, in particular:

- Environmental constraints
- Stakeholder support
- Risk
- Economic appraisal

### 9.6.1 Environmental Constraints

This review has identified the following additional points:

- 1) The EA's 2005 consultation response makes much discussion of the Government's 2004 White Paper 'The Future of Transport' which took a strong approach against allowing road development with significant environmental effects. This White Paper has since been replaced by 'Action for Roads: A network for the 21<sup>st</sup> Century' which is less committal towards automatically avoiding significant effects. This document was published in July 2013 and Section 3.4 states that "*roads must....*
  - a. *Be designed to minimise environmental impacts*
  - b. *Build on existing cooperation with organisations like Natural England.*"
- 2) Crayfish plague has been identified within the River Wensum and this is known to have affected the white clawed crayfish population in the river. This is not considered to be a significant issue for the assessment of the Western Link upon ecological assets, rather it is an issue to be carefully considered at any construction stage in order to minimise the spread of the infection.
- 3) We have noted that a Strategic Environmental Assessment (SEA) of the Western Link options does not appear to have been undertaken and Mouchel believe that this may be a requirement depending upon how NCC approach the policy context of a Western Link. An SEA is required (through the

Environmental Assessment of Plans and Programmes Regulations 2004) whenever a “*plan or programme is.....subject to preparation and/or adoption by an authority*” and which “*sets the framework for future development consent for projects listed in Annexes I and II of the Environmental Impact Assessment (EIA) Directive..*”<sup>5</sup>

We have re-consulted both the Environment Agency and Natural England, using the Scoping Study options as a basis for discussion.

The impact of the crossing of the Wensum River is the primary concern of the Environment Agency. Whilst the entire corridor of all options has a potential for other environmental impacts, it is generally considered that these can be mitigated. However, there is such uncertainty about the nature of any structure over the Wensum that the EA has no further comment to that raised in 2005; namely that all options will have “Very Large Adverse” impacts. Nevertheless, the EA did not suggest that the principle of a WLR is unacceptable to them. A solution to the environmental issues is likely to be possible, and with sufficient mitigation and careful design, the EA believe that it would be possible to devise a crossing that they could support.

Natural England highlighted similar concerns, also raising more general points relating to the diversity of species within the Wensum corridor which would require consideration, not necessarily associated with the SAC designation. NE welcomed the suggestion of a ‘mini-EIA’ of the structure over the Wensum, as proposed to the Environment Agency.

Natural England considered their concerns were likely to align well with those of the EA and would also welcome the involvement of a scheme engineer in future meetings where the river crossing is discussed, as this would better enable solutions and issues to be considered.

Deliverability would therefore hinge around finding a feasible engineering solution to crossing the River Wensum, compatible with the conservation objectives of the SAC designation.

#### 9.6.2 *Stakeholder support*

NCC Cabinet Reports dated March 2005 and September 2005 provide a summary of the consultation undertaken during late 2004 with regards to NDR route options, including western route options between the A1067 and A47. These options can be seen in Figure 9-3 overleaf. In general there was support for a NDR, however, there were some objections to the NDR and there were mixed responses to the western route options.

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<sup>5</sup> Text taken from “A Practical Guide to the Strategic Environmental Assessment Directive” published by the Office of the Deputy Prime Minister in 2004.



When considering the 9,949 responses the preferred options for the western route were: 21% green route, 19% orange route, 19% red route, 12% blue route and 10% purple route. The local council preferences showed a similar preference for: green (25%) and orange (25%), red (19%), blue (13%), purple (4%). Two Parish Councils, Terrington St. Clement and Weston Longville, wished to make it known that they do not support an NDR, and Terrington St. Clement refused to choose a route.

Great Yarmouth Borough Council responded with a letter of support for the NDR, but declined to select a route. South Norfolk District Council stated their support for the western orange route, and were least in favour of the western green route. Broadland District Council expressed a preference for the orange western option, but would accept the western red.

Both statutory and non-statutory environmental organisations expressed concern about an NDR. The primary concern was that all the western options cross the Tud and Wensum valleys.

Most businesses and organisations stated their support for an NDR. However, Sustainable Transport for the East of England Region (STEER) and the Campaign for the Protection of Rural England (CPRE) restated their opposition to an NDR. Norwich Airport favoured the western green route, or the western orange and western blue routes.

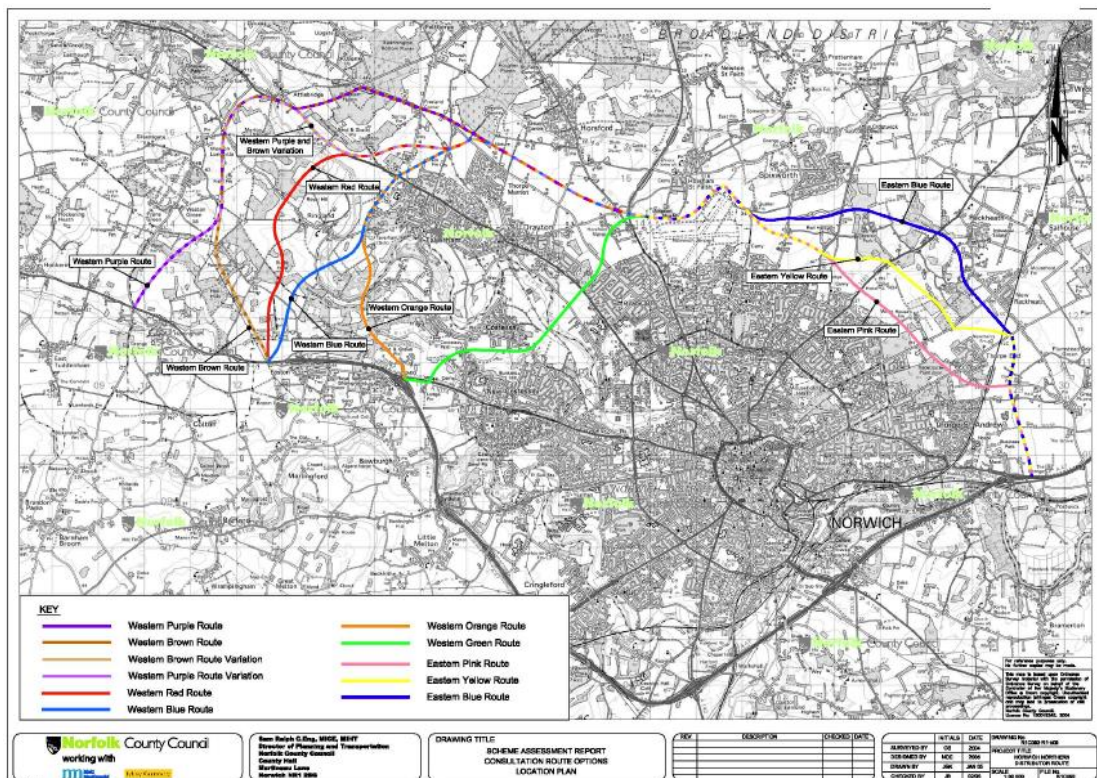


Figure 9-3: NDR including western route options

A petition was received from the Wensum Valley Golf and Country Club and 42 signed responses were received from the "Too Far West" campaign group.

In June 2005 residents within the Weston Longville area, and Parish Councils adjacent to it, were consulted further on NDR variation proposals consisting of the single carriageway options for the Brown and Purple route alignments. Of the 100 responses received by comment sheet, letter and questionnaire:

- 21 responses stated the Purple route would not solve the problem or would make traffic worse
- 17 respondents stated the Brown route would not solve the problem or would make traffic worse,
- 15 respondents stated the NDR in general would not solve the problem or would make traffic worse,
- 14 respondents stated the routes would cause environmental damage,
- 13 respondents stated the routes were too long.

Furthermore, 98 postcards from Weston Longville were received which expressed opposition to the Purple and Brown single or dual carriageways for the NDR. They stated that they are too far west, will ruin the countryside, create rat-runs, and are not wanted by constituents nor justified by NCC's evidence.

The "Too Far West" Action Group put forward their case against the Purple and Brown single and dual carriageway NDR routes. The local Parish Councils expressed views that the Purple and Brown routes were too far out and would not fulfil the objectives of the NDR and would likely increase rat-running, the Councils stated their preferences for either the Green or Orange route.

It is clear the level of support for a western link is mixed and directly related to the route options. The consultation with Parish Councils undertaken in March 2016 highlighted a number of issues and various councils restated their support for a western link subject to the "right" route being progressed. The consultation also highlighted the objection from the Wensum Valley Alliance towards a western link crossing the River Wensum.

It is evident that significant further work is required to identify appropriate options, and whichever options are progressed will need to be the subject of appropriate consultation with local stakeholders and residents.

### 9.6.3 *Risk*

In addition to the risk posed by the environmental designation and potential for objection from statutory and local stakeholders there are a number of other risks which will require further consideration should the option of a NWL be progressed. These include:

- Land ownership
- Funding availability
- Planning policy, the emerging Local Plan and understanding what development, if any, could be facilitated by a link

- Uncertainty of other schemes including: impact of NDR, A47 dualling, Easton Food Hub, and access to Queen's Hills.

#### 9.6.4 *Economic Assessment*

No economic assessment has yet been done of the potential options. An economic appraisal would provide a method to enable the options to be ranked and indicate whether particular options are likely to be viable, or not.

### 9.7 **Mouchel view of Funding and Value for money**

In terms of provision of a new link road connecting the A47 west and A1067 the Scoping Study noted that the costs of a road scheme could be between £28m-£106m, depending on the route chosen and the form of the road (single or dual carriageway). The brown, red and blue routes identified in the Scoping Study connect to the A47 near Easton, and thus potentially link with new housing areas, however, the current call for sites and planned review and update of the Greater Norwich Local Plan will mean route options need to be considered in a "plan led" approach.

At this stage it is far from clear that any road-building scheme would deliver a 'high' or 'very high' benefit to cost ratio, given the anticipated costs, particularly for central or more eastern options, where environmental mitigation measures, even if they can be identified and agreed upon, are likely to be particularly costly. Significant funding is unlikely to come from new developments. Even the lowest cost Brown route would be unlikely to attract full, or substantive funding via development so the County Council would be required to fund, or secure external funding for, the majority of any scheme. This should be considered in context of other schemes and priorities for Norfolk and the East Anglia region. The relative status of a Western Link scheme will impact upon both funding and potential timescales for advancing the project.

Recent DfT announcements have identified funding for local major schemes to enable the preparation of Outline Business Cases. This is a competitive fund and as the western link options are not significantly advanced it is not considered appropriate to seek funding at this time. However, it is possible the DfT will offer similar bidding opportunities in the future and the council need to ensure they are well positioned to respond to those opportunities.

Given the funding requirements and value for money the deliverability of a link road in the western quadrant is unclear at this time and further work is required to enable funding decisions to be made using robust evidence.

### 9.8 **Our view of requirements to progress the project**

If the scheme were to progress it is highly likely a WebTAG compliant business case would need to be prepared for submission to either the New Anglia Local Transport Body or to the DfT. A business case needs to set out a compelling case for the scheme and it must provide evidence that:

- There is a real problem to be solved.

- The scheme is part of a coherent wider strategy.
- A full range of options has been considered, and the best scheme has been selected.
- The scheme represents high or very high value for money.
- The scheme is feasible and affordable, and can be delivered within the planned timescale.

## 9.9 Summary

A significant amount of work has previously been undertaken to explore options for a western link. The 2014 Scoping Study considered 13 road options and one public transport option with a recommendation that any further work should focus on the Red, Blue, Orange and Green route options, or any other variation of these routes. These routes can be considered to be in either a central or eastern corridor. Upon review of the routes within western central and eastern corridors, it is our opinion that a central option is likely to offer the preferred corridor. However, significant additional work would be required to robustly test and identify the benefits of different options and, notwithstanding the potential benefits, it is important to remember that any scheme must pass the three environmental sequential ‘tests’ as described in the Scoping Study.

Discussion has taken place with Environment Agency and Natural England, both have raised concerns about the impact of a WLR on the Wensum Valley SAC, however, it was not stated that the principle of a link road was unacceptable but that it would depend on finding a feasible engineering solution to crossing the River Wensum, compatible with the conservation objectives of the SAC designation.

Notwithstanding the work undertaken, the possible options were not considered in combination i.e. a central route and a public transport scheme, and no modelling assessment has been undertaken to consider the options with the planned traffic management mitigation measures. As such, we consider there are a number of alternate options to be considered which need to be developed and informed by a clear evidence base that sets out the problems, and a robust set of objectives.

The level of support for a western link is mixed and directly related to the route options with strong feelings and opinions raised by certain groups, so further work and consultation will be required to evaluate options. There are also a number of unknown factors requiring further consideration, including land ownership, funding availability, and the relationship to other schemes including the A47 dualling and the Easton Food Hub. The ongoing development of the GNLP also needs to be understood, and route options need to be considered in a “plan led” approach. However, funding for a scheme is unlikely to come from development and it is far from clear that any road-building scheme would deliver a ‘high’ or ‘very high’ benefit to cost ratio, given the anticipated costs.

To enable progress to be made, further work is required to set out a compelling case for the scheme which must be based on clear evidence.

## 10 Possible next steps

### 10.1 Introduction

This section considers how the appraisal and development of the scheme might be taken forward in accordance with the DfT Transport Appraisal Process. It sets out our views on the possible activities and the likely timescales, costs and risks associated with these in the short and long term.

Based on the work done in preparing this report and considering DfT advice and guidance – regarding large transport schemes and the need for a business case which sets out the compelling case for the scheme – the ideal strategy would be:

#### Update strategic context

- Ensure that the potential improvement scheme(s) form part of a wider strategy for the area. This would need to include careful consideration of the development needs of the area and the extent to which any improvement scheme could be linked to development.

#### Update evidence base

- Establish a full and robust evidence base to gain a clear understanding of the situation, including traffic and journey time surveys pre- and especially post-opening of the NDR, and an updated database of planned and potential developments and planned or committed interventions.
- Use this to build up a clear picture of the future situation if there is no NWL.

#### Consider the need for intervention

- Based on the evidence, and forecasts of the future situation, identify and quantify the problems which will remain even after delivery of planned / committed schemes (especially NDR and A47 improvements).

#### Confirm objectives

- Review and confirm the objectives for a transportation intervention based on the strategic aims and credible and robust evidence of problems to be addressed.

#### Develop options

- Develop a full range of intervention options, with significant input from local stakeholders, including non-car options and low-cost options.
- Undertake an appropriate level of assessment and sifting, including economic and environmental assessment, to identify the preferred scheme, the next best scheme and a low-cost solution.



### Continue appraisal, following the DfT Transport Business Case model

- Prepare a Strategic Outline Business Case (SOBC) covering the five cases (Strategic, Economic, Commercial, Financial and Management). This will need to demonstrate that the option(s) represent high or very high value for money and is/are feasible. This would require appropriate assessments to be undertaken.
- Produce an Outline Business Case (assuming approval is given) that builds on the level of detail within the SOBC to demonstrate clear value for money based on detailed economic appraisal of the costs and benefits, and demonstrates the scheme is feasible and affordable, and can be delivered. This would enable a provisional funding decision to be made.

### Secure funding

- Secure funding to progress detailed design and planning stages.
- Update to Full Business Case.
- Secure funding to procure construction of scheme.

However, the work undertaken has demonstrated a number of considerations and constraints. The timescales associated with these, outlined below, has therefore influenced the possible options which are outlined in the sections 10.2 and 10.3 below.

## **10.2 Timescale Constraints**

### **10.2.1 NDR**

The NDR mitigation measures are yet to be implemented; the scheme itself will not open until late 2017/early 2018. Steady state traffic patterns are unlikely to emerge for 6 months and impact monitoring and potential changes or enhancements to mitigation schemes will not be known until mid-2018. Traffic patterns associated with the NDR implementation will clearly be a major factor in both the nature and scale of transport tissues within the Norwich western quadrant and an understanding of these will be necessary as part of establishing an evidence base, demonstrating the need for intervention.

### **10.2.2 A47**

Improvement options are not likely to be available for detailed consultation until mid-2017. There would then still be a need to complete subsequent planning and funding processes, before construction could commence, currently estimated as being in 2020, with completion in 2021. Whilst there is a need to seek to ensure that any changes to the A47 do not preclude options for interventions within the study area, it is unlikely that options for Western Link interventions could be determined in detail sufficiently early to inform Highways England design choices.

### **10.2.3 NATS**

The NATS is to be reviewed and the regional *NATS transport model* is being updated to assist in considering A47 scheme options and will also take account of



emerging NDR mitigation requirements. However, this model will not be available until mid-2017.

10.2.4 *Food Hub Local Development Order*

The potential for, and extent of, a local development order associated with the food hub is unlikely to be confirmed prior to mid-2017.

10.2.5 *GNLP*

Consultation on the replacement GNLP is programmed for mid-2017. Following statutory procedures to prepare and then publish a pre-submission document for consultation, this means that the examination and adoption of the GNLP is unlikely to be complete prior to 2020.

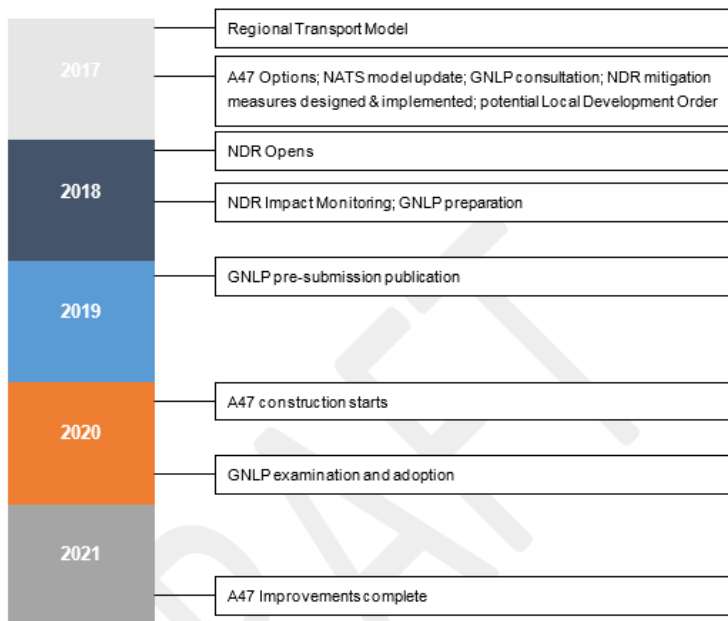


Figure 10-1: Timescale constraints

10.3 **Medium to long term (18 months to 5 years i.e, up to 2021)**

Given the constraints placed by the above scheme timetables, many activities are likely to be realistic only within the medium to longer term. In particular, robust evidence based assessment will be constrained to post-NDR opening and the stabilisation of traffic flows. Possible activities for progressing the assessment in the medium and longer term are detailed in Table 10-1, indicative timescales and estimated cost ranges are shown for information, however, further work would be required to refine and confirm the time and cost involved.

Option Ref	Activity	Timescale	Cost	Risk	Notes
A.1	Do Nothing	-	-	-	<ul style="list-style-type: none"> <li>Will not address existing problems</li> </ul>
A.2	Establish clear evidence base of problems	6 to 12 months Start mid 2018	£100k to £200k	Medium	<ul style="list-style-type: none"> <li>To be undertaken post NDR opening and impact monitoring</li> <li>To include traffic modelling to consider local and strategic problems</li> <li>To consolidate environmental problems</li> </ul>

Option Ref	Activity	Timescale	Cost	Risk	Notes
					<ul style="list-style-type: none"> <li>• Abortive cost if scheme never progressed</li> </ul>
A.3	Initial modelling and economic assessment	3 to 6 months Start mid 2018	£50k to £100k	Medium	<ul style="list-style-type: none"> <li>• Using updated model to review likely benefit cost ratios for previously identified schemes</li> <li>• Assume model would be available and calibrated/validated for use</li> <li>• Abortive cost if scheme never progressed</li> </ul>
A.4	Develop and deliver a package of low-cost multi-modal targeted measures	3 to 15 months to identify and deliver Start late 2018	£200k to £500k	Medium	<ul style="list-style-type: none"> <li>• Based on local strategy / consultation</li> <li>• Could follow NDR monitoring of mitigation measures</li> <li>• Unlikely to address strategic issues or rat-running</li> <li>• No identified funding</li> </ul>
A.5	Determine the infrastructure needed to support growth and GNLP	3 to 6 months Start mid 2018	£25k to £50k	Low	<ul style="list-style-type: none"> <li>• Provide input to development of GNLP</li> <li>• Include option testing using model</li> </ul>
A.6	Development work to include NWL intervention in GNLP	3 to 6 months Start late 2018	£25k to £50k	Low	<ul style="list-style-type: none"> <li>• Identify what / if NWL intervention should be included in the GNLP pre-submission publication</li> </ul>
A.7	Consult stakeholders	3 to 6 months Start early 2019	£25k to £50k	Medium	<ul style="list-style-type: none"> <li>• Subject to evidence base</li> <li>• Robust engagement process with local residents and stakeholders</li> </ul>
A.8	Confirm objectives	1 to 3 months Start mid 2019	£5k to £25k	Low	<ul style="list-style-type: none"> <li>• Use evidence base, GNLP and consultation to develop and confirm SMART objectives (Specific, Measurable, Achievable, Realistic and Time-based)</li> </ul>
A.9	Option generation	1 to 3 months Start mid 2019	£25k to £50k	Medium	<ul style="list-style-type: none"> <li>• Develop options, including non-car and low-cost options which address problems and meet objectives</li> <li>• Abortive cost if no scheme progressed</li> </ul>
A.10	EAST assessments	1 to 3 months Start mid 2019	£5k to £25k	Medium	<ul style="list-style-type: none"> <li>• Use DfT EAST to appraise and sift options</li> <li>• Abortive cost if no scheme progressed</li> </ul>
A.11	Undertake Appropriate Assessment	1 to 3 months Start late 2019	£25k to £50k	Medium	<ul style="list-style-type: none"> <li>• Scope of Assessment would need to be agreed, could result in extended timescales and cost</li> <li>• Abortive cost if no scheme progressed</li> </ul>
A.12	Prepare SOBC and Options Assessment	3 to 6 months	£200k to £500k	Medium	<ul style="list-style-type: none"> <li>• Prepare SOBC for NWL intervention(s) including outline costs</li> <li>• Prepare OAR</li> </ul>

Option Ref	Activity	Timescale	Cost	Risk	Notes
	Report (OAR)	Start late 2019			<ul style="list-style-type: none"> <li>In accordance with DfT WebTAG guidance</li> <li>Abortive cost if no scheme progressed</li> <li>Produce Appraisal Specification Report (ASR)</li> </ul>
A.13	Prepare OBC	6 to 12 months  Start mid 2020	£1m+	Medium	<ul style="list-style-type: none"> <li>Subject to SOBC approval and decision to proceed</li> <li>Prepare OBC in accordance with DfT guidance including detailed modelling and economic appraisal, EIA, update to OAR and design</li> <li>Abortive cost if no scheme progressed</li> </ul>
A.14	Prepare FBC and progress Design and Planning strategy	6 to 18 months  Start mid 2021	£1m+	Medium	<ul style="list-style-type: none"> <li>Subject to OBC approval or progressed in advance at risk</li> <li>Update economic appraisal</li> <li>Prepare design and relevant planning documentation</li> <li>Unknown if LA planning or DCO</li> </ul>

Table 10-1: Medium-term options

#### 10.4 Short-term (next 12 to 18 months, i.e. to end of 2017)

Although many of the actions required to develop a strategy and case for intervention are constrained by other programme timelines, there are a number of activities that could be advanced in the shorter term to advance solutions for the western Norwich area. These have varying degrees of risk, particularly of being abortive if carried out ahead of building an evidence base. Table 10-2 summarises the options, indicative timescales and estimated cost ranges are shown for information, however, further work would be required to refine and confirm the time and cost involved.

Option Ref	Activity	Timescale & Suggested start date	Cost	Risk	Notes
B.1	Do Nothing	-	-	-	<ul style="list-style-type: none"> <li>Will not address the need for intervention</li> </ul>
B.2	Maximise mitigation measures	1 to 3 months  Start mid 2016	£5k to £25k	Low	<ul style="list-style-type: none"> <li>Quality Audit review of proposed measures to ensure deliver local benefit to maximise value</li> </ul>
B.3	Develop full monitoring & evaluation plan (Links to A.2 above)	1 to 3 months  Start mid 2016	£25k to £50k	Medium	<ul style="list-style-type: none"> <li>Prepare full plan for problem identification</li> <li>Enhance NDR traffic M&amp;E plan as needed</li> <li>Include plan of environmental surveys</li> <li>Risk of abortive costs if scheme never progressed</li> </ul>

Option Ref	Activity	Timescale & Suggested start date	Cost	Risk	Notes
B.4	Engage Highways England	Ongoing Start mid 2016	£5k to £25k	Low	<ul style="list-style-type: none"> <li>Discuss junction strategy options</li> <li>Discuss RIS2 programme</li> </ul>
B.5	Develop local strategy	3 to 6 months Start late 2016	£25k to £50k	Low	<ul style="list-style-type: none"> <li>To respond to existing 'local' problems</li> </ul>
B.6	Input to GNLP and NATS review	3 to 6 months Start early 2017	£25k to £50k	Low	<ul style="list-style-type: none"> <li>Use local strategy or undertake</li> <li>Expectation that important infrastructure needs will be addressed in the plan-making process</li> </ul>
B.7a	Initial traffic modelling	1 to 3 months Start mid 2016	£5k to £25k	Medium	<ul style="list-style-type: none"> <li>Initial and high-level testing of previous western link options using existing model</li> <li>Model soon to be out of date</li> </ul>
B.7b	Initial traffic modelling	3 to 6 months Start late 2017	£50k to £100k	Medium	<ul style="list-style-type: none"> <li>Include testing of local strategy options</li> <li>Include testing of GNLP and NATS options</li> <li>Would need to be repeated once 'actual' flows became available.</li> </ul>
B.8	Initial design and costing	3 to 6 months Start late 2017	£50k to £100k	Medium	<ul style="list-style-type: none"> <li>Be required to enable Option 9</li> <li>Detail would have to be at a high-level</li> <li>Abortive cost if not progressed</li> </ul>
B.9	High level economic appraisal	1 to 3 months Start late 2017	£25k to £50k	Medium	<ul style="list-style-type: none"> <li>Would identify potential benefit:cost of previous interventions to enable decision to progress</li> <li>Would need to be repeated with actual flows</li> <li>Abortive cost if not progressed</li> </ul>
B.10	Identify work required to respond to funding opportunities	1 to 3 months Start mid 2016	£5k to £25k	Low	<ul style="list-style-type: none"> <li>Identify priority / status of a NWL intervention</li> <li>Identify plan to ensure NCC can respond to future funding opportunities e.g. DfT Access Fund, future Local Majors fund</li> </ul>
B.11	Obtain legal advice on whether an SEA is required	1 to 3 months Start early 2017	£5k to £25k	Medium	<ul style="list-style-type: none"> <li>Clarify what level of EIA / SEA is needed</li> <li>Abortive cost if not progressed</li> </ul>

Option Ref	Activity	Timescale & Suggested start date	Cost	Risk	Notes
B.12	Scope Appropriate Assessment	1 to 3 months Start early 2017	£5k to £25k	Medium	<ul style="list-style-type: none"> <li>• Scope Assessment with EA and NE</li> <li>• Necessary to advance any scheme within this area.</li> <li>• Early discussions would enable decisions to be made relating to the need for new or additional surveys, particularly those that may be seasonal.</li> <li>• Abortive cost if not progressed</li> </ul>
B.13	Undertake local consultation	3 to 6 months Start mid 2017	£25k to £50k	Medium	<ul style="list-style-type: none"> <li>• Consult local residents and stakeholders to enhance local strategy, GNLP and evidence base</li> <li>• Could be seen as repeat of previous work</li> <li>• Risk of abortive work</li> </ul>
B.14	Scope SOBC	1 to 3 months Start early 2017	£5k to £25k	Medium	<ul style="list-style-type: none"> <li>• Would identify the work required to prepare a SOBC</li> <li>• Could be used for future funding submissions</li> <li>• Risk of abortive work if not progressed</li> </ul>
B.15	Explore engineering solutions (Builds on B.8)	3 to 6 months Start early 2017	£50k to £100k	Medium	<ul style="list-style-type: none"> <li>• To allow the feasibility of any structure to be explored, and the potential environmental impacts understood</li> <li>• Could act as key decision gateway whether to proceed</li> <li>• Discuss with planning authority and statutory bodies</li> <li>• Abortive work if not progressed</li> </ul>

# 11 Recommendations

## 11.1 Recommendation

It is clear there are problems in the Norwich western quadrant, but they are not yet fully understood or quantified. Furthermore, the future impact of the NDR and the impact of the NDR mitigation measures, the A47 dualling, the Easton Food Hub and other potential site allocations beyond 2026 (to emerge through the GNLP development) are only partly understood.

The focus needs to be on establishing a robust evidence base, but this cannot progress (without possible abortive work) until mid-2018 when the impacts on the NDR and mitigation measures are known and there is greater certainty regarding the A47 dualling, the Food Hub and the GNLP.

Given this context we therefore recommend the following phased approach over the next 18 months:

### July 2016 to December 2016

- Develop a local strategy (Ref B.5) to demonstrate commitment to address existing local problems and to feed in to the GNLP.
- Undertake initial traffic modelling (Ref B.7a) and appraisal using the existing traffic model and broad assumptions to test the economic viability of a link scheme.
- Undertake a Quality Audit review of the currently proposed NDR traffic management mitigation measures (Ref B.2). This is to ensure the full benefit of those measures can be maximised to address local problems.
- Develop a full monitoring and evaluation plan (Ref B.3). This would set out a plan to fully capture the transportation and environmental problems to ensure a robust evidence base can be collated at a later stage. It would include a review and potentially an enhancement to, the NDR monitoring and evaluation plan, and would set out the likely timescales for environmental surveys.
- Engage with Highways England regarding the A47 improvements (Ref B.4) to discuss route options and junction strategy to ensure it does not preclude any future scheme, and also to discuss the timescales associated with the second iteration of the Road Investment Strategy.
- Identify work required to respond to funding opportunities (Ref B.10). This would involve identifying the priority of intervention in the western quadrant compared to interventions elsewhere in the county and develop a plan to ensure the County Council and partners can effectively react to future funding opportunities such as the Access Fund and any future rounds of the Local Majors fund.
- Obtain legal advice on whether an SEA of the options is required (Ref B.11).



We suggest that a gateway review takes place to review the outcomes of the work above and agree the detail of the next phase of work.

#### January 2017 to June 2017

- Undertake work to provide input to the GNLP and NATS review (Ref B.6). This would assess how a Western Link intervention would align with, benefit and benefit from the emerging GNLP, and to identify its role in the update to the NATS. This would support future work as suggested in option ref A.5 and A6.
- Explore engineering solutions (Ref B.15) to be discussed with Environment Agency and Natural England so feasibility and possible mitigation can be considered. Discuss these engineering solutions with the Planning Authority of NCC to obtain guidance on the likely determining authority for the scheme.
- Identify and agree the likely appropriate assessment (Ref B.12) and clarify what level of Appropriate Assessment is needed, and agree a scoping of the assessments with the Environment Agency and Natural England.
- Outline the scope of work required to prepare a DfT WebTAG compliant Strategic Outline Business Case (Ref B.14).

We suggest a gateway review take place at this point to review the work done, in particular the implications of the GNLP and the feasibility of agreeing an acceptable engineering solution, before further work is progressed.

#### July 2017 to December 2017

- Undertake initial traffic modelling (Ref B.7b) using the updated model to undertake testing of options identified through the local strategy and GNLP / NATS work stages (B.5 and B.6). This would inform later modelling as per option Ref A.3.
- Undertake initial design and costing exercise for identified options (B.8) to identify the likely level of funding to be required.
- Undertake an initial economic appraisal (Ref B.9) using the outputs from B.7b and B.8 to identify likely benefit to cost ratios and value for money

We suggest a gateway review be undertaken at this stage to consider the findings and consider possible next steps.

## **11.2 Concluding remarks**

There are good reasons for believing that a NWL would help to address the traffic problems identified by local people and stakeholders, and improve connectivity for all modes. There are a number of possible alternative routes, and enough work has been done to suggest which of these might be most effective. There would be very significant environmental challenges in finding an acceptable engineering solution, but this does not appear to be a complete “show stopper”, based on recent consultations.

There is however a lack of evidence at present demonstrating that the problems, after opening of the NDR, will still be so great as to justify an intervention. Nor has any work been done to evaluate the economic costs and benefits of a scheme. This is not unusual in itself, and it will be difficult to obtain greater clarity before the NDR is opened, and until more is known about the A47, the Food Hub and the Local Plan allocations.

The DfT's Transport Appraisal Process provides a rigorous framework for the assessment of schemes, and scheme options, to demonstrate value for money. It involves several stages leading up to a Full Business Case and funding decisions. The recommended approach charts a route through this process whereby robust evidence of the problems is used to develop project objectives before a range of options including low cost and non-car options are identified, developed and appraised. It is not possible at this stage to demonstrate whether a NWL can be justified, or to guarantee that it will secure DfT or LEP funding. However, the staged appraisal does provide increasing levels of certainty at each stage, and this is reflected in the proposed gateway reviews.

## Appendix A – Mouchel study brief

It is expected that this review will include consideration of the overarching ‘strategic case’ and ‘economic case’ for investment and review the following:

- Previously identified issues and problems;
- Previously stated scheme objectives and purpose;
- Anticipated changes to transport infrastructure and growth expectations, and the potential impact of these on travel patterns and behaviours;
  - Include wider NATS Implementation Plan projects and assess their delivery and any impacts this has on travel choice;
  - Include planned A47 works and the implications of this on any proposals and in particular to timescales and also to assess whether this raises the stakes in terms of a need for a strategic link across the Wensum;
- Value for money;
- Funding opportunities and the likelihood of success;
- Deliverability including environmental constraints;
- Views of statutory bodies and key stakeholders through focussed engagement;
- Previously identified alignments for a link road; and
- Scope of any alternative options.

The outcome of this work should clearly set out the current challenges and opportunities, and potential challenges and opportunities associated with future changes; a critical review of the Wensum Valley Link Road scheme in terms of strategic purpose, value for money and deliverability and the scope for any alternatives. For clarity, a number of possible alignments for a link road crossing the Wensum Valley have already been identified and it is not expected that the proposed review would identify additional routes. Rather, it is expected that the review will help to reduce the number of alignment options and also explore the potential for other measures, such as traffic management and local relief schemes, to contribute to solving local problems and meeting objectives.

Finally, a set of potential options including the time and cost to progress in the short term (6 to 12 months) and long term (1 year to 5 years), should be proposed, building on the steps identified above. Mouchel’s recommendations regarding next steps should also be identified.

It is expected that this work would take approximately 3 to 4 months to complete.

The final output would be a report for the Environment, Development and Transport Service Committee. NCC and Mouchel will ensure sufficient time is provided for the council and Member Working Group to undertake a thorough review and provide comment ahead of final submission.

## Appendix B – Evidence reviewed

The information review has been inclusive of, but not limited to:

- Mott McDonald 2014 Scoping Study Report
- NCC EDT Committee agenda and minutes from 2005, 2009 and 2014.
- Information from the NDR planning process, publicly available via the NDR web portal
- Environmental information, including
  - Natural England's comments relating to NDR
  - Natural England's River Wensum Restoration Strategy
  - River Wensum Citation for SAC status
  - Site Improvement Plan for River Wensum
- A47 Information, including
  - NCC's A47 Gateway to Growth
  - AECOM's A47/A12 Corridor Feasibility Study for HA Feb 2015
- Planning policy information, including
  - Breckland Core Strategy 2012
  - South Norfolk Policies Map 2015
  - Norwich Local Plan
  - NATS 2006 and implementation plan update 2013
  - Various NCC documents relating to local transport strategy and provisions, available from NCC website