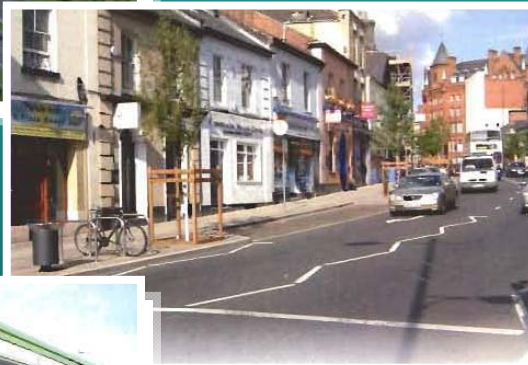


Major Scheme Business Case

Norwich Northern Distributor Route

Scheme Description



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Scheme Description

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1 Scheme Description

1.1 Introduction

The NDR is the key piece of major infrastructure necessary to secure implementation of the agreed Norwich Area Transportation Strategy (NATS). It will also be an essential component for the successful delivery of the significant growth in jobs and housing planned for the Norwich Area in the period to 2021 and beyond.

The recently agreed East of England Plan (EEP) allocates a minimum of 33,000 additional dwellings to the Norwich Policy Area (NPA) 2001-21. The emerging Local Development Framework Joint Core Strategy looks forward to 2026 and therefore includes a further 9,000 dwellings. Of the 35,000 additional jobs targeted by the EEP at the wider Norwich area, the vast majority are expected in the NPA. Two of the strategic employment locations identified in the EEP, Norwich Airport and Thorpe St Andrew, are directly served by the NDR.

The scale of proposed growth has resulted in Norwich's designation as a Growth Point by central Government. The economic potential and regional significance of Norwich is recognised by its designation as one of the as an "engine of growth" in the regional economic strategy (RES). Norwich's success as an "engine of growth" is critical to the RES as the main driver of growth in the north-east of the region. The City's success is, in turn, dependent on the NDR scheme.

Development of the evidence base for the greater Norwich Joint Core Strategy (JCS) has confirmed the importance of the NDR scheme in delivering growth. The Growth Infrastructure Study, produced by the Greater Norwich Development Partnership provides a high level analysis of the infrastructure requirements of planned growth in the NPA. It concluded that the NDR scheme:

- should be delivered as soon as possible in the medium term (after 2011)
- "is needed to ensure that traffic in the northern part of the NPA can be removed from unsuitable local roads and thereby provide efficient access and movement, including meeting the needs of planned development over the wider area" and
- with other strategic improvements, is required to provide better accessibility to employment locations.

The Greater Norwich Employment Growth and Sites & Premises Study (by Arup) confirms the importance of Norwich International Airport to the local economy. In order to cater for employment growth it recommends (*inter alia*) a new business park location at the airport (approximately 35ha) and an extension to the business parks at Thorpe St Andrew. It also predicts significant growth in employment in the City Centre. The NDR scheme is critical to the viability of each of these sites as locations for significant employment growth.

At present transport problems are causing access constraints for businesses in the Norwich area, and in particular those situated close to Norwich International Airport. An NDR scheme implemented as part of the NATS strategy and alongside complementary measures will also enable the removal of through traffic (around 19,000 vehicles per day) from the city centre, and allow access improvements by all modes that will benefit city centre businesses and their employees.

The high level of housing provision required by the EEP makes further significant allocations in Broadland inevitable. Indeed, the Issues and Options consultation, carried out over the winter 2007/08, highlighted a large urban extension north east of Norwich as one of the better opportunities for large-scale growth. A major development of over 6,000 houses in the north-east of Norwich is included in all options being considered. The proposed growth cannot be delivered in any practicable way without building the NDR, as part of implementing the NATS strategy.

The strategic significance of the NDR scheme is endorsed by all key partners. It is supported by the Greater Norwich Development Partnership (GNDP), East of England Development Agency (EEDA) and East of England of Regional Assembly (EERA). The GNDP have made the Postwick Hub (including the eastern section of the NDR) their top priority for Community Infrastructure Fund (CIF2) funding. Postwick Hub has been given “gold” priority status by EERA, in recognition of its ability to provide, in conjunction with the NDR scheme, direct strategic access to a growth area that could provide between 7,000 and 10,000 dwellings. In addition it will unlock employment land that will contribute between 2,000 and 3,000 jobs.

The scheme has the full backing of Shaping Norfolk's Future Transport Forum, the Norfolk Chamber of Commerce, including the Norwich Chamber, and the City Centre Management partnership are also very supportive of the scheme and keen to see its early implementation.

The strategic case for the scheme is overwhelming. In addition, the NDR scheme stands up as a transport scheme in its own right. Our recent policies and approach through NATS have been highly successful in reducing the amount of traffic entering the Norwich city centre. Investment in park and ride, Norwich bus station and real time information have contributed to significant growth in bus patronage, and held city centre traffic levels to 20% below their 1998 levels. This success has been supported by close partnership working with bus operators and local planning authorities, particularly the City Council.

Despite this success, traffic in the wider Norwich area has grown significantly with rising incomes and car ownership. Significant progress has been made in implementing the NATS strategy but further significant progress cannot be made without the NDR scheme. The NDR scheme is essential to:-

- relieve the northern suburbs and adjacent ring of villages of ‘rat running’ traffic,
- relieve congestion on the inner and outer ring roads and key radials,

- create the “elbow room” in Norwich for a further phase of bus, cycle and pedestrian prioritisation,
- facilitate further enhancements to the public realm.

In July 2006 the scheme was given regional priority through inclusion in the Eastern Region Funding Allocation as a Priority 1A scheme for construction in the period from 2011/12 to 2015/16. The current funding allocation constitutes 60% of the overall scheme cost. The County Council has progressed the scheme over the last 3 years from its own resources to a point where it is in the advance stages of selecting a contractor under an ECI contract. Key to progressing the scheme further will be the acceptance by the Department for Transport (DfT) of this Programme Entry Major Scheme Business Case (MSBC). The MSBC has been prepared in accordance with the DfT guidance for local authorities seeking Government funding for major transport schemes.

1.2 Background

Work was undertaken by the County Council's Planning and Transportation Department and Mott MacDonald during the period 2002-2004 to assess transportation interventions that could be considered as part of a review of the Norwich Area Transportation Strategy (NATS). The long list of interventions initially identified was distilled into a smaller number of strategy options combining the most effective interventions with complementary measures, and a strategic assessment of these options made following (as far as possible under the circumstances) Guidance on Multi Modal Studies (GOMMMS), and subsequently WebTAG, methodology.

This work was summarised in the NATS Options Assessment Report (October 2004). The six strategy options appraised included two public transport options:

Option 1 – Full length NDR and complementary transport measures

Option 2 – Half length NDR and complementary transport measures

Option 3 – Three quarter length NDR and complementary transport measures

Option 4 – Orbital Bus Route with associated traffic management measures

Option 5 – Light rapid transit scheme with associated traffic management measures

Option 6 – Measures to encourage modal shift to sustainable modes of transport.

All Options were assessed against the NATS objectives.

Consultations with Statutory Environmental bodies (SEBs) and further work on identifying probable environmental impacts was undertaken by the County Council. Consequently the County Council sought legal view and was advised that Option 1 which would cross the River Wensum would be likely to receive objections from Statutory Bodies such as Natural England on a basis of having significant adverse impacts on the Special Area of Conservation. This legal advice has been presented to and adopted by the Cabinet on 9 September 2005. The environmental consideration led to the County Council adopting Option 3 (in this document referred to as Preferred Scheme). All options were assessed against the NATS objectives.

The Preferred Option has been taken forward on the basis that a three quarter NDR route, with a suite of complementary measures made possible by the freeing up of capacity on the existing road network, would help alleviate many of the problems and issues currently highlighted within the NATS area, in particular; congestion on the outer ring road; access to the airport; and accommodation of future housing requirements. It provides a strategic transport link to North Norfolk via the east of Norwich. It is felt that this option has additional benefits over the half route option, as it tackles the problems and issues over a wider area, without giving rise to the environmental concerns surrounding the Wensum Valley.

The County Council considers it crucial that the value for money is ensured and thoroughly tested. Therefore, to test the Preferred Scheme further this Business Case presents and assesses several alternatives, in accordance with the Major Scheme Business Case Guidance.

The alternatives that were assessed are:

- Next Best Option which would offer a lower cost alternative;
- Low Cost Option, which comprises a single carriageway and utilises the existing infrastructure as far as possible;
- Public Transport Alternative, which brings together all previous work on public transport for Norwich carried out by the County Council as part of the Local Transport Plan process and the NATS review, and considers the current market for public transport developments in technology and the changes in legislation proposed in the Local Transport Bill in searching for an option that would offer a viable alternative to the road scheme.

1.3 Preferred Scheme

The proposed NDR scheme comprises a new road around the north and east of Norwich and significant traffic management in the city centre, plus the northern and western suburbs.

The NDR is predominantly a dual carriageway road approximately 20km long. At its western end, the existing single carriageway A1067 Fakenham Road will be realigned to join the classified road at Fir Covert Road at a new roundabout junction. The A1067 will then link back to Taverham along an improved Fir Covert Road. The proposed NDR will then proceed eastwards, passing to the north of Thorpe Marriott before joining the A140 Cromer Road at a new grade separated junction, close to Norwich Airport. The route then continues eastwards to pass to the south of communities of Horsham St Faith, Spixworth and Rackheath before joining the A47 Trunk Road at the existing Postwick Interchange. New at-grade roundabouts will be constructed where the NDR crosses the main radial roads linking the north and north east of Norfolk to Norwich City Centre.

The complementary traffic management measures have been reviewed as part of NATS. Their aim is to manage traffic volumes and speeds on the existing highway network and to benefit sustainable transport modes such as walking, cycling and public transport. Proposals have been developed as part of NATS and will be funded through the LTP and other sources including developer contributions. Where it is anticipated schemes will be implemented before the NDR these have been included as part of the Do Minimum Scenario. The County Council is fully committed to delivery of those measures and recognise their importance for realisation of scheme benefits.

1.3.1 Preferred Scheme Description

(i) New Road

The NDR would connect the A1067 Norwich to Fakenham road in the north-west to the A47 in the east of Norwich. It is not the intention to mirror the Norwich Southern Bypass of the city, but to provide a road on the northern side of the city that will distribute traffic making orbital movements. In particular, its focus is to take traffic off unsuitable routes where, for example, there is greater conflict with pedestrian movements. As such it will be complemented by imposing traffic restrictions on some of those existing routes and giving greater priority to vulnerable road users and residents. It will also provide the opportunity for environmental improvements in the city centre.

(ii) Physical Descriptions

The preferred route of the NDR would start in the west with a short length of the existing A1067 diverted as a single carriageway to a new roundabout at C262 Fir Covert Road. The NDR would then continue eastward as a dual carriageway, passing under the Marriott's Way, which would cross over the NDR on a new bridge, to a roundabout junction with C261 Reepham Road. Continuing eastward the route would connect with C282 Drayton Lane via another roundabout before passing under, and connecting to the A140 via a grade separated junction. It would then skirt the north of the Airport and pass under C246 Buxton Road, which would cross over the NDR on a new bridge. The route continues eastward through the north of

Beeston Park, crossing the B1140 North Walsham Road and the A1151 Wroxham Road before entering the north eastern section of Rackheath Park. The NDR then turns toward the south east. It would then rise up on an embankment to cross both the Norwich to Sheringham rail line and the Plumstead Road on a bridge. The route would then continue south, passing under Low Road before terminating at a roundabout at the Broadland Business Park. This southernmost roundabout at the end of the NDR would then be linked by separate roads to the A 47 at Postwick as well as the Broadland Business Park.

The outline of the preferred route is included in the Appendix 1.A. The more detailed drawings are available on request.

(iii) Road Design

In order to offer a high level of safety and security for all road users the new dual carriageway section on the preferred route will be designed in accordance with the Design Manual for Roads and Bridges Volume 6, which provides for:

- A design speed of 120kph;
- Two 9.3m wide carriageways, inclusive of 1.0m hard strips;
- A 2.5m central reserve with vehicle restraint system;
- 40 years design life for pavements.
- The single carriageway section between the existing A1067 and Fir Covert Road would be designed to have:
 - a 100kph design speed limit with a 9.3m carriageway (inclusive of 1.0m hard strips)
 - 2.5m grass verges (or 4.5m where swales are present).
- The single carriageway links to Postwick would be designed to an urban standard with a 70 kph design speed, a 7.3m carriageway with kerbs and 3.5m grass verges.
- The road would be designed with a low noise surface to give a reduction in emitted noise when compared with a conventional hot rolled asphalt surface.

(iv) Footpath/Cycleway/Bridleway

Approximately 6km of new links suitable for use by pedestrians, cyclists and equestrians would be provided along the route within the landscape strip. These would link to existing facilities. A 4m wide corridor would be provided comprising a 2m wide hardened surface and a 2m wide grass verge. Where this crosses a structure a 3m wide combined hardened surface would be provided with two 1.5m hardened verge strips.

(v) Junction Strategy

Currently it is proposed that roundabout junctions would be constructed along the route to give direct access to the following radial routes:

- C262 Fir Covert Road
- C261 Reepham Road
- C282 Drayton Road
- B1150 North Walsham Road
- A1151 Wroxham Road
- C283 Salhouse Road
- C874 Norwich Road/ Plumstead Road.

A further roundabout would be provided to the north of the airport. This has the primary purpose to allow the road to change direction although it would also provide emergency access to the airport.

The roundabouts would be designed to meet the joint objectives of minimising delay for vehicles passing through the junction whilst maintaining a safe passage of all road users. The geometric layout of the roundabout would be matched to the flows of the traffic streams, vehicle speed and local topographical constraints as set out in DMRB Volume 6 TD 16/07.

In addition a grade separated junction would be provided at the crossing with the A140 Cromer Road, which would also give access to the B1149 Holt Road. A new junction arrangement would also be provided at Postwick to link with the Broadland Business Park and the A47. Part of this junction would be grade separated and part would be at grade.

Where individual or joint access to properties will be severed by the new road arrangements will be made to link these to existing roads.

(vi) Complementary Transport Measures

The road will be accompanied by traffic management measures which will aim to encourage (or require) traffic to use the main road network and to mitigate the effects of traffic on unsuitable routes. Measures may range from traffic calming through road closures and will be considered for the roads around the north of Norwich.

Traffic management measures have the potential to overcome the problems of traffic using inappropriate roads. However, restrictions may not be practical or publicly acceptable unless they are introduced in conjunction with measures to improve alternative routes.

Traffic management measures, by themselves, will not help to cater for the transport needs arising from additional growth or help to improve access into and around the area (except for local access by walking and cycling).

These interventions are dependant on the NDR which would provide attractive high standard alternative routes for traffic currently using inappropriate roads around the north of Norwich.

The complementary measures will be assessed in more detail prior to the next stage submission of the Business Case. The Programme Entry Business Case has the following management measures built into it, to reflect the economic impact of such measures on the value for money of the Preferred Scheme:

- assumed 20mph speed limit for northern and north-western suburbs of Norwich, and
- a package of complementary traffic management measures to remove through traffic from the city centre.

1.4 Next Best Option

The alignment for the Next Best Option is broadly similar to the Preferred Scheme, including the grade separated junctions at Cromer Road (A140) and A47. The Next Best Option differs from the Preferred Scheme by the section from C262 Fir Covert Road junction to C282 Drayton Lane, which is reduced from dual carriageway standard to single carriageway. Consequently, the structure at the Bell Farm track will have a shorter span. The size of drainage lagoons would also be smaller along that section and the land-take would be reduced.

The outline of the Next Best Option is included in Appendix 1.B.

1.5 Low Cost Option

The Low Cost Option uses the alignment of existing roads where practicable. It will be a single carriageway with 40mph speed limit, consisting of the upgrade of the existing C262 Fir Covert Road between A1067 and C261 Reepham Road and an upgrade of C261 Reepham Road between C262 Fir Covert Road and C282 Drayton Lane. It continues eastward and crosses at grade B1149 and A140, skirts the north of the airport, then comes southeast around the north of Old Catton and Sprowston. It intercepts the rail line at C442 Middle Road and joins the existing U59278 Green Lane, forming a direct link between the rail line and the A47/A1042 junction. Road upgrades and improvements are anticipated where the route encroaches on the existing roads.

The outline of the Low Cost Option is included in Appendix 1.C.

1.6 Public Transport Alternative

(i) Background

Work was undertaken by Planning and Transportation Department of the County Council and Mott MacDonald during the period 2002-2004 to assess transportation interventions that could be considered for adoption as part of a review of the NATS. The long list of interventions initially identified was distilled into a smaller number of strategy options combining the most effective interventions with complementary measures, and a strategic assessment of these options made following (as far as possible under the circumstances) GOMMMS, and subsequently WebTAG, methodology.

This work was summarised in the NATS Options Assessment Report (October 2004). The six strategy options appraised included two public transport options:

- A package of public transport improvements centred on the provision of an enhanced orbital bus route, major improvements to existing radial bus services, improvements to junctions on the Inner and Outer Ring Roads and implementation of measures to reduce through traffic in the city centre.
- A light rapid transit system linking the north east and south west Norwich via the city centre and serving key growth locations, complemented by road user charging or workplace parking charging within the Inner Ring Road, implementation of measures to reduce through traffic in the city centre and improvements to junctions on the Inner and Outer Ring Roads.

The Options Assessment Report concluded that both these options would provide some benefit to the areas they were applied to and more public transport oriented outcomes contributing to the NATS aims and objectives, but would not fully address the identified problems and issues across the whole NATS area.

At the time that this work was undertaken it was not possible to quantify the economic benefits of the public transport options as there was no public transport network model available for the NATS area. The absence of such a model meant that benefit/cost ratios for public transport options could not be calculated for direct comparison with those for road building options. This issue led to the decision to build the NATS VISUM public transport model.

The revised NATS strategy adopted by the County Council in October 2004 includes an NDR scheme.

Government guidance on the development of Major Schemes requires a detailed assessment of the scheme against alternative options that would, as far as possible, broadly meet the same objectives. The testing of alternatives should be an integral part of the process of determining the preferred option.

Consultation with DfT regarding the MSBC for the NDR scheme has established that, while alternative strategy options with a public transport focus were considered and appraised during the 2002-2004 NATS Strategy Review, DfT do not accept that sufficient work has been undertaken on public transport alternatives to the NDR scheme to enable non-road building options to be ruled out.

In response to that the County Council and Mott MacDonald have identified and assessed a range of public transport options, considering developments in Government policy and legislation, local transport strategy and public transport technology, in accordance with the methodology described in the Appendix 1.D and produced a preferred public transport option that would broadly meet the NDR scheme objectives. This option has been modelled and assessed against New Approach to Appraisal (NATA) criteria. A strategic level assessment has been undertaken in the first instance.

This work has provided robust evidence regarding the effectiveness of public transport interventions that seek, as far as possible, to meet the same objectives as those of the NDR scheme and enabled benefit/cost ratios to be presented for the public transport options.

(ii) Public Transport Alternative

In brief, the preferred Public Transport Alternative includes:

- improvements to the frequency of radial services on existing radial routes;
- a new bus route on a part of the outer ring road, which would provide a service to areas similar to those benefiting from the NDR scheme (Appendix 1.E);
- Bus Rapid Transport corridor linking Sprowston, City Centre, University, Norfolk and Norwich Hospital and Norwich Research Park (plan of the Bus Rapid Transit (BRT) route is shown in Appendix 1.F and Appendix 1.G)

Schedule of Appendices to Section 1

- 1.A Outline of Preferred Route
- 1.B Outline of Next Best Option
- 1.C Outline of Low Cost Option
- 1.D Public Transport Alternative Position Statement
- 1.E Public Transport Alternative – Orbital Route Option
- 1.F Public Transport Alternative – Bus Rapid Transit (BRT) Corridor
- 1.G Public Transport Alternative – BRT Cross Valley Link