

# Report to Cabinet Member for Highways and Infrastructure

<b>Report title:</b>	<b>Broadland Northway – Year 1 Monitoring</b>
<b>Date of briefing:</b>	<b>17 October 2019</b>
<b>Responsible Cabinet Member:</b>	<b>Councillor Martin Wilby – (Cabinet Member for Highways and Infrastructure)</b>
<b>Responsible Director:</b>	<b>Tom McCabe – (Executive Director, Community and Environmental Services)</b>
<b>Is this a key decision?</b>	<b>No</b>

## Executive Summary

The Broadland Northway project, one of the largest local authority delivered highways schemes, has been open in full to traffic since April 2018. Completion of the main construction works started the monitoring of the project to ensure that key elements of the project, particularly environmental mitigation measures, are performing as expected.

This report summarises the details of the first year of monitoring (the 'one year after' report). The full report is appended (Appendix A) and will be published on the County Council's website. Future reporting will be necessary as the period for monitoring extends into future years, for example, up to 15 years for bat monitoring.

The one year after (OYA) report has established that many of the indicators used to demonstrate the effects of the Broadland Northway scheme are delivering as predicted or better than predicted. This shows that the scheme is meeting its objectives in these areas.

Investment in infrastructure is an important part of the Council's vision and supports the Norfolk economy. Evaluating the outcomes of completed projects, particularly those of the scale of Broadland Northway, is important. The report provides details to agreed levels of monitoring as required by the Development Consent Order (DCO) for the project. It also responds to the commitments to provide monitoring and evaluation reports to the Department for Transport, who provided significant funding towards the project.

The detailed one year after report provides an evaluation of the delivery and operational performance of this major infrastructure scheme. Key findings include:

- The scheme has been received positively by the public and key stakeholders since it has been completed and opened to traffic;
- The DCO process proved to be a difficult system through which to deliver a major infrastructure project (according to many consultees involved);
- The scheme was well managed but suffered from some delays and slippages in the programme;
- The scheme construction had an excellent safety record with very few minor injuries and no major injuries recorded;
- Confidence in scheme benefits realisation is high.

When comparing the full range of evidence assembled in the detailed one year after report, it is a fair conclusion to say that the scheme, in terms of its process for delivery and wider impacts, is broadly positive one year after the road opened to traffic. Despite some delays at points in the construction process, the project was delivered on time.

Traffic impacts are being observed to be in-line with expectations and the various wildlife species monitored and recorded along the route appear to be adjusting to the road's presence, and with the help of mitigation measures, there is no significant detrimental effect.

In terms of sustainability implications, the initial findings are that the ecology and environmental mitigation is showing promising results. This will continue to be monitored in future years. There have also been changes in traffic, which have shown demonstrable reductions in rat running and impacts on more built-up urban and suburban areas of Norwich.

### **Actions Required**

- 1. To note the findings of the one year after monitoring report.**

## **1. Background and Purpose**

- 1.1. As part of the statutory and funding approvals processes for the Broadland Northway project, commitments were made to provide monitoring reports for the project at various stages following completion. The first of these reports is the 'One Year After' (OYA) report.
- 1.2. The Broadland Northway OYA Report is the second formal report of the Monitoring and Evaluation Plan (M&EP) for the scheme. The purpose of the OYA report is to build upon the Norwich NDR Baseline Report by analysing and reporting the outcomes and impacts of the Norwich NDR on its surrounding area one year after it opened.
- 1.3. Throughout the OYA report, the scheme is assessed and evaluated in terms of its impact on the surrounding areas through a number of indicators. The indicators give a broad view of how the NDR scheme has affected the local environment and altered acute congestion problems. These indicators remain the same throughout the monitoring and evaluation process (up to 15 years after the opening of the scheme) to allow for consistent reporting. The indicators are listed below, grouped by theme:
  - Environment
    - Indicator 1: Landscape Integration
    - Indicator 2: Biodiversity and Nature Conservation
    - Indicator 3: Road drainage and water quality
  - Traffic
    - Indicator 4: Reduce traffic levels and congestion
    - Indicator 5: Improved transport connectivity
  - Economic
    - Indicator 6: Houses developed on sites identified as dependent upon the scheme. This has grown substantially since the business case for the

scheme was approved, with future growth plans to the north east of the city fully reliant on the new road

– Indicator 7: Employment land developed on sites identified as dependent upon the scheme

- Process and governance

– Indicator 8: Project costs

– Indicator 9: Project programme

– Indicator 10: Consultation for Process Evaluation

The findings for each indicator are outlined in the attached report and summarised below.

## **2. Summary of key findings**

### **2.1. Indicator 1: Landscape Integration**

The comparison between the projected year 1 photomontages and actual year 1 photographs illustrate that across the majority of the key viewpoint locations, the photograph largely mirrors the photomontage. The one exception is photomontage location 1. Here the single carriageway has been retained as there was a need to maintain access to BT apparatus. A bund is provided to screen and separate the new and old carriageways.

### **2.2. Indicator 2: Biodiversity and Nature Conservation**

Based on the monitoring to date the scheme has not had a significant adverse impact on the biodiversity of the area. Mitigation measures appear to have had a positive impact. For instance, the installation of bat boxes and barn owl boxes has been successful, and these are already being used. However, with only one year's worth of post-construction data it is impossible to comment upon long-term trends. For example, the observed amount of Great Crested Newts is high, but this could be due to seasonal factors.

### **2.3. Indicator 3: Road drainage and water quality**

The drainage performance of all lagoons has been monitored to ensure that they are performing as expected. There were a number of lagoons that were not draining down quickly enough to meet the discharge requirements originally agreed with the Environment Agency. Following additional site investigations, the Environment Agency has agreed that the current operation of the lagoons is acceptable.

At the time of drafting the OYA report there was a remaining operational issue of the lagoons in the vicinity of Norwich International Airport. Standing water can attract seagulls, increasing the potential for bird strikes at the airport. To mitigate this potential risk, revisions to the levels on Lagoon 5 and the installation of wetland planting to Lagoons near the airport were programmed for completion in the Autumn 2019. During the construction period and following the completion of the main works, additional bird scarers were used at the airport to reduce the risk of birdstrikes, however following ongoing monitoring additional provision funded by the project has now ended.

Monitoring has confirmed no issue to date with the effectiveness of the hydrobrake and erosion protection measures.

The improvement measures to address the risk of sediment input to the River Wensum were put in place during construction, and water quality monitoring during construction confirmed that the measures are working.

Water quality monitoring during construction has shown no negative impact on drainage discharge points such as The Springs. This monitoring has stopped as it was only required up to December 2018.

2.4. Indicator 4: Reduce traffic levels and congestion

There have been some traffic increases near the western end of the scheme, but these were anticipated and were the subject of DCO Requirements 27 and 29, which are being dealt with separately. Based on the extensive set of monitoring locations across the wider area, results show that the scheme is achieving the following desirable objectives:

- Reducing orbital rat running in the northern suburbs of Norwich.
- Reducing orbital rat running on rural roads outside the built-up area of Norwich.
- Reducing traffic flows on the roads just outside the Norwich Outer Ring Road.
- Reducing traffic flows on the Norwich Outer Ring Road.
- Traffic flows have decreased over the railway level crossing.

2.5. Indicator 5: Improved transport connectivity

Journey time and journey reliability data is still being collated and will be provided as soon as it is available.

2.6. Indicator 6: Houses developed on sites identified as dependent upon the scheme

This indicator is not included in the OYA report as the results of these indicators require the delivery of development and are therefore expected over a longer period than one year. This indicator is due to be assessed at + 5 years.

2.7. Indicator 7: Employment land developed on sites identified as dependent upon the scheme

For similar reasons outlined above for Indicator 6, details are not included in the OYA report and this indicator is also to be assessed at + 5 years.

In relation to Indicators 6 & 7, anecdotal evidence is indicating the number of enquiries and development related activity related to potential developments are increasing since the opening of Broadland Northway.

2.8. Indicator 8: Project costs

Due to a variety of reasons, the cost of the scheme exceeded the original budget making it necessary to seek approval for an increase in the budget. This was approved in November 2017 and the revised budget is £205m. The forecasted cost of the scheme is within this revised budget.

Cost detail and lessons learnt have been included and discussed in more detail in a separate Cabinet Member report also dated 1 November 2019.

## 2.9. Indicator 9: Project programme

Although there were some slippages and delays in the programme for certain elements of the scheme, which impacted on project costs, some sections of the project were handed over to NCC and opened to traffic earlier than originally planned and the scheme was completed and fully opened to traffic broadly in line with the overall target of Q1 of 2018.

## 2.10. Indicator 10: Consultation for Process Evaluation

Based on the evidence reviewed and the stakeholder consultations undertaken, the following key conclusions can be drawn:

- The scheme has been received positively by the public and key stakeholders since it has been completed and opened to traffic.
- The DCO process proved to be a difficult system through which to deliver a major infrastructure project according to many consultees involved given the inability to make any changes post submission and the lack of experience in completing the process.
- The scheme was well managed but suffered from delays and slippages in the programme as well as financial challenges.
- The scheme construction had an excellent safety record with very few minor injuries and no major injuries recorded.
- Confidence in scheme benefits realisation is high.

## 2.11. Stage 4 Safety Audit

Other monitoring activities delivered separately to the main report include completion of a stage 4 (1 year post-opening) safety audit. A summary report is attached at Appendix B. The key points to note are:

- It should be highlighted that regrettably there was a fatality on 14th August 2019, near the A140 junction. This has not been included within this report as the Coroner's investigation is still underway and falls outside the 12-month study period.
- The accident trend is downward, with a marked drop in the last quarter (9 in Q1, 9 in Q2, 8 in Q3, 2 in Q4). The accident rate is however high, with 244 personal injury accidents per billion vehicle kilometres (pias/Bvkm) (compared with 72 on modern D2 roads with hard strips). However, the accident severity index is low, at 7% (compared with 15% on modern D2 roads with hard strips).
- Key factors identify that only 14% of accidents were related to wet road conditions, which is low (compared with 31% on non built-up roads). The number of accidents in darkness was 36%, which is at an elevated level (compared with 28% on non built-up road), however this is noted as equivalent to 2 more dark accidents than expected. The proportion of accidents involving motorcyclists, at 36%, is high (compared with 8% on non built-up roads), however the type of accidents are mixed, with no consistent issue identified.
- There were 2 ksi casualties (classified serious) that occurred in 2 accidents, both involving motorcycle riders.
- The accident distribution shows that 25 of pias (89%) occurred at roundabout junctions, with 3 (11%) at non-junction, mainline locations. However the report notes that 'not all of the roundabouts have a

significant accident record - 75% of total accidents occurred at only 4 roundabouts’.

#### Recommendations and next steps:

Some targeted minor measures are recommended at three roundabouts with a significant accident record.

- Airport Roundabout – measures to reduce excessive approach visibility to reduce entry speed. This to be achieved by adjusting the spacing of existing ‘baffles’ in the central reserve. In addition, temporary screening is recommended on the central island to reduce excessive visibility across the roundabout until existing planting matures. The type of screening is to be explored but will be robust and not detract from Norfolk’s rural character.
- North Walsham Road Roundabout – the westbound mainline approach would benefit from an additional chevron sign to improve roundabout conspicuity.
- Wroxham Road Roundabout – To reduce excessive approach speed and potential headlight dazzle from oncoming traffic, temporary screening is recommended on the central island to reduce excessive visibility across the roundabout until existing planting matures. The type of screening is to be explored but will be robust and not detract from Norfolk’s rural character. An additional chevron sign is to be added on the westbound mainline approach to improve roundabout conspicuity.

The recommended works will now be progressed. In addition, the accident record of A1270 Broadland Northway will continue to be monitored and we will continue to work with our partners to promote the safe operation of the road network for Norfolk residents and businesses.

#### 2.12. Other ongoing monitoring

Work is also ongoing to assess the operation of the roundabouts. This work has included looking at video survey data to assess delays on roundabouts and driver behaviour in using the roundabouts. The findings from this work are inconclusive to date and work will continue, with any recommendations to be developed and agreed once further analysis has been completed.

### **3. Conclusions**

- 3.1. The OYA report has established that many of the indicators used to demonstrate the effects of the scheme are delivering as predicted or better than predicted. This shows that the scheme is meeting its objectives in these areas. This is highlighted by Indicator 4, as the scheme has been shown to contribute towards reducing orbital rat running and reducing traffic flows in key areas of the road network.
- 3.2. Some indicators (such as some elements of Indicator 2) are more long-term and it was not expected that they would reach their full potential in the first year. The monitoring regime below sets out the further future monitoring that will continue to inform the findings of the project following its completion:

## Scheme assessment indicators

Indicator		+ 1 Year	+ 5 Years	+15 Years
<b>1</b>	<b>Landscape Integration</b>	X	X	
<b>2</b>	<b>Biodiversity and Nature Conservation</b>			
	- Unmanned static bat monitoring, at the 12 locations as during 2013 survey season.	X	X	X
	- Manned static monitoring of bat bridge and bat tunnel locations.	X	X	X
	- Bat vehicle collision mortality surveys at 10 selected monitoring locations.	X	X	X
	- Bat roost counts of known roosts within 50m of the works area.	X	X	X
	- Monitoring counts of each bat house.	X	X	X
	- Bat box occupancy checks.	X	X	X
	- Bat hibernation roost surveys of known roosts within 2km.	X	X	X
	- Radio-tracking of barbastelles.	X	X	
	- GCN population surveys of known existing breeding pond at Quaker Lane, Spixworth and the four new ponds would be carried out.	X	X	
	- Breeding Bird Surveys of the scheme prior to and after construction.	X	X	
	- Occupation of the ten barn owl boxes should be monitored by a suitably qualified ecologist holding a valid Natural England or British Trust for Ornithology licence to disturb breeding barn owl in Norfolk.	X	X	
	- Monitoring of the aquatic invertebrate communities should be carried out during and following construction to establish whether there has been any change from the baseline.	X	X	
	- Monitoring of the Desmoulin's whorl snail population should be carried out during and following construction to establish whether there has been any change from the baseline.	X	X	
	- The reseeded areas of Hoary Mullein at the Fakenham Road Roadside Nature Reserve will be monitored to ensure establishment.	X		
<b>3</b>	<b>Road drainage and water quality</b>			
	- The drainage performance of all lagoons should be monitored to ensure that they are performing as expected.	X		
	- The effectiveness of the hydrobrake and erosion protection measures at the discharge points from Lagoons 17, 18 and 18A and all culverts conveying overland flow beneath the Scheme will be regularly monitored by NCC to ensure their effectiveness.	X		
	- Monitoring of the effective functioning of the drainage features improved or reinstated, particularly those upstream of the scheme to address sediment input into the River Wensum, will be carried out in conjunction with the ongoing maintenance. This will be in line with the requirements of the Habitats Regulations Assessment Addendum and the Mitigation Measures Management Plan therein.	X		
<b>4</b>	<b>Reduce traffic levels and congestion</b>	X	X	
<b>5</b>	<b>Improved transport connectivity</b>	X	X	
<b>6</b>	<b>Houses developed on sites identified as dependent upon the NDR</b>		X	
<b>7</b>	<b>Employment land developed on sites identified as dependent upon the NDR</b>		X	
<b>8</b>	<b>Project costs</b>	X		
<b>9</b>	<b>Project programme</b>	X		
<b>10</b>	<b>Consultation for Process Evaluation</b>	X		

- 3.3. It has not been possible to assess Indicator 5 (Improved Transport Connectivity) as the journey time and journey reliability data has only recently been assembled. Rather than delay the publishing of the full Monitoring report, an

addendum document to this report will be provided once the data has been assessed.

In addition, as set out in the table above, the results of the monitoring process for Indicator 6 and Indicator 7 have not been presented as they are not required for the One Year After report. The impact of the scheme on these indicators will take more time to become evident. However, it is evident that future housing delivery to the north-east of Norwich is heavily reliant on the direct access and road capacity that the scheme has provided.

## **4. Financial Implications**

- 4.1. The monitoring report outlines the costs at the early Full Business Case stage in 2015 (**note, there is an error in the monitoring report in Appendix A as that incorrectly refers to 2011**), where the project budget was indicated to be £151m, not including the costs of Postwick Hub. The Full Business Case was submitted following conclusion of the statutory approvals process, with the overall budget for the project being £179m (including Postwick). This reflected increases in construction costs and other project increases, and details were agreed by the County Council in November 2015.
- 4.2. During the first year of construction in 2016, there were further budget pressures that increased the project costs and these were reported to Committee. During construction, the budget was further adjusted to £205m, and the project has remained within this budget allocation. More project finance details are provided in the separate Lessons Learnt report (dated 1 November 2019).

## **5. Resource Implications**

- 5.1. **Staff:** The Broadland Northway project is now effectively closed. The new road and associated infrastructure are managed, inspected and maintained as part of the business as usual delivery within the Highways service.
- 5.2. **Property:** There remains ongoing negotiations to close out land acquisition processes. These are based on the original possession dates for the project and are not impacted by inflation, so there are no additional costs incurred relating to the timing of when these are finalised.
- 5.3. **IT:** None.

## **6. Other Implications**

- 6.1. **Legal Implications:** N/A.
- 6.2. **Human Rights implications:** N/A
- 6.3. **Equality Impact Assessment (EqIA):** N/A
- 6.4. **Health and Safety implications:** N/A
- 6.5. **Sustainability implications:** The initial findings are that the ecology and environmental mitigation is showing promising results, but further monitoring is required in future years. Changes in traffic have shown demonstrable reductions in rat running and impacts on more built up urban and suburban locations.



6.6. **Any other implications:** None

## **7. Risk Implications/Assessment**

7.1. The project remained on the corporate risk register until confidence enabled the financial reporting of project delivery within the £205m budget provision. The project delivery is now considered closed and the project has been withdrawn from the corporate risk register.

## **8. Action Required**

8.1. To note the findings of the one year after monitoring report.

## **9. Background Papers**

9.1. [County Council Meeting 6th November 2015](#)

9.2. [Environment, Transport, Development Committee 16<sup>th</sup> September 2016](#)

9.3. [Environment, Transport, Development Committee 11th November 2016](#)

9.4. [County Council Meeting 20<sup>th</sup> February 2017](#)

9.5. [Policy and Resources Committee 27th November 2017](#)

9.6. [County Council Meeting 11th December 2017](#)

## **Officer Contact**

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