EAST CAMBRIDGESHIRE
DISTRICT COUNCIL

2015 Updating and Screening Assessment for East Cambridgeshire District Council

In fulfillment of Part IV of the
Environment Act 1995
Local Air Quality Management

June 2015

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Executive Summary

The Environment Act 1995 introduced the system known as Local Air Quality Management (LAQM) which requires local authorities to regularly review and assess air quality in their areas. This report forms the 2015 Updating and Screening Assessment (USA) for East Cambridgeshire District Council (ECDC). The report sets out the findings of a review and assessment of local air quality in the district of East Cambridgeshire. Emissions from road traffic are the principal source of poor air quality in the district. However, East Cambridgeshire is predominantly rural in character and air quality is relatively good and is improving.

This USA has involved the analysis of prescribed pollutants to see if they require further Detailed Assessment. This report relates to data gathered between 1st January 2014 and 31st December 2014. There are currently no Air Quality Management Areas (AQMAs) in East Cambridgeshire. This USA finds that air quality objectives are currently being met with the exception of one location at Station Road, Ely. The 2014 Progress Report found that a Detailed Assessment may be necessary in respect of this location. However, since that report was published planning approval was granted in September 2014 for the construction of a new road, the A142 Ely Southern Bypass. This is likely to largely remove the source of the poor air quality in the area. Therefore, it is concluded that a Detailed Assessment is not required at this time. This USA has not identified the need to proceed to a Detailed Assessment for any pollutants or a need for a change in the monitoring programme at this time.

No new significant emission sources have been identified which could lead to poor air quality in the district. ECDC will continue to operate the current nitrogen dioxide monitoring programme to ensure that air quality objectives continue to be met.

ECDC will compile and submit an Air Quality Progress Report in 2016.

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1 Introduction

1.1 Description of Local Authority Area

East Cambridgeshire is a mainly rural district which lies approximately 60 miles north of London. It is one of five districts within the county of Cambridgeshire and covers an area of approximately 65,000 hectares in the eastern part of the county. It shares boundaries with Norfolk in the northeast and Suffolk in the southeast. Its main urban centres are the market towns of Ely, Littleport, and Soham. Ely is the largest of these, acting as a retail, service and administrative centre. East Cambridgeshire is rich in history and environmental assets. Historically, Ely and the surrounding villages are especially prominent. Ely is famous for its medieval cathedral. It was an island surrounded by water and marshes until the Fens were drained the 17th century.

Geographically, East Cambridgeshire is part fen and part upland. Its western limits are defined by waterways: the Bedford levels, the River Ouse and the River Cam. The northern part of the district centred on Ely is a continuation of the peat fens north of the Bedford levels. The fen edge runs north and east from the village of Lode, passing north of Newmarket. The Fens provide the countryside with many of its more interesting rural features. Wildfowl and flora are among East Cambridgeshire's important environmental assets. Sites of special scientific interest (SSSI) include the Devils Dyke, Wicken Fen, and the Hundred Foot Washes on the boundary with Fenland District and Norfolk.

East Cambridgeshire is well connected via transport routes, with the A10 running north to south through the district; and rail connections to Cambridge, London, King's Lynn, Norwich and the east coast, and the Midlands and north via Peterborough. Economically, East Cambridgeshire is closely linked with neighbouring Fenland District and the city of Cambridge. Economic changes in the region stimulated by the expansion of Cambridge have had a major effect on the district. Once focussed mainly on agriculture, East Cambridgeshire is now a favoured business location. Ely is at the heart of local economic growth, providing a skilled workforce and an affordable and accessible place to do business.

Population Growth

East Cambridgeshire is currently experiencing rapid population growth. Data from the 2011 Census for the East of England was published by the Office for National Statistics (ONS) in July 2012. Since 2001 the population of Cambridgeshire has increased by 12% to 621,300. The largest

percentage increase was in East Cambridgeshire where the population increased by 14.2% to 84,200 in 2011, and is projected to rise to 99,000 by 2021 (ONS, 2012).

Traffic levels and growth

East Cambridgeshire has also experienced considerable traffic growth over the last 15 years and emissions from road traffic are the principal source of poor air quality in the district. The latest available traffic flow data is published in the 2013 Traffic Monitoring Report (Cambridgeshire County Council, 2014). This shows a small increase in traffic flows in Ely following a slight reduction in previous years. Elsewhere in the district traffic flows have remained largely unchanged in recent years with both minor increases and decreases in recorded traffic on the various roads.

1.2 Purpose of Report

This report fulfils the requirements of the Local Air Quality Management process (LAQM) as set out in Part IV of the Environment Act (1995), the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 and the relevant Policy and Technical Guidance documents. The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where exceedences are considered likely, the local authority must then declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives.

The objective of this Updating and Screening Assessment is to identify any matters that have changed which may lead to risk of an air quality objective being exceeded. A checklist approach and screening tools are used to identify significant new sources or changes and whether there is a need for a Detailed Assessment. The USA report should provide an update of any outstanding information requested previously in Review and Assessment reports.

1.3 Air Quality Objectives

The air quality objectives applicable to LAQM in England are set out in the Air Quality (England) Regulations 2000 (SI 928), The Air Quality (England) (Amendment) Regulations 2002 (SI 3043), and are shown in Table 1.1. This table shows the objectives in units of microgrammes per cubic

metre μg/m^3 (milligrammes per cubic metre, mg/m^3 for carbon monoxide) with the number of exceedences in each year that are permitted (where applicable).

Table 1.1 Air Quality Objectives included in Regulations for the purpose of LAQM in England

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 μg/m^3	Running annual mean	31.12.2003
	5.00 μg/m^3	Running annual mean	31.12.2010
1,3-Butadiene	2.25 μg/m^3	Running annual mean	31.12.2003
Carbon monoxide	10.0 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.5 μg/m^3	Annual mean	31.12.2004
	0.25 μg/m^3	Annual mean	31.12.2008
Nitrogen dioxide	200 μg/m^3 not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 μg/m^3	Annual mean	31.12.2005
Particles (PM_{10}) (gravimetric)	50 μg/m^3, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 μg/m^3	Annual mean	31.12.2004
Sulphur dioxide	350 μg/m^3, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 μg/m^3, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 μg/m^3, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

1.4 Summary of Previous Review and Assessments

The first round of Review and Assessment began in 1997 and was carried out as a joint exercise in Cambridgeshire by the District Councils working together with the County Council. It was completed in 2000 and concluded that AQMAs were necessary in certain parts of the County. No AQMAs were deemed necessary in East Cambridgeshire.

The second round of Review and Assessment benefited from the publication of new technical guidance, LAQM.TG (03), which reduced the stages of the process to two and introduced statutory timescales and a more formalised approach. This was also completed as a joint exercise across Cambridgeshire and also concluded that no AQMAs were necessary in East Cambridgeshire.

Reporting on the previous round of review and assessment began in April 2012 with the submission of the Updating and Screening Assessment which concluded that East Cambridgeshire was predicted to comply with air quality objectives.

Progress Reports involve screening each of the prescribed pollutants to see if they will require a more detailed assessment to determine if they are going to meet their respective objectives. The process involves looking at busy roads, factories and other sources of air pollution to see if the particular components are present that are likely to give rise to an air quality issue. Where certain factors are present in combination then the situation is assessed using screening tools provided by the Policy and Technical Guidance documents. Where scenarios are identified as potential problems they would be progressed through to a Detailed Assessment.

The 2013 Progress Report identified a breach of the nitrogen dioxide annual mean air quality objective at Station Road, Ely when the automatic data was distance corrected and concluded that a further Detailed Assessment was necessary.

The 2014 Progress Report again identified a breach of the nitrogen dioxide annual mean air quality objective at Station Road, Ely. All other monitoring data indicated that the air quality objectives were likely to continue to be met throughout the district.

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

In 2014 ECDC operated a single automatic nitrogen dioxide monitor at 33 Station Road, Ely, situated at the junction of Station Road and Angel Drove (see Table 2.1). The monitoring station was established in February 2012 and was moved to its present location in February 2013. The location is shown on Fig. 2.2. Operation is funded through assistance from the Cambridgeshire County Council Local Transport Plan budget.

The instrument is operated in partnership with Leicester City Council (LCC) whereby ECDC pays LCC for the hire, full quality assurance, and ratification of the instrument and dataset. ECDC carries out the fortnightly calibration checks and the instrument is serviced by Enviro Technology Services plc. LCC retrieves the data, arranges its validation and sends it to ECDC in a ratified format.

Quality Assurance and Quality Control were applied to the automatic monitoring programme. Full details are provided in the Appendix to this report.

2.1.2 Non-Automatic Monitoring Sites

Diffusion tube monitoring for nitrogen dioxide was the only form of non-automatic monitoring undertaken In East Cambridgeshire in 2014 and was implemented at 17 sites across the district. Twelve of the monitoring sites are located at the roadside along with four background locations. Details are shown in Table 2.2. Site locations are shown in Figures 2.1, 2.2, and 2.3.

A further 11 diffusion tube sites were in operation in Ely between October 2011 and October 2013 using Section 106 funds made available to monitor the environmental impacts of a new supermarket development in the city. These sites were decommissioned in November 2013 when funding ended. The monitoring demonstrated that air quality objectives were being met and that there was no deterioration in air quality during this period.

Environmental Scientifics Group (ESG) supplied and analysed the nitrogen dioxide tubes for ECDC in 2014. Exposure periods for the diffusion tubes are those recommended by the DEFRA LAQM Helpdesk web site with the tubes being changed every four or five weeks.

The diffusion tube results have been multiplied by a bias correction factor of 0.81 obtained from the DEFRA LAQM Helpdesk web site. Correction factors are derived from 2014 diffusion tube data which were co-located with real-time analysers. Details are included in the Appendix.

Quality Assurance and Quality Control systems were applied to the non-automatic monitoring programme. Details are provided in the Appendix.

Table 2.1 Details of Automatic Monitoring Site, 33 Station Road, Ely

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	Inlet height (m)	In AQMA?	Monitoring Technique	Relevant Exposure? *(Y/N with distance (m) to relevant exposure)*	Distance to kerb of nearest road *(N/A if not applicable)*	Does this location represent worst-case exposure?
AS1	Station Road (automatic), Ely	Roadside	554 309	279 638	NO_2	2.25m	N	Illumination of chemiluminescent gas phase reaction of NO and O_3	Y (15m)	15m	N

Table 2.2 Details of Non-Automatic Monitoring Sites

Site ID	Site Name	Site Type	OS Grid Ref	Pollutants Monitored	Is monitoring collocated with a Continuous Analyser (Y/N)	In AQ MA ?	Relevant Exposure?	Distance to kerb of nearest road	Worst-case Location?
NAS1	Market St, Ely	Roadside	X: 554154 Y: 280427	NO_2	N	N	Y (1m)	1.5m	Y
NAS2	Abbot Thurston Ave, Ely	Urban Background	X: 554616 Y: 281320	NO_2	N	N	Y (4.5m)	1.5m	N
NAS3	Station Rd, Ely	Roadside	X: 554322 Y: 279566	NO_2	N	N	N (15m)	3.5m	Y
NAS4	Fieldside, Ely	Urban Background	X: 553385 Y: 280309	NO_2	N	N	Y (7m)	3m	Y
NAS5	Main St, Littleport	Roadside	X: 556845 Y: 286801	NO_2	N	N	Y (2.5m)	2m	Y
NAS6	High St, Soham	Roadside	X: 559418 Y: 273089	NO_2	N	N	Y (1.5m)	1.5m	N
NAS7	Market St, Fordham	Roadside	X: 562682 Y: 270294	NO_2	N	N	Y (1.5m)	1.5m	Y
NAS8	Sheriffs Court, Bo.Green	Urban Background	X: 563721 Y: 255387	NO_2	N	N	Y (2m)	1.5m	N
NAS9	Station Road, Haddenham	Roadside	X: 546419 Y: 275628	NO_2	N	N	N (13m)	1m	Y
NAS10	Tramar Drive, Sutton	Urban Background	X: 545012 Y: 279286	NO_2	N	N	Y (8m)	2m	Y
NAS11	Nutholt Lane, Ely	Roadside	X: 554255 Y: 280536	NO_2	N	N	Y (2.5m)	2.5m	Y
NAS12	A142, Witcham Toll	Roadside	X: 546346 Y: 279106	NO_2	N	N	Y (5m)	1m	Y
NAS13	A10,Stretham	Roadside	X: 550811 Y: 274395	NO_2	N	N	N (12m)	1.5m	Y
NAS14	High St, Burwell	Roadside	X: 558896 Y: 266364	NO_2	N	N	Y (4m)	2m	N
NAS15	Hop Row, Haddenham	Roadside	X: 546466 Y: 275463	NO_2	N	N	Y (2m)	1m	Y
NAS16	High St, Haddenham	Roadside	X: 546382 Y: 275411	NO_2	N	N	Y (2m)	1m	Y
NAS17	West End, Haddenham	Roadside	X: 546185 Y: 275594	NO_2	N	N	Y (3m)	1m	Y

Figure 2.1 Map of Air Quality Monitoring Sites in East Cambridgeshire

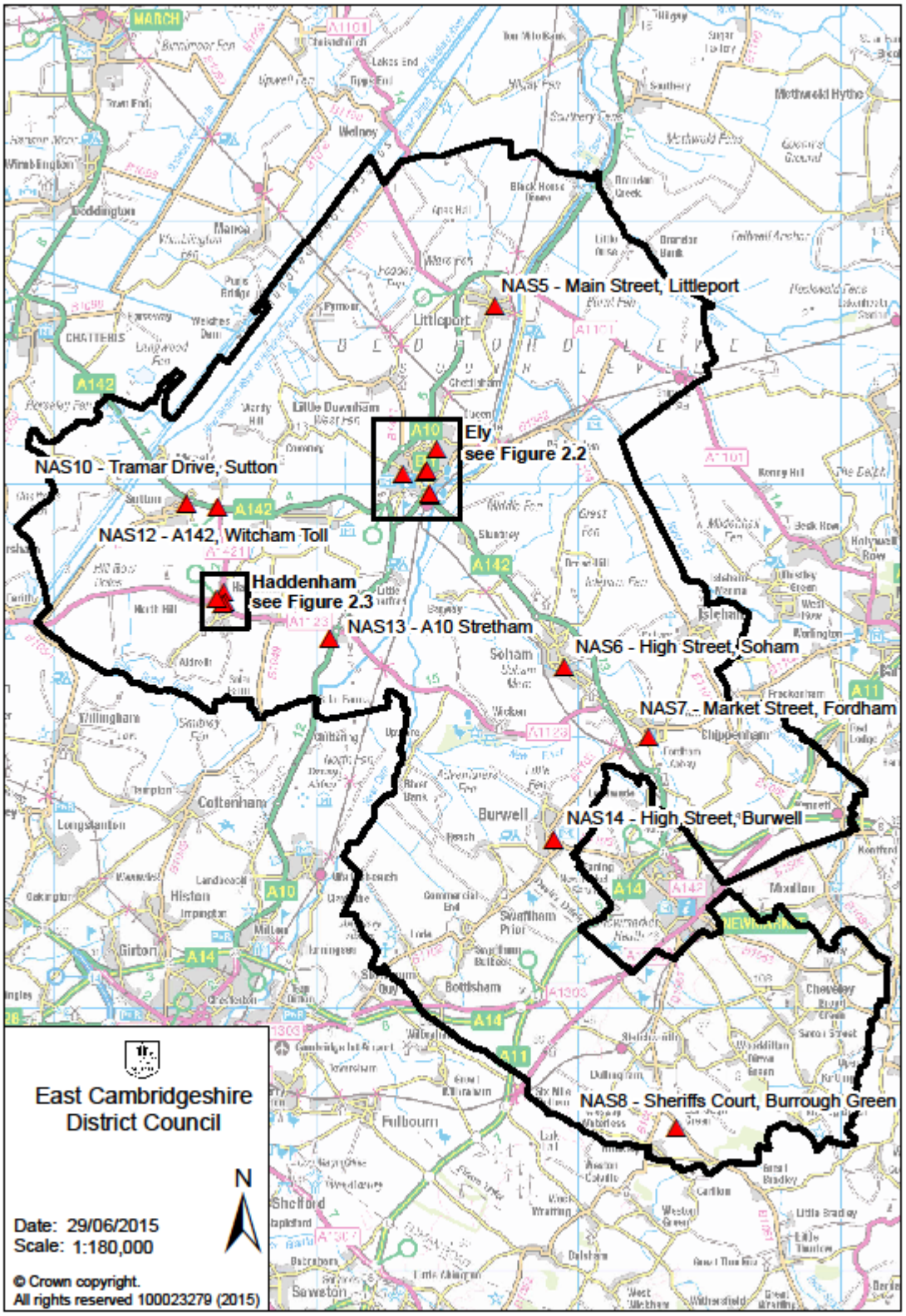


Figure 2.2 Map of Air Quality Monitoring Sites in Ely

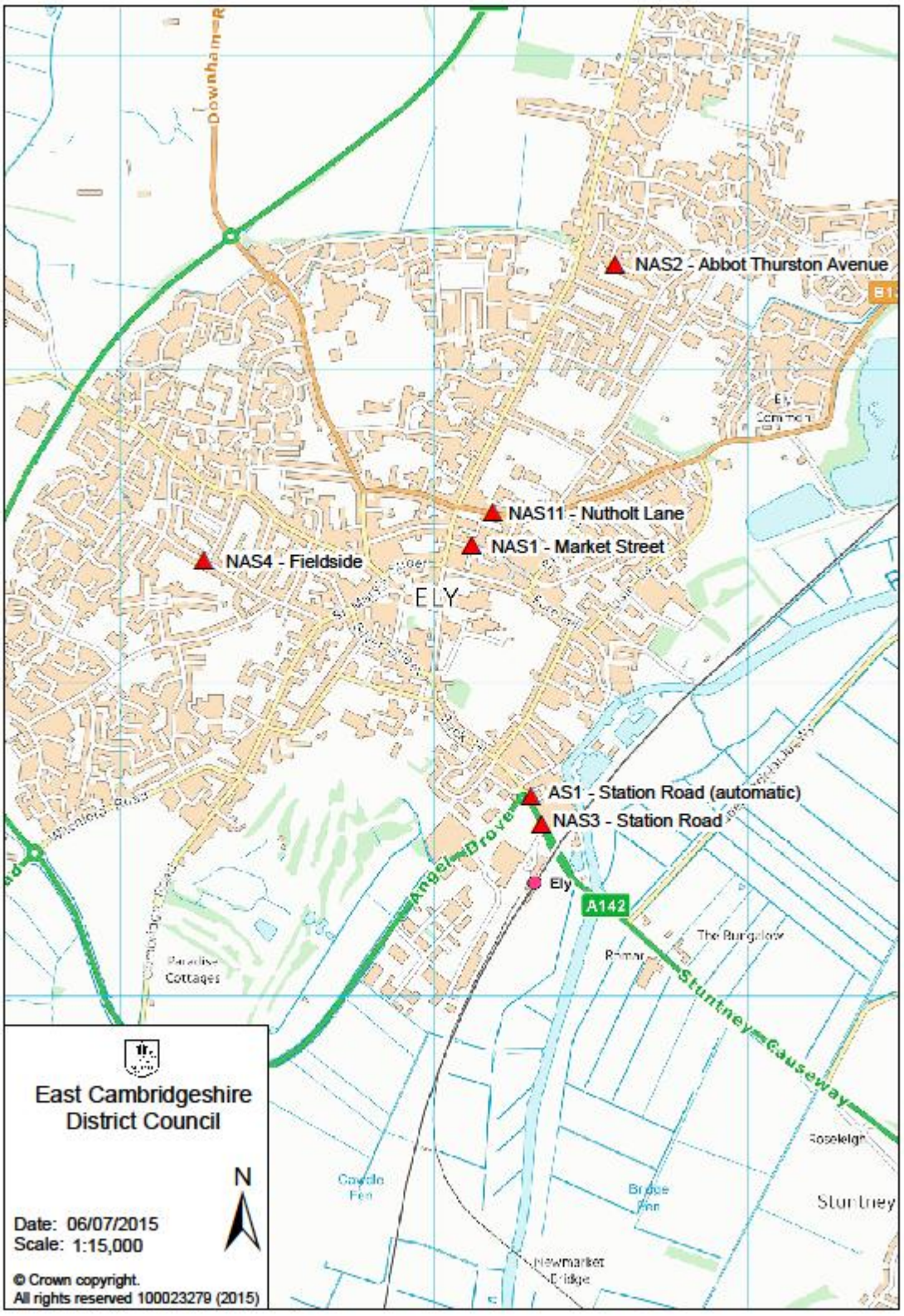
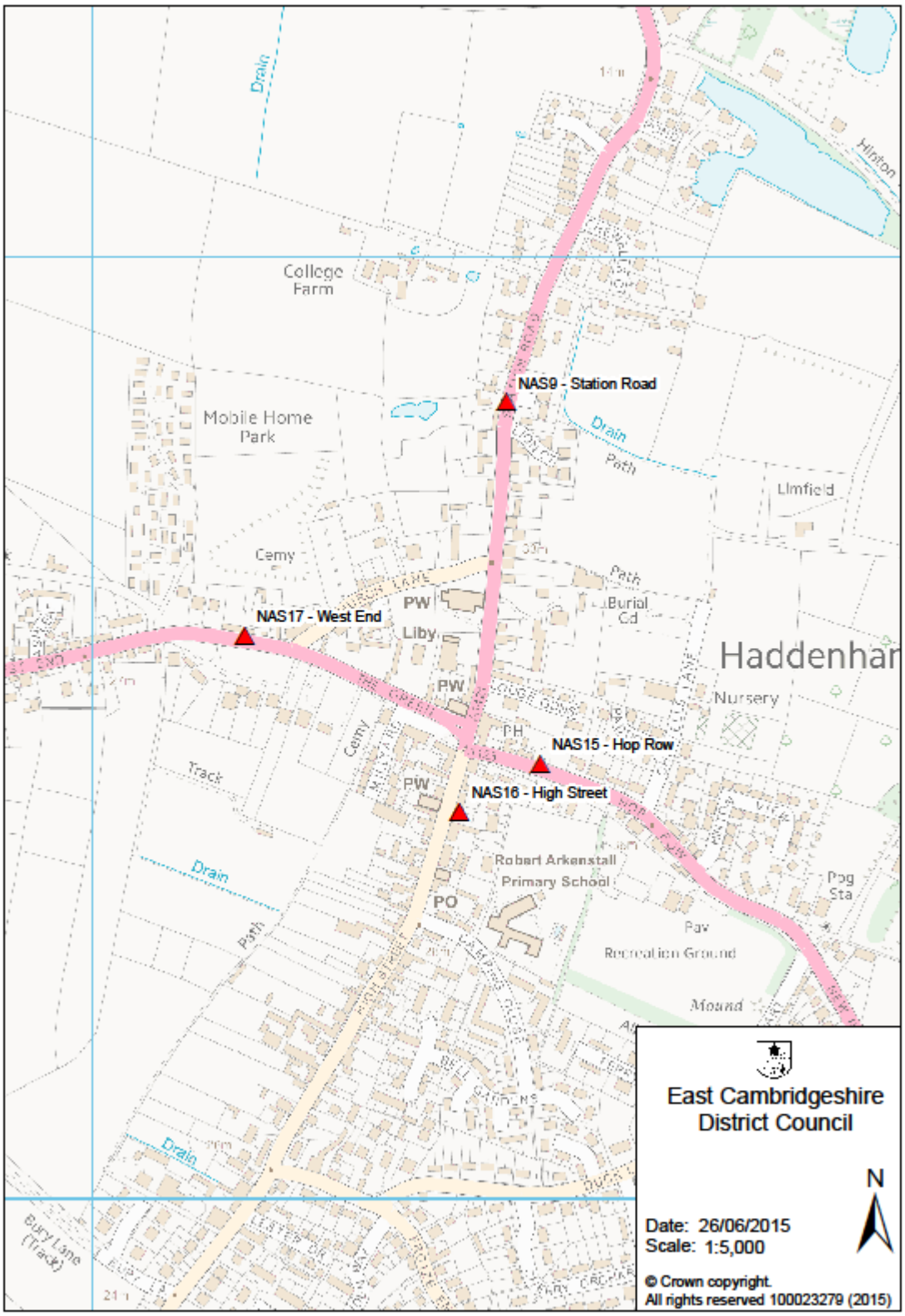


Figure 2.3 Map of Air Quality Monitoring Sites in Haddenham



2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide

Automatic Monitoring Data

Monitoring data for 33 Station Road, Ely shows an annual mean value of 32.70 µg/m^3 (see Table 2.3). For nitrogen dioxide the objectives are an annual mean of 40 µg/m^3 and a 1-hour mean of 200 µg/m^3 which is not to be exceeded more than 18 times a year. The 2014 monitoring did not record any exceedences of these objectives. However, there is considerable fluctuation within the figures with a maximum hourly average of 137.23 µg/m^3 recorded in November 2014.

An adjustment must be applied to the measured annual mean as set out in the DEFRA guidance document LAQM TG(09) as the measuring point is 15m from the kerb. Applying this adjustment gives a predicted annual mean concentration at the receptor of 53.8 µg/m^3. This represents an exceedence of the annual objective.

Table 2.3 Results of Automatic Monitoring of Nitrogen Dioxide: Comparison with Annual Mean Objective

Site ID	Location	Within AQMA?	Valid Data Capture for period of monitoring %[a]	Valid Data Capture 2014 % [b]	Annual Mean Concentration μg/m^3				
					2010 [c]	2011 [c]	2012 [c]	2013 [c]	2014 [c]
AS1	33 Station Road, Ely	N	98.29	98.29	N/A	N/A	**41.5**	32.65	32.70

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.
[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).
[c] Means should be "annualised" as in Box 3.2 of TG(09), if monitoring was not carried out for the full year.

Table 2.4 Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with 1-hour Mean Objective

Site ID	Location	Within AQMA?	Valid Data Capture for period of monitoring %[a]	Valid Data Capture 2014 % [b]	Number of Exceedences of Hourly Mean (200 μg/m^3)				
					2010 [c]	2011 [c]	2012 [c]	2013 [c]	2014 [c]
AS1	Station Road, Ely	N	98.29	98.29	N/A	N/A	0 (143.8)	0 (117.29)	0 (137.23)

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.
[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).
[c] If the period of valid data is less than 90%, include the 99.8th percentile of hourly means in brackets
(Maximum values shown in brackets)

Diffusion Tube Monitoring Data

In 2014 data capture at all monitoring sites was 100% at all but 5 of the 17 locations. One month of data was lost in each case. Data capture at all monitoring locations was above the threshold of 75% necessary to have confidence in the standard annual mean. Therefore, it was not necessary to annualise data to allow estimations of annual means to be derived for these sites.

Table 2.5 shows a summary of nitrogen dioxide diffusion tube data collected in 2014. Details of the bias adjusted annual mean nitrogen dioxide concentrations are presented in Table 2.5. Figures for 2010 to 2014 are shown in Table 2.6 for comparison. A full dataset of monthly mean values is included as Table 2.7. There were no co-located sites in 2014.

Compared with the data gathered in 2013, the concentrations for 2014 are lower at all locations. All sites continue to achieve the national objective of 40 µg/m^3 as shown in Table 2.5. Overall the results of diffusion tube monitoring have shown a decline in nitrogen dioxide concentrations in recent years. This is illustrated in Figure 2.4 which shows trends in annual mean nitrogen dioxide concentrations measured at the diffusion tube sites since 2006.

Table 2.5 Results of Nitrogen Dioxide Diffusion Tubes in 2014

Site ID	Location	Within AQMA?	Data Capture (Full calendar year - 2014) %	2014 Annual mean concentrations ($\mu g/m^3$) Adjusted for bias inc annualised results	Has data been distance corrected (Y/N)
NAS1	38 Market St, Ely	N	100	21.01	N
NAS2	Abbot Thurston Av, Ely	N	100	12.33	N
NAS3	Station Rd, Ely	N	91.1	21.58	N
NAS4	Fieldside, Ely	N	100	13.76	N
NAS5	Main St, Littleport	N	100	16.29	N
NAS6	High St, Soham	N	100	20.54	N
NAS7	Market St, Fordham	N	100	18.85	N
NAS8	Sheriffs Court, B'Green	N	91.1	11.24	N
NAS9	Station Road, Haddenham	N	100	25.9	N
NAS10	Tramar Drive, Sutton	N	100	13.09	N
NAS11	Nutholt Lane, Ely	N	100	19.33	N
NAS12	A142, Witcham Toll	N	91.1	29.51	N
NAS13	A10 Stretham	N	100	20.08	N
NAS14	High St, Burwell	N	91.1	18.39	N
NAS15	Hop Row, Haddenham	N	100	27.13	N
NAS16	High St, Haddenham	N	91.1	18.4	N
NAS17	West End, Haddenham	N	100	20.65	N

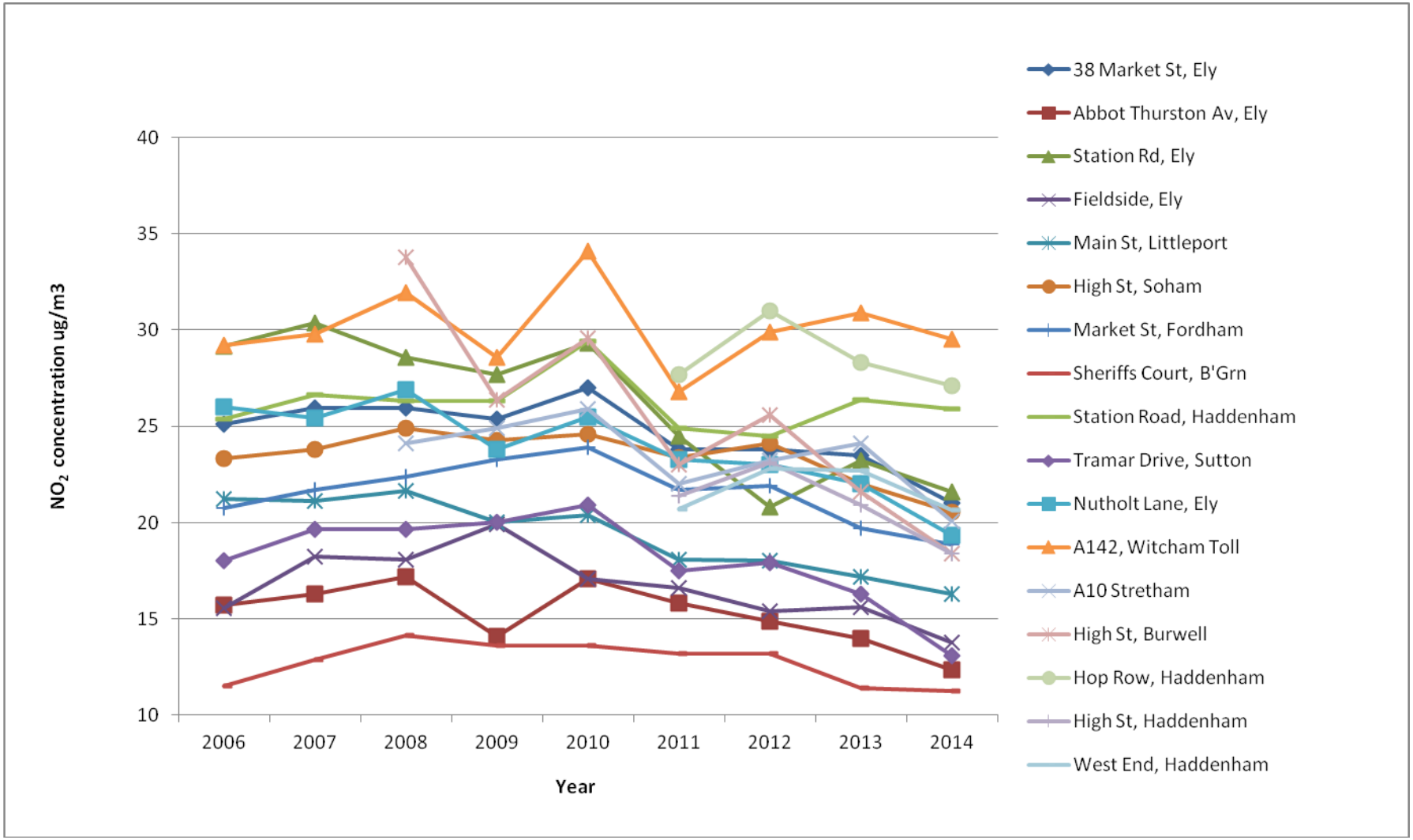
Table 2.6 Results of Nitrogen Dioxide Diffusion Tubes (2010 to 2014)

Site ID	Site	Within AQMA?	Annual mean concentration (adjusted for bias) μg/m^3				
			2010 (Bias Adjustment Factor = 0.78)	2011 (Bias Adjustment Factor = 0.83)	2012 (Bias Adjustment Factor = 0.79)	2013 (Bias Adjustment Factor = 0.80)	2014 (Bias Adjustment Factor = 0.81)
NAS1	38 Market St, Ely	N	27.0	23.8	23.8	23.5	21.01
NAS2	Abbot Thurston Av, Ely	N	17.1	15.8	14.9	14.0	12.33
NAS3	Station Rd, Ely	N	29.3	24.5	20.8	23.2	21.58
NAS4	Fieldside, Ely	N	17.1	16.6	15.4	15.6	13.76
NAS5	Main St, Littleport	N	20.4	18.1	18.0	17.2	16.29
NAS6	High St, Soham	N	24.6	23.4	24.1	22.0	20.54
NAS7	Market St, Fordham	N	23.9	21.7	21.9	19.7	18.85
NAS8	Sheriffs Crt, B'Green	N	13.6	13.2	13.2	11.4	11.24
NAS9	Station Rd, Haddenham	N	29.4	24.9	24.5	26.4	25.9
NAS10	Tramar Drive, Sutton	N	20.9	17.5	17.9	16.3	13.09
NAS11	Nutholt Lane, Ely	N	25.5	23.3	23.0	22.0	19.33
NAS12	A142, Witcham Toll	N	34.1	26.8	29.9	30.9	29.51
NAS13	A10 Stretham	N	25.9	22.0	23.2	24.1	20.08
NAS14	High St, Burwell	N	29.6	23.0	25.6	21.6	18.39
NAS15	Hop Row, Haddenham	N	N/A	27.7	31.0	28.3	27.13
NAS16	High St, Haddenham	N	N/A	21.4	23.1	20.9	18.4
NAS17	West End, Haddenham	N	N/A	20.7	22.8	22.7	20.65

Table 2.7 Nitrogen dioxide concentrations (monthly mean values) 2014

Site ID	Site	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Data Capture (%)	Annual Mean (ug/m^3)	Bias Adj (x0.81)
NAS1	Market St, Ely	30.2	27.4	28	24.8	20.5	14.8	20.6	21.4	29.7	26.1	35.3	32.5	100	31.64	21.01
NAS2	Abb. Thurston Av, Ely	24.5	20.9	14.1	11.5	13.9	4.4	7.7	10.1	12.9	18.1	23.8	20.7	100	21.74	12.33
NAS3	Station Rd, Ely	29.1	m	32.7	27.5	23.4	15.6	20.9	20.8	28.3	27	37.8	30	91.1	32.02	21.58
NAS4	Fieldside, Ely	23.7	22.8	19.1	12.6	12	9.5	8.5	12.2	14.9	18.4	26	24.2	100	23.38	13.76
NAS5	Main St, Littleport	27	24.4	19.4	17.4	14	7.3	13.6	15.2	18.4	24.1	27.5	33.1	100	26.26	16.29
NAS6	High St, Soham	29.5	26.3	30.6	22.3	21.7	21.5	22.1	17.8	28.9	22.4	33	28.2	100	31.10	20.54
NAS7	Market St, Fordham	30.7	27.4	27.9	20.1	19.5	15.1	15.1	17.5	23.7	25.9	32.9	23.5	100	29.12	18.85
NAS8	Sheriffs Court, B'Green	16.5	m	16.3	14.4	10.3	6.1	8.1	8.9	10.4	17.2	25.7	18.7	91.1	20.31	11.24
NAS9	Station Road, Haddenham	36.7	36.7	32.5	25.3	26.3	22.3	27.2	25.9	36.2	36.8	44.9	32.9	100	37.21	25.9
NAS10	Tramar Drive, Sutton	23.4	23.8	1.3	1.3	15.4	11.1	8.5	13.2	19.7	18	30.3	26.2	100	22.48	13.09
NAS11	Nutholt Lane, Ely	26	32.7	29.7	23.1	19	14.6	17.5	18.4	23.5	30.5	26.6	24.8	100	29.72	19.33
NAS12	A142, Witcham Toll	41.6	m	39.6	42.9	30.7	35.1	36.2	27	44.1	39	33	31.6	91.1	40.99	29.51
NAS13	A10 Stretham	23	27.1	33.3	22.1	22.5	23.4	15.7	16.7	31.7	30.8	26.8	24.4	100	30.58	20.08
NAS14	High St, Burwell	26.9	27.5	30.5	23.4	5.1	m	4.4	22.5	23.7	m	32.7	30.3	91.1	28.92	18.39
NAS15	Hop Row, Haddenham	31.3	38.9	29.4	26.3	30.1	24.1	28.8	26.7	39.5	42.6	46.4	37.8	100	38.61	27.13
NAS16	High St, Haddenham	25.8	27.2	30.1	23.4	19.1	18.1	20	14.9	29.6	23.9	m	17.8	91.1	28.42	18.4
NAS17	West End, Haddenham	28.4	27.8	29.7	23.5	21.3	17.8	20.5	18	25.8	31	38.3	27.6	100	31.52	20.65

Figure 2.4 Trends in Annual Mean Nitrogen Dioxide Concentrations measured at Diffusion Tube Sites 2006-14



2.2.2 PM_{10}

No PM10 monitoring was undertaken in East Cambridgeshire in 2014. Continuous monitoring was previously undertaken at Wicken Fen, between 2003 and 2012 but accommodation is no longer available for the monitor and the site was decommissioned in 2012. The data gathered at this site between 2003 and 2012 recorded consistent annual and 24-hour means that were within the national air quality objectives.

2.2.3 Sulphur Dioxide

No monitoring for sulphur dioxide has been carried out.

2.2.4 Benzene

No monitoring for benzene has been carried out.

2.2.5 Other pollutants monitored

No other pollutants have been monitored.

2.2.6 Summary of Compliance with AQS Objectives

East Cambridgeshire District Council has examined the results from monitoring in the district. Concentrations are all within the objectives at relevant locations except for measured concentrations of nitrogen dioxide above the annual mean1-hour objective at Station Road, Ely. However, ECDC has decided not to proceed to a Detailed Assessment at this time. This is discussed in Section 8.

3 Road Traffic Sources

3.1 Narrow Congested Streets with Residential Properties Close to the Kerb

East Cambridgeshire District Council confirms that there are no new/newly identified congested streets with a flow above 5,000 vehicles per day and residential properties close to the kerb, that have not been adequately considered in previous rounds of Review and Assessment.

3.2 Busy Streets Where People May Spend 1-hour or More Close to Traffic

East Cambridgeshire District Council confirms that there are no new/newly identified busy streets where people may spend 1 hour or more close to traffic.

3.3 Roads with a High Flow of Buses and/or HGVs.

East Cambridgeshire District Council confirms that there are no new/newly identified roads with high flows of buses/HGVs.

3.4 Junctions

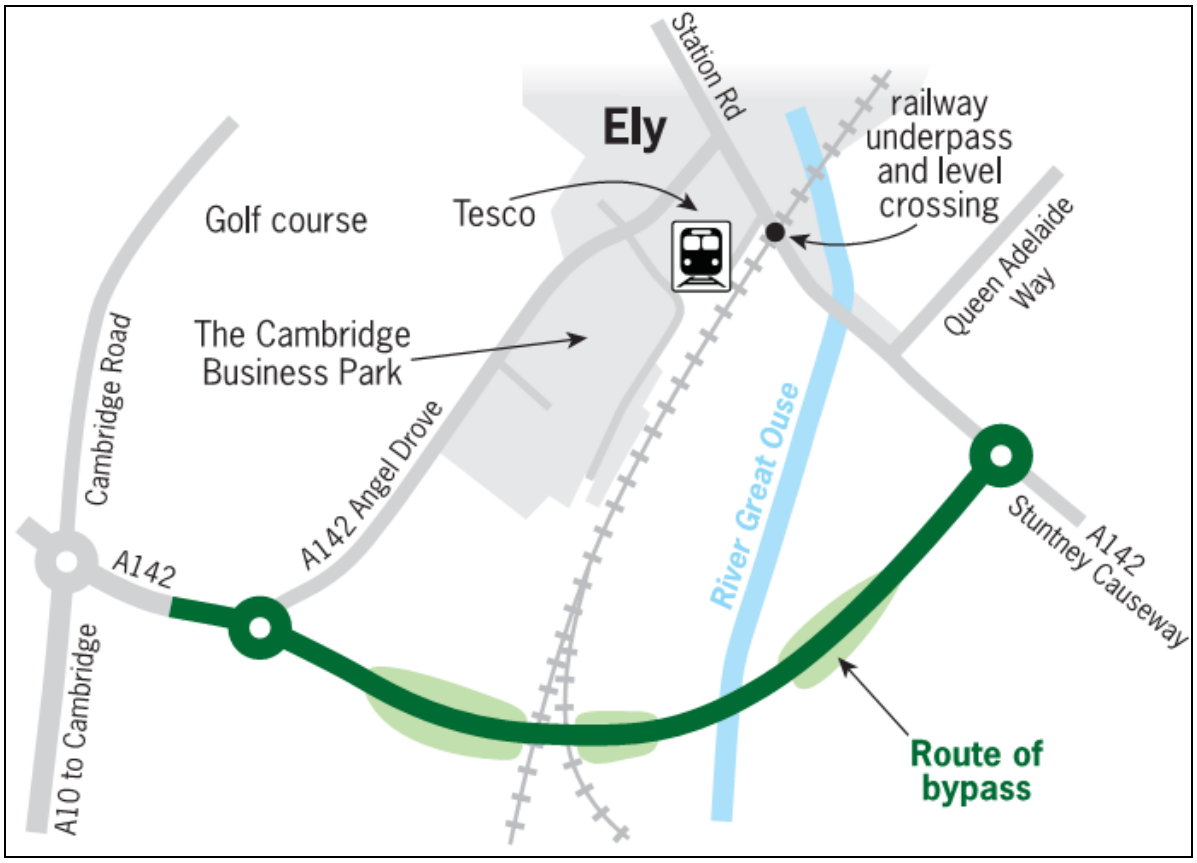
East Cambridgeshire District Council confirms that there are no new/newly identified busy junctions/busy roads.

3.5 New Roads Constructed or Proposed Since the Last Round of Review and Assessment

Planning permission for the new A142 Ely Southern Bypass was granted in September 2014. This is a proposed new road connecting the A142 at Angel Drove

to Stuntney Causeway, including bridges over the railway line, and the River Great Ouse and its floodplains (see Figure 3.1)

Figure 3.1 Route of proposed Ely Southern bypass



The area around Ely railway station is heavily congested with road traffic. At present vehicles travelling between Angel Drove and Stuntney Causeway must cross the railway line north of the station via an underpass or a level crossing. The bypass will ease traffic congestion, reduce the need for traffic to pass the railway station, and allow the level crossing to be permanently closed.

An Environmental Statement (ES) issued in accordance with the Town and Country Planning (Environmental Impact Regulations 2011 (England) accompanied the planning application submitted by Cambridgeshire County Council. An Air Quality assessment was included in the ES. Air dispersion modelling showed that the scheme would have a negligible effect on air quality over the new route with an improvement in air quality in Station Road. No exceedences of nitrogen dioxide or PM10 objectives have been predicted at relevant locations in the opening year.

No other new roads have been constructed or proposed since the last round of Review and Assessment.

East Cambridgeshire District Council has assessed new/proposed roads meeting the criteria in Section A.5 of Box 5.3 in TG(09), and concluded that it will not be necessary to proceed to a Detailed Assessment.

3.6 Roads with Significantly Changed Traffic Flows

East Cambridgeshire District Council confirms that there are no new/newly identified roads with significantly changed traffic flows.

3.7 Bus and Coach Stations

East Cambridgeshire District Council confirms that there are no relevant bus stations in the Local Authority area.

4 Other Transport Sources

4.1 Airports

East Cambridgeshire District Council confirms that there are no airports in the Local Authority area.

4.2 Railways (Diesel and Steam Trains)

4.2.1 Stationary Trains

East Cambridgeshire District Council confirms that there are no locations where diesel or steam trains are regularly stationary for periods of 15 minutes or more, with potential for relevant exposure within 15m.

4.2.2 Moving Trains

East Cambridgeshire District Council confirms that there are no locations with a large number of movements of diesel locomotives, and potential long-term relevant exposure within 30m.

4.3 Ports (Shipping)

East Cambridgeshire District Council confirms that there are no ports or shipping that meet the specified criteria within the Local Authority area.

5 Industrial Sources

5.1 Industrial Installations

5.1.1 New or Proposed Installations for which an Air Quality Assessment has been Carried Out

East Cambridgeshire District Council confirms that there are no new or proposed industrial installations for which planning approval has been granted within its area or nearby in a neighbouring authority.

5.1.2 Existing Installations where Emissions have Increased Substantially or New Relevant Exposure has been Introduced

East Cambridgeshire District Council confirms that there are no industrial installations with substantially increased emissions or new relevant exposure in their vicinity within its area or nearby in a neighbouring authority.

5.1.3 New or Significantly Changed Installations with No Previous Air Quality Assessment

East Cambridgeshire District Council confirms that there are no new or proposed industrial installations for which planning approval has been granted within its area or nearby in a neighbouring authority.

5.2 Major Fuel (Petrol) Storage Depots

There are no major fuel (petrol) storage depots within the Local Authority area.

5.3 Petrol Stations

East Cambridgeshire District Council confirms that there are no petrol stations meeting the specified criteria**.**

5.4 Poultry Farms

East Cambridgeshire District Council confirms that there are no poultry farms meeting the specified criteria.

6 Commercial and Domestic Sources

6.1 Biomass Combustion – Individual Installations

East Cambridgeshire District Council confirms that there are no biomass combustion plants in the Local Authority area.

6.2 Biomass Combustion – Combined Impacts

East Cambridgeshire District Council confirms that there are no biomass combustion plants in the Local Authority area.

6.3 Domestic Solid-Fuel Burning

East Cambridgeshire District Council confirms that there are no areas of significant domestic fuel use in the Local Authority area.

7 Fugitive or Uncontrolled Sources

East Cambridgeshire District Council confirms that there are no potential sources of fugitive particulate matter emissions in the Local Authority area.

8 Conclusions and Proposed Actions

8.1 Conclusions from New Monitoring Data

The automatic monitoring site AS1 at 33 Station Road, Ely, recorded an annual mean nitrogen dioxide concentration of 32.70 µg/m^3 in 2014. This is marginally higher than the figure of 32.6 5µg/m^3 recorded in 2013 but is within the air quality objective of 40.00 µg/m^3. However, when the figure is adjusted to take account of distance from the kerb the predicted annual mean concentration at a human receptor is 53.8 µg/m^3. This represents an exceedence of the annual mean air quality objective. There were no exceedences of the 1-hour mean objective of 200 µg/m^3.

All data from nitrogen dioxide diffusion tube monitoring sites, including NAS3 at Station Road, Ely, were within the air quality objective and all showed a downward trend compared with previous years. There are currently no AQMAs in East Cambridgeshire.

8.2 Conclusions from Assessment of Sources

The poor air quality at Station Road, Ely is caused by high traffic flows and queuing traffic on the A142 in Station Road and Angel Drove. This road carries approximately 15,000 vehicles per day of which 8% are HGVs. The road passes under the Ely to Kings Lynn railway line to the north of the station via an underpass which has a height restriction of 2.74m. Taller vehicles must use the adjacent level crossing. Increases in both passenger and freight rail traffic in recent years mean that the level crossing is now closed for around 40 minutes per hour during the day. When the gates are closed heavy traffic queues back on to the main carriage way blocking access to the underpass for smaller vehicles. Queues in Station Road and Angel Drove can reach 1.1km in length.

The poor air quality in Station Road, Ely has led to an exceedence of the air quality objective for nitrogen dioxide. Where an Updating and Screening Assessment has

indicated that there is a risk of the air quality objectives not being met the local authority would normally progress to a Detailed Assessment. However, in 2013 Cambridgeshire County Council completed a detailed air quality assessment in support of the planning application for the A142 Ely Southern Bypass. This is included as Chapter 7 of the Environmental Statement prepared under the Town and Country Planning (Environmental Impact Assessment) Regulations 2011. The methods used in the preparation of the Environmental Statement follow those set out in guidance published by the Highways Agency in the Design Manual for Roads and Bridges, 2007.

The air quality assessment utilised detailed dispersion modelling software ADMS-Roads, version 3.1. The model used information on traffic flows, vehicle emission rates, and local meteorological data, etc., to estimate air pollutant concentrations. The modelling showed that the scheme would have a negligible effect on air quality over the new route with an improvement in air quality in Station Road. No exceedences of nitrogen dioxide or PM10 objectives have been predicted at relevant locations in the opening year.

This USA concludes that a Detailed Assessment under LAQM would duplicate much of the work carried out for the air quality assessment in the Environmental Statement.

8.3 Proposed Actions

Planning permission was granted for the A142 Ely Southern By-pass in September 2014 (see Figure 3.1). When construction of the new road is complete the level crossing on Station Road will be permanently closed. All HGVs and other large vehicles currently using the crossing and many of the smaller vehicles will transfer to the new road. It is believed that the removal of this traffic will lead to a significant improvement in air quality in the Station Road area. The timetable for the construction of the new road is summarised in Table 8.1.

Table 8.1 Timetable for construction of A142 Ely Southern Bypass

Start of tender process for construction	early 2015
Start of preparation works	Spring 2015
Appointing a contractor	Autumn 2015
Detailed design works	Autumn 2015 – Spring 2016
Earliest possible start of construction	Spring 2016
Earliest possible completion	late 2017

As an air quality assessment has been completed and preparation work for the road scheme is under way, this USA finds that a Detailed Assessment is not required at this time. ECDC will continue to monitor air quality in Station Road including any changes which may occur when the new road opens.

This USA has not identified any need for additional monitoring or changes to the existing monitoring programme.

On the basis of the findings of this Updating and Screening Assessment ECDC proposes the following courses of action:

- To continue to operate the existing diffusion tube network to monitor nitrogen dioxide concentrations throughout the district
- To continue to operate the automatic nitrogen dioxide monitoring station in Station Road, Ely in order to record any changes in air quality during and after construction of the A142 Ely Southern Bypass
- To submit an Air Quality Progress Report in 2016 in accordance with the LAQM Review and Assessment Process.

References

Office for National Statistics (2012), 2011 Census for England & Wales

Cambridgeshire County Council (2014), Traffic Monitoring Report 2013

Cambridgeshire County Council (2013), Ely Southern Bypass – Environmental Statement: (in support of planning application E/03005/13/CC)

Department for Environment Food and Rural Affairs (2009), Local Air Quality Management Technical Guidance LAQM.TG(09)

Highways Agency (2007), Design Manual for Roads and bridges (HA207/07)

Appendix:

QA/QC Data

Appendix: QA/QC Data

Diffusion Tube Bias Adjustment Factors

Diffusion tube values have been multiplied by a bias correction factor of 0.81 obtained from the DEFRA LAQM Helpdesk national bias adjustment database (version 03/15).

Discussion of Choice of Factor to Use

No local co-location information was available so a bias adjustment factor was obtained from the national bias adjustment database which is available at: http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html.

Adjustment factors are derived from data from diffusion tubes which were co-located with real-time analysers.

Entering the parameters for ESG Didcot, and a 50% TEA in acetone preparation method for 2014 gave an adjustment factor of 0.81 which was applied to the ECDC data.

QA/QC of Automatic Monitoring

The automatic nitrogen dioxide monitor is an Enviro Technology 200A chemiluminescent NOx analyser operated in partnership with Leicester City Council (LCC): Contact details are:

Leicester City Council
Air Quality
Planning Transport and Economic Development
2nd Floor, Rutland Wing
City Hall
115 Charles Street
Leicester LE1 1FZ

ECDC pays LCC for the hire, full quality assurance, and ratification of the instrument and dataset. The monitor is manually calibrated on a bi-monthly basis by ECDC. The output from the calibrations is forwarded to LCC. LCC sub-contract data

validation and ratification to the Environmental Research Group (ERG), King's College, University of London.

The instrument is serviced by:

Enviro Technology Services plc
Kingfisher Business Park
Stroud
Gloucestershire GL5 2BY

The servicing contract resides with LCC. Servicing is carried out biannually.

QA/QC of Diffusion Tube Monitoring

The diffusion tubes were supplied and analysed by:

Environmental Scientifics Group (ESG)
Unit 12, Moorbrook
Southmead Industrial Estate
Didcot
Oxfordshire OX11 7HP

The tubes were prepared by spiking acetone: triethanolamine (50:50) onto the grids prior to being assembled. The tubes were desorbed with distilled water and the extract analysed using a segmented flow autoanalyser with ultraviolet detection. The tubes were analysed in accordance with ESG's standard operating procedure HS/WI/1015 issue 14. This method meets the guidelines set out in the DEFRA publication *Diffusion Tubes For Ambient NO_2 Monitoring: Practical Guidance*. As set out in the practical guidance, the results were initially calculated assuming an ambient temperature of 11^{o}C, the reported values have been adjusted to 20^{o}C to allow for direct comparison with EU limits.

The DEFRA LAQM Helpdesk publishes information on laboratory performance in the precision of diffusion tube analysis. This can be found at: http://laqm.defra.gov.uk/diffusion-tubes/precision.html

For the purposes of LAQM, tube precision is classed as either Good or Poor. Tubes are considered to have Good precision where the coefficient of variation (CV) of

duplicate or triplicate diffusion tubes for eight or more periods during the year is less than 20%, and the average CV of all monitoring periods is less than 10%. Tubes are considered to have Poor precision where the CV of four or more periods is greater than 20% and/or the average CV is greater than 10%.

The distinction between Good and Poor precision is an indicator of how well the same measurement can be reproduced. This precision will reflect the laboratory's performance/consistency in preparing and analysing the tubes, as well as the subsequent handling of the tubes in the field. Any laboratory can show Poor precision for a particular period/co-location study if this is due to poor handling of the tubes in the field. In 2014 ESG Didcot received a rating of Good in 19 studies and Poor in 11 studies.

The AIR/WASP (Workplace Analysis scheme for Proficiency) NO_2 proficiency testing scheme is an independent analytical testing scheme operated on behalf of DEFRA and the Devolved Administrations to test laboratory proficiency. Details of laboratory performance can be found at:
http://laqm.defra.gov.uk/diffusion-tubes/qa-qc-framework.html

Between April 2013 and November 2014 ESG Didcot achieved a 100% Satisfactory score in each round with a score of 87.5% in the most recent round in January/February 2015.