

MANAGING THE ENVIRONMENT PDG

8 March 2016

Crediton Lords Meadow Link Road and Air Quality

Cabinet Member: Cllr Neal Davey
Responsible Officer Public Health and Professional Services Manager, Simon Newcombe

Reason for report: Following an interim report in August 2015 as recommended by the PDG, to provide full update of changes to air quality in Exeter Road, Crediton (within the Crediton Air Quality Management Area) since the opening of the Lords Meadow Link Road with the availability of a full calendar year of monitoring data.

RECOMMENDATION: It is recommended that members note the content of the report and the conclusions herein.

Relationship to Corporate Plan: None

Financial Implications and Risk Assessment: None.

Legal Implications: The opening of a Lords Meadow Link Road was a specific measure within the formal Air Quality Action Plan (June 2006) produced by this authority in response to its designation of the wider Crediton Air Quality Management Area (AQMA). In turn these are obligations under the Local Air Quality Management regime introduced by the Environment Act 1995.

1.0 Introduction

- 1.1 Members will note the previous report of the 4 August 2015 PDG which gave interim information on the impact of the Link Road during the first 9 months of its opening, straddling a period across 2014/15. Members agreed with a recommendation in that report that whilst the early indications were positive, a more reliable analysis would not be possible until a whole calendar year of air quality monitoring data was available.
- 1.2 We have now ratified our monitoring data for Exeter Road in Crediton for 2015 and the results are therefore presented herein.

2.0 Background

- 2.1 The background information provided below duplicates that provided in the previous report but is given to again as useful context for this follow-up report.
- 2.1 The Crediton Air Quality Management Area (AQMA) was designated in 2004 for exceedances of the statutory UK Nitrogen Dioxide (NO₂) objective in the High Street and Exeter Road (A377). It was also designated for exceedances

of the statutory objective for Particulate Matter (PM₁₀) in Exeter Road only. Road transport, including cars, light commercial and heavy goods vehicles (HGVs) are a major source of this air pollution.

- 2.2 In response to the AQMA designation an Action Plan was adopted in 2006. This plan contains 32 measures to reduce air pollution across Crediton. Within this, a number of key transport plan actions were agreed jointly with Devon County Council including the provision of a major £8.5m link road to Lords Meadow Industrial Estate (see Figure below). This road is designed to relieve the south-eastern end of Exeter Road within the town of a proportion of light and heavy commercial vehicles that use the confined historic route to access the industrial estate. It was also conceived to manage road network resilience and provide for economic growth locally. Consequently, it is intended to reduce congestion and remove a large number of the most polluting vehicles from the affected section of the A377 improving air quality at residential properties within the narrow canyon 'pinch point'.



Devon County Council – Extract of plan A07001/25G (Planning Application DCC/3272/2011)

- 2.3 Following a lengthy design, consultation and planning period, construction of the road along the approved hillside route (see figure above) commenced in July 2013 and the road was formally opened on the 1 October 2014. The completed road now provides a direct route to the Lords Meadow industrial

estate from the Wellparks roundabout on the A377 near the Tesco store, and also includes a shared cycleway and footway.

- 2.4 As with any new road, it will take a period of time for usage to settle and the maximum benefits be seen. In particular, there has been an initial lack of awareness of the new route and habitual behaviour in respect of network users. Also, commercial and/or heavy duty vehicles are often reliant upon satellite navigation mapping with a lengthy lead-in period for electronic mapping to be updated to include the new route.
- 2.5 The benchmark relevant UK air quality objectives are measured as annual means (reported in calendar years) and therefore given that the road was opened in October 2014 we are able for the first time to provide a full and unequivocal comparison at this stage for the year 2015.
- 2.6 Seasonal and regional/local factors will continue to influence road and weather conditions on a daily to monthly basis, temporarily off-setting or artificially inflating gains made as a result of the road being in operation.

3.0 Preliminary traffic flows

- 3.1 The following traffic data have been provided by Devon County Council's Highways Department and were previously reported in the August 2015 interim report. For the purpose of this report we requested more recent traffic count data however it was not available in time for publication. County have indicated that verified data may not be available until late March of this year.
- 3.2 The traffic flows shown in the table below relate to the period 15th October 2014 to 27th November 2014 inclusive (43 days).

Timeframe	Northbound	Southbound	2-way
5 day 24hr average flow	2,390	2,407	4,797
7 day 24hr average flow	2,189	2,185	4,374
Weekday AM Peak Hour (08.00-09.00)	102	264	366
Weekday PM Peak Hour (17.00-18.00)	281	193	474

- 3.3 The average number of HGVs using the Link Road is 122 per day. This equates to nearly 3% of the total traffic and is very similar to the overall average for Devon's principal rural road network.
- 3.4 It is likely the overall level of usage of the Link Road will have increased over the following year. Furthermore, the January and February monitoring periods may well have been relatively quiet months as is typically the experience. It is estimated that flows might not have settled down completely until at least the summer of 2015.

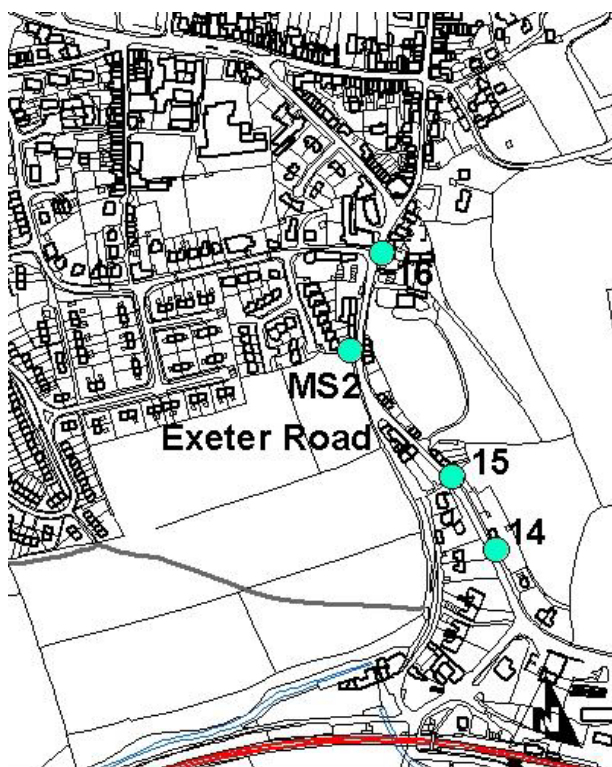
- 3.5 A number of traffic counts around the town were programmed for spring/summer 2015 to compare with the pre-scheme counts undertaken in 2010. When data is available for these from Devon County Council it will provide an indication of the traffic flow changes around the town and how the usage of the new road has become established.

4.0 Air quality data and conclusions

- 4.1 The relevant UK air quality objectives are:

Pollutant	UK air quality objective
Nitrogen dioxide (NO ₂)	40 ug.m ³ measured as an annual mean
Particulate Matter (PM ₁₀)	40 ug.m ³ measured as an annual mean; and Less than 35 days per year greater than 50 ug.m ³

- 4.2 The Council currently undertake monitoring at a number of points across CREDITON in fulfilment of our local air quality management duties. This includes a real-time continuous air quality monitoring station measuring NO₂ and PM₁₀ (MS2) and three NOx tubes (14-16) providing monthly NO₂ averages all of which have been in place for a number of years. The location of these monitoring points is shown in the figure below.



Mid Devon District Council – Extract of Figure 2.3 Air Quality Updating and Screening Assessment report 2015

- 4.3 For the purposes of this report, an analysis has been completed providing a comparison of the Nitrogen Dioxide and Particulate Matter monitoring results for the following periods:

- **2009-2013** (five years average before the Link Road was open)
- **2014** (one year average including the Link Road being open for three-months October – December)
- **2015** (first full one year average with the Link Road being open)

Nitrogen Dioxide (NO₂)

Monitoring Location	Road not open Average 2009-2013 Annual mean ug.m ³	Road open for 3-months 2014 Annual mean ug.m ³	Road open wholly 2015 Annual mean ug.m ³
NOx tube 14	44	36	33
NOx tube 15	40	38	32
NOx tube 16	44	38	29
Monitoring station MS2	60	67	55

Particulate Matter (PM₁₀)

Monitoring Location	Road not open Average 2009-2013 Annual mean ug.m ³	Road open for 3-months 2014 Annual mean ug.m ³	Road open wholly 2015 Annual mean ug.m ³
Monitoring station MS2	35	29	26

Monitoring Location	Road not open Average 2009-2013 No. of days >50 ug.m ³	Road open for 3-months 2014 No. of days >50 ug.m ³	Road open wholly 2015 No. of days >50 ug.m ³
Monitoring station MS2	54	18	11

- 4.4 In respect of NO₂, the data above indicates that concentrations have fallen significantly at all Exeter Road monitoring locations since the Link Road has opened. For the first full year in 2015, this is a reduction of between 8-34% against the preceding five-year average. The greatest falls in concentrations have been experienced at monitoring locations which are the most representative of actual exposure by residents living at this location i.e. at the NOx tubes on the eastern side of the Exeter Road.
- 4.5 All monitoring locations where there is actual exposure by residents are now currently below the NO₂ air objective set out in Section 4.1 above. Levels at the continuous monitoring station (MS2) continue to remain above the objective however but without any relevant long-term exposure by the public.

- 4.6 The Air Quality Management Area (AQMA) was designated for NO₂ at Exeter Road owing to exceedances of the objective where there was relevant exposure. The first full year data for 2015 would indicate there is now compliance with the NO₂ objective and that the Link Road has provided an effective step change for the better in NO₂ air quality at Exeter Road.
- 4.7 In respect of PM₁₀, the data above indicates that concentrations have also continued to fall at all the Exeter Road monitoring locations since the Link Road has opened. This now equates to an reduction of 26% for the annual mean and a much larger reduction of around 80% for the number of days greater than 50 ug.m³ in respect of the 2015 results against the preceding five-year average.
- 4.8 The AQMA was designated for PM₁₀ at Exeter Road owing to exceedances of the daily mean objective only where there was relevant exposure. The first full year data for 2015 would indicate there is now compliance with the PM₁₀ objective and that the Link Road has also provided an effective step change for the better in PM₁₀ air quality at Exeter Road.
- 4.9 As indicated in the interim report, the larger reductions in PM₁₀ concentrations (in comparison with NO₂) may be indicative of the fact that HGV vehicles are proportionally higher emitters of this pollutant and the sharp fall in high average peak days (compared to the average overall) could also be attributed to a combination of reduced vehicle volumes, improved traffic flows and reduced congestion/idling.
- 4.10 Further monitoring will continue using the NOx tubes and the continuous monitoring station for at least the duration of 2016 to determine if this downward trend and step change is fully established in order to provide confidence that the AQMA boundary can be reduced and Exeter Road excluded.
- 4.11 Furthermore, the exceedances of NO₂ observed in the High Street also continue to decline following a relative spike in 2013 with only the western-end of the High Street (Duke of York public house/The Green) being elevated marginally above the objective at 41 ug.m³ during 2014 and marginally below at 37 ug.m³ in 2015. The next highest High Street concentration was 31ug.m³ during 2015 and was recorded at the opposite end of the High Street. This indicates stable/gradually falling concentrations at or around the objective value in the most affected section of the High Street.
- 4.12 The results for 2016 in the High Street may however be unrepresentative owing to the lengthy recent road closure along the High Street. This closure will however afford a unique opportunity to directly establish the local contribution of NO₂ from road traffic along this road against background and other sources.

5.0 Summary

- 5.1 Early traffic data shows traffic flows using the road are close to modelled predictions and a significant proportion of HGVs and other traffic previously using Exeter Road to access the Lords Meadow Industrial Estate is now using the Link Road. Further traffic counts were completed by Devon County Council during 2015 which will further establish the trend and likely annualised flows once this data is available.
- 5.2 In accordance with a reduction in key polluting traffic flows and congestion in Exeter Road, both Nitrogen Dioxide (NO₂) and Particulate Matter (PM₁₀) concentrations have fallen significantly since the Link Road opened. All concentrations at areas of relevant exposure were below the air quality objective values in 2015 for the first time since monitoring commenced.
- 5.3 The improvement and protection of air quality in Crediton continues to be work in progress with further measures being implemented in particular those designed to manage the impact of new development and other highways interventions including the ECO-Stars fleet recognition and management scheme. Further reductions and benefits should therefore be realised.
- 5.4 An updated Action Plan (as part of a wider air quality and public health strategy for Mid Devon) will be consulted upon later in 2016.
- 5.5 Monitoring will continue using the NO_x tubes and the continuous monitoring station at the current locations in Exeter Road and the most affected parts of the High Street for at least the duration of 2016. This will determine if this downward trend and step change is established in order to provide confidence that the AQMA boundary can be reduced and Exeter Road excluded. In order to fully understand any wider impacts of the new Link Road, from January 2016 we have repositioned one High Street NO_x tube to monitor NO₂ at a new location on the junction of Exhibition Road and Commercial Road/Lords Meadow Industrial Estate at a residential address.

**Contact for
more
information:**

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**Background
Papers and
information:**

Crediton AQMA Action Plan and Mid Devon Air Quality Progress Report 2014 and Mid Devon Air Quality Updating and Screening Report 2015
<https://new.middevon.gov.uk/environment/air-quality/local-air-quality-management/>

Devon County Council Planning Application reference DCC/3272/2011
(numerous documents available at
http://www.devon.gov.uk/planpage_1_3943)

Real-time continuous monitoring data from the Exeter Road monitoring station is available at
<https://new.middevon.gov.uk/environment/air-quality/local-air-quality-management/>

ECO-Stars fleet recognition and management scheme
<http://www.ecostars-uk.com/>

File Reference: None

**Circulation of
the Report:**

Management Team
Head of HR and Development
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