

# Appendix A

## Summary of traffic data obtained, and information used to run the DMRB screening model for junctions and roads within the Suffolk Coastal district.

<b>Table A-1</b>	Traffic count information for roads within the Suffolk Coastal district from Suffolk County Council (SCC) Environment and Transport Department. Vehicle count details are 7-day annual average daily traffic flows (AADTs), heavy duty vehicles (HDV's) include goods vehicles >6 metres in length and larger panel vans. Percentage HDV was calculated from the figures provided below for the roads of interest.
<b>Table A-2</b>	Additional traffic count information obtained for roads within the Suffolk Coastal district from Suffolk County Council (SCC) Environment and Transport Department, the Highways Agency, and independent traffic surveys commissioned by Suffolk Coastal District Council.
<b>Table A-3</b>	Summary of traffic data and other information used to run the DMRB screening model for the <b>junction of the B1438 and Pyches Road in Woodbridge</b> . DMRB predicted annual mean concentrations for nitrogen dioxide and particulate matter together with the number of days particulate matter concentrations are expected to be greater than 50µg/m <sup>3</sup>
<b>Table A-4</b>	Summary of traffic data and other information used to run the DMRB screening model for <b>junctions on the A1214 in Martlesham and Kesgrave</b> . DMRB predicted annual mean concentrations for nitrogen dioxide and particulate matter together with the number of days particulate matter concentrations are expected to be greater than 50µg/m <sup>3</sup>
<b>Table A-5</b>	Summary of traffic data and other information used to run the DMRB screening model for <b>junctions on the A12 in Woodbridge and Yoxford</b> . DMRB predicted annual mean concentrations for nitrogen dioxide and particulate matter together with the number of days particulate matter concentrations are expected to be greater than 50µg/m <sup>3</sup>
<b>Table A-6</b>	Summary of traffic data and other information used to run the DMRB screening model for <b>junctions within the town of Felixstowe</b> . DMRB predicted annual mean concentrations for nitrogen dioxide and particulate matter together with the number of days particulate matter concentrations are expected to be greater than 50µg/m <sup>3</sup>
<b>Table A-7</b>	Summary of traffic data and other information used to run the DMRB screening model for <b>an area of public seating, opposite the cinema and near the public toilets at Hamilton Road in Felixstowe, where the public may be expected to be present for 1-hour or more</b> . DMRB predicted annual mean concentrations for nitrogen dioxide.
<b>Table A-8</b>	Summary of traffic data and other information used to run the DMRB screening model for <b>an area of outside seating at a Public House on the B1438 junction with Old Barrack Road, Woodbridge, where the public may be expected to be present for 1-hour or more</b> . DMRB predicted annual mean concentrations for nitrogen dioxide.
<b>Table A-9</b>	Summary of traffic data and other information used to run the DMRB screening model for <b>an area of outside seating at a Public House on the A1214, Kesgrave, where the public may be expected to be present for 1-hour or more</b> . DMRB predicted annual mean concentrations for nitrogen dioxide.
<b>Table A-10</b>	Summary of traffic data and other information used to run the DMRB screening model for the <b>A14 trunk road</b> . DMRB predicted annual mean concentrations for nitrogen dioxide and particulate matter together with the number of days particulate matter concentrations are expected to be greater than 50µg/m <sup>3</sup>
<b>Table A-11</b>	Summary of traffic data and other information used to run the DMRB screening model for the <b>A12 trunk road</b> . DMRB predicted annual mean concentrations for nitrogen dioxide and particulate matter together with the number of days particulate matter concentrations are expected to be greater than 50µg/m <sup>3</sup>
<b>Table A-12</b>	Summary of traffic data and other information used to run the DMRB screening model for <b>the A1214</b> . DMRB predicted annual mean concentrations for nitrogen dioxide and particulate matter together with the number of days particulate matter concentrations are expected to be greater than 50µg/m <sup>3</sup>
<b>Table A-13</b>	Summary of traffic data and other information used to run the DMRB screening model for <b>the A1152</b> (not including the Melton crossroads). DMRB predicted annual mean concentrations for nitrogen dioxide and particulate matter together with the number of days particulate matter concentrations are expected to be greater than 50µg/m <sup>3</sup>

**Table A-1** **Traffic count information for roads within the Suffolk Coastal district from Suffolk County Council (SCC) Environment and Transport Department. Vehicle count details are 7-day annual average daily traffic flows (AADTs), heavy duty vehicles (HDV's) include goods vehicles >6 metres in length and larger panel vans. Percentage HDV was calculated from the figures provided below for the roads of interest.**

Road	Traffic count site description	SCC site identification details	Grid reference Eastings	Grid reference Northings	7-day AADTs – all motorised vehicles. Details for 2002 (unless otherwise stated)	Goods vehicle AADTs – (>6m in length) where available. Details for 2002 (unless otherwise stated)	Larger ‘Panel’ Van AADTs (5.2m – 6m) where available. Details for 2002 (unless otherwise stated)
A12	WOODBIDGE BYPASS SOUTH OF B1079	M002	626000	249200	30,523	1758	2006
A1214	MARTLESHAM WEST OF A12	M004	623764	246132	20,165	1138	464
A154	FELIXSTOWE	M020	629577	235915	15,810	580	518
A1094	NORTH WEST OF ALDEBURGH	M027	644116	258307	4303	179	122
B1078	OTLEY EAST OF C306	M036	619366	254036	3576	387	888
B1116	NORTH OF PARHAM	M040	629974	260965	4013	305	115
A12	SOUTH OF YOXFORD	M042	639300	268120	11,997	1627	904
B1077	SWILLAND NORTH OF C366	M055	618355	252349	1690	81	62
B1119	WEST OF SAXMUNDHAM BYPASS	M058	637305	263626	1817	57	37
B1438	SOUTH OF WOODBRIDGE	M059	625641	247964	10370	no data available	no data available
B1438	QUAYSIDE WOODBRIDGE	M070	627673	248955	9189	498	642
A14	PORT OF FELIXSTOWE ROAD, FELIXSTOWE	M071	628540	235440	18,088 (1996)	6017 (1996)	388 (1996)
B1069	TUNSTALL EAST OF C335	M074	635950	235082	2730	178	128
B1122	THEBERTON	M078	643910	265689	4464	257	82
A14	TRIMLEY, SOUTH EAST OF C375	M080	626320	238590	26,864 (1997)	6812 (1997)	509 (1997)
B1438	SOUTH OF WICKHAM MARKET	M088	629929	254074	4209	265	177
C322	FOXHALL ROAD IPSWICH	M089	621524	244033	10,195	340	463
A12	SAXMUNDHAM BYPASS	M095	637850	265320	11,815	1416	774
A12	MARTLESHAM BYPASS	M096	624500	247650	28,954 (1996)	2310 (1996)	662 (1996)
A1156	WARREN HEATH - IPSWICH	P004	619758	242493	24,059	1083	732
A1120	SAXTEAD SOUTH WEST OF U2119	P005	624650	263930	3710	303	150
A144	SOUTH OF BRAMFIELD	Y005	640250	272488	3484	no data available	no data available
A1120	WEST OF PEASENHALL	Y013	634920	269130	2666	no data available	no data available
B1069	NORTH EAST OF TUNSTALL	Y017	636630	255590	1747	no data available	no data available
B1069	KNODISHALL COMMON	Y018	642373	259901	4057	631	2004
B1078	CLOPTON EAST OF B1079	Y022	621880	254430	3004	no data available	no data available
B1079	GRUNDISBURGH SOUTH OF B1078	Y024	620448	254746	2379	no data available	no data available
B1079	CLOPTON	Y025	621500	253480	2026	no data available	no data available
B1083	SUTTON WALKS, SOUTH OF C340	Y026	629900	248790	2850	no data available	no data available
B1084	BUTLEY, SPRATT STREET	Y027	633109	250599	2029	no data available	no data available
B1084	ORFORD SOUTH OF U3829	Y028	641790	250661	2101	no data available	no data available
B1116	DENNINGTON NORTH OF B1118	Y035	628330	268630	1544	no data available	no data available
B1118	DENNINGTON WEST OF B1116	Y036	628020	268320	264	no data available	no data available
B1119	EAST OF SAXMUNDHAM	Y038	641077	262535	2868	161	151
B1120	FRAMLINGHAM BADINGHAM ROAD	Y040	629300	264220	1086	no data available	no data available

Traffic counts shaded in grey have been used for road assessments in this report.

Table continued overleaf

Road	Traffic count site description	SCC site identification details	Grid reference Eastings	Grid reference Northings	7-day AADTs – all motorised vehicles. Details for 2002 (unless otherwise stated)	Goods vehicle AADTs – (>6m in length) where available. Details for 2002 (unless otherwise stated)	Larger 'Panel' Van AADTs (5.2m – 6m) where available. Details for 2002 (unless otherwise stated)
B1121	STERNFIELD EAST OF C247	Y041	639415	261438	1026	no data available	no data available
B1122	EAST OF YOXFORD	Y042	640488	268444	3150	280	106
B1122	LEISTON SOUTH OF B1353	Y043	644640	260780	3524	no data available	no data available
B1123	LINSTEAD	Y044	635604	277675	1359	no data available	no data available
B1125	SOUTH OF WESTLETON	Y045	643786	267944	2612	72	82
B1353	WEST OF THORPENESS	Y049	645507	260685	2169	no data available	no data available
A12	BRAMFIELD, SOUTH OF A144	Y109	641400	271300	13,752 (1996)	1522 (1996)	382 (1996)
A12	BRAMFIELD, NORTH OF A144	Y110	641550	271600	10,208 (1996)	1201 (1996)	383 (1996)
A12	BLYTHBURGH, SOUTH OF A145	Y111	645200	275700	12,748	no data available	no data available
A1094	SNAPPE WEST OF B1069	Y114	639398	259344	1265	no data available	no data available
A1094	SNAPPE EAST OF B1069	Y115	639747	259329	9003	522	510
A1120	SAXTEAD BOTTOM	Y118	626380	265720	1796	no data available	no data available
B1069	SOUTH OF TUNSTALL	Y119	635775	254810	2398	no data available	no data available
B1069	GOLDFAIR GREEN	Y122	643781	261167	4288	no data available	no data available
B1078	WEST OF TUNSTALL	Y125	634608	255578	861	no data available	no data available
B1078	EAST OF TUNSTALL	Y126	636530	255050	768	no data available	no data available
B1079	WOODBIDGE EAST OF A12	Y127	626110	249340	3557	no data available	no data available
B1083	BROMESWELL NORTH OF C340	Y128	629690	249150	5563	no data available	no data available
B1117	HEVENINGHAM SOUTH OF C220	Y130	634633	273768	892	no data available	no data available
B1119	SAXTEAD GREEN	Y132	626110	264430	3571	no data available	no data available
B1122	SOUTH OF LEISTON	Y133	644525	261179	5048	no data available	no data available
B1353	ALDRINGHAM	Y136	644289	261019	2143	no data available	no data available
B1387	BLYTHBURGH EAST OF A12	Y137	645223	274239	1275	no data available	no data available
B1438	SOUTH OF UFFORD	Y138	629050	252100	3542	no data available	no data available
C340	SUTTON WALKS	Y139	630050	248910	2753	no data available	no data available
A12	FARNHAM	Y141	636060	260110	16,727	1172	855
A12	BENHALL, SOUTH OF B1121	Y142	637765	261010	9689	1152	389
B1122	NORTH OF LEISTON SOUTH OF U2822	Y143	644370	263130	4200	no data available	no data available
U2822	LEISTON LOVERS LANE	Y152	644800	263740	1654	108 (1995)	36 (1995)
A14	TRIMLEY HEATH SLIP ON	Y155	628100	237300	1461 (1996)	25 (1996)	16 (1996)
U3215	MARTLESHAM EAGLE WAY NORTH	Y170	624444	245806	4477	204	256
U3215	MARTLESHAM EAGLE WAY SOUTH	Y171	624660	245218	3832	123	97
B1121	NORTH OF SAXMUNDHAM	Y172	638333	265570	1764	222	131
B1121	SOUTH OF SAXMUNDHAM	Y173	638233	261642	409	162 (1994)	47 (1994)
C228	LEISTON KING GEORGES AVENUE	Y174	645261	262502	4025	no data available	no data available
Sizewell	SIZEWELL 'B' GATE HOUSE	Y175	647100	263175	1385 (1996)	75 (1996)	77 (1996)
C0376	MARTLESHAM EAST OF BLACKTILES LANE	Y176	624620	246442	2702	235	213
A14	TRIMLEY HEATH SLIP OFF	Y178	628075	237275	1886 (1996)	26 (1996)	15 (1996)
C0372	MARTLESHAM FELIXSTOWE ROAD	Y182	624940	246500	4488	no data available	no data available
B1116	FRAMLINGHAM COLLEGE ROAD	Y204	627840	264300	2112	no data available	no data available

Traffic counts shaded in grey have been used for road assessments in this report.

**Table A-2 Additional traffic count information obtained for roads within the Suffolk Coastal district from Suffolk County Council (SCC) Environment and Transport Department, the Highways Agency, and independent traffic surveys commissioned by Suffolk Coastal District Council.**

Road	Traffic count site description	Source of traffic count information	Grid reference Eastings	Grid reference Northings	7-day AADTs – all motorised vehicles, together with year of data collection	% of Light Duty Vehicles (LDV)	% of Heavy Duty Vehicles (HDV)
A12	BRIGHTWELL	Highways Agency	624800	244300	31,166 (2000)	91.6 %	8.4 %
A12	WICKHAM MARKET	Highways Agency	630800	255100	20,566 (2000)	no data available	no data available
A14	EAST OF ORWELL BRIDGE	Highways Agency	618300	241100	50,128 (2002)	69.3 %	30.7 %
A14	TRIMLEY HEATH	Highways Agency	628800	237300	32,992 (2002)	68.7 %	31.3 %
Dobbs Lane	KESGRAVE	SCC Environment & Transport	623533	244752	1,987 (1999)	no data available	no data available
Bell Lane	KESGRAVE	SCC Environment & Transport	621853	244360	3,605 (1999)	no data available	no data available
Garrison Lane	FELIXSTOWE	SCC Environment & Transport	629997	235404	6,933 (2000)	93.6 %	6.4 %
Beatrice Avenue	FELIXSTOWE	SCC Environment & Transport	630343	235463	7,416 (2000)	95.5 %	4.5 %
High Road West	TRIMLEY, FELIXSTOWE	SCC Environment & Transport	629793	235326	10,281 (2002)	92.9 %	7.1 %
Pytches Road	WOODBIDGE	SCC Environment & Transport	627469	249495	2,307 (2001)	95.1 %	4.9 %
High Road West	FELIXSTOWE	SCDC employed traffic count	630181	235227	10,583 (2000)	92.1 %	7.9 %
B1438	LIME KILN QUAY ROAD, WOODBRIDGE	SCDC employed traffic count	627715	249067	10,040 (2002)	94.7 %	5.3 %
B1438	MELTON HILL, WOODBRIDGE	SCDC employed traffic count	627633	249378	10,549 (2002)	95.3 %	4.7 %
B1438	MELTON ROAD, MELTON	SCDC employed traffic count	628036	250220	9,026 (2002)	94.0 %	6.0 %
B1438	THE STREET, MELTON	SCDC employed traffic count	628193	250514	5,683 (2002)	92.7 %	7.3 %
A1152	WOODS LANE, MELTON	SCDC employed traffic count	627870	250450	11,973 (2002)	93.0 %	7.0 %
A1152	WILFORD BRIDGE ROAD, MELTON	SCDC employed traffic count	628468	250340	12,366 (2002)	93.9 %	6.1 %
A1152	WILFORD BRIDGE ROAD, MELTON	SCDC employed traffic count	629019	250267	12,807 (2002)	92.7 %	7.3 %
A1152	ORFORD ROAD, BROMESWELL	SCDC employed traffic count	630025	250147	7,046 (2002)	93.3 %	6.7 %
A1152	THE STREET, EYKE	SCDC employed traffic count	631653	251735	5,073 (2002)	93.3 %	6.7 %

**Table A-3 Summary of traffic data and other information used to run the DMRB screening model for the junction of the B1438 and Pytches Road in Woodbridge. DMRB predicted annual mean concentrations for nitrogen dioxide and particulate matter together with the number of days particulate matter concentrations are expected to be greater than 50µg/m<sup>3</sup>**

Road or junction identification	Address of receptor	Distance from receptor to centre of road (m)	Combined AADT flow (HDV + LDV) base year	Combined AADT flow (HDV + LDV) for 2004 * (PM <sub>10</sub> )	Combined AADT flow (HDV + LDV) for 2005 * (NO <sub>2</sub> )	Annual average speed (km/h) (N.B to convert mph to kmh x by 1.609)	Road type (A,B,C or D) #	% Light Duty Vehicles (LDV)	% Heavy Duty Vehicles (HDV)	Background PM <sub>10</sub> concentration for 2004 (µg/m <sup>3</sup> )	Background NO <sub>x</sub> concentration for 2005 (µg/m <sup>3</sup> )	Background NO <sub>2</sub> concentration for 2005 (µg/m <sup>3</sup> )	Summary of output results from DMRB spreadsheet
<b>Junction of the B1438 and Pytches Road in Woodbridge Link 1 (B1438) ♣</b>	Closest relevant receptor location to road, Woodbridge	NO <sub>2</sub> 8.8 m PM <sub>10</sub> 21.6 m	10,549 (2002)	12,649	13,023	20 km/h	B	95.3%	4.7%	18.9 µg/m <sup>3</sup>	26.3 µg/m <sup>3</sup>	18.3 µg/m <sup>3</sup>	n/a
<b>Junction of the B1438 and Pytches Road in Woodbridge Link 2 (Pytches Road) ♣</b>	Closest relevant receptor location to road, Woodbridge	NO <sub>2</sub> 5.3 m PM <sub>10</sub> 5.3 m	2,307 (2001)	2,453	2,501	20 km/h	B	95.1%	4.9%	18.9 µg/m <sup>3</sup>	26.3 µg/m <sup>3</sup>	18.3 µg/m <sup>3</sup>	<b>PM<sub>10</sub></b> annual mean – <b>21.9</b> µg/m <sup>3</sup> number of days conc. exceeds 50µg/m <sup>3</sup> – <b>6.2</b> <b>NO<sub>2</sub></b> annual mean – <b>25.2</b> µg/m <sup>3</sup>

**For details on how predicted AADT was obtained for the B1438 in 2004 and 2005, see Appendix G.**

\* Traffic summary figures calculated by Suffolk Coastal District Council using a Trip End Modelling Programme (TEMPRO), provided by Suffolk County Council Environment and Transport Department, to calculate general future growth.

# The DMRB Screening Method has four road type categories built into it (A,B,C,D). A is all motorways or A-roads. B is urban roads which are neither motorways nor A-roads. C is any other roads. A,B and C include default values for traffic compositions for that type of road. The fourth road type, category D, allows the user to input their own traffic composition data where they have it.

♣ Assessment of a junction by DMRB requires that it is split into a number of road links as per the instruction manual, information is put into the model for each link. DMRB calculates the total concentration at a receptor from both links.

**Table A-4 Summary of traffic data and other information used to run the DMRB screening model for junctions on the A1214 in Martlesham and Kesgrave. DMRB predicted annual mean concentrations for nitrogen dioxide and particulate matter together with the number of days particulate matter concentrations are expected to be greater than 50µg/m<sup>3</sup>**

Road or junction identification	Address of receptor	Distance from receptor to centre of road (m)	Combined AADT flow (HDV + LDV) base year	Combined AADT flow (HDV + LDV) for 2004 * (PM <sub>10</sub> )	Combined AADT flow (HDV + LDV) for 2005 * (NO <sub>2</sub> )	Annual average speed (km/h) (N.B to convert mph to kmh x by 1.609)	Road type (A,B,C or D) #	% Light Duty Vehicles (LDV)	% Heavy Duty Vehicles (HDV)	Background PM <sub>10</sub> concentration for 2004 (µg/m <sup>3</sup> )	Background NO <sub>x</sub> concentration for 2005 (µg/m <sup>3</sup> )	Background NO <sub>2</sub> concentration for 2005 (µg/m <sup>3</sup> )	Summary of output results from DMRB spreadsheet
<b>Junction of the A1214 and A12 in Martlesham</b> <b>Link 1 (A1214) ♣</b>	Closest relevant receptor location to road, Martlesham	72.0m	20,165 (2002)	27,580	29,500	32 km/h	A	92.1%	7.9%	19.1 µg/m <sup>3</sup>	26.4 µg/m <sup>3</sup>	18.4 µg/m <sup>3</sup>	n/a
<b>Junction of the A1214 and A12 in Martlesham</b> <b>Link 2 (A12 N) ♣</b>	Closest relevant receptor location to road, Martlesham	27.0m	28,954 (1996)	35,556	36,251	48 km/h	A	89.7%	10.3%	19.1 µg/m <sup>3</sup>	26.4 µg/m <sup>3</sup>	18.4 µg/m <sup>3</sup>	<b>PM<sub>10</sub></b> annual mean – <b>26.5</b> µg/m <sup>3</sup> number of days conc. exceeds 50µg/m <sup>3</sup> – <b>16.3</b> <b>NO<sub>2</sub></b> annual mean – <b>31.7</b> µg/m <sup>3</sup>
<b>Junction of the A1214 and Dobbs Lane in Kesgrave</b> <b>Link 1 (A1214) ♣</b>	Closest relevant receptor location to road, Kesgrave	NO <sub>2</sub> 9.3 m PM <sub>10</sub> 26.0 m	20,165 (2002)	27,580	29,500	38 km/h	A	92.1%	7.9%	19.1 µg/m <sup>3</sup>	26.9 µg/m <sup>3</sup>	18.6 µg/m <sup>3</sup>	n/a
<b>Junction of the A1214 and Dobbs Lane in Kesgrave</b> <b>Link 2 (Dobbs Lane) ♣</b>	Closest relevant receptor location to road, Kesgrave	NO <sub>2</sub> 7.1 m PM <sub>10</sub> 7.8 m	1,987 (1999)	2,234	2,278	20 km/h	B	92.1%	7.9%	19.1 µg/m <sup>3</sup>	26.9 µg/m <sup>3</sup>	18.6 µg/m <sup>3</sup>	<b>PM<sub>10</sub></b> annual mean – <b>24.9</b> µg/m <sup>3</sup> number of days conc. exceeds 50µg/m <sup>3</sup> – <b>12.2</b> <b>NO<sub>2</sub></b> annual mean – <b>34.1</b> µg/m <sup>3</sup>

**For details on how predicted AADT was obtained for 2004 and 2005, see Appendix H.**

\* Traffic summary figures calculated by Suffolk Coastal District Council using a Trip End Modelling Programme (TEMPRO), provided by Suffolk County Council Environment and Transport Department, to calculate general future growth.  
# The DMRB Screening Method has four road type categories built into it (A,B,C,D). A is all motorways or A-roads. B is urban roads which are neither motorways nor A-roads. C is any other roads. A,B and C include default values for traffic compositions for that type of road. The fourth road type, category D, allows the user to input their own traffic composition data where they have it.

♣ Assessment of a junction by DMRB requires that it is split into a number of road links as per the instruction manual, information is put into the model for each link. DMRB calculates the total concentration at a receptor from both links.

**Table A-4 continued overleaf**

**Table A-4 contd. Summary of traffic data and other information used to run the DMRB screening model for junctions on the A1214 in Martlesham and Kesgrave. DMRB predicted annual mean concentrations for nitrogen dioxide and particulate matter together with the number of days particulate matter concentrations are expected to be greater than 50µg/m<sup>3</sup>**

Road or junction identification	Address of receptor	Distance from receptor to centre of road (m)	Combined AADT flow (HDV + LDV) base year	Combined AADT flow (HDV + LDV) for 2004 * (PM <sub>10</sub> )	Combined AADT flow (HDV + LDV) for 2005 * (NO <sub>2</sub> )	Annual average speed (km/h) (N.B to convert mph to kmh x by 1.609)	Road type (A,B,C or D) #	% Light Duty Vehicles (LDV)	% Heavy Duty Vehicles (HDV)	Background PM <sub>10</sub> concentration for 2004 (µg/m <sup>3</sup> )	Background NO <sub>x</sub> concentration for 2005 (µg/m <sup>3</sup> )	Background NO <sub>2</sub> concentration for 2005 (µg/m <sup>3</sup> )	Summary of output results from DMRB spreadsheet
<b>Junction of the A1214 and Bell Lane in Kesgrave</b> <b>Link 1 (A1214) ♣</b>	Closest relevant receptor location to road, Kesgrave	6.4 m	20,165 (2002)	27,580	29,500	20 km/h	A	92.1%	7.9%	19.1 µg/m <sup>3</sup>	26.9 µg/m <sup>3</sup>	18.6 µg/m <sup>3</sup>	n/a
<b>Junction of the A1214 and Bell Lane in Kesgrave</b> <b>Link 2 (Bell Lane) ♣</b>	Closest relevant receptor location to road, Kesgrave	20.1 m	3,605 (1999)	4,053	4,132	20 km/h	B	92.1%	7.9%	19.1 µg/m <sup>3</sup>	26.9 µg/m <sup>3</sup>	18.6 µg/m <sup>3</sup>	<b>PM<sub>10</sub></b> annual mean – <b>28.5</b> µg/m <sup>3</sup> number of days conc. exceeds 50µg/m <sup>3</sup> – <b>22.2</b> <b>NO<sub>2</sub></b> annual mean– <b>34.5</b> µg/m <sup>3</sup>

**For details on how predicted AADT was obtained for 2004 and 2005, see Appendix H.**

\* Traffic summary figures calculated by Suffolk Coastal District Council using a Trip End Modelling Programme (TEMPO), provided by Suffolk County Council Environment and Transport Department, to calculate general future growth.

# The DMRB Screening Method has four road type categories built into it (A,B,C,D). A is all motorways or A-roads. B is urban roads which are neither motorways nor A-roads. C is any other roads. A,B and C include default values for traffic compositions for that type of road. The fourth road type, category D, allows the user to input their own traffic composition data where they have it.

♣ Assessment of a junction by DMRB requires that it is split into a number of road links as per the instruction manual, information is put into the model for each link. DMRB calculates the total concentration at a receptor from both links.

**Table A-5 Summary of traffic data and other information used to run the DMRB screening model for junctions on the A12 in Woodbridge and Yoxford. DMRB predicted annual mean concentrations for nitrogen dioxide and particulate matter together with the number of days particulate matter concentrations are expected to be greater than 50µg/m<sup>3</sup>**

Road or junction identification	Address of receptor	Distance from receptor to centre of road (m)	Combined AADT flow (HDV + LDV) base year	Combined AADT flow (HDV + LDV) for 2004 * (PM <sub>10</sub> )	Combined AADT flow (HDV + LDV) for 2005 * (NO <sub>2</sub> )	Annual average speed (km/h) (N.B to convert mph to km/h x by 1.609)	Road type (A,B,C or D) #	% Light Duty Vehicles (LDV)	% Heavy Duty Vehicles (HDV)	Background PM <sub>10</sub> concentration for 2004 (µg/m <sup>3</sup> )	Background NO <sub>x</sub> concentration for 2005 (µg/m <sup>3</sup> )	Background NO <sub>2</sub> concentration for 2005 (µg/m <sup>3</sup> )	Summary of output results from DMRB spreadsheet
<b>Junction of the A12 and B1079 in Woodbridge</b> <b>Link 1 (B1079) ♣</b>	Closest relevant receptor location to road, Woodbridge	NO <sub>2</sub> 7.4m PM <sub>10</sub> 19.8m	2,026 (2002)	2,110	2,152	38 km/h	A	87.7%	12.3%	18.4 µg/m <sup>3</sup>	22.0 µg/m <sup>3</sup>	16.2 µg/m <sup>3</sup>	n/a
<b>Junction of the A12 and B1079 in Woodbridge</b> <b>Link 2 (A12) ♣</b>	Closest relevant receptor location to road, Woodbridge	NO <sub>2</sub> 25.8m PM <sub>10</sub> 28.0m	30,523 (2002)	31,775	32,416	48 km/h	A	87.7%	12.3%	18.4 µg/m <sup>3</sup>	22.0 µg/m <sup>3</sup>	16.2 µg/m <sup>3</sup>	<b>PM<sub>10</sub></b> annual mean <b>25.1µg/m<sup>3</sup></b> number of days conc. exceeds 50µg/m <sup>3</sup> – <b>12.6</b> <b>NO<sub>2</sub></b> annual mean- <b>30.7µg/m<sup>3</sup></b>
<b>Junction of the A12 and A1120 in Yoxford</b> <b>Link 1 (A12) ♣</b>	Closest relevant receptor location to road, Yoxford	NO <sub>2</sub> 5.3m PM <sub>10</sub> 8.1m	11,997 (2002)	12,489	12,741	38 km/h	A	78.9%	21.1%	17.8 µg/m <sup>3</sup>	15.3 µg/m <sup>3</sup>	12.0 µg/m <sup>3</sup>	n/a
<b>Junction of the A12 and A1120 in Yoxford</b> <b>Link 2 (A1120) ♣</b>	Closest relevant receptor location to road, Yoxford	NO <sub>2</sub> 8.1m PM <sub>10</sub> 8.1m	2,666 (2002)	2,776	2,832	20 km/h	A	78.9%	21.1%	17.8 µg/m <sup>3</sup>	15.3 µg/m <sup>3</sup>	12.0 µg/m <sup>3</sup>	<b>PM<sub>10</sub></b> annual mean <b>-27.2µg/m<sup>3</sup></b> number of days conc. exceeds 50µg/m <sup>3</sup> – <b>18.1</b> <b>NO<sub>2</sub></b> annual mean <b>-29.9µg/m<sup>3</sup></b>

\* Traffic summary figures calculated by Suffolk Coastal District Council using a Trip End Modelling Programme (TEMPRO), provided by Suffolk County Council Environment and Transport Department, to calculate general future growth.  
# The DMRB Screening Method has four road type categories built into it (A,B,C,D). A is all motorways or A-roads. B is urban roads which are neither motorways nor A-roads. C is any other roads. A,B and C include default values for traffic compositions for that type of road. The fourth road type, category D, allows the user to input their own traffic composition data where they have it.  
♣ Assessment of a junction by DMRB requires that it is split into a number of road links as per the instruction manual, information is put into the model for each link. DMRB calculates the total concentration at a receptor from both links.



**Table A-6 Summary of traffic data and other information used to run the DMRB screening model for junctions within the town of Felixstowe. DMRB predicted annual mean concentrations for nitrogen dioxide and particulate matter together with the number of days particulate matter concentrations are expected to be greater than 50µg/m<sup>3</sup>**

Road or junction identification	Address of receptor	Distance from receptor to centre of road (m)	Combined AADT flow (HDV + LDV) base year	Combined AADT flow (HDV + LDV) for 2004 * (PM <sub>10</sub> )	Combined AADT flow (HDV + LDV) for 2005 * (NO <sub>2</sub> )	Annual average speed (km/h) (N.B to convert mph to kmh x by 1.609)	Road type (A,B,C or D) #	% Light Duty Vehicles (LDV)	% Heavy Duty Vehicles (HDV)	Background PM <sub>10</sub> concentration for 2004 (µg/m <sup>3</sup> )	Background NO <sub>x</sub> concentration for 2005 (µg/m <sup>3</sup> )	Background NO <sub>2</sub> concentration for 2005 (µg/m <sup>3</sup> )	Summary of output results from DMRB spreadsheet
<b>Junction of High Road West and Garrison Lane, Felixstowe</b> <b>Link 1 (High Road West) ♣</b>	Closest relevant receptor location to road, Felixstowe	7.5m	10,281 (2002)	10,703	10,919	20 km/h	B	92.9%	7.1%	19.1 µg/m <sup>3</sup>	25.4 µg/m <sup>3</sup>	17.9 µg/m <sup>3</sup>	n/a
<b>Junction of High Road West and Garrison Lane, Felixstowe</b> <b>Link 2 (Garrison Lane) ♣</b>	Closest relevant receptor location to road, Felixstowe	10.2 m	6,933 (2000)	7,578	7,724	20 km/h	B	93.6%	6.4%	19.1 µg/m <sup>3</sup>	25.4 µg/m <sup>3</sup>	17.9 µg/m <sup>3</sup>	PM <sub>10</sub> annual mean <b>24.6µg/m<sup>3</sup></b> number of days conc. exceeds 50µg/m <sup>3</sup> – <b>11.5</b> NO <sub>2</sub> annual mean- <b>27.4µg/m<sup>3</sup></b>
<b>Junction of High Road East &amp; West, Beatrice Avenue and Hamilton Road, Felixstowe</b> <b>Link 1 (Beatrice Avenue &amp; Hamilton Road) ♣</b>	Closest relevant receptor location to road, Felixstowe	7.3 m	7,416 (2000)	8,106	8,262	20 km/h	B	95.5%	4.5%	19.1 µg/m <sup>3</sup>	25.4 µg/m <sup>3</sup>	17.9 µg/m <sup>3</sup>	n/a
<b>Junction of High Road East &amp; West, Beatrice Avenue and Hamilton Road, Felixstowe</b> <b>Link 2(High Road East &amp; West) ♣</b>	Closest relevant receptor location to road, Felixstowe	7.3 m	10,583 (2000)	11,568	11,790	20 km/h	B	92.1%	7.9%	19.1 µg/m <sup>3</sup>	25.4 µg/m <sup>3</sup>	17.9 µg/m <sup>3</sup>	PM <sub>10</sub> annual mean – <b>25.1µg/m<sup>3</sup></b> number of days conc. exceeds 50µg/m <sup>3</sup> – <b>12.7</b> NO <sub>2</sub> annual mean – <b>28.0µg/m<sup>3</sup></b>

\* Traffic summary figures calculated by Suffolk Coastal District Council using a Trip End Modelling Programme (TEMPO), provided by Suffolk County Council Environment and Transport Department, to calculate general future growth.

# The DMRB Screening Method has four road type categories built into it (A,B,C,D). A is all motorways or A-roads. B is urban roads which are neither motorways nor A-roads. C is any other roads. A,B and C include default values for traffic compositions for that type of road. The fourth road type, category D, allows the user to input their own traffic composition data where they have it.

♣ Assessment of a junction by DMRB requires that it is split into a number of road links as per the instruction manual, information is put into the model for each link. DMRB calculates the total concentration at a receptor from both links.

**Table A-7 Summary of traffic data and other information used to run the DMRB screening model for an area of public seating, opposite the cinema and near the public toilets at Hamilton Road in Felixstowe, where the public may be expected to be present for 1-hour or more. DMRB predicted annual mean concentrations for nitrogen dioxide.**

Road or junction identification	Address of receptor	Distance from receptor to centre of road (m)	Combined AADT flow (HDV + LDV) base year	Combined AADT flow (HDV + LDV) for 2004 * (PM <sub>10</sub> )	Combined AADT flow (HDV + LDV) for 2005 * (NO <sub>2</sub> )	Annual average speed (km/h) (N.B to convert mph to kmh x by 1.609)	Road type (A,B,C or D) #	% Light Duty Vehicles (LDV)	% Heavy Duty Vehicles (HDV)	Background PM <sub>10</sub> concentration for 2004 (µg/m <sup>3</sup> )	Background NO <sub>x</sub> concentration for 2005 (µg/m <sup>3</sup> )	Background NO <sub>2</sub> concentration for 2005 (µg/m <sup>3</sup> )	Summary of output results from DMRB spreadsheet
Area of public seating, opposite the cinema and near the public toilets at Hamilton Road, Felixstowe	Area of public seating, Felixstowe	7.5 m	17,999 (2000)	n/a	20,051	32 km/h	B	93.8%	6.2%	n/a	25.4 µg/m <sup>3</sup>	17.9 µg/m <sup>3</sup>	NO <sub>2</sub> annual mean– 25.4µg/m <sup>3</sup>

**Table A-8 Summary of traffic data and other information used to run the DMRB screening model for an area of outside seating at a Public House on the B1438 junction with Old Barrack Road, Woodbridge, where the public may be expected to be present for 1-hour or more. DMRB predicted annual mean concentrations for nitrogen dioxide.**

Road or junction identification	Address of receptor	Distance from receptor to centre of road (m)	Combined AADT flow (HDV + LDV) base year	Combined AADT flow (HDV + LDV) for 2004 * (PM <sub>10</sub> )	Combined AADT flow (HDV + LDV) for 2005 * (NO <sub>2</sub> )	Annual average speed (km/h) (N.B to convert mph to kmh x by 1.609)	Road type (A,B,C or D) #	% Light Duty Vehicles (LDV)	% Heavy Duty Vehicles (HDV)	Background PM <sub>10</sub> concentration for 2004 (µg/m <sup>3</sup> )	Background NO <sub>x</sub> concentration for 2005 (µg/m <sup>3</sup> )	Background NO <sub>2</sub> concentration for 2005 (µg/m <sup>3</sup> )	Summary of output results from DMRB spreadsheet
Area of outside seating at a Public House on the junction of the B1438 and Old Barrack Road, Woodbridge	Closest relevant receptor location to road, Woodbridge	5.81 m	10,370 (2002)	n/a	12,601	38 km/h	B	87.6%	12.4%	n/a	28.7 µg/m <sup>3</sup>	19.5 µg/m <sup>3</sup>	n/a
Link 1 (B1438) ♣ Area of outside seating at a Public House on the junction of the B1438 and Old Barrack Road, Woodbridge	Closest relevant receptor location to road, Woodbridge	17.9 m	1,181 (2002)	n/a	1,255	20 km/h	B	87.6%	12.4%	n/a	28.7 µg/m <sup>3</sup>	19.5 µg/m <sup>3</sup>	NO <sub>2</sub> annual mean–28.1µg/m <sup>3</sup>
Link 2 (Old Barrack Road) ♣													

For details on how predicted AADT was obtained for the B1438 in 2004 and 2005, see Appendix G.

\* Traffic summary figures calculated by Suffolk Coastal District Council using a Trip End Modelling Programme (TEMPRO), provided by Suffolk County Council Environment and Transport Department, to calculate general future growth.  
# The DMRB Screening Method has four road type categories built into it (A,B,C,D). A is all motorways or A-roads. B is urban roads which are neither motorways nor A-roads. C is any other roads. A,B and C include default values for traffic compositions for that type of road. The fourth road type, category D, allows the user to input their own traffic composition data where they have it.  
♣ Assessment of a junction by DMRB requires that it is split into a number of road links as per the instruction manual, information is put into the model for each link. DMRB calculates the total concentration at a receptor from both links.

**Table A-9 Summary of traffic data and other information used to run the DMRB screening model for an area of outside seating at a Public House on the A1214, Kesgrave, where the public may be expected to be present for 1-hour or more. DMRB predicted annual mean concentrations for nitrogen dioxide.**

Road or junction identification	Address of receptor	Distance from receptor to centre of road (m)	Combined AADT flow (HDV + LDV) base year	Combined AADT flow (HDV + LDV) for 2004 * (PM <sub>10</sub> )	Combined AADT flow (HDV + LDV) for 2005 * (NO <sub>2</sub> )	Annual average speed (km/h) (N.B to convert mph to km/h x by 1.609)	Road type (A,B,C or D) #	% Light Duty Vehicles (LDV)	% Heavy Duty Vehicles (HDV)	Background PM <sub>10</sub> concentration for 2004 (µg/m <sup>3</sup> )	Background NO <sub>x</sub> concentration for 2005 (µg/m <sup>3</sup> )	Background NO <sub>2</sub> concentration for 2005 (µg/m <sup>3</sup> )	Summary of output results from DMRB spreadsheet
Area of outside seating at a Public House on the A1214, Main Road, Kesgrave	Closest relevant receptor location to road, Kesgrave	6.1m	20,165 (2002)	n/a	29,500	20 km/h	A	92.1%	7.9%	n/a	26.9 µg/m <sup>3</sup>	18.6 µg/m <sup>3</sup>	NO <sub>2</sub> annual mean –32.2µg/m <sup>3</sup>

**For details on how predicted AADT was obtained for 2004 and 2005, see Appendix H.**

\* Traffic summary figures calculated by Suffolk Coastal District Council using a Trip End Modelling Programme (TEMPRO), provided by Suffolk County Council Environment and Transport Department, to calculate general future growth together with information on traffic generated from each of two developments which will use this road. Information on developments and traffic generated by them can be seen in Appendix H.

# The DMRB Screening Method has four road type categories built into it (A,B,C,D). A is all motorways or A-roads. B is urban roads which are neither motorways nor A-roads. C is any other roads. A,B and C include default values for traffic compositions for that type of road. The fourth road type, category D, allows the user to input their own traffic composition data where they have it.

**Table A-10 Summary of traffic data and other information used to run the DMRB screening model for the A14 trunk road. DMRB predicted annual mean concentrations for nitrogen dioxide and particulate matter together with the number of days particulate matter concentrations are expected to be greater than 50µg/m<sup>3</sup>**

Road or junction identification	Address of receptor	Distance from receptor to centre of road (m)	Combined AADT flow (HDV + LDV) base year	Combined AADT flow (HDV + LDV) for 2004 * (PM <sub>10</sub> )	Combined AADT flow (HDV + LDV) for 2005 * (NO <sub>2</sub> )	Annual average speed (km/h) (N.B to convert mph to kmh x by 1.609)	Road type (A,B,C or D) #	% Light Duty Vehicles (LDV)	% Heavy Duty Vehicles (HDV)	Background PM <sub>10</sub> concentration for 2004 (µg/m <sup>3</sup> )	Background NO <sub>x</sub> concentration for 2005 (µg/m <sup>3</sup> )	Background NO <sub>2</sub> concentration for 2005 (µg/m <sup>3</sup> )	Summary of output results from DMRB spreadsheet
<b>A14 Section 1</b> Haven Exchange roundabout to Dock Spur roundabout, Felixstowe (Port of Felixstowe Road)	Closest relevant receptor location to road, Felixstowe	26.5m	18,088 (1996)	22,213	22,647	96 km/h	A	64.6%	35.4%	18.7 µg/m <sup>3</sup>	22.4 µg/m <sup>3</sup>	16.4 µg/m <sup>3</sup>	<b>PM<sub>10</sub></b> annual mean – <b>25.7</b> µg/m <sup>3</sup> number of days conc. exceeds 50µg/m <sup>3</sup> – <b>14.2</b> <b>NO<sub>2</sub></b> annual mean – <b>32.9</b> µg/m <sup>3</sup>
<b>A14 Section 1</b> Reduced speeds at Haven Exchange roundabout	Closest relevant receptor location to road, Felixstowe	NO <sub>2</sub> 20.0m PM <sub>10</sub> 63.8m	18,088 (1996)	22,213	22,647	32 km/h	A	64.6%	35.4%	18.7 µg/m <sup>3</sup>	22.4 µg/m <sup>3</sup>	16.4 µg/m <sup>3</sup>	<b>PM<sub>10</sub></b> annual mean – <b>22.7</b> µg/m <sup>3</sup> number of days conc. exceeds 50µg/m <sup>3</sup> – <b>7.6</b> <b>NO<sub>2</sub></b> annual mean – <b>37.0</b> µg/m <sup>3</sup>
<b>A14 Section 2</b> Dock Spur roundabout, Felixstowe to A12 junction, Nacton	Closest relevant receptor location to road, Trimley St. Martin	17.7m	32,992 (2002)	34,345	35,038	96 km/h	A	68.7%	31.3%	18.7 µg/m <sup>3</sup>	22.4 µg/m <sup>3</sup>	16.4 µg/m <sup>3</sup>	<b>PM<sub>10</sub></b> annual mean – <b>28.4</b> µg/m <sup>3</sup> number of days conc. exceeds 50µg/m <sup>3</sup> – <b>21.9</b> <b>NO<sub>2</sub></b> annual mean – <b>37.1</b> µg/m <sup>3</sup>
<b>A14 Section 2</b> Reduced speeds and junction assessment at Dock Spur roundabout, <b>Link 1 (A14 North of roundabout) ♣</b>	Closest relevant receptor location to road, Felixstowe	NO <sub>2</sub> 72.0m PM <sub>10</sub> 87.8m	32,992 (2002)	34,345	35,038	96 km/h	A	68.7%	31.3%	18.7 µg/m <sup>3</sup>	22.4 µg/m <sup>3</sup>	16.4 µg/m <sup>3</sup>	<b>n/a</b>
<b>A14 Section 2</b> Reduced speeds and junction assessment at Dock Spur roundabout, <b>Link 2 (A14 + A154, South of roundabout) ♣</b>	Closest relevant receptor location to road, Felixstowe	NO <sub>2</sub> 27.0m PM <sub>10</sub> 31.0m	18,088 (1996)	22,213	22,647	32 km/h	A	64.6%	35.4%	18.7 µg/m <sup>3</sup>	22.4 µg/m <sup>3</sup>	16.4 µg/m <sup>3</sup>	<b>PM<sub>10</sub></b> annual mean – <b>29.9</b> µg/m <sup>3</sup> number of days conc. exceeds 50µg/m <sup>3</sup> – <b>27.1</b> <b>NO<sub>2</sub></b> annual mean – <b>38.7</b> µg/m <sup>3</sup>

\* Traffic summary figures calculated by Suffolk Coastal District Council using a Trip End Modelling Programme (TEMPO), provided by Suffolk County Council Environment and Transport Department, to calculate general future growth.

# The DMRB Screening Method has four road type categories built into it (A,B,C,D). A is all motorways or A-roads. B is urban roads which are neither motorways nor A-roads. C is any other roads. A,B and C include default values for traffic compositions for that type of road. The fourth road type, category D, allows the user to input their own traffic composition data where they have it.

♣ Assessment of a junction by DMRB requires that it is split into a number of road links as per the instruction manual, information is put into the model for each link. DMRB calculates the total concentration at a receptor from both links.

**Table A-10 continued overleaf**

**Table A-10 contd. Summary of traffic data and other information used to run the DMRB screening model for the A14 trunk road. DMRB predicted annual mean concentrations for nitrogen dioxide and particulate matter together with the number of days particulate matter concentrations are expected to be greater than 50µg/m<sup>3</sup>**

Road or junction identification	Address of receptor	Distance from receptor to centre of road (m)	Combined AADT flow (HDV + LDV) base year	Combined AADT flow (HDV + LDV) for 2004 * (PM <sub>10</sub> )	Combined AADT flow (HDV + LDV) for 2005 * (NO <sub>2</sub> )	Annual average speed (km/h) (N.B to convert mph to kmh x by 1.609)	Road type (A,B,C or D) #	% Light Duty Vehicles (LDV)	% Heavy Duty Vehicles (HDV)	Background PM <sub>10</sub> concentration for 2004 (µg/m <sup>3</sup> )	Background NO <sub>x</sub> concentration for 2005 (µg/m <sup>3</sup> )	Background NO <sub>2</sub> concentration for 2005 (µg/m <sup>3</sup> )	Summary of output results from DMRB spreadsheet
<b>A14 Section 3</b> A12 junction, Nacton to Ipswich Borough boundary	Closest relevant receptor location to road, Nacton	56.0m	50,128 (2002)	52,184	53,236	101 km/h	A	69.3%	30.7%	19.1 µg/m <sup>3</sup>	27.1 µg/m <sup>3</sup>	18.7 µg/m <sup>3</sup>	<b>PM<sub>10</sub></b> annual mean – <b>23.6</b> µg/m <sup>3</sup> number of days conc. exceeds 50µg/m <sup>3</sup> – <b>9.3</b> <b>NO<sub>2</sub></b> annual mean– <b>29.8</b> µg/m <sup>3</sup>
<b>A14 Section 3</b> Receptors where A14 Section 3 and A1156 run parallel, so contribution from both. <b>Link 1 (A14) ♣</b>	Closest relevant receptor location to road, Nacton	55.0m	50,128 (2002)	52,184	53,236	101 km/h	A	69.3%	30.7%	19.1 µg/m <sup>3</sup>	27.1 µg/m <sup>3</sup>	18.7 µg/m <sup>3</sup>	<b>n/a</b>
<b>A14 Section 3</b> Receptors where A14 Section 3 and A1156 run parallel, so contribution from both. <b>Link 2 (A1156) ♣</b>	Closest relevant receptor location to road, Nacton	119.6m	24,059 (2002)	25,046	25,551	64 km/h	A	92.5%	7.5%	19.1 µg/m <sup>3</sup>	27.1 µg/m <sup>3</sup>	18.7 µg/m <sup>3</sup>	<b>PM<sub>10</sub></b> annual mean – <b>24.4</b> µg/m <sup>3</sup> number of days conc. exceeds 50µg/m <sup>3</sup> – <b>11.0</b> <b>NO<sub>2</sub></b> annual mean – <b>28.3</b> µg/m <sup>3</sup>

\* Traffic summary figures calculated by Suffolk Coastal District Council using a Trip End Modelling Programme (TEMPO), provided by Suffolk County Council Environment and Transport Department, to calculate general future growth.

# The DMRB Screening Method has four road type categories built into it (A,B,C,D). A is all motorways or A-roads. B is urban roads which are neither motorways nor A-roads. C is any other roads. A,B and C include default values for traffic compositions for that type of road. The fourth road type, category D, allows the user to input their own traffic composition data where they have it.

♣ Assessment of a junction by DMRB requires that it is split into a number of road links as per the instruction manual, information is put into the model for each link. DMRB calculates the total concentration at a receptor from both links.

**Table A-11 Summary of traffic data and other information used to run the DMRB screening model for the A12 trunk road. DMRB predicted annual mean concentrations for nitrogen dioxide and particulate matter together with the number of days particulate matter concentrations are expected to be greater than 50µg/m<sup>3</sup>**

Road or junction identification	Address of receptor	Distance from receptor to centre of road (m)	Combined AADT flow (HDV + LDV) base year	Combined AADT flow (HDV + LDV) for 2004 * (PM <sub>10</sub> )	Combined AADT flow (HDV + LDV) for 2005 * (NO <sub>2</sub> )	Annual average speed (km/h) (N.B to convert mph to kmh x by 1.609)	Road type (A,B,C or D) #	% Light Duty Vehicles (LDV)	% Heavy Duty Vehicles (HDV)	Background PM <sub>10</sub> concentration for 2004 (µg/m <sup>3</sup> )	Background NO <sub>x</sub> concentration for 2005 (µg/m <sup>3</sup> )	Background NO <sub>2</sub> concentration for 2005 (µg/m <sup>3</sup> )	Summary of output results from DMRB spreadsheet
<b>A12 Section 1</b> A14 junction, Nacton to A1214 roundabout, Martlesham	Closest relevant receptor location to road, Martlesham	18.4m	31,166 (2000)	34,065	34,719	86 km/h	A	91.6%	8.4%	19.1 µg/m <sup>3</sup>	26.4 µg/m <sup>3</sup>	18.4 µg/m <sup>3</sup>	<b>PM<sub>10</sub></b> annual mean - <b>23.1</b> µg/m <sup>3</sup> number of days conc. exceeds 50µg/m <sup>3</sup> – <b>8.2</b> <b>NO<sub>2</sub></b> annual mean – <b>27.6</b> µg/m <sup>3</sup>
<b>A12 Section 1</b> Reduced speeds at roundabouts	Closest relevant receptor location to road, Martlesham	18.4m	31,166 (2000)	34,065	34,719	48 km/h	A	91.6%	8.4%	19.1 µg/m <sup>3</sup>	26.4 µg/m <sup>3</sup>	18.4 µg/m <sup>3</sup>	<b>PM<sub>10</sub></b> annual mean - <b>23.3</b> µg/m <sup>3</sup> number of days conc. exceeds 50µg/m <sup>3</sup> – <b>8.7</b> <b>NO<sub>2</sub></b> annual mean – <b>27.3</b> µg/m <sup>3</sup>
<b>A12 Section 2</b> A1214 roundabout, Martlesham to B1438 roundabout, Woodbridge	Closest relevant receptor location to road, Little Bealings	33.8m	28,954 (1996)	35,556	36,251	86 km/h	A	89.7%	10.3%	19.1 µg/m <sup>3</sup>	26.4 µg/m <sup>3</sup>	18.4 µg/m <sup>3</sup>	<b>PM<sub>10</sub></b> annual mean - <b>22.1</b> µg/m <sup>3</sup> number of days conc. exceeds 50µg/m <sup>3</sup> – <b>6.4</b> <b>NO<sub>2</sub></b> annual mean - <b>25.8</b> µg/m <sup>3</sup>
<b>A12 Section 2</b> Reduced speeds and junction assessment at A1214 roundabout, <b>Link 1 (A1214) ♣</b>	Closest relevant receptor location to road, Martlesham	72.0m	20,165 (2002)	27,580	29,500	32 km/h	A	92.1%	7.9%	19.1 µg/m <sup>3</sup>	26.4 µg/m <sup>3</sup>	18.4 µg/m <sup>3</sup>	<b>n/a</b>
<b>A14 Section 2</b> Reduced speeds and junction assessment at A1214 roundabout <b>Link 2 (A12 N) ♣</b>	Closest relevant receptor location to road, Martlesham	27.0m	28,954 (1996)	35,556	36,251	48 km/h	A	89.7%	10.3%	19.1 µg/m <sup>3</sup>	26.4 µg/m <sup>3</sup>	18.4 µg/m <sup>3</sup>	<b>PM<sub>10</sub></b> annual mean – <b>26.5</b> µg/m <sup>3</sup> number of days conc. exceeds 50µg/m <sup>3</sup> – <b>16.3</b> <b>NO<sub>2</sub></b> annual mean – <b>31.7</b> µg/m <sup>3</sup>
<b>A12 Section 3</b> B1438 roundabout, Woodbridge to A1152 roundabout, Woodbridge	Closest relevant receptor location to road, Woodbridge	NO <sub>2</sub> 10.5m PM <sub>10</sub> 17.2m	30,523 (2002)	31,775	32,416	80 km/h	A	87.7%	12.3%	18.4 µg/m <sup>3</sup>	22.0 µg/m <sup>3</sup>	16.2 µg/m <sup>3</sup>	<b>PM<sub>10</sub></b> annual mean <b>23.1</b> µg/m <sup>3</sup> number of days conc. exceeds 50µg/m <sup>3</sup> – <b>8.2</b> <b>NO<sub>2</sub></b> annual mean – <b>29.2</b> µg/m <sup>3</sup>

\* Traffic summary figures calculated by Suffolk Coastal District Council using a Trip End Modelling Programme (TEMPRO), provided by Suffolk County Council Environment and Transport Department, to calculate general future growth.

# The DMRB Screening Method has four road type categories built into it (A,B,C,D). A is all motorways or A-roads. B is urban roads which are neither motorways nor A-roads. C is any other roads. A,B and C include default values for traffic compositions for that type of road. The fourth road type, category D, allows the user to input their own traffic composition data where they have it.

♣ Assessment of a junction by DMRB requires that it is split into a number of road links as per the instruction manual, information is put into the model for each link. DMRB calculates the total concentration at a receptor from both links.

**Table A-11 continued overleaf**

**Table A-11 contd. Summary of traffic data and other information used to run the DMRB screening model for the A12 trunk road. DMRB predicted annual mean concentrations for nitrogen dioxide and particulate matter together with the number of days particulate matter concentrations are expected to be greater than 50µg/m<sup>3</sup>**

Road or junction identification	Address of receptor	Distance from receptor to centre of road (m)	Combined AADT flow (HDV + LDV) base year	Combined AADT flow (HDV + LDV) for 2004 * (PM <sub>10</sub> )	Combined AADT flow (HDV + LDV) for 2005 * (NO <sub>2</sub> )	Annual average speed (km/h) (N.B to convert mph to kmh x by 1.609)	Road type (A,B,C or D) #	% Light Duty Vehicles (LDV)	% Heavy Duty Vehicles (HDV)	Background PM <sub>10</sub> concentration for 2004 (µg/m <sup>3</sup> )	Background NO <sub>x</sub> concentration for 2005 (µg/m <sup>3</sup> )	Background NO <sub>2</sub> concentration for 2005 (µg/m <sup>3</sup> )	Summary of output results from DMRB spreadsheet
<b>A12 Section 3</b> Reduced speeds and junction assessment at B1079 roundabout, Woodbridge <b>Link 1 (B1079) ♣</b>	Closest relevant receptor location to road, Woodbridge	NO <sub>2</sub> 7.4m PM <sub>10</sub> 19.8m	2,026 (2002)	2,110	2,152	38 km/h	A	87.7%	12.3%	18.4 µg/m <sup>3</sup>	22.0 µg/m <sup>3</sup>	16.2 µg/m <sup>3</sup>	n/a
<b>A12 Section 3</b> Reduced speeds and junction assessment at B1079 roundabout, Woodbridge <b>Link 2 (A12) ♣</b>	Closest relevant receptor location to road, Woodbridge	NO <sub>2</sub> 25.8m PM <sub>10</sub> 28.0m	30,523 (2002)	31,775	32,416	48 km/h	A	87.7%	12.3%	18.4 µg/m <sup>3</sup>	22.0 µg/m <sup>3</sup>	16.2 µg/m <sup>3</sup>	PM <sub>10</sub> annual mean 25.1µg/m <sup>3</sup> number of days conc. exceeds 50µg/m <sup>3</sup> – 12.6 NO <sub>2</sub> annual mean-30.7µg/m <sup>3</sup>
<b>A12 Section 4</b> A1152 roundabout, Woodbridge to B1116 junction, Wickham Market	Closest relevant receptor location to road, Ufford	NO <sub>2</sub> 9.7m PM <sub>10</sub> 22.1m	20,566 (2000)	22,479	22,911	86 km/h	A	87.7%	12.3%	18.3 µg/m <sup>3</sup>	20.3 µg/m <sup>3</sup>	15.3 µg/m <sup>3</sup>	PM <sub>10</sub> annual mean -22.0µg/m <sup>3</sup> number of days conc. exceeds 50µg/m <sup>3</sup> – 6.3 NO <sub>2</sub> annual mean -27.5µg/m <sup>3</sup>
<b>A12 Section 4</b> Reduced speeds and junction assessment at A1152 roundabout, Woodbridge <b>Link 1 (A12 South) ♣</b>	Closest relevant receptor location to road, Woodbridge	42.0m	30,523 (2002)	31,775	32,416	70 km/h	A	87.7%	12.3%	18.4 µg/m <sup>3</sup>	22.0 µg/m <sup>3</sup>	16.2 µg/m <sup>3</sup>	n/a
<b>A12 Section 4</b> Reduced speeds and junction assessment at A1152 roundabout, Woodbridge <b>Link 2 (A1152) ♣</b>	Closest relevant receptor location to road, Woodbridge	47.7m	11,973 (2002)	13,927	14,416	38 km/h	A	93.0%	7.0%	18.4 µg/m <sup>3</sup>	22.0 µg/m <sup>3</sup>	16.2 µg/m <sup>3</sup>	PM <sub>10</sub> annual mean -22.4µg/m <sup>3</sup> number of days conc. exceeds 50µg/m <sup>3</sup> – 6.9 NO <sub>2</sub> annual mean-24.7µg/m <sup>3</sup>

\* Traffic summary figures calculated by Suffolk Coastal District Council using a Trip End Modelling Programme (TEMPRO), provided by Suffolk County Council Environment and Transport Department, to calculate general future growth.

# The DMRB Screening Method has four road type categories built into it (A,B,C,D). A is all motorways or A-roads. B is urban roads which are neither motorways nor A-roads. C is any other roads. A,B and C include default values for traffic compositions for that type of road. The fourth road type, category D, allows the user to input their own traffic composition data where they have it.

♣ Assessment of a junction by DMRB requires that it is split into a number of road links as per the instruction manual, information is put into the model for each link. DMRB calculates the total concentration at a receptor from both links.

Table A-11 continued overleaf

**Table A-11 contd. Summary of traffic data and other information used to run the DMRB screening model for the A12 trunk road. DMRB predicted annual mean concentrations for nitrogen dioxide and particulate matter together with the number of days particulate matter concentrations are expected to be greater than 50µg/m<sup>3</sup>**

Road or junction identification	Address of receptor	Distance from receptor to centre of road (m)	Combined AADT flow (HDV + LDV) base year	Combined AADT flow (HDV + LDV) for 2004 *	Combined AADT flow (HDV + LDV) for 2005 *	Annual average speed (km/h) (N.B to convert mph to kmh x by 1.609)	Road type (A,B,C or D) #	% Light Duty Vehicles (LDV)	% Heavy Duty Vehicles (HDV)	Background PM <sub>10</sub> concentration for 2004 (µg/m <sup>3</sup> )	Background NO <sub>x</sub> concentration for 2005 (µg/m <sup>3</sup> )	Background NO <sub>2</sub> concentration for 2005 (µg/m <sup>3</sup> )	Summary of output results from DMRB spreadsheet
<b>A12 Section 5</b> B1116 junction, Wickham Market to end of A12 at Waveney District boundary.	Closest relevant receptor location to road, Farnham	4.7m	16,727 (2002)	17,413	17,765	48 km/h	A	87.9%	12.1%	18.6 µg/m <sup>3</sup>	16.8 µg/m <sup>3</sup>	13.2 µg/m <sup>3</sup>	<b>PM<sub>10</sub></b> annual mean – <b>24.2</b> µg/m <sup>3</sup> number of days conc. exceeds 50µg/m <sup>3</sup> – <b>10.6</b> <b>NO<sub>2</sub></b> annual mean – <b>25.3</b> µg/m <sup>3</sup>
<b>A12 Section 5</b> Reduced speeds and junction assessment at A1120 junction, Yoxford <b>Link 1 (A12) ♣</b>	Closest relevant receptor location to road, Yoxford	NO <sub>2</sub> 5.3m PM <sub>10</sub> 8.1m	11,997 (2002)	12,489	12,741	38 km/h	A	78.9%	21.1%	17.8 µg/m <sup>3</sup>	15.3 µg/m <sup>3</sup>	12.0 µg/m <sup>3</sup>	<b>n/a</b>
<b>A12 Section 5</b> Reduced speeds and junction assessment at A1120 junction, Yoxford <b>Link 2 (A1120) ♣</b>	Closest relevant receptor location to road, Yoxford	NO <sub>2</sub> 8.1m PM <sub>10</sub> 8.1m	2,666 (2002)	2,776	2,832	20 km/h	A	78.9%	21.1%	17.8 µg/m <sup>3</sup>	15.3 µg/m <sup>3</sup>	12.0 µg/m <sup>3</sup>	<b>PM<sub>10</sub></b> annual mean – <b>27.2</b> µg/m <sup>3</sup> number of days conc. exceeds 50µg/m <sup>3</sup> – <b>18.1</b> <b>NO<sub>2</sub></b> annual mean – <b>29.9</b> µg/m <sup>3</sup>

\* Traffic summary figures calculated by Suffolk Coastal District Council using a Trip End Modelling Programme (TEMPO), provided by Suffolk County Council Environment and Transport Department, to calculate general future growth.

# The DMRB Screening Method has four road type categories built into it (A,B,C,D). A is all motorways or A-roads. B is urban roads which are neither motorways nor A-roads. C is any other roads. A,B and C include default values for traffic compositions for that type of road. The fourth road type, category D, allows the user to input their own traffic composition data where they have it.

♣ Assessment of a junction by DMRB requires that it is split into a number of road links as per the instruction manual, information is put into the model for each link. DMRB calculates the total concentration at a receptor from both links.



**Table A-12 Summary of traffic data and other information used to run the DMRB screening model for the A1214. DMRB predicted annual mean concentrations for nitrogen dioxide and particulate matter together with the number of days particulate matter concentrations are expected to be greater than 50µg/m<sup>3</sup>**

Road or junction identification	Address of receptor	Distance from receptor to centre of road (m)	Combined AADT flow (HDV + LDV) base year	Combined AADT flow (HDV + LDV) for 2004 *	Combined AADT flow (HDV + LDV) for 2005 *	Annual average speed (km/h) (N.B to convert mph to km/h x by 1.609)	Road type (A,B,C or D) #	% Light Duty Vehicles (LDV)	% Heavy Duty Vehicles (HDV)	Background PM <sub>10</sub> concentration for 2004 (µg/m <sup>3</sup> )	Background NO <sub>x</sub> concentration for 2005 (µg/m <sup>3</sup> )	Background NO <sub>2</sub> concentration for 2005 (µg/m <sup>3</sup> )	Summary of output results from DMRB spreadsheet
<b>A1214</b> A12 junction at Martlesham to the Ipswich Borough boundary.	Closest relevant receptor location to road, Kesgrave	6.1m	20,165 (2002)	27,580	29,500	Speed limit 48 km/h	A	92.1%	7.9%	19.1 µg/m <sup>3</sup>	26.9 µg/m <sup>3</sup>	18.6 µg/m <sup>3</sup>	<b>PM<sub>10</sub></b> annual mean – <b>24.3</b> µg/m <sup>3</sup> number of days conc. exceeds 50µg/m <sup>3</sup> – <b>10.8</b> <b>NO<sub>2</sub></b> annual mean – <b>29.3</b> µg/m <sup>3</sup>
<b>A1214</b> A12 junction at Martlesham to the Ipswich Borough boundary – reduced speeds.	Closest relevant receptor location to road, Kesgrave	6.1m	20,165 (2002)	27,580	29,500	20 km/h	A	92.1%	7.9%	19.1 µg/m <sup>3</sup>	26.9 µg/m <sup>3</sup>	18.6 µg/m <sup>3</sup>	<b>PM<sub>10</sub></b> annual mean – <b>27.7</b> µg/m <sup>3</sup> number of days conc. exceeds 50µg/m <sup>3</sup> – <b>19.8</b> <b>NO<sub>2</sub></b> annual mean – <b>32.2</b> µg/m <sup>3</sup>

**For details on how predicted AADT was obtained for 2004 and 2005, see Appendix H.**

\* Traffic summary figures calculated by Suffolk Coastal District Council using a Trip End Modelling Programme (TEMPRO), provided by Suffolk County Council Environment and Transport Department, to calculate general future growth together with information on traffic generated from each of two developments which will use this road. Information on developments and traffic generated by them can be seen in Appendix H

# The DMRB Screening Method has four road type categories built into it (A,B,C,D). A is all motorways or A-roads. B is urban roads which are neither motorways nor A-roads. C is any other roads. A,B and C include default values for traffic compositions for that type of road. The fourth road type, category D, allows the user to input their own traffic composition data where they have it.

**Table A-13 Summary of traffic data and other information used to run the DMRB screening model for the A1152 (not including the Melton crossroads). DMRB predicted annual mean concentrations for nitrogen dioxide and particulate matter together with the number of days particulate matter concentrations are expected to be greater than 50µg/m<sup>3</sup>**

Road or junction identification	Address of receptor	Distance from receptor to centre of road (m)	Combined AADT flow (HDV + LDV) base year	Combined AADT flow (HDV + LDV) for 2004 * (PM <sub>10</sub> )	Combined AADT flow (HDV + LDV) for 2005 * (NO <sub>2</sub> )	Annual average speed (km/h) (N.B to convert mph to km/h x by 1.609)	Road type (A,B,C or D) #	% Light Duty Vehicles (LDV)	% Heavy Duty Vehicles (HDV)	Background PM <sub>10</sub> concentration for 2004 (µg/m <sup>3</sup> )	Background NO <sub>x</sub> concentration for 2005 (µg/m <sup>3</sup> )	Background NO <sub>2</sub> concentration for 2005 (µg/m <sup>3</sup> )	Summary of output results from DMRB spreadsheet
<b>A1152 Section 1</b> A12 roundabout, Woodbridge to B1438 crossroads, Melton	Closest relevant receptor location to road, Melton	4.6m	11,973 (2002)	13,927	14,426	Speed limit 48 km/h	A	93.0%	7.0%	18.6 µg/m <sup>3</sup>	21.5 µg/m <sup>3</sup>	16.0 µg/m <sup>3</sup>	<b>PM<sub>10</sub></b> annual mean – <b>22.2</b> µg/m <sup>3</sup> number of days conc. exceeds 50µg/m <sup>3</sup> – <b>6.7</b> <b>NO<sub>2</sub></b> annual mean – <b>24.0</b> µg/m <sup>3</sup>
<b>A1152 Section 3</b> B1438 crossroads, Melton to B1083 roundabout, Wilford Bridge, Bromeswell.	Closest relevant receptor location to road, Melton	NO <sub>2</sub> 4.3m PM <sub>10</sub> 12.3m	12,807 (2002)	15,638	16,314	Speed limit 48 km/h	A	92.7%	7.3%	18.6 µg/m <sup>3</sup>	21.5 µg/m <sup>3</sup>	16.0 µg/m <sup>3</sup>	<b>PM<sub>10</sub></b> annual mean - <b>22.0</b> µg/m <sup>3</sup> number of days conc. exceeds 50µg/m <sup>3</sup> – <b>6.3</b> <b>NO<sub>2</sub></b> annual mean - <b>24.7</b> µg/m <sup>3</sup>
<b>A1152 Section 4</b> B1083 roundabout, Wilford Bridge, Bromeswell to B1084 junction, Bromeswell.	Closest relevant receptor location to road, Bromeswell	NO <sub>2</sub> 7.0m PM <sub>10</sub> 15.7m	7,046 (2002)	8,894	9,469	Speed limit 48 km/h	A	93.3%	6.7%	18.7 µg/m <sup>3</sup>	21.8 µg/m <sup>3</sup>	16.2 µg/m <sup>3</sup>	<b>PM<sub>10</sub></b> annual mean - <b>20.4</b> µg/m <sup>3</sup> number of days conc. exceeds 50µg/m <sup>3</sup> – <b>4.0</b> <b>NO<sub>2</sub></b> annual mean – <b>21.5</b> µg/m <sup>3</sup>
<b>A1152 Section 5</b> B1084 junction, Bromeswell to ex-RAF Bentwaters roundabout, Rendlesham	Closest relevant receptor location to road, Eyke	5.7m	5,073 (2002)	6,617	7,151	Speed limit 48 km/h	A	93.3%	6.7%	18.0 µg/m <sup>3</sup>	18.1 µg/m <sup>3</sup>	14.1 µg/m <sup>3</sup>	<b>PM<sub>10</sub></b> annual mean – <b>19.6</b> µg/m <sup>3</sup> number of days conc. exceeds 50µg/m <sup>3</sup> – <b>3.0</b> <b>NO<sub>2</sub></b> annual mean – <b>18.4</b> µg/m <sup>3</sup>

For detail of all calculations see Figures F-5 to F-9 in Appendix F.

\* Traffic summary figures calculated by Suffolk Coastal District Council using a Trip End Modelling Programme (TEMPRO), provided by Suffolk County Council Environment and Transport Department, to calculate general future growth together with information on traffic generated from each of four developments which will use each section of this road.

# The DMRB Screening Method has four road type categories built into it (A,B,C,D). A is all motorways or A-roads. B is urban roads which are neither motorways nor A-roads. C is any other roads. A,B and C include default values for traffic compositions for that type of road. The fourth road type, category D, allows the user to input their own traffic composition data where they have it.

## Appendix B

### Monthly and annual mean benzene concentrations in air, recorded by diffusion tubes at sites in Woodbridge, Felixstowe, Kesgrave, Leiston, Farnham and Melton.

**Figure B-1** Information regarding benzene diffusion tubes, including analyst laboratory details and site descriptions for diffusion tube locations.

**Table B-1** Monthly and annual mean benzene concentrations recorded at sites in Woodbridge, Felixstowe, Kesgrave, Leiston, Farnham and Melton between April 1995 and April 2002, figures in parts per billion (ppb). Annual mean concentration converted from ppb to micrograms per cubic metre ( $\mu\text{g}/\text{m}^3$ ).

## **Figure B-1**

### **Information regarding benzene diffusion tubes, including analyst laboratory details and site descriptions for current and historic diffusion tube locations.**

#### **Analyst laboratory details and general benzene diffusion tube information**

Local monitoring of monthly concentrations of benzene was undertaken at a large number of locations within the Suffolk Coastal district from April 1995 to April 2002. LAQM.TG(03) requests that all data collected since the first round of review and assessments (undertaken in 1999) be presented in this Updating and Screening Assessment report. Monitoring for benzene, since 1999, was conducted using Perkin Elmer type passive diffusion tubes. Diffusion tubes were exposed for the first two weeks in every month.

Two analytical laboratories were used over the course of the monitoring:

- Stanger Science and Environment (now Casella Stanger) provided and analysed diffusion tubes from April 1995 to July 1999 for benzene only. Perkin Elmer diffusion tubes were packed with the sorbent Chromosorb 106 polymer and the uptake rate of the tubes was stated as 1.39 ng/ppm/minute.

The laboratory was formally accredited for analysis of benzene diffusion tubes under the United Kingdom Accreditation Scheme (UKAS), but did not partake in any inter-laboratory comparison studies at that time.

- Harwell Scientifics provided and analysed diffusion tubes from July 1999 to April 2002. The diffusion tubes measured, in addition to benzene, concentrations of toluene, ethylbenzene, m.p-xylene and o-xylene and for this reason are referred to as BTEX tubes. The results for benzene only are presented in this report. Perkin Elmer diffusion tubes were packed with Tenax TA sorbent and the uptake rate of the tubes was stated as 1.6 ng/ppm/minute.

The laboratory was formally accredited for analysis of benzene diffusion tubes under the United Kingdom Accreditation Scheme (UKAS). Harwell Scientifics took part in the Workplace Analysis Scheme for Proficiency (WASP), an inter-laboratory comparison study, during 2002 and were classed as a performance category 'Good' for analysis of benzene samples.

#### **Site descriptions for diffusion tube locations.**

Diffusion tubes were located at sites within the Suffolk Coastal district between 1995 and 2002. Sites were located at the roadside, to assess concentrations of NO<sub>2</sub> from road traffic for these areas. Sites were located under the following site categories, as defined within LAQM.TG(03):

- **Roadside site** – a site sampling between 1 metre of the kerbside of a busy road and the back of the pavement. Typically this will be within 5 metres of the road, but could be up to 15 metres.
- **Kerbside site** – a site sampling within 1 metre of the kerb of a busy road.

Monthly and annual mean benzene concentrations were recorded at each site. In order to provide a reasonable estimate of the annual mean concentration at a monitoring site,

concentrations for at least 6 months of the year are needed, therefore, the annual means have not been presented where there are less than 6 months of data.

All diffusion tubes were sited using the following local siting criteria, outlined by LAQM.TG(03): tubes were located in an open setting in relation to any surrounding buildings; the tubes were open to the sky immediately above with no overhanging trees or buildings; and the tubes were located at a height of between 1.4 and 4 metres. A more specific site description for each location, current and historic, within the Suffolk Coastal district is detailed below;

**Woodbridge - Roadside site** from April 1995 to August 1999 and then changed to a **Kerbside site** from August 1999 to April 2002. Located to record benzene concentrations derived from road traffic emissions at the junction of Lime Kiln Quay Road, The Thoroughfare, and St. John's Street in Woodbridge. **Roadside site** was on the drainpipe of a receptor location approximately 2-3 metres of the kerb, parallel with the traffic lights controlling the traffic coming from the Melton Hill direction. Site was on the corner building of the junction, and so fairly open in character. **Kerbside site** was on the traffic lights at the location described above. This junction is characterised by standing traffic at all arms at peak hours.

**Felixstowe - Roadside site** located to record benzene concentrations derived from road traffic emissions on High Road West in Felixstowe. Diffusion tube was located on a building drainpipe approximately 13 metres from the kerb. High Road West is fairly wide with domestic houses and buildings along either side, which are set back 15-20 metres from the kerb.

**Kesgrave - Roadside site** located to record benzene concentrations derived from road traffic emissions on the A1214 at Kesgrave, opposite Kesgrave High School. Sited on a lampost 3 metres from the kerb. At this point the A1214 is fairly wide and open, with domestic houses along either side set back 15-20 metres from the kerb.

**Leiston - Kerbside site** located to record benzene concentrations derived from road traffic emissions at the junction of High Street, Cross Street and Sizewell Road in Leiston. Sited on the drainpipe of a receptor location within 1 metre of the kerb and 5-10 metres of the centre of the junction. This junction is controlled by traffic lights and characterised by standing traffic at all arms at peak hours. The roads are very narrow, with buildings 2-3 metres from the kerb.

**Farnham - Kerbside site** located to record benzene concentrations derived from road traffic emissions on the A12 at Farnham as the road bends sharply thus reducing traffic speeds. Sited on a roadside sign, less than 1 metre from the kerb. This area of the A12 has domestic houses along either side which are approximately 1-3 metres from the kerb.

**Melton - Kerbside site** located to record benzene concentrations derived from road traffic emissions at the junction of the A1152 and B1438 crossroads junction at Melton. Sited on a kerbside lampost less than 1 metre from the kerb, on the Wilford Bridge Road arm of the junction, parallel with the traffic lights. There was a domestic building 3-5 metres from the site and the kerb. This junction is controlled by traffic lights and is characterised by standing traffic at peak hours. The site was relatively open, there are buildings at each corner of the junction but, due to its width, it would not be classed as enclosed.

**Table B-1 Monthly and annual mean benzene concentrations recorded at sites in Woodbridge, Felixstowe, Kesgrave, Leiston, Farnham and Melton between April 1995 and April 2002, figures in parts per billion (ppb). Annual mean concentration converted from ppb to micrograms per cubic metre ( $\mu\text{m}^3$ ).**

Year	Site	Time in months												Annual mean *	Conversion of annual mean concentration from ppb to $\mu\text{g}/\text{m}^3$ (x 3.25)
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
1995	Woodbridge	~	~	~	2	1	no data	2	1	1	2	2	6	2.1	6.8
	Felixstowe	~	~	~	1	0	no data	1	1	0	1	1	1	0.8	2.6
1996	Woodbridge	4	3	3	9	2	1	1	2	3	2	3	4	3.1	10.1
	Felixstowe	2	0	1	0	0	0	0	1	1	2	2	2	0.9	2.9
1997	Woodbridge	5	2	2	2	2	2.4	1.5	1.3	6.4	2.9	1.9	1.6	2.6	8.5
	Felixstowe	2	1	3	2	1	1.1	0.7	1.4	0.6	1.9	1.4	1.1	1.4	4.6
	Kesgrave	~	~	~	2	1	1.5	1	3.3	1.7	3.4	1.5	1.2	1.8	5.9
	Leiston	~	~	~	5	3	3.3	1.9	4.3	no data	4.6	3.1	2.8	3.5	11.4
1998	Woodbridge	1	1.7	0.8	2.1	1.2	0.9	0.7	0.8	1	1.1	1.5	1.2	1.2	3.9
	Felixstowe	0.7	0.5	0.7	0.3	1.8	0.5	0.5	0.5	0.7	1	1	1	0.7	2.3
	Kesgrave	0.9	2.8	0.9	0.3	0.7	0.6	0.7	no data	0.6	0.6	1	0.7	0.9	2.9
	Leiston	0.9	2.5	1.2	0.6	2.3	1.1	1.1	1.3	1	1.8	1.8	1.6	1.4	4.6
1999	Woodbridge	1.3	1.2	1.5	0.5	1.0	0.8	0.7	0.7	0.9	1.0	no data	0.8	0.9	2.9
	Felixstowe	0.7	0.9	0.8	0.5	0.4	0.4	0.2	0.3	0.3	0.5	0.5	0.6	0.5	1.6
	Kesgrave	0.8	0.8	0.9	0.4	0.4	0.4	0.3	0.3	0.1	0.6	0.4	0.7	0.5	1.6
	Leiston	1.7	1.6	2.2	0.9	1.4	no data	0.8	1.7	0.9	no data	1.0	end	1.2	3.9
2000	Woodbridge	0.8	0.7	no data	no data	0.7	0.8	no data	1.0	no data	0.9	1.0	0.8	0.8	2.6
	Felixstowe	0.6	0.5	0.4	0.3	0.2	0.2	no data	0.3	0.4	0.4	0.3	0.3	0.3	1.0
	Kesgrave	0.5	0.4	0.2	no data	no data	0.2	no data	0.2	0.3	0.3	0.3	0.3	0.3	1.0
	Farnham	0.7	0.4	0.6	0.5	No data	0.5	no data	0.6	no data	0.5	0.5	0.5	0.5	1.6
2001	Woodbridge	1.4	0.9	0.8	0.7	0.6	0.5	0.4	0.7	0.9	0.7	1.0	1.3	0.8	2.6
	Felixstowe	0.5	0.3	0.3	0.2	no data	0.2	no data	0.2	0.2	0.2	0.3	0.4	0.3	1.0
	Kesgrave	0.6	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.4	0.5	0.3	1.0
	Melton	1.1	0.7	0.4	0.5	no data	0.4	0.3	0.5	0.6	0.6	0.4	0.9	0.6	2.0
2002	Woodbridge	0.7	0.7	0.8	end	~	~	~	~	~	~	~	~	n/a	n/a
	Felixstowe	0.2	0.2	0.3	end	~	~	~	~	~	~	~	~	n/a	n/a
	Kesgrave	0.3	0.2	0.4	end	~	~	~	~	~	~	~	~	n/a	n/a
	Melton	0.6	0.5	0.7	end	~	~	~	~	~	~	~	~	n/a	n/a

**KEY:** **Woodbridge site**, traffic lights outside Suffolk Place, Lime Kiln Quay Road, Woodbridge (changed from drainpipe on Suffolk Place in August 1999)  
**Felixstowe site**, drainpipe on Police Station, High Road West, Felixstowe  
**Kesgrave site**, kerbside lamppost outside 203 Main Road, Kesgrave (changed from lamppost outside 183 Main Road in May 1998)  
**Leiston site**, drainpipe on 6 Sizewell Road, Leiston (changed from drainpipe on Cyds Café, High Street, Leiston in November 1999). **Site DISCONTINUED December 1999**  
**Farnham site**, 40 mph kerbside street sign, The Street (A12), Farnham. **Site DISCONTINUED January 2001.**  
**Melton site**, kerbside lamppost opposite Melton CPS, Wilford Bridge Road, Melton

\* In order to provide a reasonable and representative estimate of the annual mean concentration at a monitoring site, concentrations for at least 6 months of the year are needed, therefore, the annual means have not been presented where there are less than 6 months of data.

# Appendix C

## Processes regulated under Part I of the Environmental Protection Act 1990 within the Suffolk Coastal district.

**Table C-1** Processes regulated under Part I of the Environmental Protection Act 1990 within the Suffolk Coastal district, and whether each is a potentially significant emitter of any pollutant specified in LAQM.TG(03).

**Table C-1 Processes regulated under Part I of the Environmental Protection Act 1990 within the Suffolk Coastal district, and whether each is a potentially significant emitter of any pollutant specified in LAQM.TG(03).**

Name and address of authorised process	Authority issuing authorisation	Grid reference for process	Category and Section number under which process is authorised	Process description	Process Guidance Note(s) under which process is authorised	Pollutants (if any) for which this process is a potentially significant emitter, as specified in LAQM.TG(03)
Linstead Garage Linstead Parva	Suffolk Coastal District Council	63339 27782	Combustion Process Section 1.3	Waste Oil Burner; less than 0.4MW	PG 1/1(95)	~
Samkin of Saxmundham Ltd Chantry Road, Saxmundham	Suffolk Coastal District Council	63846 26301	Combustion Process Section 1.3	Waste Oil Burner; less than 0.4MW	PG 1/1(95)	~
Standard Bait Co. Ltd Oak Hill, Bramfield	Suffolk Coastal District Council	63955 27551	Animal and Plant Treatment Section 6.9	Maggot Breeding	PG6/5(95)	~
Bridge Garage Charsfield	Suffolk Coastal District Council	62642 25609	Combustion Process Section 1.3	Waste Oil Burner; less than 0.4MW	PG 1/1(95)	~
RMC Readymix, East Anglia Ltd Sinks Pit, Kesgrave	Suffolk Coastal District Council	62288 24636	Cement and Lime Manufacture Section 3.1	The blending, packing, loading and use of bulk cement	PG 3/1(95)	~
RMC Readymix, Eastern Theberton Airfield, Leiston	Suffolk Coastal District Council	64134 26438	Cement and Lime Manufacture Section 3.1	The blending, packing, loading and use of bulk cement	PG 3/1(95)	~
Whitemountain Roadstone Ltd Foxhall Four Quarry, Foxhall Road Brightwell	Suffolk Coastal District Council	62411 24353	Other Mineral Process Section 3.4	Roadstone Coating	PG 3/15(96)	<b>SO<sub>2</sub></b> <b>PM<sub>10</sub></b>
Ipswich Coated Stone Sinks Pit, Kesgrave	Suffolk Coastal District Council	62276 24639	Other Mineral Process Section 3.4	Roadstone Coating	PG 3/15(96)	<b>SO<sub>2</sub></b> <b>PM<sub>10</sub></b>
The Paddocks Hacheston	Suffolk Coastal District Council	63075 25945	Combustion Process Section 1.3	Waste Oil Burner; less than 0.4MW	PG 1/1(95)	~
ABN Ltd 56 Station Road, Framlingham	Suffolk Coastal District Council	62844 26277	Animal and Plant Treatment Section 6.9	Animal Feed Compounding	PG 6/26(92)	~
Meregrove Ltd Sun Wharf, Deben Road, Woodbridge	Suffolk Coastal District Council	62784 24921	Coating Process Section 6.5	Wood Coating	PG 6/33(92)	~
Meregrove Ltd Unit 5, Masterlord Industrial Estate, Station Road, Leiston	Suffolk Coastal District Council	64415 26279	Timber Process Section 6.7	Wood Processing	PG 6/2(95)	~
API Tenza Ltd Carlton Park Industrial Estate, Ronald Lane, Kelsale	Suffolk Coastal District Council	63857 26414	Coating Process Section 6.5	Paper & Film Coating	PG 6/18(97)	~



<b>Name and address of authorised process</b>	<b>Authority issuing authorisation</b>	<b>Grid reference for process</b>	<b>Category and Section number under which process is authorised</b>	<b>Process description</b>	<b>Process Guidance Note(s) under which process is authorised</b>	<b>Pollutants (if any) for which this process is a potentially significant emitter, as specified in LAQM.TG(03)</b>
Calor Gas Ltd Felixstowe Terminal, Dock Road, Felixstowe	Suffolk Coastal District Council	62858 23347	Gasification Process Section 1.1	Odourising of Natural Gas	PG 1/15(97)	~
RE & FM Desborough Church Farm, Wenhaston	Suffolk Coastal District Council	64208 27526	Other Mineral Process Section 3.4	Crushing & Screening of Concrete (Mobile)	PG 3/16(96)	~
Wilding Readymix Ltd Foxhall Four Quarry, Foxhall Road, Brightwell	Suffolk Coastal District Council	62433 24367	Cement and Lime Manufacture Section 3.1	The blending, packing, loading and use of bulk cement	PG 3/1(95)	~
The Garage Church Road, Dallinghoo	Suffolk Coastal District Council	62642 25495	Combustion Process Section 1.3	Waste Oil Burner; less than 0.4MW	PG 1/1(95)	~
Shell Garage A12 Northbound (Woodbridge), 715 Grove Road, Woodbridge	Suffolk Coastal District Council	62598 24951	Unloading Petrol at a Service Station Section 1.4(b)	Petrol Vapour Recovery	PG 1/14(96)	~
Shell Garage A12 Southbound (Woodbridge) 805 Grove Road, Woodbridge	Suffolk Coastal District Council	62605 24950	Unloading Petrol at a Service Station Section 1.4(b)	Petrol Vapour Recovery	PG 1/14(96)	~
Haynings Service Station Saxmundham Road, Framlingham	Suffolk Coastal District Council	62885 26349	Unloading Petrol at a Service Station Section 1.4(b)	Petrol Vapour Recovery	PG 1/14(96)	~
CDC Demolition Ltd Chapel Works, Waldringfield	Suffolk Coastal District Council	62741 24380	Other Mineral Process Section 3.4	Crushing & Screening of Concrete (Mobile)	PG 3/16(96)	~
Safeway Petrol Station Grange Farm Avenue, Cavendish Park Estate, Felixstowe	Suffolk Coastal District Council	62863 23477	Unloading Petrol at a Service Station Section 1.4(b)	Petrol Vapour Recovery	PG 1/14(96)	~
Sterling Motor Group Woodbridge Road, Rushmere St Andrew	Suffolk Coastal District Council	62061 24552	Unloading Petrol at a Service Station Section 1.4(b)	Petrol Vapour Recovery	PG 1/14(96)	~
Solar Garage High Road West, Felixstowe	Suffolk Coastal District Council	63034 23520	Unloading Petrol at a Service Station Section 1.4(b)	Petrol Vapour Recovery	PG 1/14(96)	~
Sainsbury's Supermarkets Ltd Felixstowe Road, Purdis Farm	Suffolk Coastal District Council	62015 24235	Unloading Petrol at a Service Station Section 1.4(b)	Petrol Vapour Recovery	PG 1/14(96)	~
Martlesham Heath Services Service Area, Anson Road, Martlesham Heath	Suffolk Coastal District Council	62466 24586	Unloading Petrol at a Service Station Section 1.4(b)	Petrol Vapour Recovery	PG 1/14(96)	~
Felixstowe Dock Service Area Anzani Avenue, Felixstowe	Suffolk Coastal District Council	62798 23451	Unloading Petrol at a Service Station Section 1.4(b)	Petrol Vapour Recovery	PG 1/14(96)	~

Name and address of authorised process	Authority issuing authorisation	Grid reference for process	Category and Section number under which process is authorised	Process description	Process Guidance Note(s) under which process is authorised	Pollutants (if any) for which this process is a potentially significant emitter, as specified in LAQM.TG(03)
Tesco Stores Ltd Anson Road, Martlesham Heath	Suffolk Coastal District Council	62473 24592	Unloading Petrol at a Service Station Section 1.4(b)	Petrol Vapour Recovery	PG 1/14(96)	~
Stratford Service Station A12 Main Road, Stratford St Andrew	Suffolk Coastal District Council	63578 26007	Unloading Petrol at a Service Station Section 1.4(b)	Petrol Vapour Recovery	PG 1/14(96)	~
L. B. Shotter & Sons Waterloo Avenue, Leiston	Suffolk Coastal District Council	64377 26260	Unloading Petrol at a Service Station Section 1.4(b)	Petrol Vapour Recovery	PG 1/14(96)	~
R. C. Edmundson (Woodbridge Ltd) Melton Road, Melton	Suffolk Coastal District Council	62785 24987	Unloading Petrol at a Service Station Section 1.4(b)	Petrol Vapour Recovery	PG 1/14(96)	~
A. G. Potter Ltd. Station Road, Framlingham	Suffolk Coastal District Council	62852 26285	Unloading Petrol at a Service Station Section 1.4(b)	Petrol Vapour Recovery	PG 1/14(96)	~
Mr. M. Ladd, Vehicle Surgeon Grundisburgh Road, Hasketon	Suffolk Coastal District Council	62420 25002	Combustion Process Section 1.3	Waste Oil Burner; less than 0.4MW	PG 1/1(95)	~
KPM Car Repairs 9 Yarmouth Road, Ufford	Suffolk Coastal District Council	62910 25258	Combustion Process Section 1.3	Waste Oil Burner; less than 0.4MW	PG 1/1(95)	~
Wilding Readymix Ltd Brightwell	Suffolk Coastal District Council	62580 24485	Other Mineral Process Section 3.4	Crushing & Screening of Concrete (Mobile)	PG 3/16(96)	~
Smith & Wesby (Sax) Limited Service Station, Main Road, A12, Darsham	Suffolk Coastal District Council	64061 26980	Unloading Petrol at a Service Station Section 1.4(b)	Petrol Vapour Recovery	PG 1/14(96)	~
British Energy Generation Ltd Sizewell B Power Station, Leiston	Environment Agency	64736 26397	Combustion Process (Part A authorised) Section 1.3	Combustion Processes (for Essential Supplies Diesel Generators on site)	IPR 1 IPR 1/1 IPR 1/3	<b>Carbon monoxide, benzene, 1,3-butadiene, lead, NOx, SO<sub>2</sub>, PM<sub>10</sub></b>
British Energy Generation Ltd Sizewell B Power Station, Leiston	Environment Agency	64736 26397	Combustion Process (Part B authorised) Section 1.3	Combustion Processes (for Auxiliary boilers on site)	PG 1/3 (91) PG 1/5 (91)	<b>SO<sub>2</sub> PM<sub>10</sub></b>
British Energy Generation Ltd Sizewell B Power Station, Leiston	Environment Agency	64736 26397	Incineration Process (Part B authorised) Section 5.1	Incineration Processes	PG 5/4 (91)	~

## **Appendix D**

**Summary and graphical representation of data output from a continuous NO<sub>x</sub> analyser, sited at the crossroads of the A1152 and B1438 in Melton, between 22 February 2002 and 10 February 2003.**

# Air Pollution Report

Produced by netcen on behalf of Suffolk Coastal District Council

## SUFFOLK COASTAL MELTON 22 February 2002 to 10 February 2003 These data have been fully ratified by netcen

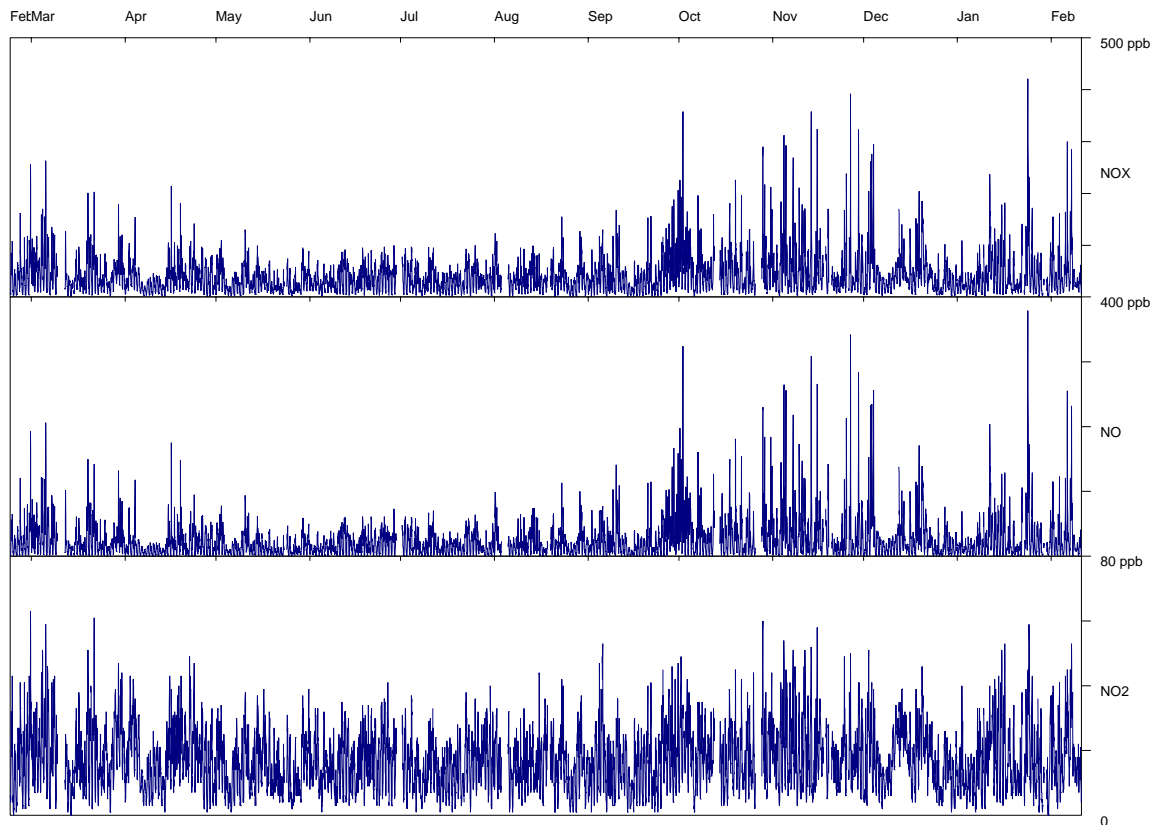
POLLUTANT	NO <sub>x</sub>	NO	NO <sub>2</sub>
Number Very High	-	-	0
Number High	-	-	0
Number Moderate	-	-	0
Number Low	-	-	8066
Maximum 15-minute mean	494 ppb	430 ppb	78 ppb
Maximum hourly mean	421 ppb	379 ppb	63 ppb
Maximum running 8-hour mean	201 ppb	160 ppb	46 ppb
Maximum running 24-hour mean	123 ppb	102 ppb	34 ppb
Maximum daily mean	120 ppb	89 ppb	31 ppb
Average of hourly means	39 ppb	22 ppb	17 ppb
Data capture of hourly means	94.9 %	94.9 %	94.9 %

Pollutant	Air Quality Regulations (2000)	Exceedences	Days
Nitrogen Dioxide	Annual mean > 21 ppb	0	-
Nitrogen Dioxide	Hourly mean > 105 ppb	0	0

# Air Pollution Report

Produced by netcen on behalf of Suffolk Coastal District Council

## Suffolk Coastal Melton Air Monitoring Hourly Mean Data for 22 February 2002 to 10 February 2003



For further information on air pollution in your area please contact:

Sean Christiansen      Direct line 01235 463521  
Environmental          Direct facsimile 01235 463011  
Quality                  e-mail [sean.christiansen@aeat.co.uk](mailto:sean.christiansen@aeat.co.uk)  
AEA Technology plc  
Culham  
Abingdon  
Oxon OX14 3ED

## Appendix E

### Monthly and annual mean nitrogen dioxide (NO<sub>2</sub>) concentrations in air recorded by diffusion tubes at sites in Felixstowe, Kesgrave, Woodbridge, Leiston, Farnham and Melton.

- Figure E-1** Information regarding NO<sub>2</sub> diffusion tubes, including analyst laboratory details and site descriptions for current and historic diffusion tube locations.
- Table E-1** Monthly and annual mean nitrogen dioxide (NO<sub>2</sub>) concentrations recorded at sites in Felixstowe during 1993 – 1996, figures in parts per billion (ppb). Annual mean concentration converted to micrograms per cubic metre (µ/m<sup>3</sup>) and ratified where relevant.
- Table E-2** Monthly and annual mean nitrogen dioxide (NO<sub>2</sub>) concentrations recorded at sites in Felixstowe, Kesgrave, Woodbridge and Leiston during 1997, figures in parts per billion (ppb). Annual mean concentration converted to micrograms per cubic metre (µ/m<sup>3</sup>) and ratified where relevant.
- Table E-3** Monthly and annual mean nitrogen dioxide (NO<sub>2</sub>) concentrations recorded at sites in Felixstowe, Kesgrave, Woodbridge and Leiston during 1998, figures in parts per billion (ppb). Annual mean concentration converted to micrograms per cubic metre (µ/m<sup>3</sup>) and ratified where relevant.
- Table E-4** Monthly and annual mean nitrogen dioxide (NO<sub>2</sub>) concentrations recorded at sites in Felixstowe, Kesgrave, Woodbridge, Leiston, Farnham and Melton during 1999, figures in parts per billion (ppb). Annual mean concentration converted to micrograms per cubic metre (µ/m<sup>3</sup>) and ratified where relevant.
- Table E-5** Monthly and annual mean nitrogen dioxide (NO<sub>2</sub>) concentrations recorded at sites in Felixstowe, Kesgrave, Woodbridge, Farnham and Melton during 2000, figures in parts per billion (ppb). Annual mean concentration converted to micrograms per cubic metre (µ/m<sup>3</sup>) and ratified where relevant.
- Table E-6** Monthly and annual mean nitrogen dioxide (NO<sub>2</sub>) concentrations recorded at sites in Felixstowe, Kesgrave, Woodbridge and Melton during 2001, figures in micrograms per cubic metre (µ/m<sup>3</sup>). Annual mean concentration ratified where relevant.
- Table E-7** Monthly and annual mean nitrogen dioxide (NO<sub>2</sub>) concentrations recorded at sites in Felixstowe during 2002, figures in micrograms per cubic metre (µ/m<sup>3</sup>). Annual mean concentration ratified where relevant.
- Table E-8** Monthly and annual mean nitrogen dioxide (NO<sub>2</sub>) concentrations recorded at sites in Kesgrave during 2002, figures in micrograms per cubic metre (µ/m<sup>3</sup>). Annual mean concentration ratified where relevant.
- Table E-9** Monthly and annual mean nitrogen dioxide (NO<sub>2</sub>) concentrations recorded at sites in Woodbridge during 2002, figures in micrograms per cubic metre (µ/m<sup>3</sup>). Annual mean concentration ratified where relevant.
- Table E-10** Monthly and annual mean nitrogen dioxide (NO<sub>2</sub>) concentrations recorded at sites in Melton during 2002, figures in micrograms per cubic metre (µ/m<sup>3</sup>). Annual mean concentration ratified where relevant.

## **Figure E-1**

### **Information regarding NO<sub>2</sub> diffusion tubes, including analyst laboratory details and site descriptions for current and historic diffusion tube locations.**

#### **Analyst laboratory details and general NO<sub>2</sub> diffusion tube information**

Local monitoring of monthly concentrations of NO<sub>2</sub> has been undertaken at a large number of locations within the Suffolk Coastal district since March 1993. LAQM.TG(03) requests that all data collected since the first round of review and assessments (undertaken in 1999) be presented in this Updating and Screening Assessment report. Monitoring for NO<sub>2</sub>, since 1999, was conducted using Palmes passive diffusion tubes, with an absorbent of 50% triethanolamine (TEA) in acetone, which were exposed on a monthly basis. The analytical laboratory used for supply and analysis of diffusion tubes was, and still currently is, Harwell Scientifics. The laboratory is formally accredited for analysis of NO<sub>2</sub> diffusion tubes under the United Kingdom Accreditation Scheme (UKAS). Harwell Scientifics participates in the Workplace Analysis Scheme for Proficiency (WASP) for analysis of diffusion tubes. This is an inter-laboratory comparison study for analysing spiked diffusion tubes and the results show Harwell Scientifics as a category 'Good' laboratory for the years 1999 to 2003.

#### **Site descriptions for current and historic diffusion tube locations.**

Diffusion tubes were located at numerous sites within the Suffolk Coastal district between 1993 and 2002. Sites were located to assess concentrations of NO<sub>2</sub> from road traffic and industrial emissions and background concentrations for these areas. Monthly and annual mean NO<sub>2</sub> concentrations were recorded at each site. In order to provide a reasonable estimate of the annual mean concentration at a monitoring site, concentrations for at least 6 months of the year are needed, therefore, the annual means have not been presented where there are less than 6 months of data.

There are eight 'site types', as defined in LAQM.TG(03), for diffusion tube monitoring. Several of these 'site types' were located within the Suffolk Coastal district during the monitoring period. Definitions for each site type located within the Suffolk Coastal district are as follows:

- **Urban background site** – an urban location distanced from sources and therefore broadly representative of city wide background conditions, e.g. urban residential areas.
- **Roadside site** – a site sampling between 1 metre of the kerbside of a busy road and the back of the pavement. Typically this will be within 5 metres of the road, but could be up to 15 metres.
- **Kerbside site** – a site sampling within 1 metre of the kerb of a busy road.
- **Industrial site** – an area where industrial sources make an important contribution to the total pollution burden.
- **Rural site** – an open countryside location, in an area of population density distanced as far as possible from roads, populated and industrial areas.
- **Intermediate site** – a sampling site which is 20–30 metres from the kerbside within sight of the road; this site provides additional information for a kerbside monitoring location in the same area. The road monitored will be similar to that selected for the kerbside location, although not necessarily the same road. This is a historical site category, not included in LAQM.TG(03). These site types were historically used but were found to provide little additional information with regard to changes in concentrations due to road traffic with distance from the kerb. They were, therefore, removed from the UK National

NO<sub>2</sub> Network as of January 2001, and were phased out within the Suffolk Coastal district from that time.

All diffusion tubes were sited using the following local siting criteria, outlined LAQM.TG(03): tubes were located in an open setting in relation to any surrounding buildings; the tubes were open to the sky immediately above with no overhanging trees or buildings; and the tubes were located at a height of between 1.4 and 4 metres. A more specific site description for each location, current and historic, within the Suffolk Coastal district is detailed below:

### **Felixstowe**

**FLX 1 - Kerbside site** located to record NO<sub>2</sub> concentrations derived from road traffic emissions on High Road West in Felixstowe, near to the Police Station. Sited on a bus stop sign, less than 1 metre from the kerb. High Road West is fairly wide with domestic houses along either side, set back 15-20 metres from the kerb.

**FLX 2 – Intermediate site** until January 2001 and from then a **Roadside site** located to record NO<sub>2</sub> concentrations derived from road traffic emissions on High Road West in Felixstowe, on the same section of road as FLX 1 above. The **Intermediate site** was located on a building drainpipe approximately 28 metres from the kerb. The **Roadside site** was located on a lamppost, 2-3 metres from the kerb and opposite a busy junction leading to the railway station. High Road West is fairly wide with domestic houses along either side which are set back 15-20 metres from the kerb.

**FLX 3 – Urban background site** near to the above tube locations in Felixstowe, sited to provide background levels of NO<sub>2</sub> in the area, for comparison with those seen at the kerbside of High Road West. Sited on a lamppost in Princes Road, a quiet residential street, located approximately 110 metres from any busy road.

**FLX 4 – Urban background site** near to the above tube locations in Felixstowe, sited to provide background levels of NO<sub>2</sub> in the area, for comparison with those seen at the kerbside of High Road West. Sited on a lamppost in Lynwood Avenue, a quiet residential street located approximately 140 metres from High Road East.

**FLX 5 - Roadside site** located to record NO<sub>2</sub> concentrations derived from road traffic emissions on High Road West in Felixstowe, on the same section of road as FLX 1 and 2 above. Sited within the grounds of the Police Station on a signpost 3-4 metres from the kerb. High Road West is fairly wide with domestic houses along either side which are set back 15-20 metres from the kerb.

**FLX 6 – Roadside site** located to record NO<sub>2</sub> concentrations derived from road traffic emissions on the A14 trunk road (Port of Felixstowe Road). Sited on a lamppost in Nayland Road, a quiet residential street with domestic receptor locations approximately 24 metres from the kerbside of the A14 trunk road. The site itself was approximately 46 metres from the kerbside of the A14 trunk road.

**FLX 7 – Industrial site** located to record NO<sub>2</sub> concentrations derived from emissions at the Port of Felixstowe. The Port of Felixstowe has a number of potential sources of NO<sub>2</sub> emissions, the main one being heavy goods vehicles using the Port with other potential emissions from shipping, and equipment and activities at the Port. Site located on a lamppost in Carr Road, near to the closest domestic residences to the Port boundary at Adastral Close. Site itself was approximately 150 metres from the Port of Felixstowe boundary.



**FLX 8 – Urban background site** in central Felixstowe, located to provide background levels of NO<sub>2</sub> in Felixstowe for comparison with sites measuring emissions from road traffic and industry. Sited on a lampost in Victoria Road, a quiet residential street located further than 70 metres from any busy road.

**FLX 9 - Urban background site** in North-East Felixstowe, located to provide background levels of NO<sub>2</sub> in Felixstowe for comparison with sites measuring emissions from road traffic and industry. Sited on a lampost in Brinkley Way, a quiet residential street located away from the centre of Felixstowe and further than 900 metres from any busy road.

**FLX 10 – Urban background site** in central Felixstowe, located to provide background levels of NO<sub>2</sub> in Felixstowe for comparison with sites measuring emissions from road traffic and industry. Sited on a lampost in Rosebery Road, a quiet residential street located further than 300 metres from any busy road.

**FLX 11 - Kerbside site** located to record NO<sub>2</sub> concentrations derived from road traffic emissions on Hamilton Road in Felixstowe, near the junction with York Road. Sited on a lampost less than 1 metre from the kerb. Hamilton Road is fairly wide, there are shops with residential flats above them along either side of the road which are set back approximately 5 metres from the kerb.

#### **Kesgrave**

**KSG 1 – Roadside site** located to record NO<sub>2</sub> concentrations derived from road traffic emissions on the A1214 at Kesgrave, opposite Kesgrave High School. Sited on a lampost 3 metres from the kerb. At this point the A1214 is fairly wide and open, with domestic houses along either side set back 15-20 metres from the kerb.

**KSG 2 – Intermediate site** until January 2001, located to record NO<sub>2</sub> concentrations derived from road traffic emissions on the A1214 in Kesgrave with increased distance from the kerb. Sited on a drainpipe of a domestic building approximately 20 metres from the kerb, and located on the same section of road as KSG 1 above. At this point the A1214 is fairly wide and open, with domestic houses along either side set back 15-20 metres from the kerb.

**KSG 2 and 2 a,b,c – Kerbside site** with a triplicate set of diffusion tubes, located in place of the above intermediate site from January 2001, to record NO<sub>2</sub> concentrations derived from road traffic emissions on the A1214 in Kesgrave near the junction with Bell Lane. This section of the A1214 is approximately 120 metres from the junction with Bell Lane, which is controlled by traffic lights. This section of the A1214 experiences stationary traffic queuing at peak hours. The diffusion tubes were sited on a lampost less than 1 metre from the kerb. This section of the A1214 is narrower, with a mix of domestic houses and retail outlets along either side which are approximately 2.6 metres from the kerb.

**KSG 3 – Urban background site** near to the above tube locations in Kesgrave, sited to provide background levels of NO<sub>2</sub> in the area, for comparison with those seen at the kerbside of the A1214. Sited on a lampost on Grange Farm, a quiet residential estate located more than 50 metres from any busy roads.

**KSG 4 – Urban background site** near to the above tube locations in Kesgrave, sited to provide background levels of NO<sub>2</sub> in the area, for comparison with those seen at the kerbside of the A1214. Sited on a drainpipe within the nearby High School and located approximately 65 metres from the A1214.

**KSG 5 - Roadside site** located to record NO<sub>2</sub> concentrations derived from road traffic emissions on the A1214 in Kesgrave. Sited on a lamppost at the Grange Farm roundabout near the Bell Lane junction 2-3 metres from the kerb. This site was present to assess concentrations from stationary traffic queuing at the roundabout.

## **Woodbridge**

**WBG 1 and 1 a,b,c - Kerbside site** located to record NO<sub>2</sub> concentrations derived from road traffic emissions at the junction of Lime Kiln Quay Road, The Thoroughfare, and St. John's Street in Woodbridge. Sited on the drainpipe of a receptor location within 1 metre of the kerb. The site was near Sun Lane, parallel with traffic lights controlling the traffic coming from the Melton Hill direction. This junction is characterised by standing traffic at all arms at peak hours. The arm of the junction on which the diffusion tube was located is very narrow and enclosed by tall buildings, creating a canyon effect. In 2002 this site had a set of triplicate tubes put in place (WBG 1 a,b,c).

**WBG 2 – Intermediate site** until January 2001, located to record NO<sub>2</sub> concentrations derived from road traffic emissions at the junction of Lime Kiln Quay Road, The Thoroughfare, and St. John's Street in Woodbridge, with increased distance from the kerb. Sited on a drainpipe of a domestic building approximately 17 metres from the kerb, and located on the same arm of the junction as WBG 1 above. At this point the road is still fairly narrow, with buildings along either side set back between 2 and 17 metres from the kerb.

**WBG 3 - Urban background site** in Woodbridge, sited to provide background levels of NO<sub>2</sub> in the area, for comparison with those seen at the above junction. Sited on a lamppost in Kingston Farm Road, a quiet residential street further than 100 metres from any busy roads. This site has a park on one side and domestic houses along the other, which are set back, approximately 15-20 metres from the kerb.

**WBG 4 - Urban background site** in Woodbridge, sited to provide background levels of NO<sub>2</sub> in the area, for comparison with those seen at the above junction. Sited on a drainpipe within a High School in Ransom Road. There was no traffic within 30-40 metres of the site and the nearest busy road was approximately 230 metres away.

**WBG 5 a,b,c - Roadside site** located to record NO<sub>2</sub> concentrations derived from road traffic emissions at the junction of Lime Kiln Quay Road, The Thoroughfare, and St. John's Street in Woodbridge. Sited on the drainpipe of a receptor location approximately 2-3 metres from the kerb on the same arm of the junction as WBG 1 but on the opposite side of the road. The site was parallel with the traffic lights controlling the traffic coming from the Melton Hill direction but on the corner building of the junction, and so was more open than WBG 1 and not within the 'street canyon' area. This junction is characterised by standing traffic at all arms at peak hours.

## **Leiston**

**LEI 1 - Kerbside site** located to record NO<sub>2</sub> concentrations derived from road traffic emissions at the junction of High Street, Cross Street and Sizewell Road in Leiston. Sited on the drainpipe of a receptor location within 1 metre of the kerb and 5-10 metres of the centre of the junction. This junction is controlled by traffic lights and characterised by standing traffic at all arms at peak hours. The roads are very narrow, with buildings 2-3 metres from the kerb.

**LEI 2 – Intermediate site**, located to record NO<sub>2</sub> concentrations derived from road traffic emissions at the junction of High Street, Cross Street and Sizewell Road in Leiston, with increased distance from the kerb. Sited on a building drainpipe approximately 23 metres from

the kerb, and 40 metres from the junction. At this point the road is still very narrow but the buildings have opened out more.

**LEI 3 - Urban background site** in Leiston, sited to provide background levels of NO<sub>2</sub> in the area, for comparison with those seen at the above junction. Sited on a lamppost in Farrow Close, a quiet residential street approximately 180 metres from any busy roads. This site has domestic houses along both sides of the road, which are set back approximately 7 metres from the kerb.

**LEI 4 - Urban background site** in Leiston, sited to provide background levels of NO<sub>2</sub> in the area, for comparison with those seen at the above junction. Sited on a drainpipe within a High School in Seaward Avenue. There was no traffic within 35 metres of the site and the nearest busy road was approximately 300 metres away.

## **Farnham**

**FAR 1 - Kerbside site** located to record NO<sub>2</sub> concentrations derived from road traffic emissions on the A12 at Farnham as the road bends sharply thus reducing traffic speeds. Sited on a roadside sign, less than 1 metre from the kerb. This area of the A12 has domestic houses along either side of the road, which are approximately 1-3 metres from the kerb.

**FAR 2 - Rural site** in Benhall, sited to provide background levels of NO<sub>2</sub> in the area, for comparison with those seen at the above junction. The A12 in this location travels through very rural areas and so the background location chosen was a rural site close to FAR 1. Sited on the drainpipe of a residential building on a quiet country lane in Benhall, with the A12 approximately 600 metres away.

## **Melton**

**MEL 1 - Kerbside site** located to record NO<sub>2</sub> concentrations derived from road traffic emissions at the junction of the A1152 and B1438 crossroads junction at Melton. Sited on traffic lights on a crossing island in the centre of the junction. This junction is controlled by traffic lights and is characterised by standing traffic at peak hours. The site was relatively open, there are buildings at each corner of the junction but, due to its width, it would not be classed as enclosed.

**MEL 2 – Urban background site** in Melton, sited to provide background levels of NO<sub>2</sub> in the area, for comparison with those seen at the above junction. Sited on the drainpipe of a residential building in Hall Farm Road, a quiet residential street approximately 430 metres from the junction and 350 metres from any busy roads.

**MEL 3 and 3 a,b,c – Kerbside site** to record NO<sub>2</sub> concentrations derived from road traffic emissions at the junction of the A1152 and B1438 crossroads junction at Melton. This site was located on a kerbside lamppost less than 1 metre from the kerb, instead of in the very centre of the junction, in order for results to represent kerbside concentrations. Sited on the Wilford Bridge Road arm of the junction, parallel with the traffic lights. There was a domestic building 3-5 metres from the site and the kerb. This junction is controlled by traffic lights and is characterised by standing traffic at peak hours. The site was relatively open, there are buildings at each corner of the junction but, due to its width, it would not be classed as enclosed.

**MEL 4 a,b,c - Roadside site** to record NO<sub>2</sub> concentrations derived from road traffic emissions at the junction of the A1152 and B1438 crossroads junction at Melton. This site was a triplicate site, located on a kerbside lampost approximately 2-3 metres from the kerb. The site was on the Woods Lane arm of the junction, parallel with the traffic lights. The nearest domestic building at this location was approximately 5 metres from the kerb. This junction is controlled by traffic lights and is characterised by standing traffic at peak hours. The site is relatively open, there are buildings at each corner of the junction but, due to its width, it would not be classed as enclosed.

**MEL 5 a,b,c - Roadside site** to record NO<sub>2</sub> concentrations derived from road traffic emissions at the junction of the A1152 and B1438 crossroads junction at Melton. This site was a triplicate site co-located with a continuous NO<sub>x</sub> analyser. The diffusion tubes and continuous analyser were located in the garden of the closest receptor location to the junction. The site was 3.9 metres from the kerb and from the site at MEL 3.

**Table E-1 Monthly and annual mean nitrogen dioxide (NO<sub>2</sub>) concentrations recorded at sites in Felixstowe during 1993 – 1996, figures in parts per billion (ppb \*).  
Annual mean concentration converted to micrograms per cubic metre (µg/m<sup>3</sup>) and ratified where relevant.**

Year	Site	Time in Months												Annual Mean (ppb)	Conversion to µg/m <sup>3</sup> (x 1.91)	Ratification of annual mean using bias correction factor (µg/m <sup>3</sup> )#
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
1993	FLX 1	no data	no data	no data	23.6	21.2	16.9	16.8	18.4	21.4	18.8	no data	27.2	20.5	39.2	n/a
	FLX 2	no data	no data	23.4	15.6	no data	no data	16.6	17	14.8	12.8	23.9	26	18.8	35.9	n/a
	FLX 3	no data	no data	19	15.6	10.6	7.4	13.2	13.8	12.3	11.2	20.8	21.9	14.6	27.9	n/a
	FLX 4	no data	no data	21.4	no data	10.8	8.8	11.9	13.2	12.6	10.8	21.3	23.5	14.9	28.5	n/a
1994	FLX 1	30.5	31.8	28.1	23.6	23.2	22.5	24.2	20.7	22.3	28.9	31.6	36.9	27.0	51.6	n/a
	FLX 2	26.7	24.8	23.2	18.1	13.9	16.1	18.2	14.4	19.7	26.3	26.6	26.5	21.2	40.5	n/a
	FLX 3	24.7	21.8	20	13.6	16.4	13.4	13.3	10.3	13.9	18.3	20.1	22.6	17.4	33.2	n/a
	FLX 4	23.1	21.7	20.1	15.3	10.2	11.3	12.6	10.7	13.1	21.9	22.2	22	17.0	32.5	n/a
1995	FLX 1	25.9	27.5	25.7	17.2	22.5	18.2	24.9	23.2	25.7	24.4	28.3	25.9	24.1	46.0	n/a
	FLX 2	21.9	24.7	22.2	no data	18.9	11.3	16.6	12.1	17.7	21.2	20.3	20.3	18.8	35.9	n/a
	FLX 3	19	20.2	13.4	10.8	14.4	10.9	13	8.7	14.9	11.3	19.9	18.6	14.6	27.9	n/a
	FLX 4	19	21.6	16.7	9.9	15	9.1	14.8	9.5	14.5	13.8	21.5	20	15.5	29.6	n/a
1996	FLX 1	no data	24.2	25.2	27.9	19.2	no data	21.6	no data	no data	29.7	30.7	20.7	24.9	47.6	n/a
	FLX 2	21.5	17.3	14.4	21.2	14.5	no data	17	16.4	12.3	24.6	24	17.5	18.2	34.8	n/a
	FLX 3	18.7	16.4	12.8	16.7	11.5	10.2	12.5	12.5	10.3	no data	25.4	18.5	15.0	28.7	n/a
	FLX 4	17.3	17.3	14.2	18.9	10.6	11	12.4	14.5	11.4	23	no data	15.1	15.1	28.8	n/a

**Key:** FLX 1 Kerbside site Kerbside lampost outside Police Station, High Road West, Felixstowe  
FLX 2 Intermediate site Drainpipe on Police Station, High Road West, Felixstowe  
FLX 3 Urban background site Lampost outside 14 Princes Gardens, Felixstowe (changed from hanging basket on 14 Princes Gardens, Felixstowe in October 1996)  
FLX 4 Urban background site Lampost outside 37 Lynwood Avenue, Felixstowe (changed from Ranelagh Road Veterinary car park, Felixstowe in October 1996)

\* All figures for NO<sub>2</sub> diffusion tube measurements were recorded in ppb and have then been converted to µg/m<sup>3</sup>

# Diffusion tube annual mean data is ratified to improve accuracy. The bias adjustment factor for the diffusion tubes must be either obtained from the analyst laboratory or calculated from a co-location study with a continuous analyser by the authority itself. For 1993 – 1996 diffusion tube data, no bias adjustments have been made as the data is a historic record only.

**Table E-2 Monthly and annual mean nitrogen dioxide (NO<sub>2</sub>) concentrations recorded at sites in Felixstowe, Kesgrave, Woodbridge and Leiston during 1997, figures in parts per billion (ppb \*). Annual mean concentration converted to micrograms per cubic metre (µg/m<sup>3</sup>) and ratified where relevant**

Site	Time in Months												Annual mean	Conversion To µg/m <sup>3</sup> (x 1.91)	Ratification of annual mean using bias correction factor (µg/m <sup>3</sup> ) #
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
<b>FLX 1</b>	31.3	27.8	no data	12.9	5.6	11.1	8.0	10.1	8.1	18.0	16.2	12.8	<b>14.7</b>	<b>28.1</b>	n/a
<b>FLX 2</b>	26.8	22.5	21.7	8	5.5	7.7	6.7	7.7	7.7	8.8	18.3	15.4	<b>13.1</b>	<b>25.0</b>	n/a
<b>FLX 3</b>	17.9	27.7	22.2	9.9	6.8	7.6	6.4	7.5	9.0	6.5	16.0	16.2	<b>12.8</b>	<b>24.4</b>	n/a
<b>FLX 4</b>	29.2	28.1	23.4	8.6	5.7	4.6	5.8	9.5	7.6	7.7	12.3	13.4	<b>13.0</b>	<b>24.8</b>	n/a
<b>KSG 1</b>	no data	no data	no data	7.3	8.2	10.0	11.3	10.4	9.0	14.8	11.2	13.8	<b>10.7</b>	<b>20.4</b>	n/a
<b>KSG 2</b>	no data	no data	no data	8.5	5.1	6.5	5.9	9.0	6.6	no data	10.0	no data	<b>7.4</b>	<b>14.1</b>	n/a
<b>KSG 3</b>	no data	no data	no data	7	4.5	6.4	3.5	7.9	5.7	6.9	10.5	12.5	<b>7.2</b>	<b>13.8</b>	n/a
<b>KSG 4</b>	no data	no data	no data	no data	5.5	5.9	6.1	8.1	6.8	7.4	no data	no data	<b>6.6</b>	<b>12.6</b>	n/a
<b>WBG 1</b>	no data	no data	no data	16.1	7.3	14.2	13.3	14.3	11.2	10.1	14.5	6.1	<b>11.9</b>	<b>22.7</b>	n/a
<b>WBG 2</b>	no data	no data	no data	no data	7.3	3.8	7.7	9.9	8.0	10.2	9.3	10.5	<b>8.3</b>	<b>15.9</b>	n/a
<b>WBG 3</b>	no data	no data	no data	6.4	5.0	no data	4.9	6.3	5.5	3.3	15.5	9.2	<b>7.0</b>	<b>13.4</b>	n/a
<b>WBG 4</b>	no data	no data	no data	no data	4.5	5.6	6.3	6.3	4.5	7.8	12.4	9.2	<b>7.1</b>	<b>13.6</b>	n/a
<b>LEI 1</b>	no data	no data	no data	15.5	no data	12.6	11.3	10.0	12.0	10.4	10.5	10.8	<b>11.6</b>	<b>22.2</b>	n/a
<b>LEI 2</b>	no data	no data	no data	6.0	7.3	5.5	6.8	5.5	no data	7.6	11.5	9.5	<b>7.5</b>	<b>14.3</b>	n/a
<b>LEI 3</b>	no data	no data	no data	6.0	5.4	5.4	no data	7.8	no data	6.5	10.4	10.5	<b>7.4</b>	<b>14.1</b>	n/a
<b>LEI 4</b>	no data	no data	no data	6.3	2.8	5.6	3.7	6.7	4.3	6.8	2.7	3.9	<b>4.8</b>	<b>9.2</b>	n/a

Key to table on next page

<b>Key:</b>	<b>FLX 1</b>	<u>Kerbside site</u>	Kerbside lampost outside Police Station, High Road West, Felixstowe
	<b>FLX 2</b>	<u>Intermediate site</u>	Drainpipe on Police Station, High Road West, Felixstowe
	<b>FLX 3</b>	<u>Urban background site</u>	Lampost outside 14 Princes Gardens, Felixstowe
	<b>FLX 4</b>	<u>Urban background site</u>	Lampost outside 37 Lynwood Avenue, Felixstowe
	<b>KSG 1</b>	<u>Roadside site</u>	Kerbside lampost outside 183 Main Road, Kesgrave
	<b>KSG 2</b>	<u>Intermediate site</u>	Drainpipe on 181 Main Road, Kesgrave (changed from drainpipe of 'Happy Shopper', 179 Main Road, Kesgrave in November 1997)
	<b>KSG 3</b>	<u>Urban background site</u>	Lampost outside 1 Knights Lane, Grange Farm, Kesgrave
	<b>KSG 4</b>	<u>Urban background site</u>	Kesgrave High School, Main Road, Kesgrave
	<b>WBG 1</b>	<u>Roadside site</u>	Drainpipe on Suffolk Place, Lime Kiln Quay Road, Woodbridge
	<b>WBG 2</b>	<u>Intermediate site</u>	Drainpipe on 97a Thoroughfare, Woodbridge
	<b>WBG 3</b>	<u>Urban background site</u>	Lampost outside 8 Kingston Farm Road, Woodbridge (changed from lampost outside 22 Westholme Close, Woodbridge in July 1997)
	<b>WBG 4</b>	<u>Urban background site</u>	Farlingaye High School, Ransom Road, Woodbridge
	<b>LEI 1</b>	<u>Kerbside site</u>	Drainpipe on Cyds cafe, 55 High Street, Leiston
	<b>LEI 2</b>	<u>Intermediate site</u>	Garage guttering, The Bread Shop, High Street, Leiston (changed from drainpipe on The Black Horse PH, Leiston in July 1997)
	<b>LEI 3</b>	<u>Urban background site</u>	Lampost at 17 Farrow Close, Leiston (changed from lampost at 19 Harling Way, Leiston in July 1997)
	<b>LEI 4</b>	<u>Urban background site</u>	Leiston High School, Seaward Avenue, Leiston

\* All figures for NO<sub>2</sub> diffusion tube measurements were recorded in ppb and have then been converted to µg/m<sup>3</sup>

# Diffusion tube annual mean data is ratified to improve accuracy. The bias adjustment factor for the diffusion tubes must be either obtained from the analyst laboratory or calculated from a co-location study with a continuous analyser by the authority themselves. For 1997 diffusion tube data, no bias adjustments have been made as the data is a historic record only.

**Table E-3**

**Monthly and annual mean nitrogen dioxide (NO<sub>2</sub>) concentrations recorded at sites in Felixstowe, Kesgrave, Woodbridge and Leiston during 1998, figures in parts per billion (ppb \*). Annual mean concentration converted to micrograms per cubic metre (µg/m<sup>3</sup>) and ratified where relevant.**

Site	Time in Months												Annual mean	Conversion To µg/m <sup>3</sup> (x 1.91)	Ratification of annual mean using bias correction factor (µg/m <sup>3</sup> ) #
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
<b>FLX 1</b>	12.8	18.7	12.1	15.3	no data	no data	10.4	14.2	19.3	24.6	30.9	26.9	<b>18.5</b>	<b>35.3</b>	n/a
<b>FLX 2</b>	13	17.4	11.2	7.3	no data	no data	9.9	11.1	12.0	18.9	24.9	22.9	<b>14.9</b>	<b>28.5</b>	n/a
<b>FLX 3</b>	14.4	19.2	12	13.5	no data	no data	11.8	7.9	11.5	19.2	26.8	27.2	<b>16.4</b>	<b>31.3</b>	n/a
<b>FLX 4</b>	14.7	25.9	9.8	9.4	no data	no data	6.1	8.6	15.1	17.2	25.1	24.8	<b>15.7</b>	<b>30.0</b>	n/a
<b>KSG 1</b>	18.9	8.9	10.5	no data	no data	no data	8.9	no data	8.5	21.6	26.6	22.2	<b>15.8</b>	<b>30.2</b>	n/a
<b>KSG 2</b>	16.3	13.2	11.0	9.0	no data	no data	7.8	8.5	11.7	13.5	19.3	13.6	<b>12.4</b>	<b>23.7</b>	n/a
<b>KSG 3</b>	11.7	11.0	9.4	10.0	no data	no data	5.5	7.8	9.0	13.6	20.9	18.7	<b>11.8</b>	<b>22.5</b>	n/a
<b>KSG 4</b>	6.7	16.6	8.2	9.9	no data	no data	5.5	9.2	9.5	14.7	18.6	18.2	<b>11.7</b>	<b>22.3</b>	n/a
<b>WBG 1</b>	10.6	10.9	9.8	8.1	no data	no data	10.2	10.2	15.1	16.3	24.2	20.2	<b>13.6</b>	<b>26.0</b>	n/a
<b>WBG 2</b>	10.8	13.9	12.0	12.3	no data	no data	7.2	11.0	4.5	15.0	21.0	19.6	<b>12.7</b>	<b>24.3</b>	n/a
<b>WBG 3</b>	9.9	12.7	13.5	10.4	no data	no data	5.4	7.6	9.1	11.9	18.4	16.8	<b>11.6</b>	<b>22.2</b>	n/a
<b>WBG 4</b>	9.1	12.2	9.2	10.8	no data	no data	4.9	7.9	9.5	12.2	18.1	15.4	<b>10.9</b>	<b>20.8</b>	n/a
<b>LEI 1</b>	12.1	12.2	17.5	12.6	no data	no data	8.7	11.4	10.0	16.9	22.2	18.8	<b>14.2</b>	<b>27.1</b>	n/a
<b>LEI 2</b>	9.7	13.3	9.1	no data	no data	no data	6.7	8.1	7.1	10.6	18.0	14.6	<b>10.8</b>	<b>20.6</b>	n/a
<b>LEI 3</b>	9.3	11.8	10.8	8.4	no data	no data	6.6	6.5	8.3	9.6	15.7	15.2	<b>10.2</b>	<b>19.5</b>	n/a
<b>LEI 4</b>	9.0	11.7	6.7	9.1	no data	no data	4.6	5.0	8.5	8.8	11.6	14.2	<b>8.9</b>	<b>17.0</b>	n/a

Key to table on next page



<b>Key:</b>	<b>FLX 1</b>	<u>Kerbside site</u>	Kerbside lampost outside Police Station, High Road West , Felixstowe
	<b>FLX 2</b>	<u>Intermediate site</u>	Drainpipe on Police Station, High Road West, Felixstowe
	<b>FLX 3</b>	<u>Urban background site</u>	Lampost outside 14 Princes Gardens, Felixstowe
	<b>FLX 4</b>	<u>Urban background site</u>	Lampost outside 37 Lynwood Avenue, Felixstowe
	<b>KSG 1</b>	<u>Roadside site</u>	Kerbside lampost at 203 Main Road, Kesgrave (changed from 187 Main Road, Kesgrave September 1998 and from 183 Main Road May 1998)
	<b>KSG 2</b>	<u>Intermediate site</u>	Drainpipe on 181 Main Road, Kesgrave
	<b>KSG 3</b>	<u>Urban background site</u>	Lampost at 1 Knights Lane, Grange Farm, Kesgrave
	<b>KSG 4</b>	<u>Urban background site</u>	Kesgrave High School, Main Road, Kesgrave
	<b>WBG 1</b>	<u>Roadside site</u>	Drainpipe on Suffolk Place, Lime Kiln Quay Road, Woodbridge
	<b>WBG 2</b>	<u>Intermediate site</u>	Drainpipe on 97a Thoroughfare, Woodbridge
	<b>WBG 3</b>	<u>Urban background site</u>	Lampost outside 8 Kingston Farm Road, Woodbridge
	<b>WBG 4</b>	<u>Urban background site</u>	Farlingaye High School, Ransom Road, Woodbridge
	<b>LEI 1</b>	<u>Kerbside site</u>	Drainpipe on Cyds cafe, 55 High Street, Leiston
	<b>LEI 2</b>	<u>Intermediate site</u>	Garage guttering on The Bread Shop, High Street, Leiston
	<b>LEI 3</b>	<u>Urban background site</u>	Lampost at 17 Farrow Close, Leiston
	<b>LEI 4</b>	<u>Urban background site</u>	Leiston High School, Seaward Avenue, Leiston

\* All figures for NO<sub>2</sub> diffusion tube measurements were recorded in ppb and have then been converted to µg/m<sup>3</sup>

# Diffusion tube annual mean data is ratified to improve accuracy. The bias adjustment factor for the diffusion tubes must be either obtained from the analyst Laboratory or calculated from a co-location study with a continuous analyser by the authority themselves. For 1998 diffusion tube data, no bias adjustments have been made as the data is a historic record only.

**Table E-4**

**Monthly and annual mean nitrogen dioxide (NO<sub>2</sub>) concentrations recorded at sites in Felixstowe, Kesgrave, Woodbridge, Leiston, Farnham and Melton during 1999, figures in per billion (ppb \*). Annual mean concentration converted to micrograms per cubic metre (µg/m<sup>3</sup>) and ratified where relevant.**

Site	Time in Months												Annual mean	Conversion To µg/m <sup>3</sup> (x 1.91)	Ratification of annual mean using bias correction factor (µg/m <sup>3</sup> ) #
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
<b>FLX 1</b>	27.9	30.2	31	17.9	21.8	18.8	13.9	19.4	26.5	31.4	26.7	30.2	<b>24.6</b>	<b>47.0</b>	<b>45.1</b>
<b>FLX 2</b>	20.9	23.6	26.4	15.2	18.4	16	13.8	16.2	20.8	22.9	19.1	24.7	<b>19.8</b>	<b>37.8</b>	<b>36.3</b>
<b>FLX 3</b>	26.3	25.6	25.7	9.8	14.1	11.1	13.8	12.3	17.7	19.6	no data	25.7	<b>18.3</b>	<b>35.0</b>	<b>33.6</b>
<b>FLX 4</b>	18.8	20.6	23	9	15	10.3	9.7	11.7	16.6	20.3	16.5	24.9	<b>16.4</b>	<b>31.3</b>	<b>30.0</b>
<b>KSG 1</b>	21.5	23.8	24.4	16.1	16.2	no data	12.6	no data	16.6	21.1	22.8	25.4	<b>20.1</b>	<b>38.4</b>	<b>36.9</b>
<b>KSG 2</b>	15.7	17.1	17.5	12.1	12.6	11.5	10.2	11.8	12.5	16.4	14.9	15.2	<b>14.0</b>	<b>26.7</b>	<b>26.7</b>
<b>KSG 3</b>	16.6	18.6	no data	10.4	10.9	9.0	8.0	10.5	13.6	17.8	19.4	19.3	<b>14.0</b>	<b>26.7</b>	<b>25.6</b>
<b>KSG 4</b>	17.0	17.4	17.5	9.9	10.6	9.4	7.8	10.9	13.7	16.9	14.9	18.5	<b>13.7</b>	<b>26.1</b>	<b>25.1</b>
<b>WBG 1</b>	21.4	19.4	22.9	23.1	27.2	27.1	23.6	no data	29.5	25.5	30.8	no data	<b>25.1</b>	<b>47.9</b>	<b>46.0</b>
<b>WBG 2</b>	20.1	17.9	21	13.7	12.6	14.3	11.4	14.4	19.5	16.6	17.4	18.7	<b>16.5</b>	<b>31.5</b>	<b>30.2</b>
<b>WBG 3</b>	16.1	15.1	14.9	7.7	8.9	5.9	4.9	8.1	10.5	14.3	14.3	14.9	<b>11.3</b>	<b>21.6</b>	<b>20.7</b>
<b>WBG 4</b>	13.3	14.8	16.7	no data	9.2	9.9	6.7	8.7	13.8	17.8	15.5	18.1	<b>13.1</b>	<b>25.0</b>	<b>24.0</b>
<b>LEI 1</b>	19.2	no data	23.3	21.4	17.0	14.4	17.7	19.3	no data	no data	21.4	no data	<b>19.2</b>	<b>36.7</b>	<b>35.2</b>
<b>LEI 2</b>	15.8	12.1	18.4	8.4	9.2	7.2	6.8	9.4	10.6	13.6	14.6	no data	<b>11.5</b>	<b>22.0</b>	<b>21.1</b>
<b>LEI 3</b>	14.3	12.2	14.5	6.4	6.7	5.4	5.0	6.1	9.0	12.4	10.6	no data	<b>9.3</b>	<b>17.8</b>	<b>17.1</b>
<b>LEI 4</b>	11.1	9.0	13.9	6.6	7.1	6.3	no data	6.1	9.9	12.0	10.7	no data	<b>9.3</b>	<b>17.8</b>	<b>17.1</b>
<b>FAR 1</b>	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	23.5	n/a**	n/a	n/a
<b>MEL 1</b>	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	27.0	n/a**	n/a	n/a

Key to table on next page

<b>Key:</b>		
<b>FLX 1</b>	<u>Kerbside site</u>	Kerbside lampost outside Police Station, High Road West, Felixstowe
<b>FLX 2</b>	<u>Intermediate site</u>	Drainpipe on Police Station, High Road West, Felixstowe
<b>FLX 3</b>	<u>Urban background site</u>	Lampost outside 14 Princes Gardens, Felixstowe
<b>FLX 4</b>	<u>Urban background site</u>	Lampost outside 37 Lynwood Avenue, Felixstowe
<b>KSG 1</b>	<u>Roadside site</u>	Kerbside lampost at 203 Main Road, Kesgrave
<b>KSG 2</b>	<u>Intermediate site</u>	Drainpipe on 181 Main Road, Kesgrave
<b>KSG 3</b>	<u>Urban background site</u>	Lampost at 1 Knights Lane, Grange Farm, Kesgrave
<b>KSG 4</b>	<u>Urban background site</u>	Kesgrave High School, Main Road, Kesgrave
<b>WBG 1</b>	<u>Kerbside site</u>	Signpost outside 93 Thoroughfare, Woodbridge (changed from drainpipe on Suffolk Place, Lime Kiln Quay Road in April 1999)
<b>WBG 2</b>	<u>Intermediate site</u>	Drainpipe on 97a Thoroughfare, Woodbridge
<b>WBG 3</b>	<u>Urban background site</u>	Lampost outside 8 Kingston Farm Road, Woodbridge
<b>WBG 4</b>	<u>Urban background site</u>	Farlingaye High School, Ransom Road, Woodbridge
<b>LEI 1</b>	<u>Kerbside site</u>	Lampost at The Black Horse PH, High Street, Leiston (changed from Cyds cafe, 55 High Street, Leiston in November 1999)
<b>LEI 2</b>	<u>Intermediate site</u>	Garage guttering on The Bread Shop, High Street, Leiston
<b>LEI 3</b>	<u>Urban background site</u>	Lampost at 17 Farrow Close, Leiston
<b>LEI 4</b>	<u>Urban background site</u>	Leiston High School, Seaward Avenue, Leiston

**ALL LEISTON SITES DISCONTINUED FROM DECEMBER 1999**

<b>FAR 1</b>	<u>Kerbside site</u>	40 mph street sign, The Street (A12), Farnham
<b>MEL 1</b>	<u>Kerbside site</u>	Traffic lights, Melton crossroads, Melton

\* All figures for NO<sub>2</sub> diffusion tube measurements were recorded in ppb and have then been converted to µg/m<sup>3</sup>

# Diffusion tube annual mean data is ratified to improve accuracy. The bias adjustment factor for the diffusion tubes must be either obtained from the analyst laboratory or calculated from a co-location study with a continuous analyser by the authority themselves. For 1999 diffusion tube data the bias correction factor for the analyst laboratory, Harwell Scientifics Limited, has been used which was 0.96. Annual mean concentrations were, therefore, multiplied by a factor of 0.96.

\*\* In order to provide a reasonable and representative estimate of the annual mean concentration at a monitoring site, concentrations for at least 6 months of the year are needed, therefore, the annual means have not been presented where there are less than 6 months of data.

**Table E-5**

**Monthly and annual mean nitrogen dioxide (NO<sub>2</sub>) concentrations recorded at sites in Felixstowe, Kesgrave, Woodbridge, Farnham and Melton during 2000, figures in parts per billion (ppb \*). Annual mean concentration converted to micrograms per cubic metre (µg/m<sup>3</sup>) and ratified where relevant.**

Site	Time in Months												Annual Mean	Conversion To µg/m <sup>3</sup> (x 1.91)	Ratification of annual mean using bias correction factor (µg/m <sup>3</sup> ) #
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
<b>FLX 1</b>	31.2	27.5	23.4	19.6	15.8	no data	17.6	19.5	20.5	25.2	30	25.1	<b>23.2</b>	<b>44.3</b>	<b>26.6</b>
<b>FLX 2</b>	26.9	26.1	19.8	14.4	12.5	14.6	13.3	16.8	17.3	22.6	27.4	21.6	<b>19.4</b>	<b>37.1</b>	<b>22.3</b>
<b>FLX 3</b>	26.4	23.8	20.2	14.1	12.9	12.9	17.6	14.1	12.5	19.9	23.2	19.7	<b>18.1</b>	<b>34.6</b>	<b>20.8</b>
<b>FLX 4</b>	24.9	22.8	17.3	12	8.9	10.8	8	11.5	11.9	18.8	25.8	23.1	<b>16.3</b>	<b>31.1</b>	<b>18.7</b>
<b>FLX 6</b>	~	~	~	~	~	~	~	~	25.2	30.7	34.9	31.4	n/a**	n/a	n/a
<b>FLX 7</b>	~	~	~	~	~	~	~	~	17.4	no data	30.5	27.2	n/a**	n/a	n/a
<b>FLX 8</b>	~	~	~	~	~	~	~	~	15.2	no data	29.9	24.6	n/a**	n/a	n/a
<b>FLX 9</b>	~	~	~	~	~	~	~	~	11.5	15.7	20.7	22.4	n/a**	n/a	n/a
<b>FLX 10</b>	~	~	~	~	~	~	~	~	13.1	18.3	23.6	21.0	n/a**	n/a	n/a
<b>KSG 1</b>	26.0	21.0	21.5	15.0	12.3	14.0	13.5	14.4	14.3	19.0	21.5	22.4	<b>17.9</b>	<b>34.2</b>	<b>20.5</b>
<b>KSG 2</b>	17.2	11.7	15.0	11.0	10.1	10.7	9.3	10.1	10.1	13.3	16.7	14.0	<b>12.4</b>	<b>23.7</b>	<b>14.2</b>
<b>KSG 3</b>	20.5	16.7	15.8	9.8	9.0	10.2	8.4	10.3	10.3	15.3	19.1	no data	<b>13.2</b>	<b>25.2</b>	<b>15.1</b>
<b>KSG 4</b>	21.2	16.7	15.3	10.1	8.7	8.5	7.3	10.3	12.4	15.2	19.6	17.2	<b>13.5</b>	<b>25.8</b>	<b>15.5</b>
<b>WBG 1</b>	no data	27.9	30.4	26.5	28.6	27.7	26.9	26.9	25.1	26.9	28.4	24.9	<b>27.3</b>	<b>52.1</b>	<b>31.1</b>
<b>WBG 2</b>	20.2	20.5	17.4	16.6	12.5	12.6	9.7	12.8	13.8	16.6	19.9	19.3	<b>16.0</b>	<b>30.6</b>	<b>18.4</b>
<b>WBG 3</b>	16.9	13.1	13.2	10.4	no data	7.2	6	8.2	9.6	12.5	15.5	18.8	<b>11.9</b>	<b>22.7</b>	<b>13.6</b>
<b>WBG 4</b>	17.4	17.1	14.9	9.6	8	9.4	6.7	10.1	11.9	14.3	18.2	17.7	<b>12.9</b>	<b>24.6</b>	<b>14.8</b>
<b>FAR 1</b>	28.8	20.1	24.7	19.5	21.1	16.7	22.4	22.6	19.6	21.7	24.3	17.1	<b>21.6</b>	<b>41.3</b>	<b>24.8</b>
<b>FAR 2</b>	13.2	10.3	8.2	6.7	5.4	5.3	3.5	5.9	6.9	7.2	10.9	14.5	<b>8.2</b>	<b>15.7</b>	<b>9.4</b>
<b>MEL 1</b>	30.3	25.9	24.5	23.3	26	25.8	24.3	27.4	23.2	29.4	29.1	22.1	<b>25.9</b>	<b>49.5</b>	<b>29.7</b>
<b>MEL 2</b>	16.4	13.1	10.5	8.4	6.7	7	5.4	9.1	9.4	12.7	15.4	15.4	<b>10.8</b>	<b>20.6</b>	<b>12.4</b>

Key to table on next page

<b>Key:</b>	<b>FLX 1</b>	<u>Kerbside site</u>	Kerbside lampost outside Police Station, High Road West, Felixstowe
	<b>FLX 2</b>	<u>Intermediate site</u>	Drainpipe on Police Station, High Road West, Felixstowe
	<b>FLX 3</b>	<u>Urban background site</u>	Lampost outside 19 Princes Road, Felixstowe (moved from lampost outside 14 Princes Gardens, Felixstowe in November 2000)
	<b>FLX 4</b>	<u>Urban background site</u>	Lampost outside 37 Lynwood Avenue, Felixstowe
	<b>FLX 6</b>	<u>Roadside site</u>	Lampost at 34 Nayland Road, Felixstowe. <b>New site as of September 2000</b>
	<b>FLX 7</b>	<u>Industrial site</u>	Lampost at Carr Road industrial units, Felixstowe (moved from 37 Adastral Close, Felixstowe in November 2000). <b>New site as of September 2000</b>
	<b>FLX 8</b>	<u>Urban background site</u>	Lampost at 9 Victoria Road, Felixstowe. <b>New site as of September 2000</b>
	<b>FLX 9</b>	<u>Urban background site</u>	Lampost at 6 Brinkley Way, Felixstowe. <b>New site as of September 2000</b>
	<b>FLX 10</b>	<u>Urban background site</u>	Lampost at 11 Rosebery Road, Felixstowe. <b>New site as of September 2000</b>
	<b>KSG 1</b>	<u>Roadside site</u>	Kerbside lampost at 203 Main Road, Kesgrave
	<b>KSG 2</b>	<u>Intermediate site</u>	Drainpipe on 181 Main Road, Kesgrave
	<b>KSG 3</b>	<u>Urban background site</u>	Lampost opposite 4 Banyard Close, Grange Farm, Kesgrave
	<b>KSG 4</b>	<u>Urban background site</u>	Kesgrave High School, Main Road, Kesgrave
	<b>WBG 1</b>	<u>Kerbside site</u>	Signpost outside 93 Thoroughfare, Woodbridge
	<b>WBG 2</b>	<u>Intermediate site</u>	Drainpipe on 97a Thoroughfare, Woodbridge
	<b>WBG 3</b>	<u>Urban background site</u>	Lampost outside 8 Kingston Farm Road, Woodbridge
	<b>WBG 4</b>	<u>Urban background site</u>	Farlingaye High School, Ransom Road, Woodbridge
	<b>FAR 1</b>	<u>Kerbside site</u>	40 mph street sign, The Street (A12), Farnham
	<b>FAR 2</b>	<u>Rural site</u>	The Walled Garden (drainpipe), Park Road, Benhall
	<b>MEL 1</b>	<u>Kerbside site</u>	Traffic lights, Melton crossroads, Melton
	<b>MEL 2</b>	<u>Urban background site</u>	Drainpipe on 106 Hall Farm Road, Melton (changed from lampost outside 15/17 Hall Farm Close, Melton in January 1999)

\* All figures for NO<sub>2</sub> diffusion tube measurements were recorded in ppb and have then been converted to µg/m<sup>3</sup>

# Diffusion tube annual mean data is ratified to improve accuracy. The bias adjustment factor for the diffusion tubes must be either obtained from the analyst laboratory or calculated from a co-location study with a continuous analyser by the authority themselves. For 2000 diffusion tube data the bias correction factor for the analyst laboratory, Harwell Scientifics Limited, has been used which was 0.60. Annual mean concentrations were, therefore, multiplied by a factor of 0.60.

\*\* In order to provide a reasonable and representative estimate of the annual mean concentration at a monitoring site, concentrations for at least 6 months of the year are needed, therefore, the annual means have not been presented where there are less than 6 months of data.

**Table E-6**

**Monthly and annual mean nitrogen dioxide (NO<sub>2</sub>) concentrations recorded at sites in Felixstowe, Kesgrave, Woodbridge and Melton during 2001, figures in micrograms per cubic metre (µg/m<sup>3</sup>). Annual mean concentration ratified where relevant.**

Site	Time in Months												Annual mean (µg/m <sup>3</sup> )	Ratification of annual mean using bias correction factor (µg/m <sup>3</sup> ) #
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
<b>FLX 1</b>	55.3	47.2	43.4	38.7	32.9	no data	35.0	35.6	40.3	51.2	52.0	50.3	<b>43.8</b>	<b>28.9</b>
<b>FLX 2</b>	51.8	47.4	42.9	34.6	31.0	36.2	33.6	39.3	33.5	53.1	50.8	44.8	<b>41.6</b>	<b>27.5</b>
<b>FLX 3</b>	44.4	39.2	38.6	26.4	24.0	21.7	24.7	25.4	27.9	no data	44.1	39.7	<b>32.4</b>	<b>21.4</b>
<b>FLX 4</b>	43.8	36.1	36.7	18.1	18.6	16.1	18.8	22.7	19.9	43.9	39.3	36.5	<b>29.2</b>	<b>19.3</b>
<b>FLX 5</b>	49.1	45.5	41.6	34.4	29.5	32.9	32.3	37.2	38.2	53.7	60.4	46.3	<b>41.8</b>	<b>27.6</b>
<b>FLX 6</b>	57.3	52.5	48.0	42.8	29.0	32.8	30.7	38.6	41.5	59.5	58.8	50.2	<b>45.1</b>	<b>29.8</b>
<b>FLX 7</b>	56.1	45.7	42.8	33.7	29.0	25.9	34.8	36.5	45.9	51.9	63.8	56.8	<b>43.6</b>	<b>28.8</b>
<b>FLX 8</b>	46.2	37.6	33.2	26.9	22.1	20.9	23.5	27.2	29.5	43.3	49.8	48.5	<b>34.1</b>	<b>22.5</b>
<b>FLX 9</b>	37.9	34.2	30.3	19.6	17.9	15.9	14.7	20.4	21.0	34.8	34.9	36.6	<b>26.5</b>	<b>17.5</b>
<b>FLX 10</b>	44.4	36.4	33.3	24.5	20.8	18.1	18.8	25.1	23.6	38.6	39.9	41.1	<b>30.4</b>	<b>20.1</b>
<b>KSG 1</b>	47.5	43.8	40.1	28.4	28.1	20.6	24.7	26.8	29.6	36.8	50.8	45.4	<b>35.2</b>	<b>23.2</b>
<b>KSG 2</b>	57.7	48.9	51.8	42.5	41.5	44.5	no data	46.3	37.3	56.2	50.3	53.1	<b>48.2</b>	<b>31.8</b>
<b>KSG 3</b>	36.3	30.2	no data	16.4	13.1	14.8	17.7	20.5	19.7	34.9	39.0	34.8	<b>25.2</b>	<b>16.6</b>
<b>KSG 4</b>	39.0	29.1	26.1	18.9	14.1	14.7	16.4	18.9	16.3	no data	32.8	30.2	<b>23.3</b>	<b>15.4</b>
<b>KSG 5</b>	47.7	42.5	42.1	33.2	28.6	23.4	27.5	28.3	32.6	no data	51.6	48.1	<b>36.9</b>	<b>24.4</b>
<b>WBG 1</b>	52.4	56.9	53.5	52.0	59.0	52.5	46.0	50.1	46.6	48.2	56.9	51.1	<b>52.1</b>	<b>34.4</b>
<b>WBG 3</b>	34.7	26.0	26.9	15.5	13.5	11.6	13.2	17.6	15.5	27.9	33.5	28.9	<b>22.1</b>	<b>14.6</b>
<b>WBG 4</b>	37.0	30.4	27.9	19.5	no data	16.5	16.7	19.3	24.1	33.3	34.1	27.8	<b>26.1</b>	<b>17.2</b>
<b>MEL 1</b>	57	56.7	47.3	48	40.8	49.5	49.4	49.0	50.9	56.9	61.2	52.3	<b>51.6</b>	<b>34.1</b>
<b>MEL 2</b>	28.9	23	19.7	13.9	11.0	12.9	15.0	15.1	12.6	24.7	24.9	20.3	<b>18.5</b>	<b>12.2</b>
<b>MEL 3</b>	57.8	54.9	50.2	47.2	38.2	42.2	44.4	47.8	37.1	49.3	57.6	43.6	<b>47.5</b>	<b>31.4</b>

Key to table on next page

<b>Key:</b>	<b>FLX 1</b>	<u>Kerbside site</u>	Kerbside bus-stop sign outside Police Station, High Road West
	<b>FLX 2</b>	<u>Roadside site</u>	Lampost at 28 High Road West (moved from intermediate site on Police Station as of January 2001)
	<b>FLX 3</b>	<u>Urban background site</u>	Lampost outside 19 Princes Road, Felixstowe
	<b>FLX 4</b>	<u>Urban background site</u>	Lampost outside 37 Lynwood Avenue, Felixstowe
	<b>FLX 5</b>	<u>Roadside site</u>	Police Station sign (at front), High Road West, Felixstowe
	<b>FLX 6</b>	<u>Roadside site</u>	Lampost at 34 Nayland Road, Felixstowe
	<b>FLX 7</b>	<u>Industrial site</u>	Lampost at Carr Road industrial units, Felixstowe
	<b>FLX 8</b>	<u>Urban background site</u>	Lampost at 9 Victoria Road, Felixstowe
	<b>FLX 9</b>	<u>Urban background site</u>	Lampost at 6 Brinkley Way, Felixstowe
	<b>FLX 10</b>	<u>Urban background site</u>	Lampost at 11 Rosebery Road, Felixstowe
	<b>KSG 1</b>	<u>Roadside site</u>	Kerbside lampost at 203 Main Road, Kesgrave
	<b>KSG 2</b>	<u>Kerbside site</u>	Signpost at The Bell Inn PH, Main Road, Kesgrave (moved from 181 Main Road, Kesgrave January 2001)
	<b>KSG 3</b>	<u>Urban background site</u>	Lampost at 43 Bugsby Way, Grange Farm, Kesgrave (moved from 4 Banyard Close, Kesgrave May 2001)
	<b>KSG 4</b>	<u>Urban background site</u>	Kesgrave High School, Main Road, Kesgrave
	<b>KSG 5</b>	<u>Roadside site</u>	Lampost at 139 Main Road, Kesgrave
	<b>WBG 1</b>	<u>Kerbside site</u>	Signpost outside 93 Thoroughfare, Woodbridge
	<b>WBG 3</b>	<u>Urban background site</u>	Lampost outside 8 Kingston Farm Road, Woodbridge
	<b>WBG 4</b>	<u>Urban background site</u>	Farlingaye High School, Ransom Road, Woodbridge
	<b>MEL 1</b>	<u>Kerbside site</u>	Traffic lights, Melton crossroads, Melton
	<b>MEL 2</b>	<u>Urban background site</u>	Drainpipe on 106 Hall Farm Road, Melton
	<b>MEL 3</b>	<u>Kerbside site</u>	Lampost opposite Melton CPS, Wilford Bridge Road, Melton

**N.B AS OF JANUARY 2001 ALL INTERMEDIATE SITES HAVE NOW BEEN DISCONTINUED**

# Diffusion tube annual mean data is ratified to improve accuracy. The bias adjustment factor for the diffusion tubes must be either obtained from the analyst laboratory or calculated from a co-location study with a continuous analyser by the authority themselves. For 2001 diffusion tube data the bias correction factor for the analyst Laboratory, Harwell Scientifics Limited, has been used which was 0.66. Annual mean concentrations were, therefore, multiplied by a factor of 0.66.

\*\* In order to provide a reasonable and representative estimate of the annual mean concentration at a monitoring site, concentrations for at least 6 months of the year are needed therefore, the annual means have not been presented where there are less than 6 months of data.

**Table E-7 Monthly and annual mean nitrogen dioxide (NO<sub>2</sub>) concentrations recorded at sites in Felixstowe during 2002, figures in micrograms per cubic metre (µg/m<sup>3</sup>), Annual mean concentration ratified where relevant**

Site	Time in Months												Annual mean (µg/m <sup>3</sup> )	Ratification of annual mean using bias correction factor (µg/m <sup>3</sup> ) #
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
FLX 1	55.6	48.0	47.2	End	~	~	~	~	~	~	~	~	n/a**	n/a
FLX 2	52.5	44.3	45.7	End	~	~	~	~	~	~	~	~	n/a**	n/a
FLX 3	44.7	33.7	35.8	End	~	~	~	~	~	~	~	~	n/a**	n/a
FLX 4	48.9	32.7	33.4	25.8	24.4	24.5	20.9	20.3	17.6	38.6	45.6	44.8	<b>31.5</b>	<b>28.4</b>
FLX 5	55.0	40.7	42.6	37.8	35.1	40.6	31.6	28.5	32.1	49.0	52.3	45.8	<b>40.9</b>	<b>36.8</b>
FLX 6	70.4	55.9	47.1	43.3	34.4	42.3	29.5	33.9	36.8	51.2	64.0	46.7	<b>46.3</b>	<b>41.7</b>
FLX 7	52.2	59.8	44.1	40.2	29.6	40.1	31.5	34.1	33.7	52.1	55.8	52.2	<b>43.8</b>	<b>39.4</b>
FLX 8	no data	45.4	40.9	End	~	~	~	~	~	~	~	~	n/a**	n/a
FLX 9	43.4	31.7	33.8	24.4	19.8	no data	17.6	16.7	14.8	32.2	40.0	39.5	<b>28.5</b>	<b>25.7</b>
FLX 10	44.4	34.0	33.2	End	~	~	~	~	~	~	~	~	n/a**	n/a
FLX 11	~	~	~	42.4	40.2	42.4	35.0	36.9	no data	51.3	59.2	50.7	<b>44.8</b>	<b>40.3</b>

<b>Key:</b>	<b>FLX 1</b>	<u>Kerbside site</u>	Kerbside bus-stop sign outside Police Station, High Road West, Felixstowe. <b>Site DISCONTINUED from April 2002</b>
	<b>FLX 2</b>	<u>Roadside site</u>	Lampost at 28 High Road West, Felixstowe. <b>Site DISCONTINUED from April 2002</b>
	<b>FLX 3</b>	<u>Urban background site</u>	Lampost outside 19 Princes Road, Felixstowe. <b>Site DISCONTINUED from April 2002</b>
	<b>FLX 4</b>	<u>Urban background site</u>	Lampost outside 37 Lynwood Avenue, Felixstowe
	<b>FLX 5</b>	<u>Roadside site</u>	Police Station sign (at front), High Road West, Felixstowe
	<b>FLX 6</b>	<u>Roadside site</u>	Lampost at 34 Nayland Road, Felixstowe
	<b>FLX 7</b>	<u>Industrial site</u>	Lampost at Carr Road industrial units, Felixstowe
	<b>FLX 8</b>	<u>Urban background site</u>	Lampost at 9 Victoria Road, Felixstowe. <b>Site DISCONTINUED from April 2002</b>
	<b>FLX 9</b>	<u>Urban background site</u>	Lampost at 6 Brinkley Way, Felixstowe
	<b>FLX 10</b>	<u>Urban background site</u>	Lampost at 11 Rosebery Road, Felixstowe. <b>Site DISCONTINUED from April 2002</b>
	<b>FLX 11</b>	<u>Kerbside site</u>	Lampost at 131 Hamilton Road Road, Felixstowe. <b>New site from April 2002</b>

# Diffusion tube annual mean data is ratified to improve accuracy. The bias adjustment factor for the diffusion tubes must be either obtained from the analyst laboratory or calculated from a co-location study with a continuous analyser by the authority themselves. In 2002 a co-location study was undertaken by Suffolk Coastal District Council using results from a continuous NO<sub>x</sub> analyser located at a site in Melton. The bias correction factor for 2002 was calculated from this study, which is detailed in chapter 7 of this report. The bias correction factor obtained from the study was 0.90. Annual mean diffusion tube concentrations were, therefore, multiplied by a factor of 0.90.

\*\* In order to provide a reasonable and representative estimate of the annual mean concentration at a monitoring site, concentrations for at least 6 months of the year are needed therefore, the annual means have not been presented where there are less than 6 months of data.



**Table E-8 Monthly and annual mean nitrogen dioxide (NO<sub>2</sub>) concentrations recorded at sites in Kesgrave during 2002, figures in micrograms per cubic metre (µg/m<sup>3</sup>).  
Annual mean concentration ratified where relevant.**

Site	Time in Months												Annual mean (µg/m <sup>3</sup> )	Ratification of annual mean using bias correction factor
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
<b>KSG 1</b>	47.4	30.0	31.4	<b>End</b>	~	~	~	~	~	~	~	~	n/a**	n/a
<b>KSG 1a</b>	~	~	~	~	~	~	~	~	~	39.0	42.5	46.7	See KSG 1 mean	n/a
<b>KSG 1b</b>	~	~	~	~	~	~	~	~	~	38.3	39.6	50.3	See KSG 1 mean	n/a
<b>KSG 1c</b>	~	~	~	~	~	~	~	~	~	37.1	41.7	43.1	See KSG 1 mean	n/a
<b>KSG 1a,b,c - Mean</b>	~	~	~	~	~	~	~	~	~	38.1	41.3	46.7	<b>n/a**</b>	n/a
<b>KSG 2a</b>	53.5	44.5	56.9	55.8	53.6	49.6	54.0	61.1	59.6	63.0	70.0	67.6	See KSG 2 mean	n/a
<b>KSG 2b</b>	no data	39.4	52.8	56.2	52.7	50.8	55.3	56.8	no data	66.3	69.6	62.4	See KSG 2 mean	n/a
<b>KSG 2c</b>	no data	42.4	57.4	56.5	53.0	49.7	52.6	57.4	55.7	66.8	70.5	63.1	See KSG 2 mean	n/a
<b>KSG 2a,b,c - Mean</b>	53.5	42.1	55.7	56.2	53.1	50.0	54.0	58.4	57.7	65.4	70.0	64.4	<b>56.7</b>	<b>51.0</b>
<b>KSG 3</b>	35.2	25.6	25.4	<b>End</b>	~	~	~	~	~	~	~	~	n/a**	n/a
<b>KSG 4</b>	34.2	23.2	27.5	19.9	19.0	16.9	14.6	18.0	17.5	30.1	37.1	34.3	<b>24.4</b>	<b>22.0</b>
<b>KSG 5</b>	49.0	32.9	38.8	<b>End</b>	~	~	~	~	~	~	~	~	n/a**	n/a

<b>Key:</b>	<b>KSG 1</b>	<u>Roadside site</u>	Kerbside lampost outside 203 Main Road, Kesgrave. <b>Site DISCONTINUED from April 2002</b>
	<b>KSG 1a,b,c</b>	<u>Roadside site</u>	Lampost at 203 Main Road, Kesgrave. <b>Site continued again by SCC from September 2002 (Triplicate site)</b>
	<b>KSG 2a,b,c</b>	<u>Kerbside site</u>	Signpost at The Bell Inn PH, Main Road, Kesgrave. <b>Triplicate site from February 2002</b>
	<b>KSG 3</b>	<u>Urban background site</u>	Lampost at 43 Bugsby Way, Grange Farm, Kesgrave. <b>Site DISCONTINUED from April 2002</b>
	<b>KSG 4</b>	<u>Urban background site</u>	Kesgrave High School, Main Road, Kesgrave
	<b>KSG 5</b>	<u>Roadside site</u>	Lampost at 139 Main Road, Kesgrave. <b>Site DISCONTINUED from April 2002</b>

# Diffusion tube annual mean data is ratified to improve accuracy. The bias adjustment factor for the diffusion tubes must be either obtained from the analyst laboratory or calculated from a co-location study with a continuous analyser by the authority themselves. In 2002 a co-location study was undertaken by Suffolk Coastal District Council using results from a continuous NO<sub>x</sub> analyser located at a site in Melton. The bias correction factor for 2002 was calculated from this study, which is detailed in chapter 7 of this report. The bias correction factor obtained from the study was 0.90. Annual mean diffusion tube concentrations were, therefore, multiplied by a factor of 0.90.

\*\* In order to provide a reasonable and representative estimate of the annual mean concentration at a monitoring site, concentrations for at least 6 months of the year are needed, therefore, the annual means have not been presented where there are less than 6 months of data.

**Table E-9 Monthly and annual mean nitrogen dioxide (NO<sub>2</sub>) concentrations recorded at sites in Woodbridge during 2002, figures in micrograms per cubic metre (µg/m<sup>3</sup>).**

**Annual mean concentration ratified where relevant.**

Site	Time in Months												Annual mean (µg/m <sup>3</sup> )	Ratification of annual mean using bias correction factor (µg/m <sup>3</sup> ) #
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
<b>WBG 1</b>	50.8	<b>End</b>	~	~	~	~	~	~	~	~	~	~	n/a**	n/a
<b>WBG 1a</b>	65.1	55.7	60.0	50.0	54.5	56.8	53.4	56.9	65.1	57.5	65.7	60.5	See WBG 1 mean	n/a
<b>WBG 1b</b>	54.0	51.9	60.7	53.5	56.3	53.0	51.0	55.7	65.2	54.2	64.6	58.9	See WBG 1 mean	n/a
<b>WBG 1c</b>	59.9	58.1	59.4	62.5	no data	57.2	52.8	57.7	no data	49.6	66.1	53.6	See WBG 1 mean	n/a
<b>WBG 1a,b,c – mean</b>	59.7	55.2	60.0	55.3	55.4	55.7	52.4	56.8	65.2	53.8	65.5	57.7	<b>57.7</b>	<b>51.9</b>
<b>WBG 3</b>	32.9	19.3	23.2	18.2	16.0	14.3	10.8	16.3	no data	28.4	34.2	40.5	<b>23.1</b>	<b>20.8</b>
<b>WBG 4</b>	35.5	22.3	25.4	<b>End</b>	~	~	~	~	~	~	~	~	n/a**	n/a
<b>WBG 5a</b>	45.4	29.7	44.8	41.7	36.3	27.5	31.0	34.2	48.0	35.8	47.1	45.6	See WBG 5 mean	n/a
<b>WBG 5b</b>	42.3	37.9	34.5	45.7	no data	29.4	31.8	37.7	47.3	24.9	42.6	46.2	See WBG 5 mean	n/a
<b>WBG 5c</b>	44.8	35.4	45.3	42.6	36.4	30.4	33.2	36.9	no data	39.6	47.0	47.7	See WBG 5 mean	n/a
<b>WBG 5a,b,c - mean</b>	44.2	34.3	41.5	43.3	36.4	29.1	32.0	36.3	47.7	33.4	45.6	46.5	<b>39.2</b>	<b>35.3</b>

**Key:**

<b>WBG 1</b>	<u>Kerbside site</u>	Signpost outside 93 Thoroughfare, Woodbridge. <b>Site DISCONTINUED from February 2002</b>
<b>WBG 1a,b,c</b>	<u>Kerbside site</u>	Signpost outside 93 Thoroughfare, Woodbridge. <b>Triplicate site from January 2002</b>
<b>WBG 3</b>	<u>Urban background site</u>	Lampost outside 8 Kingston Farm Road, Woodbridge
<b>WBG 4</b>	<u>Urban background site</u>	Farlingaye High School, Ransom Road, Woodbridge. <b>Site DISCONTINUED from April 2002</b>
<b>WBG 5a,b,c</b>	<u>Roadside site</u>	Drainpipe on Suffolk Place, Lime Kiln Quay Road, Woodbridge. <b>Triplicate site from January 2002</b>

# Diffusion tube annual mean data is ratified to improve accuracy. The bias adjustment factor for the diffusion tubes must be either obtained from the analyst laboratory or calculated from a co-location study with a continuous analyser by the authority themselves. In 2002 a co-location study was undertaken by Suffolk Coastal District Council using results from a continuous NO<sub>x</sub> analyser located at a site in Melton. The bias correction factor for 2002 was calculated from this study, which is detailed in chapter 7 of this report. The bias correction factor obtained from the study was 0.90. Annual mean diffusion tube concentrations were, therefore, multiplied by a factor of 0.90.

\*\* In order to provide a reasonable and representative estimate of the annual mean concentration at a monitoring site, concentrations for at least 6 months of the year are needed, therefore, the annual means have not been presented where there are less than 6 months of data.

**Table E-10 Monthly and annual mean nitrogen dioxide (NO<sub>2</sub>) concentrations recorded at sites in Melton during 2002, figures in micrograms per cubic metre (µg/m<sup>3</sup>).  
Annual mean concentration ratified where relevant.**

Site	Time in Months												Annual mean (µg/m <sup>3</sup> )	Ratification of annual mean using bias correction factor
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
MEL 1	57.8	25.8	54.8	<b>End</b>	~	~	~	~	~	~	~	~	n/a**	n/a
MEL 2	34.2	9.4	20.3	16.0	10.7	15.1	9.6	13.6	15.3	23.7	30.6	29.2	<b>19.0</b>	<b>17.1</b>
MEL 3	49.3	<b>End</b>	~	~	~	~	~	~	~	~	~	~	n/a**	n/a
MEL 3a	57.2	50.9	53.0	49.5	47.3	46.6	46.5	51.5	55.6	55.8	66.4	49.3	See MEL 3 mean	n/a
MEL 3b	60.7	52.0	60.7	51.9	50.7	50.0	44.1	51.7	58.0	59.8	64.0	48.0	See MEL 3 mean	n/a
MEL 3c	56.4	48.0	55.7	49.2	44.6	45.7	45.1	48.0	53.4	53.0	58.4	50.6	See MEL 3 mean	n/a
MEL 3a,b,c - Mean	58.1	50.3	56.5	50.2	47.5	47.4	45.2	50.4	55.7	56.2	62.9	49.3	<b>52.5</b>	<b>47.3</b>
MEL 4a	49.0	42.1	48.2	38.3	32.8	28.9	31.5	38.8	40.8	42.1	47.2	56.1	See MEL4 mean	n/a
MEL 4b	49.0	39.9	47.7	36.3	32.9	30.7	33.7	40.1	40.6	42.9	49.1	54.5	See MEL 4 mean	n/a
MEL 4c	44.7	39.8	49.4	40.6	31.7	28.6	33.1	39.9	43.4	43.3	48.5	50.8	See MEL 4 mean	n/a
MEL 4a,b,c - Mean	47.6	40.6	48.4	38.4	32.5	29.4	32.8	39.6	41.6	42.8	48.3	53.8	<b>41.3</b>	<b>37.2</b>
MEL 5a	~	~	40.8	No data	31.2	36.4	28.7	30.3	35.4	39.1	46.3	38.6	See MEL5 mean	n/a
MEL 5b	~	~	41.3	37.7	32.1	38.1	29.4	29.1	33.1	38.4	49.2	33.9	See MEL5 mean	n/a
MEL 5c	~	~	43.5	19.6	30.3	34.6	23.3	29.5	36.2	38.4	47.6	39.7	See MEL5 mean	n/a
MEL 5a,b,c - Mean	~	~	41.9	N/A	31.2	36.4	27.1	29.6	34.9	38.6	47.7	37.4	<b>36.1</b>	<b>32.5</b>

**Key:**

MEL 1	<u>Kerbside site</u>	Traffic lights, Melton crossroads, Melton. <b>Site DISCONTINUED from April 2002</b>
MEL 2	<u>Urban background site</u>	Drainpipe on 106 Hall Farm Road, Melton
MEL 3	<u>Kerbside site</u>	Lampost opposite Melton CPS, Wilford Bridge Road, Melton. <b>Site DISCONTINUED from February 2002</b>
MEL 3a,b,c	<u>Kerbside site</u>	Lampost opposite Melton CPS, Wilford Bridge Road, Melton. <b>Triplicate site from January 2002</b>
MEL 4a,b,c	<u>Roadside site</u>	Lampost at Woods Lane, Melton. <b>Triplicate site from January 2002</b>
MEL 5a,b,c	<u>Roadside site</u>	6, The Street, Melton. <b>Triplicate site from March 2002</b>

# Diffusion tube annual mean data is ratified to improve accuracy. The bias adjustment factor for the diffusion tubes must be either obtained from the analyst laboratory or Calculated from a co-location study with a continuous analyser by the authority themselves. In 2002 a co-location study was undertaken by Suffolk Coastal District Council using results from a continuous NO<sub>x</sub> analyser located at a site in Melton. The bias correction factor for 2002 was calculated from this study, which is detailed in chapter 7 of this report. The bias correction factor obtained from the study was 0.90. Annual mean diffusion tube concentrations were, therefore, multiplied by a factor of 0.90.

\*\* In order to provide a reasonable and representative estimate of the annual mean concentration at a monitoring site, concentrations for at least 6 months of the year are needed, therefore, the annual means have not been presented where there are less than 6 months of data.

## Appendix F

### **Information collected and assumptions made for the Updating and Screening, and Detailed Assessment (where applicable) computer modelling of nitrogen dioxide (NO<sub>2</sub>) and particulate matter (PM<sub>10</sub>) concentrations from road traffic using the A1152, including the intersection with the B1438 at the Melton crossroads.**

- Figure F-1** General information with regard to traffic flows on the A1152, including detail on future developments that will affect traffic flows.
- Figure F-2** Map showing the A1152, each of the five sections it was split into, and the location of traffic survey points.
- Figure F-3** Summary of traffic count information obtained from independent traffic surveys commissioned by Suffolk Coastal District Council to run the DMRB screening model for the A1152. Traffic count data includes information for the road links at the Melton crossroads but DMRB was not undertaken for the crossroads.
- Figure F-4** Summary diagram of 1-day, 12-hour traffic survey results undertaken on the intersection of the A1152 and the B1438 at Melton – the Melton crossroads.
- Figure F-5** Information required for the Updating and Screening Assessment computer modelling (using DMRB) of nitrogen dioxide and particulate matter levels from road traffic using the A1152.  
SECTION 1 - A1152 from Woods Lane roundabout, Woodbridge to Melton crossroads, Melton.
- Figure F-6** Information required for the Detailed Assessment computer modelling (using ADMS version 3.1) of nitrogen dioxide and particulate matter levels from road traffic using the A1152.  
SECTION 2 – Intersection of the A1152 and B1438 at the Melton crossroads, Melton.
- Figure F-7** Information required for the Updating and Screening Assessment computer modelling (using DMRB) of nitrogen dioxide and particulate matter levels from road traffic using the A1152.  
SECTION 3 - A1152 from Melton crossroads, Melton to the Wilford Bridge roundabout, Bromeswell.
- Figure F-8** Information required for the Updating and Screening Assessment computer modelling (using DMRB) of nitrogen dioxide and particulate matter levels from road traffic using the A1152.  
SECTION 4 - A1152 from the Wilford Bridge roundabout, Bromeswell to the B1084 junction, Bromeswell.
- Figure F-9** Information required for the Updating and Screening Assessment computer modelling (using DMRB) of nitrogen dioxide and particulate matter levels from road traffic using the A1152.  
SECTION 5 - A1152 from the B1084 junction, Bromeswell to the Bentwaters roundabout, Rendlesham.

## **Figure F-1**

### **General Information with regard to traffic flows on the A1152, including detail on future commercial and domestic developments that will affect traffic flows.**

#### **Traffic data for 2002 (base year)**

The A1152 was split into five sections, dependent on differences in traffic flows, speeds or percentage of Heavy Goods Vehicles (HGVs). These sections are listed below and can be seen from Figure F-2 in this Appendix:

**Section 1** - A1152 from Woods Lane roundabout, Woodbridge to Melton crossroads, Melton.

**Section 2** - Intersection of the A1152 and B1438 at the Melton crossroads, Melton.

**Section 3** - A1152 from Melton crossroads, Melton to the Wilford Bridge roundabout, Bromeswell.

**Section 4** - A1152 from Wilford Bridge roundabout, Bromeswell to the B1084 junction, Bromeswell.

**Section 5** - A1152 from the B1084 junction, Bromeswell to the Bentwaters roundabout, Rendlesham.

Information was gathered from a number of commissioned traffic counts undertaken on sections of the A1152 during June 2002. The position of each traffic count can be seen on Figure F-2 in this Appendix, marked as a star. Traffic count information used to run the computer models has been summarised and can be seen in Figure F-3 in this Appendix. Input details for each section of the A1152 and results from DMRB can be seen in table A-13, Appendix A.

The 1-day, 12-hour traffic count undertaken on the Melton crossroads was commissioned to provide traffic flow data for each leg of the junction, together with the direction in which each vehicle moved. This information was necessary in order to run the computer models and ensured that traffic using the junction was not counted twice. A summary of the traffic flow data collected during this count can be seen in Figure F-4 in this Appendix, further details regarding traffic count information can be obtained from Suffolk Coastal District Council.

The information collected for the A1152 was used as the base year data for 2002. In order for the computer models to predict pollutant levels in future years (2004/2005) it is necessary to input predicted traffic flow data for these years.

#### **Predicted traffic data for 2004 and 2005**

For the majority of roads in the Suffolk Coastal district the traffic flows measured in a particular year are able to be predicted forward to future years through a computer model provided by Suffolk County Council, Environment and Transport Department. This computer model is known as a Trip End Modelling Programme (TEMPRO) and produces traffic growth factors for this area of the country. This was undertaken for all sections of the A1152 and can be seen in the calculation summary for each section (Figures F-5 to F-9) later in this Appendix.

Traffic flows on the A1152, however, have an extra variable when predicting forward to the future, as there are four developments with detailed planning consent in this area which will impact on the A1152 traffic flows. These are; the St Audry's development at Melton, the Annington development at the RAF Woodbridge airbase in Sutton, the Rendlesham

Enterprise Park and New Rendlesham development at Rendlesham, and the Deben Mill development at Melton Hill, Woodbridge.

In our previous report, the Third Stage Review and Assessment of Air Quality in the Suffolk Coastal District, published in November 2001, we included future traffic predictions from the Sutton Hoo development at Sutton. This development has not been included in future predictions for this report as at the time of our traffic counts, June 2002, the site was open and traffic was therefore included in the counts undertaken.

We have been able to obtain traffic predictions for the majority of the St Audry's, the Annington Homes, the Rendlesham Enterprise Park and New Rendlesham, and the Deben Mill developments, details follow for each site.

### **Traffic predictions for the St. Audry's development, Melton**

This is a part conversion and part redevelopment of the former St Audry's hospital site. It includes both domestic dwellings and business, commercial and social uses. There are a total of 194 dwellings and 5 commercial/sports and social applications with detailed planning consent for this site.

Traffic predictions for the St Audry's development were difficult to make as the majority of the site was built and occupied at the time of our traffic count in June 2002 and traffic would, therefore, have been included in our counts. It was decided that traffic predictions for any of the development not built or in use at the time of the June 2002 traffic count would be added to the predicted traffic figures for 2004 and 2005. This was undertaken as follows:

#### **Housing:**

- Planning application has detail for **194 dwellings**
- Suffolk Coastal Planning and Leisure, Development and Policy Section record the number of completed dwellings and the date of completion of each. The number of **dwellings completed by 1 June 2002** was 147.
- Therefore the **number of dwellings still to be completed** after this time was;

$$194 - 147 = \mathbf{47 \text{ dwellings}}$$

- Suffolk County Council, Environment and Transport Department has provided updated information regarding the number of predicted daily traffic 'trips' which would be made from each dwelling using Trip Generation Factors for this type of domestic development. Trip Generation Factors were obtained from the Trip Rate Information Computer System (TRICS) model, version 5.2, December 2002. The outcome was **7.48 trips per day per dwelling, as a 7-day average**.
- Therefore, the number of traffic movements added to the June 2002 traffic counts from the domestic housing on this development is:

$$\mathbf{47 \text{ dwellings} \times 7.48 \text{ trips per day} = 352 \text{ vehicle trips per day.}}$$

## **Commercial / Sports and Social:**

- There are five separate detailed planning applications for commercial / sports and social use at the St Audry's site, these are listed and detailed as follows:

- Planning application **C98/1397 – Erection of sports club with associated facilities**. This application is to relocate existing sports pitches and build a new Sports and Social Club within the site. At the time of the June 2002 traffic count this development was in use and traffic generated from it would have, therefore, been included in the counts.

- Planning Application **C00/0086 – Alterations and extension to existing single-storey building to form four business units at Clements Road**. There is no detail available at this time for this application; however, the Suffolk Coastal Planning and Leisure Department has advised that it will be four small industrial units covering an approximate floor area of 120m<sup>2</sup>.

Suffolk County Council, Environment and Transport Department has provided information regarding the number of predicted daily traffic 'trips' per 100m<sup>2</sup> of floor space for 'industrial units', using Trip Generation Factors (obtained from the TRICS model, version 5.2, December 2002). The outcome was **7.81 trips per day per 100m<sup>2</sup> of floor space**. Therefore, from 120m<sup>2</sup> of floor space there would be 10 trips per day. As this application is for commercial use it is likely to be in use for only six days per week. For traffic modelling purposes however a **7-day average** is required, which calculates as:

10 vehicle trips x 6 days = 60 ÷ 7 = **9 vehicle trips per day**.

- Planning Application **C00/0631 – Change of use for former hospital ward blocks to offices and 47 car-parking spaces**. At the time of the June 2002 traffic count this development was in use and traffic generated from it would have, therefore, been included in the counts.

- Planning Application **C00/1488 – Change of use from church to office for interior design business with furniture store**. At the time of the June 2002 traffic count this development was in use and traffic generated from it would have, therefore, been included in the counts.

- Planning Application **C01/0299 – Whitwell House development to office use**. This application will include car parking for 13 vehicles and 1 HGV. It was decided as a worst case scenario to assume 13 vehicles and 1 HGV will visit the premises every day that it is open. It has been assumed that each will make two traffic movements per day (to and from the premises). Therefore 14 vehicles undertaking 2 movements per day equals 28 vehicle movements per day. As this application is for commercial use it is likely to be in use for only six days per week. For traffic modelling purposes however a **7-day average** is required, which calculates as:

28 vehicle trips x 6 days = 168 ÷ 7 = **24 vehicle trips per day, as a 7-day average**

**The overall predicted future 7-day average traffic increase from both domestic and commercial / sports and social uses at the St Audry's development after 1 June 2002 is:**

**352 + 9 + 24 = 385 vehicle trips per day for the site**

The date by which the rest of the housing and commercial premises will be completed is unknown at this time and so, as an optimistic forecast, we have assumed that it will all be complete by the end of 2004.

### **Traffic predictions for the Annington development at the RAF Woodbridge airbase in Sutton**

This is a replacement of 162 semi-detached bungalows at RAF Woodbridge airbase, Sutton. Agreements have been made that of the 162 properties, 40 will be for social housing and the remaining 122 will be privately owned. The site still only has outline planning permission and, therefore, no traffic generated from it will have been included in our June 2002 counts.

Suffolk County Council, Environment and Transport Department has provided information regarding the number of predicted daily traffic 'trips' for both rented and owner-occupied housing, using Trip Generation Factors (obtained from the TRICS model, version 5.2, December 2002). The outcome was **7.36 vehicle trips per day for rented housing, and 7.48 vehicle trips per day for owner-occupied housing, both figures were for a 7-day average.**

Therefore;	40 social houses x 7.36 trips	= 295 trips per day
	122 owner-occupied houses x 7.48 trips per day	= 913 trips per day

**Total = 1,208 vehicle trips per day, as a 7-day average**

**The overall predicted future 7-day average traffic increase from the Annington development is, therefore, 1,208 vehicle trips per day for the site.**

The date by which the housing will be completed is unknown at this time and so, as an optimistic forecast, we have assumed that it will all be complete by the end of 2004.

### **Traffic predictions for the Rendlesham Enterprise Park and New Rendlesham development, Rendlesham**

In February 1997 outline planning permission was granted for comprehensive development of R.A.F Bentwaters, which covers a total of 426 hectares of land at Rendlesham. There have been a number of historic planning applications for the site but the current proposals are for an integrated community comprising housing, employment, possibly long term storage, and recreation and leisure. The site is now split into the Rendlesham Enterprise Park (industrial) and New Rendlesham (domestic). The outline planning permission for development of the site runs until 2010 which makes it difficult to determine the proportion of the site which is likely to be developed by the required assessment dates of 2004 and 2005. Close liaison with the Suffolk Coastal Planning and Leisure Department was undertaken, to predict traffic increases from the time of the June 2002 traffic count to the end of 2004 and 2005.

Information provided by the Planning and Leisure Department was taken from the December 2002 Master Plan document for the New Rendlesham Domestic Side produced by Suncourt (Property Developments) Ltd., and future traffic increase predictions were undertaken by Mr Chamberlain of the Suffolk Coastal Planning and Leisure Department.



## Traffic increase by the end of 2004

### **Rendlesham Enterprise Park**

- There is still approximately 10,000 m<sup>2</sup> of land for commercial development available. Mr Chamberlain predicts, as a worse case scenario, that 2,000m<sup>2</sup> of this land will be in use by the end of 2004.
- The December 2002 Master Plan for the site states a trip rate of 8.6 vehicle trips per 100m<sup>2</sup> of land per day, therefore:  
 $2,000\text{m}^2 \text{ of land} \div 100 = 20$   
 $20 \times 8.6 \text{ vehicle trips per day} = 172 \text{ vehicle trips per day.}$
- The December 2002 Master Plan for the site also states that only 90% of all trips generated will be external to the site:  
 $90\% \text{ of } 172 \text{ vehicle trips} = 90 \times 172 \div 100 = 155 \text{ vehicle trips per day external to the site which may travel on sections of the A1152.}$   
As Rendlesham Enterprise Park is for commercial use, it is likely to be in use for only six days per week. For traffic modelling purposes, however, a **7-day average** is required. Therefore, the 7-day average calculates as:  
 $155 \text{ vehicle trips} \times 6 \text{ days} = 930 \div 7 = \mathbf{133 \text{ vehicle trips per day external to the site which are predicted to travel on sections of the A1152.}}$
- Mr Chamberlain has advised that the original report for the site calculated that only 85% of external trips from the site will travel on the A1152 via the Melton crossroads.  
Therefore, number of external trips per day = 155  
 $85\% \text{ of } 155 \text{ vehicle trips} = 85 \times 155 \div 100 = 132 \text{ vehicle trips per day external to the site which may travel through the Melton crossroads.}$   
As Rendlesham Enterprise Park is for commercial use, it is likely to be in use for only six days per week. For traffic modelling purposes, however, a **7-day average** is required. Therefore, the 7-day average calculates as:  
 $132 \text{ vehicle trips} \times 6 \text{ days} = 792 \div 7 = \mathbf{114 \text{ vehicle trips per day, as a 7-day average, external to the site which are predicted to travel on the A1152 through the Melton crossroads.}}$

### **New Rendlesham domestic development**

- There are 77 houses currently being built on this site which we have assumed would all be completed and occupied by the end of 2003.
- Mr Chamberlain has predicted a build rate of approximately 50 –60 houses per year. For the end of 2004 we have, therefore, included the above 77 and added a further 50 to be completed and occupied, which totals 127 houses.
- The December 2002 Master Plan for the site states a trip rate of 7 vehicle trips per day.
- This calculates as 889 vehicle trips per day.
- The December 2002 Master Plan for the site also states that only 70% of all trips generated will be external to the site. **This calculates as 623 vehicle trips per day.**
- As we have no other information, we have assumed that all external trips will travel on the A1152 via the Melton crossroads and as this is a domestic site this would be a 7-day average.
- Mr Chamberlain has advised that no other activities associated with the domestic site, stated in the December 2002 Master Plan, would be in operation by the end of 2004.

The overall predicted future traffic increase from the Rendlesham Enterprise Park and New Rendlesham development by the end of **2004** is:

**Total vehicle trips per day, as a 7-day average, external to the site which are predicted to travel on sections of the A1152 = 133 + 623 = 756 vehicle trips per day for this site.**

**Total vehicle trips per day, as a 7-day average, external to the site which are predicted to travel on the A1152 through the Melton crossroads = 114 + 623 = 737 vehicle trips per day for this site.**

### Traffic increase by the end of 2005

#### **Rendlesham Enterprise Park**

- There is still approximately 10,000 m<sup>2</sup> of land for commercial development available. Mr Chamberlain predicts, as an optimistic forecast, that 4,000 m<sup>2</sup> of this land will be in use by the end of 2005.
- The December 2002 Master Plan for the site states a trip rate of 8.6 vehicle trips per 100m<sup>2</sup> of land per day, therefore:  
 $4,000\text{m}^2 \text{ of land} \div 100 = 40$   
 $40 \times 8.6 \text{ vehicle trips per day} = 344 \text{ vehicle trips per day.}$
- The December 2002 Master Plan for the site also states that only 90% of all trips generated will be external to the site:  
 $90\% \text{ of } 344 \text{ vehicle trips} = 90 \times 344 \div 100 = 310 \text{ vehicle trips per day external to the site which may travel on sections of the A1152.}$   
As Rendlesham Enterprise Park is for commercial use, it is likely to be in use for only six days per week. For traffic modelling purposes, however, a **7-day average** is required. Therefore, the 7-day average calculates as:  
 $310 \text{ vehicle trips} \times 6 \text{ days} = 1860 \div 7 = \mathbf{266 \text{ vehicle trips per day external to the site which are predicted to travel on sections of the A1152.}}$
- Mr Chamberlain has advised that the original report for the site calculated that only 85% of external trips from the site will travel on the A1152 via the Melton crossroads. Therefore, number of external trips per day = 310  
 $85\% \text{ of } 310 \text{ vehicle trips} = 85 \times 310 \div 100 = 264 \text{ vehicle trips per day external to the site which may travel through the Melton crossroads.}$   
As Rendlesham Enterprise Park is for commercial use, it is likely to be in use for only six days per week. For traffic modelling purposes, however, a **7-day average** is required. Therefore, the 7-day average calculates as:  
 $264 \text{ vehicle trips} \times 6 \text{ days} = 1584 \div 7 = \mathbf{227 \text{ vehicle trips per day, as a 7-day average, external to the site which are predicted to travel on the A1152 through the Melton crossroads.}}$

#### **New Rendlesham domestic development**

- In addition to the 127 houses predicted to be built by the end of 2004, at a build rate of 50 – 60 per year, a further 60 houses will be built by the end of 2005, this totals 187 houses.
- The December 2002 Master Plan for the site states a trip rate of 7 vehicle trips per day.
- This calculates as 1,309 vehicle trips per day
- The December 2002 Master Plan for the site also states that only 70% of all trips generated will be external to the site. **This calculates as 917 vehicle trips per day.**

- As we have no other information, we have assumed that all external trips will travel on the A1152 via the Melton crossroads and as this is a domestic site this would be a 7-day average.
- Mr Chamberlain has advised that no other activities associated with the domestic site, stated in the December 2002 Master Plan, would be in operation by the end of 2005.

The overall predicted future traffic increase from the Rendlesham Enterprise Park and New Rendlesham development by the end of **2005** is:

**Total vehicle trips per day external to the site, as a 7-day average, which are predicted to travel on sections of the A1152 =  $266 + 917 = 1,183$  vehicle trips per day for this site.**

**Total vehicle trips per day external to the site, as a 7-day average, which are predicted to travel on the A1152 through the Melton crossroads =  $227 + 917 = 1,144$  vehicle trips per day for this site.**

### **Traffic predictions for the Deben Mill development at Melton Hill, Woodbridge**

This is a redevelopment of the former Deben Mill site at Melton Hill, Woodbridge. It includes both domestic dwellings and commercial uses. There are a total of 90 confirmed dwellings and 3 commercial applications for this site. Some areas of housing on the site are now completed but no traffic generated from any part of the development will have been included in our June 2002 counts.

#### **Housing with detailed planning permission**

- Planning applications C94/0967 and C01/0561 have detail for **79 flats** and planning application C00/1340 has detail for **11 houses**, of which none were built at time of our traffic counts in June 2002.
- Suffolk County Council, Environment and Transport Department has provided updated information regarding the number of predicted daily traffic 'trips' which would be made from each dwelling using Trip Generation Factors for this type of domestic development (obtained from the TRICS model, version 5.2, December 2002). As all dwellings are predicted to be owner-occupied, the outcome was **7.48 trips per day per dwelling, as a 7-day average.**
- Therefore, the number of traffic movements added to the June 2002 traffic counts from the domestic housing on this development is:

**$90$  dwellings x  $7.48$  trips per day =  $674$  vehicle trips per day.**

#### **Commercial development with detailed planning permission**

- There is currently only one commercial application with detailed planning permission, **C94/0967**, that provides detail for –  **$22,500\text{ft}^2$  ( $2,091\text{m}^2$ ) of office space.** There is no information available at this time for this application, however the Suffolk Coastal Planning and Leisure Department has advised that it will all be office space.

Suffolk County Council, Environment and Transport Department has provided information regarding the number of predicted daily traffic 'trips' per 100m<sup>2</sup> of floor space for 'offices', using Trip Generation Factors (obtained from the TRICS model, version 5.2, December 2002). The outcome was **15.06 trips per day per 100m<sup>2</sup> of floor space**. Therefore:

$$2,091\text{m}^2 \text{ of land} \div 100 = 20.91$$

$$20.91 \times 15.06 \text{ vehicle trips per day} = \mathbf{315 \text{ vehicle trips per day.}}$$

As this application is for commercial use, it is likely to be in use for only six days per week. For traffic modelling purposes, however, a **7-day average** is required. Therefore, the 7-day average calculates as:

$$315 \text{ vehicle trips} \times 6 \text{ days} = 1890 \div 7 = \mathbf{270 \text{ vehicle trips per day, as a 7-day average.}}$$

### **Commercial development with outline planning permission**

- **C94/0967**, in addition to detailed planning consent, also has outline planning permission for 4,000ft<sup>2</sup> (372m<sup>2</sup>) of office space and **C00/1582 and C00/1583** have outline planning permission for 14 domestic dwellings. In this instance, as we do not know which development will be put in place, we have calculated the number of trips for each type of development and used the highest figure as the worst case scenario.

**4,000ft<sup>2</sup> (372m<sup>2</sup>) of office space** - Suffolk County Council, Environment and Transport Department has provided information regarding the number of predicted daily traffic 'trips' per 100m<sup>2</sup> of floor space for 'offices', using Trip Generation Factors (obtained from the TRICS model, version 5.2, December 2002). The outcome was **15.06 trips per day per 100m<sup>2</sup> of floor space**, therefore:

$$372\text{m}^2 \text{ of floor space} \div 100 = 3.72$$

$$3.72 \times 15.06 \text{ vehicle trips per day} = \mathbf{57 \text{ vehicle trips per day.}}$$

As this application is for commercial use, it is likely to be in use for only six days per week. For traffic modelling purposes, however, a **7-day average** is required. Therefore, the 7-day average calculates as:

$$57 \text{ vehicle trips} \times 6 \text{ days} = 342 \div 7 = \mathbf{49 \text{ vehicle trips per day, as a 7-day average.}}$$

**14 domestic dwellings** - Suffolk County Council, Environment and Transport Department has provided information regarding the number of predicted daily traffic 'trips' per day for this type of domestic development, using Trip Generation Factors (obtained from the TRICS model, version 5.2, December 2002). As all dwellings are predicted to be owner-occupied, the outcome was **7.48 trips per day per dwelling, as a 7-day average**.

Therefore, for 14 dwellings there would be **105 trips per day, as a 7-day average**.

**Therefore, the highest figure of 105 trips per day, as a 7-day average, from the domestic dwellings has been used.**

- **C94/0967** has outline planning permission for 30,000ft<sup>2</sup> (2,787m<sup>2</sup>) of industrial buildings and **C02/1802** has outline permission for 3,024m<sup>2</sup> of B1 use offices. In

this instance, as we do not know which development will be put in place, we have calculated the number of trips for each type of development and used the highest figure as an optimistic forecast.

Suffolk County Council, Environment and Transport Department has provided information regarding the number of predicted daily traffic 'trips' per 100m<sup>2</sup> of floor space for both 'industrial units' and 'offices', using Trip Generation Factors (obtained from the TRICS model, version 5.2, December 2002). The outcome was **7.81 trips per day for 'industrial units'** and **15.06 trips per day for 'offices', per 100m<sup>2</sup> of floor space**. As the trip rate for offices is higher and the floor space applied for is greater we have used the details of the outline for 3,024m<sup>2</sup> of B1 use offices as an optimistic forecast.

**3,024m<sup>2</sup> of office space** with 15.06 trips per day per 100m<sup>2</sup> of floor space would give:  
 $3024\text{m}^2 \text{ of floor space} \div 100 = 30.24$   
 $30.24 \times 15.06 \text{ vehicle trips per day} = \mathbf{456 \text{ vehicle trips per day}}$ .

As this application is for commercial use, it is likely to be in use for only six days per week. For traffic modelling purposes, however, a **7-day average** is required. Therefore, the 7-day average calculates as:

**456 vehicle trips x 6 days = 2736 ÷ 7 = 391 vehicle trips per day, as a 7-day average.**

**The overall predicted future traffic increase from both domestic and commercial uses at the Deben Mill development is, therefore:**

$674 + 270 + 105 + 391 = \mathbf{1,440 \text{ vehicle trips per day for the site, as a 7-day average}}$ .

The date by which the housing and commercial premises will be completed is unknown at this time and so, as an optimistic forecast, we have assumed that it will all be complete by the end of 2004.

#### **Assumptions made to calculate percentage of traffic using each section of the A1152**

Traffic count data collected for different sections of the A1152 in June 2002 has made it possible, in some instances, to calculate the percentage of traffic from each of the four developments that will travel along each road at junctions. Detailed information has been collated for the Melton crossroads. There is also some data available for junctions at the Wilford Bridge roundabout (between Sections 3 and 4 of the A1152, see Figure F-2) and at the B1084 turnoff (between sections 4 and 5 of the A1152, see Figure F-2). The information available at the latter two junctions is only when travelling on the A1152 towards Rendlesham. Details of available junction information are outlined below:

#### **Junction of the A1152 and B1438 at the Melton crossroads**

Turning percentages were calculated from the 12-hour manual count undertaken at this junction for each development in question, and are detailed below:

- **St Audry's development** – this development is along 'The Street' arm of the Melton crossroads (see Figure F-4). The percentage of traffic generated by this development which will travel on Sections 1 and 3 of the A1152 (Figure F-4) was calculated so that future traffic flow predictions could be made for them.

For Section 1 of the A1152, Figure F-4 shows that 4,957 vehicles in total travelled on 'The Street' of which  $1,094 + 824 = 1,918$  travelled either from or to 'Woods Lane' (Section 1 of the A1152). This calculates to 38.7% of total traffic ( $4957 \div 100 = 49.57$ .  $1,918 \div 49.57 = 38.7\%$ ) which would be coming from or going to Section 1 of the A1152 in the direction of the St Audry's development.

For Section 3 of the A1152, Figure F-4 shows that 4,957 vehicles in total travelled on 'The Street' of which  $138 + 90 = 228$  travelled either from or to 'Wilford Bridge Road' (Section 3 of the A1152). This calculates to 4.6% of total traffic ( $4957 \div 100 = 49.57$ .  $228 \div 49.57 = 4.6\%$ ) which would be coming from or going to Section 3 of the A1152 in the direction of the St Audry's development.

- **Annington and Rendlesham Enterprise Park and New Rendlesham development** - both of these developments are in the same direction with regard to the Melton crossroads and so have been considered together. They are along the 'Wilford Bridge Road' arm of the Melton crossroads (see Figure F-4). The percentage of traffic generated by these developments which will travel on Sections 1 and 3 of the A1152 (Figure F-2) was calculated so that future traffic flow predictions could be made for them.

For Section 1 of the A1152, Figure F-4 shows that 10,643 vehicles in total travelled on 'Wilford Bridge Road' of which  $3347 + 3092 = 6439$  travelled either from or to 'Woods Lane' (Section 1 of the A1152). This calculates to 60.5% of total traffic ( $10,642 \div 100 = 106.42$ .  $6,439 \div 106.42 = 60.5\%$ ) which would be coming from or going to Section 1 of the A1152 in the direction of both of these developments.

For Section 3 an assessment is not necessary, as the future traffic will all be included on this section of road as it is in the direction of the developments.

- **Deben Mill development** - this development is along 'Melton Road' arm of the Melton crossroads (see Figure F-4). The percentage of traffic generated by this development which will travel on Sections 1 and 3 of the A1152 (Figure F-2) was calculated so that future traffic flow predictions could be made for them.

For Section 1 of the A1152, Figure F-4 shows that 8,373 vehicles in total travelled on 'Melton Road' of which  $870 + 716 = 1,586$  travelled either from or to 'Woods Lane' (Section 1 of the A1152). This calculates to 18.9% of total traffic ( $8,373 \div 100 = 83.73$ .  $1,586 \div 83.73 = 18.9\%$ ) which would be coming from or going to Section 1 of the A1152 in the direction of the Deben Mill development.

For Section 3 of the A1152, Figure F-4 shows that 8,373 vehicles in total travelled on 'Melton Road' of which  $2,022 + 1,954 = 3,976$  travelled either from or to 'Wilford Bridge Road' (Section 3 of the A1152). This calculates to 47.5% of total traffic ( $8,373 \div 100 = 83.73$ .  $3,976 \div 83.73 = 47.5\%$ ) which would be coming from or going to Section 3 of the A1152 in the direction of the Deben Mill development.

### **Junction of the A1152 and B1083 at the Wilford Bridge roundabout**

The percentage of traffic which approaches this junction on the A1152 from Melton and then continues on the A1152 towards Bromeswell was able to be calculated from traffic flow information gathered from counts taken on Sections 3 and 4 of the A1152 (Figure F-3). This was possible as the counts were undertaken simultaneously and therefore were directly

comparable. No information was available with regard to any percentage differences travelling in the opposite direction.

The information is, therefore, only able to assist us in calculating the percentage of traffic from the St Audry's, and Deben Mill developments which will continue on the A1152 from Section 3 to Section 4 (Figure F-3). The traffic counts showed that of the 12,807 vehicles per day travelling along Section 3, at Wilford Bridge, 7,046 vehicles continued along the A1152 on to Section 4. This is 55% ( $12,807 \div 100 = 128.07$ .  $7,046 \div 128.07 = 55.0\%$ ) of the traffic.

### **Junction of the A1152 and B1084 at Bromeswell**

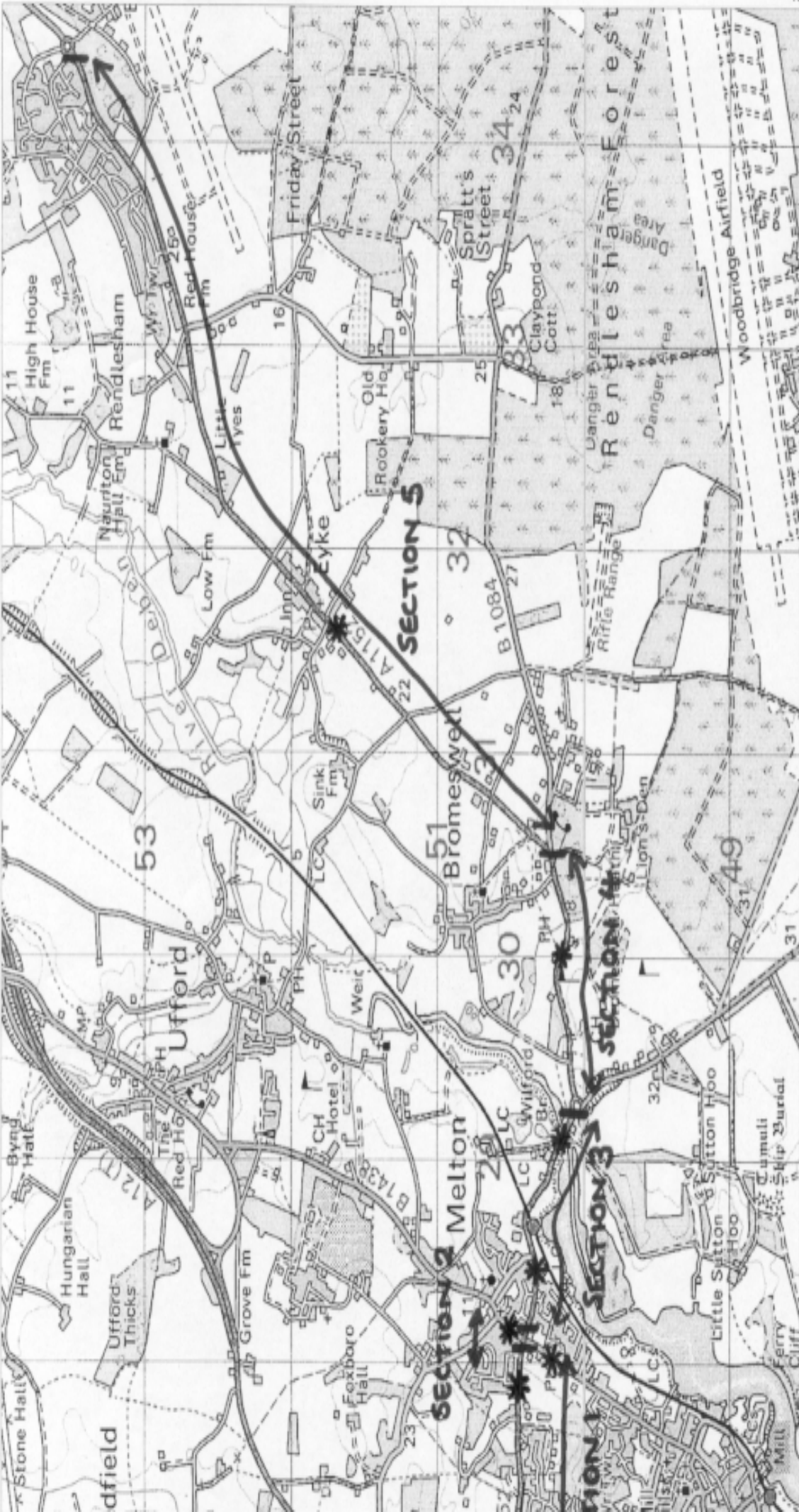
The percentage of traffic which approaches this junction on the A1152 from Melton and then continues on the A1152 towards Rendlesham was able to be calculated from traffic flow information gathered from counts taken on Sections 4 and 5 of the A1152 (Figure F-3). This was possible as the counts were undertaken simultaneously and therefore were directly comparable. No information was available with regard to any percentage differences travelling in the opposite direction.

The information is, therefore, only able to assist us in calculating the percentage of traffic, from the St Audrys, Annington, and Deben Mill developments, which will continue on the A1152 from Section 4 to Section 5 (Figure F-3). The traffic counts showed that of the 7,046 vehicles per day travelling along Section 4, at Bromeswell, 5,073 vehicles continued along the A1152 on to Section 5. This is 72% ( $7,046 \div 100 = 70.46$ .  $5,073 \div 70.46 = 72.0\%$ ) of the traffic.

**Information from each future development, and the percentage of traffic using each section of the A1152 and turning at junctions, was used to calculate traffic input figures for the computer models for each section of the A1152. Assumptions made for each section of road and all calculations are explained in Figures F-5 to F-9 in this Appendix**

**Figure F-2** Map showing the A1152, each of the five sections it was split into, and the location of traffic survey points.

72967



A1152

253077

248517

634672

Reproduced from Ordnance Survey mapping with the permission of the Controller of HMSO © Crown Copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution. Suffolk Coastal District Council Licence No. L4017960X

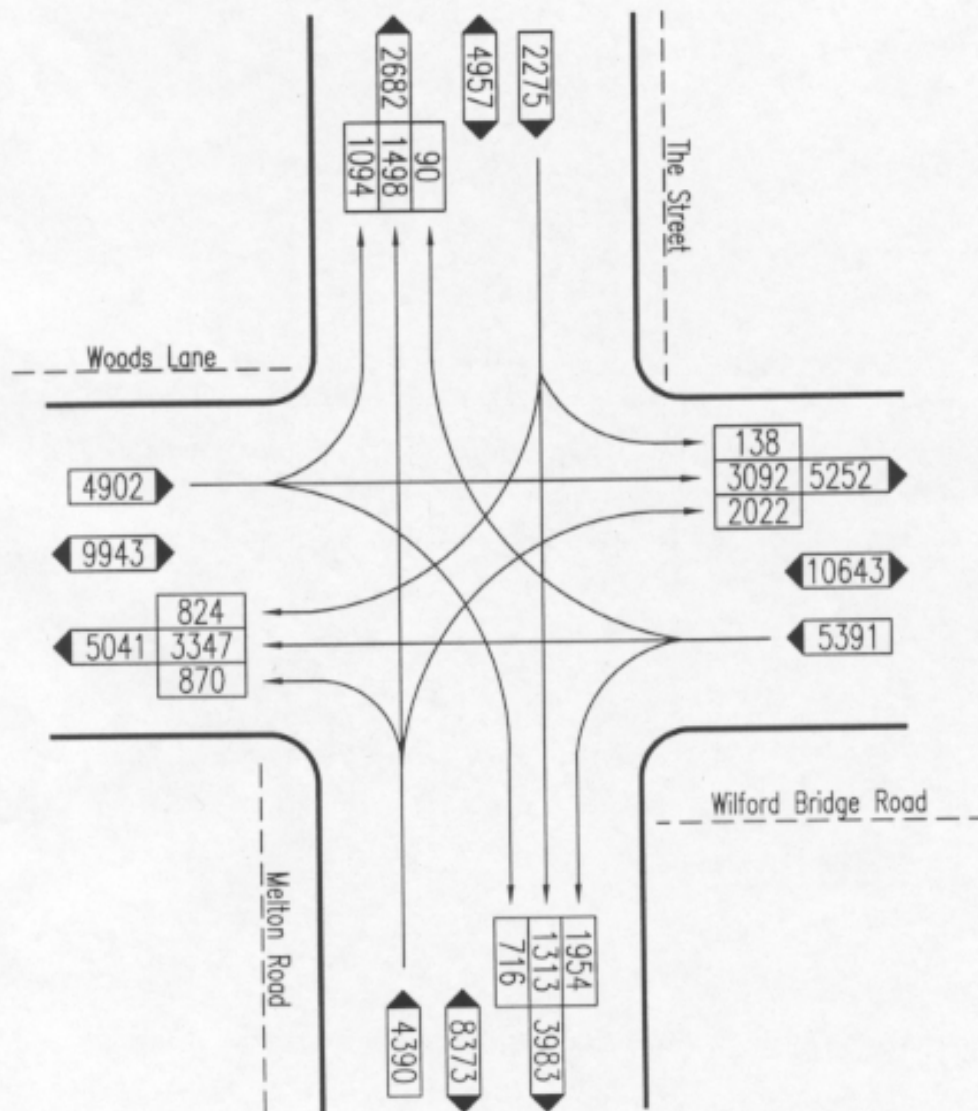
Scale 1:31,000 1 Km



**Figure F-3** Summary of traffic count information obtained from independent traffic surveys commissioned by Suffolk Coastal District Council to run the DMRB screening model for the A1152. Traffic count data includes information for the road links at the Melton crossroads but DMRB was not undertaken for the crossroads.

<b>Road</b>	<b>Traffic count site description</b>	<b>Grid reference Eastings</b>	<b>Grid reference Northings</b>	<b>7-day AADTs – all motorised vehicles, together with year of data collection</b>	<b>% of Light Duty Vehicles (LDV)</b>	<b>% of Heavy Duty Vehicles (HDV)</b>
<b>B1438</b>	MELTON ROAD, MELTON	628036	250220	9,026 (2002)	94.0 %	6.0 %
<b>B1438</b>	THE STREET, MELTON	628193	250514	5,683 (2002)	92.7 %	7.3 %
<b>A1152</b>	WOODS LANE, MELTON	627870	250450	11,973 (2002)	93.0 %	7.0 %
<b>A1152</b>	WILFORD BRIDGE ROAD, MELTON	628468	250340	12,366 (2002)	93.9 %	6.1 %
<b>A1152</b>	WILFORD BRIDGE ROAD, MELTON	629019	250267	12,807 (2002)	92.7 %	7.3 %
<b>A1152</b>	ORFORD ROAD, BROMESWELL	630025	250147	7,046 (2002)	93.3 %	6.7 %
<b>A1152</b>	THE STREET, EYKE	631653	251735	5,073 (2002)	93.3 %	6.7 %

**Figure F-4** Summary diagram of 1-day, 12-hour traffic survey results undertaken on the intersection of the A1152 and the B1438 at Melton – the Melton crossroads.



SUFFOLK HIGHWAYS ENGINEERING CONSULTANCY

TITLE Location Melton Crossroads  
 Hour 07:00 to 19:00 C.P.Ref. \_\_\_\_\_  
 Date Thursday 27th June 2002 Vehicle Type(s) All

## Figure F-5

### Information required for the Updating and Screening Assessment computer modelling (using DMRB) of nitrogen dioxide and particulate matter levels from road traffic using the A1152.

#### SECTION 1 - A1152 from Woods Lane roundabout, Woodbridge to Melton crossroads, Melton.

##### **Annual Average Daily Traffic flow (AADT) at last traffic count:**

- AADT calculated from 7-day automatic traffic count taken during June 2002 on Woods Lane at Melton, see traffic count summary table in Figure F-3 in Appendix.
- Count gave **11,973** vehicles on this section of the A1152 as a 7-day Annual Average Daily Traffic flow (AADT).

##### **Calculated AADT in 2004/2005 (with general traffic growth added):**

- To calculate forward the 2002 AADT flow to **2004** and **2005** general traffic growth needs to be added. These predictions were obtained from Suffolk County Council, Environment and Transport Department by using the Trip End Modelling Programme (TEMPRO) which produces traffic growth factors for this area of the country. TEMPRO produces factors for both low and high percentage traffic growth. High percentage traffic growth figures are required by the DMRB screening model and were, therefore used:

TEMPRO factor for high percentage increase from 2002 to 2004 = **x 1.041**

TEMPRO factor for high percentage increase from 2002 to 2005 = **x 1.062**

Therefore, with general traffic growth (high percentage) added to our 2002 AADT:

AADT in **2004** is:  $11,973 \times 1.041 = \mathbf{12,464 \text{ vehicle movements per day}}$

AADT in **2005** is:  $11,973 \times 1.062 = \mathbf{12,716 \text{ vehicle movements per day}}$

##### **Calculated AADT for 2004 (general traffic growth plus additional domestic and commercial development traffic added, where necessary):**

Planned developments for St Audry's, Rendlesham Enterprise Park and New Rendlesham, Annington, and Deben Mill have been explained earlier in Figure F-1, together with traffic predictions for each development.

- Traffic from **St Audry's** development – it was assumed, as an optimistic forecast, that all development will be in place for 2004. Total predicted traffic flow generated by this site is 385 AADT. Using junction turning percentages explained in Figure F-1, 38.7% of this traffic will travel on Section 1 of A1152.  $38.7\% \text{ of } 385 \text{ } ((38.7 \times 385) \div 100) = \mathbf{149 \text{ AADT}}$ .
- Traffic from **Annington** development – it was assumed, as an optimistic forecast, that all development will be in place for 2004. Total predicted traffic flow generated by this site is 1,208 AADT. It was assumed that 100% of this traffic will pass through the Melton crossroads. Using junction turning percentages explained in Figure F-1, 60.5% of this traffic will travel on Section 1 of A1152.  $60.5\% \text{ of } 1,208 \text{ } ((60.5 \times 1,208) \div 100) = \mathbf{731 \text{ AADT}}$ .
- Traffic from **Rendlesham Enterprise Park and New Rendlesham** development – traffic predictions for 2004 from this site are detailed in Figure F-1. Total predicted traffic flow generated by this site for 2004 that will travel through the Melton crossroads is 737 AADT. Using junction turning percentages explained in Figure F-1, 60.5% of this traffic will travel on Section 1 of A1152.  $60.5\% \text{ of } 737 \text{ } ((60.5 \times 737) \div 100) = \mathbf{446 \text{ AADT}}$ .

- Traffic from **Deben Mill** development – It was assumed, as an optimistic forecast, that all development will be in place for 2004. Total predicted traffic flow generated by this site is 1,440 AADT. It was assumed that 50% of this traffic will pass through the Melton crossroads = 720 AADT. Using junction turning percentages explained in Figure F-1, 18.9% of this traffic will travel on Section 1 of A1152.  $18.9\% \text{ of } 720 \text{ ((} 18.9 \times 720) \div 100) = \mathbf{137 \text{ AADT}}$ .
- Therefore, AADT in **2004** is:  $12,464 + 149 + 731 + 446 + 137 = \mathbf{13,927 \text{ AADT}}$

**Calculated AADT for 2005 (general traffic growth plus additional domestic and commercial development traffic added, where necessary):**

Planned developments for St Audry's, Rendlesham Enterprise Park and New Rendlesham, Annington, and Deben Mill have been explained earlier in Figure F-1, together with traffic predictions for each development.

- Traffic from **St Audry's** development – it was assumed, as an optimistic forecast, that all development will be in place for 2005. Total predicted traffic flow generated by this site is 385 AADT. Using junction turning percentages explained in Figure F-1, 38.7% of this traffic will travel on Section 1 of A1152.  $38.7\% \text{ of } 385 \text{ ((} 38.7 \times 385) \div 100) = \mathbf{149 \text{ AADT}}$ .
- Traffic from **Annington** development – it was assumed, as an optimistic forecast, that all development will be in place for 2005. Total predicted traffic flow generated by this site is 1,208 AADT. It was assumed that 100% of this traffic will pass through the Melton crossroads. Using junction turning percentages explained in Figure F-1, 60.5% of this traffic will travel on Section 1 of A1152.  $60.5\% \text{ of } 1,208 \text{ ((} 60.5 \times 1,208) \div 100) = \mathbf{731 \text{ AADT}}$ .
- Traffic from **Rendlesham Enterprise Park and New Rendlesham** development – traffic predictions for 2005 from this site are detailed in Figure F-1. Total predicted traffic flow generated by this site for 2005 that will travel through the Melton crossroads is 1,144 AADT. Using junction turning percentages explained in Figure F-1, 60.5% of this traffic will travel on Section 1 of A1152.  $60.5\% \text{ of } 1,144 \text{ ((} 60.5 \times 1,144) \div 100) = \mathbf{693 \text{ AADT}}$ .
- Traffic from **Deben Mill** development – it was assumed, as an optimistic forecast, that all development will be in place for 2005. Total predicted traffic flow generated by this site is 1,440 AADT. It was assumed that 50% of this traffic will pass through the Melton crossroads = 720 AADT. Using junction turning percentages explained in Figure F-1, 18.9% of this traffic will travel on Section 1 of A1152.  $18.9\% \text{ of } 720 \text{ ((} 18.9 \times 720) \div 100) = \mathbf{137 \text{ AADT}}$ .
- Therefore, AADT in **2005** is:  $12,716 + 149 + 731 + 693 + 137 = \mathbf{14,426 \text{ AADT}}$

**Percentage of Heavy Duty Vehicles (HDV's) in 2004/2005:**

From the traffic count undertaken on this section of the A1152 in June 2002, the Heavy Duty Vehicle percentage of the traffic was **7.0%**. This figure has been used for the 2004 and 2005 traffic modelling predictions, as we do not have any future information with regard to HDV percentages.

**Traffic speed (km/hr) in 2004 /2005:**

There is no speed data available for this section of the A1152, therefore the National Speed Limit of **30 mph (48 km/hr)** was used. This speed has been used for the 2004 and 2005 traffic modelling predictions.

**Receptor site(s) = closest relevant receptor location:**

The DMRB computer model needs the distance from the nearest relevant receptor location to the centre of the road in order to predict pollutant levels at that receptor. Relevant receptor locations for the different averaging periods in each of the objectives may differ, as explained in section 2.1 of this report. The closest receptor locations, relevant to the NO<sub>2</sub> and PM<sub>10</sub> objectives, for this section of the A1152 are in Melton as follows:

- Distance from closest receptor location to **centre of road for NO<sub>2</sub> assessment = 4.6 m**
- Distance from closest receptor location to **centre of road for PM<sub>10</sub> assessment= 4.6 m**

**Background levels of oxides of nitrogen (NO<sub>x</sub>), nitrogen dioxide (NO<sub>2</sub>), and particulate matter (PM<sub>10</sub>) for this section of A1152, together with the year in question (levels obtained from default maps available on the National Air Quality Archive):**

The guidance in LAQM.TG(03) provides a procedure for obtaining background concentrations to avoid double counting which is explained in section 2.3 of this report. The background concentrations for this section of the A1152 are as follows:

- NO<sub>x</sub> (2005) = 21.5 µg/m<sup>3</sup>
- NO<sub>2</sub> (2005) = 16.0 µg/m<sup>3</sup>
- PM<sub>10</sub> (2004) = 18.6 µg/m<sup>3</sup>

## **Figure F-6**

### **Information required for the Detailed Assessment computer modelling (using ADMS version 3.1) of nitrogen dioxide and particulate matter levels from road traffic using the A1152.**

#### **SECTION 2 – Intersection of the A1152 and B1438 at the Melton crossroads, Melton.**

Calculations and information gathering for this junction on the A1152 have not been undertaken entirely by Suffolk Coastal District Council. The DMRB computer screening model has not been run for this junction. Information gathered from the first round of review and assessments at the third stage concluded that traffic emissions at this junction would not exceed any of the objectives. We decided, however, that further monitoring and modelling of this junction should be conducted to confirm these findings through increased accuracy of data collected.

In order to obtain the information required for further detailed modelling of this junction, monitoring was undertaken for nitrogen dioxide using continuous monitoring equipment and a diffusion tube survey at the junction. Details of the monitoring undertaken and results can be seen in section 7.6.1 of this report. Traffic counts were also undertaken for all arms of the junction together with a junction turning count in order that the traffic information input to the model was up to date and as accurate as we could make it.

All information collected was then forwarded to netcen, appointed by Suffolk Coastal District Council to undertake the modelling. Netcen ran a detailed atmospheric dispersion model, ADMS version 3.1, in order to determine whether emissions from traffic using the junction would cause an exceedance of any of the air quality objectives for nitrogen dioxide or particulate matter (PM<sub>10</sub>). A summary of the traffic information provided to netcen is detailed below:

#### **Annual Average Daily Traffic flow (AADT) at last traffic count:**

- Traffic counts were undertaken in June 2002 on the A1152 to include a 12-hour manual turning count at this junction, a summary of information collected can be seen in Figure F-4 in this Appendix. In addition, 7-day, 24-hour traffic counts were also undertaken on the A1152 and B1438 arms of this junction, a summary of the information can be seen in Figure F-3
- All traffic count information for this junction has been processed by netcen for input into the ADMS computer model and their traffic data summaries can be seen in their report on the junction modelling in Appendix I.

#### **Calculated AADT in 2004/2005 (with general traffic growth added):**

- To calculate forward the 2000 AADT flow to **2004** and **2005** general traffic growth needs to be added. These predictions were obtained from Suffolk County Council, Environment and Transport Department by using the Trip End Modelling Programme (TEMPRO) which produces traffic growth factors for this area of the country. TEMPRO produces factors for both low and high percentage traffic growth. High percentage traffic growth figures are required by the DMRB screening model and have been used to assess all other sections of the A1152. High percentage growth figures were, therefore, also used for this junction. These figures can be seen below and were forwarded to netcen for use in factoring the traffic data forward to 2004/2005:

TEMPRO factor for high percentage increase from 2002 to 2004 = **x 1.041**

TEMPRO factor for high percentage increase from 2002 to 2005 = **x 1.062**

### **Traffic from four future domestic and commercial developments which will increase the calculated AADT in 2004/2005:**

Planned developments for St Audry's, Rendlesham Enterprise Park and New Rendlesham, Annington, and Deben Mill have been explained earlier in Figure F-1, together with traffic predictions for each development. The contribution from each development to the traffic flow in 2004/2005 was provided to netcen and is outlined below. Netcen has then calculated turning percentages and total traffic flows and these are summarised in their report in Appendix I.

- Traffic from **St Audry's** development – it was assumed, as an optimistic forecast, that all development will be in place for 2004. Total predicted traffic flow generated by this site is **385 AADT** and it will all pass through the Melton crossroads.
- Traffic from **Annington** development – it was assumed, as an optimistic forecast, that all development will be in place for 2004. Total predicted traffic flow generated by this site is **1,208 AADT**. It was assumed that 100% of this traffic will pass through the Melton crossroads.
- Traffic from **Rendlesham Enterprise Park and New Rendlesham** development – traffic predictions for 2004 and 2005 for this site are detailed in Figure F-1. Total predicted traffic flow generated by this site for **2004** that will travel through the Melton crossroads is **737 AADT**. Total predicted traffic flow generated by this site for **2005** that will travel through the Melton crossroads is **1,144 AADT**.
- Traffic from **Deben Mill** development – it was assumed, as an optimistic forecast, that all development will be in place for 2004. Total predicted traffic flow generated by this site is 1,440 AADT. It was assumed, as an optimistic forecast, that 50% of this traffic will pass through the Melton crossroads, which equals **720 AADT**.

### **Percentage of Heavy Duty Vehicles (HDVs) in 2004/2005:**

Percentage of HDVs using each section of the junction was taken from the traffic count data provided, and can be seen in the netcen report in Appendix I.

### **Traffic speed (km/hr) in 2004 and 2005:**

There is no speed data available for this section of the A1152, therefore the National Speed Limit of **30 mph (48 km/hr)** was used. However, at this junction there are traffic lights and the traffic does queue at peak hours which will decrease the average speed of vehicles. Netcen has calculated reduced speeds at this junction for use in the modelling.

### **Receptor site(s) = closest relevant receptor location:**

Receptor sites at this junction and their distances from the centre of the road were obtained by netcen from Geographical Information System (GIS) maps provided by Suffolk Coastal District Council for this junction. Due to the complex abilities of the computer model used, predictions of pollutant levels were undertaken for all receptors at the junction.

### **Background levels of oxides of nitrogen (NO<sub>x</sub>), nitrogen dioxide (NO<sub>2</sub>), and particulate matter (PM<sub>10</sub>) for this section of A1152:**

Background levels of the above pollutants were obtained by netcen from the UK National Atmospheric Emissions Inventory and can be seen in the report in Appendix I

## Figure F-7

### Information required for the Updating and Screening Assessment computer modelling (using DMRB) of nitrogen dioxide and particulate matter levels from road traffic using the A1152.

#### SECTION 3 - A1152 from Melton crossroads, Melton to the Wilford Bridge roundabout, Bromeswell.

##### **Annual Average Daily Traffic flow (AADT) at last traffic count:**

- AADT calculated from 7-day automatic traffic count taken during June 2002 on Wilford Bridge Road at Melton, see traffic count summary table in Figure F-3 in Appendix.
- Count gave **12,807** vehicles on this section of the A1152 as a 7-day Annual Average Daily Traffic flow (AADT).

##### **Calculated AADT in 2004/2005 (with general traffic growth added):**

- To calculate forward the 2002 AADT flow to **2004** and **2005** general traffic growth needs to be added. These predictions were obtained from Suffolk County Council, Environment and Transport Department by using the Trip End Modelling Programme (TEMPRO) which produces traffic growth factors for this area of the country. TEMPRO produces factors for both low and high percentage traffic growth. High percentage traffic growth figures are required by the DMRB screening model and were, therefore used:

TEMPRO factor for high percentage increase from 2002 to 2004 = **x 1.041**

TEMPRO factor for high percentage increase from 2002 to 2005 = **x 1.062**

Therefore, with general traffic growth (high percentage) added to our 2002 AADT:

**AADT in 2004 is:**  $12,807 \times 1.041 = \mathbf{13,333 \text{ vehicle movements per day}}$

**AADT in 2005 is:**  $12,807 \times 1.062 = \mathbf{13,602 \text{ vehicle movements per day}}$

##### **Calculated AADT for 2004 (general traffic growth plus additional domestic and commercial development traffic added, where necessary):**

Planned developments for St Audry's, Rendlesham Enterprise Park and New Rendlesham, Annington, and Deben Mill have been explained earlier in Figure F-1, together with traffic predictions for each development.

- Traffic from **St Audry's** development – it was assumed, as an optimistic forecast, that all development will be in place for 2004. Total predicted traffic flow generated by this site is 385 AADT. Using junction turning percentages explained in Figure F-1, 4.6% of this traffic will travel on Section 3 of A1152.  $4.6\% \text{ of } 385 ((4.6 \times 385) \div 100) = \mathbf{18 \text{ AADT}}$ .
- Traffic from **Annington** development – it was assumed, as an optimistic forecast, that all development will be in place for 2004. Total predicted traffic flow generated by this site is 1,208 AADT. It was assumed that 100% of this traffic will pass through the Melton crossroads and, therefore, use this section of the A1152. Contribution to traffic from this development is, therefore, **1,208 AADT**.
- Traffic from **Rendlesham Enterprise Park and New Rendlesham** development – traffic predictions for 2004 from this site are detailed in Figure F-1. Total predicted traffic flow generated by this site for 2004 that will travel through the Melton crossroads, and therefore this section of the A1152, is **737 AADT**.



- Traffic from **Deben Mill** development – It was assumed, as an optimistic forecast, that all development will be in place for 2004. Total predicted traffic flow generated by this site is 1,440 AADT. It was assumed that 50% of this traffic will pass through the Melton crossroads = 720 AADT. Using junction turning percentages explained in Figure F-1, 47.5% of this traffic will travel on Section 3 of A1152.  $47.5\% \text{ of } 720 ((47.5 \times 720) \div 100) = \mathbf{342 \text{ AADT}}$ .
- Therefore, AADT in **2004** is:  $13,333 + 18 + 1,208 + 737 + 342 = \mathbf{15,638 \text{ AADT}}$

**Calculated AADT for 2005 (general traffic growth plus additional domestic and commercial development traffic added, where necessary):**

Planned developments for St Audry's, Rendlesham Enterprise Park and New Rendlesham, Annington, and Deben Mill have been explained earlier in Figure F-1, together with traffic predictions for each development.

- Traffic from **St Audry's** development – it was assumed, as an optimistic forecast, that all development will be in place for 2005. Total predicted traffic flow generated by this site is 385 AADT. Using junction turning percentages explained in Figure F-1, 4.6% of this traffic will travel on Section 3 of A1152.  $4.6\% \text{ of } 385 ((4.6 \times 385) \div 100) = \mathbf{18 \text{ AADT}}$ .
- Traffic from **Annington** development – it was assumed, as an optimistic forecast, that all development will be in place for 2005. Total predicted traffic flow generated by this site is 1,208 AADT. It was assumed that 100% of this traffic will pass through the Melton crossroads and, therefore, use this section of the A1152. Contribution to traffic from this development is, therefore, **1,208 AADT**.
- Traffic from **Rendlesham Enterprise Park and New Rendlesham** development – traffic predictions for 2005 from this site are detailed in Figure F-1. Total predicted traffic flow generated by this site for 2005 that will travel through the Melton crossroads, and therefore this section of the A1152, is **1,144 AADT**.
- Traffic from **Deben Mill** development – It was assumed, as an optimistic forecast, that all development will be in place for 2005. Total predicted traffic flow generated by this site is 1,440 AADT. It was assumed that 50% of this traffic will pass through the Melton crossroads = 720 AADT. Using junction turning percentages explained in Figure F-1, 47.5% of this traffic will travel on Section 3 of A1152.  $47.5\% \text{ of } 720 ((47.5 \times 720) \div 100) = \mathbf{342 \text{ AADT}}$ .
- Therefore, AADT in **2004** is:  $13,602 + 18 + 1,208 + 1,144 + 342 = \mathbf{16,314 \text{ AADT}}$

**Percentage of Heavy Duty Vehicles (HDVs) in 2004/2005:**

From the traffic count undertaken on this section of the A1152 in June 2002, the Heavy Duty Vehicle percentage of the traffic was **7.3%**. This figure has been used for the 2004 and 2005 traffic modelling predictions, as we do not have any future information with regard to HDV percentages.

**Traffic speed (km/hr) in 2004 /2005:**

There is no speed data available for this section of the A1152, therefore the National Speed Limit of **30 mph (48 km/hr)** was used. This speed has been used for the 2004 and 2005 traffic modelling predictions.

**Receptor site(s) = closest relevant receptor location:**

The DMRB computer model needs the distance from the nearest relevant receptor location to the centre of the road in order to predict pollutant levels at that receptor. Relevant receptor locations for the different averaging periods in each of the objectives may differ, as explained in section 2.1 of this report. The closest receptor locations, relevant to the NO<sub>2</sub> and PM<sub>10</sub> objectives, for this section of the A1152 are in Melton as follows:

- Distance from closest receptor location to **centre of road for NO<sub>2</sub> assessment = 4.3 m**
- Distance from closest receptor location to **centre of road for PM<sub>10</sub> assessment= 12.3 m**

**Background levels of oxides of nitrogen (NO<sub>x</sub>), nitrogen dioxide (NO<sub>2</sub>), and particulate matter (PM<sub>10</sub>) for this section of A1152, together with the year in question (levels obtained from default maps available on the National Air Quality Archive):**

The guidance in LAQM.TG(03) provides a procedure for obtaining background concentrations to avoid double counting, which is explained in section 2.3 of this report. The final background concentrations for this section of the A1152 are as follows:

- NO<sub>x</sub> (2005) = 21.5 µg/m<sup>3</sup>
- NO<sub>2</sub> (2005) = 16.0 µg/m<sup>3</sup>
- PM<sub>10</sub> (2004) = 18.6 µg/m<sup>3</sup>

## Figure F-8

### Information required for the Updating and Screening Assessment computer modelling (using DMRB) of nitrogen dioxide and particulate matter levels from road traffic using the A1152.

#### SECTION 4 - A1152 from the Wilford Bridge roundabout, Bromeswell to the B1084 junction, Bromeswell.

##### **Annual Average Daily Traffic flow (AADT) at last traffic count;**

- AADT calculated from 7-day automatic traffic count taken during June 2002 on Orford Road at Bromeswell, see traffic count summary table in Figure F-3 in Appendix.
- Count gave **7,046** vehicles on this section of the A1152 as a 7-day Annual Average Daily Traffic flow (AADT).

##### **Calculated AADT in 2004/2005 (with general traffic growth added):**

- To calculate forward the 2002 AADT flow to **2004** and **2005** general traffic growth needs to be added. These predictions were obtained from Suffolk County Council, Environment and Transport Department by using the Trip End Modelling Programme (TEMPRO) which produces traffic growth factors for this area of the country. TEMPRO produces factors for both low and high percentage traffic growth. High percentage traffic growth figures are required by the DMRB screening model and were, therefore used:

TEMPRO factor for high percentage increase from 2002 to 2004 = **x 1.041**

TEMPRO factor for high percentage increase from 2002 to 2005 = **x 1.062**

Therefore, with general traffic growth (high percentage) added to our 2002 AADT:

AADT in **2004** is:  $7,046 \times 1.041 = 7,335$  vehicle movements per day

AADT in **2005** is:  $7,046 \times 1.062 = 7,483$  vehicle movements per day

##### **Calculated AADT for 2004 (general traffic growth plus additional domestic and commercial development traffic added, where necessary):**

Planned developments for St Audry's, Rendlesham Enterprise Park and New Rendlesham, Annington, and Deben Mill have been explained earlier in Figure F-1, together with traffic predictions for each development.

- Traffic from **St Audry's** development – it was assumed, as an optimistic forecast, that all development will be in place for 2004. Total predicted traffic flow generated by this site is 385 AADT. Using junction turning percentages explained in Figure F-1, 18 AADT (4.6%) of this traffic will travel on Section 3 of A1152. Using junction turning percentages explained in Figure F-1, 55% of traffic on Section 3 will continue on to Section 4 of A1152. 55% of 18  $((55 \times 18) \div 100) = 10$  AADT.
- Traffic from **Annington** development – it was assumed, as an optimistic forecast, that all development will be in place for 2004. Total predicted traffic flow generated by this site is 1,208 AADT. It was assumed that 50% of this traffic will travel on Section 4 of the A1152. Contribution to traffic from this development is, therefore, **604 AADT**.
- Traffic from **Rendlesham Enterprise Park and New Rendlesham** development – traffic predictions for 2004 from this site are detailed in Figure F-1. Total predicted external traffic flow generated by this site for 2004 that will travel on the A1152, and therefore this section of the A1152, is **756 AADT**.

- Traffic from **Deben Mill** development – it was assumed, as an optimistic forecast, that all development will be in place for 2004. Total predicted traffic flow generated by this site is 1,440 AADT. It was assumed that 50% of this traffic will pass through the Melton crossroads = 720 AADT. Using junction turning percentages explained in Figure F-1, 342 AADT (47.5%) of this traffic will travel on Section 3 of A1152. Using junction turning percentages explained in Figure F-1, 55% of traffic on Section 3 will continue on to Section 4 of A1152. 55% of 342  $((55 \times 342) \div 100) = 189$  AADT.
- Therefore, AADT in **2004** is;  $7,335 + 10 + 604 + 756 + 189 = 8,894$  AADT

**Calculated AADT for 2005 (general traffic growth plus additional domestic and commercial development traffic added, where necessary):**

Planned developments for St Audry's, Rendlesham Enterprise Park and New Rendlesham, Annington, and Deben Mill have been explained earlier in Figure F-1, together with traffic predictions for each development.

- Traffic from **St Audry's** development – it was assumed, as an optimistic forecast, that all development will be in place for 2005. Total predicted traffic flow generated by this site is 385 AADT. Using junction turning percentages explained in Figure F-1, 18 AADT (4.6%) of this traffic will travel on Section 3 of A1152. Using junction turning percentages explained in Figure F-1, 55% of traffic on Section 3 will continue on to Section 4 of A1152. 55% of 18  $((55 \times 18) \div 100) = 10$  AADT.
- Traffic from **Annington** development – it was assumed, as an optimistic forecast, that all development will be in place for 2005. Total predicted traffic flow generated by this site is 1,208 AADT. It was assumed that 50% of this traffic will travel on Section 4 of the A1152. Contribution to traffic from this development is, therefore, **604 AADT**.
- Traffic from **Rendlesham Enterprise Park and New Rendlesham** development – traffic predictions for 2005 from this site are detailed in Figure F-1. Total predicted external traffic flow generated by this site for 2005 that will travel on the A1152, and therefore this section of the A1152, is **1,183 AADT**.
- Traffic from **Deben Mill** development – it was assumed, as an optimistic forecast, that all development will be in place for 2005. Total predicted traffic flow generated by this site is 1,440 AADT. It was assumed that 50% of this traffic will pass through the Melton crossroads = 720 AADT. Using junction turning percentages explained in Figure F-1, 342 AADT (47.5%) of this traffic will travel on Section 3 of A1152. Using junction turning percentages explained in Figure F-1, 55% of traffic on Section 3 will continue on to Section 4 of A1152. 55% of 342  $((55 \times 342) \div 100) = 189$  AADT.
- Therefore, AADT in **2004** is;  $7,483 + 10 + 604 + 1,183 + 189 = 9,469$  AADT

**Percentage of Heavy Duty Vehicles (HDVs) in 2004/2005:**

From the traffic count undertaken on this section of the A1152 in June 2002, the Heavy Duty Vehicle percentage of the traffic was **6.7%**. This figure has been used for the 2004 and 2005 traffic modelling predictions, as we do not have any future information with regard to HDV percentages.

**Traffic speed (km/hr) in 2004 /2005:**

There is no speed data available for this section of the A1152, therefore the National Speed Limit of **30 mph (48 km/hr)** was used. This speed has been used for the 2004 and 2005 traffic modelling predictions.

**Receptor site(s) = closest relevant receptor location:**

The DMRB computer model needs the distance from the nearest relevant receptor location to the centre of the road in order to predict pollutant levels at that receptor. Relevant receptor locations for the different averaging periods in each of the objectives may differ, as explained in section 2.1 of this report. The closest receptor locations, relevant to the NO<sub>2</sub> and PM<sub>10</sub> objectives, for this section of the A1152 are in Bromeswell, as follows:

- Distance from closest receptor location to **centre of road for NO<sub>2</sub> assessment = 7.0 m**
- Distance from closest receptor location to **centre of road for PM<sub>10</sub> assessment= 15.7 m**

**Background levels of oxides of nitrogen (NO<sub>x</sub>), nitrogen dioxide (NO<sub>2</sub>), and particulate matter (PM<sub>10</sub>) for this section of A1152, together with the year in question (levels obtained from default maps available on the National Air Quality Archive):**

The guidance in LAQM.TG(03) provides a procedure for obtaining background concentrations to avoid double counting, which is explained in section 2.3 of this report. The final background concentrations for this section of the A1152 are as follows:

- NO<sub>x</sub> (2005) = 21.8 µg/m<sup>3</sup>
- NO<sub>2</sub> (2005) = 16.2 µg/m<sup>3</sup>
- PM<sub>10</sub> (2004) = 18.7 µg/m<sup>3</sup>

## Figure F-9

### Information required for the Updating and Screening Assessment computer modelling (using DMRB) of nitrogen dioxide and particulate matter levels from road traffic using the A1152.

#### SECTION 5 - A1152 from the B1084 junction, Bromeswell to the Bentwaters roundabout, Rendlesham.

##### **Annual Average Daily Traffic flow (AADT) at last traffic count:**

- AADT calculated from 7-day automatic traffic count taken during June 2002 on The Street at Eyke, see traffic count summary table in Figure F-3 in Appendix.
- Count gave **5,073** vehicles on this section of the A1152 as a 7-day Annual Average Daily Traffic flow (AADT).

##### **Calculated AADT in 2004/2005 (with general traffic growth added):**

- To calculate forward the 2002 AADT flow to **2004** and **2005** general traffic growth needs to be added. These predictions were obtained from Suffolk County Council, Environment and Transport Department by using the Trip End Modelling Programme (TEMPRO) which produces traffic growth factors for this area of the country. TEMPRO produces factors for both low and high percentage traffic growth. High percentage traffic growth figures are required by the DMRB screening model and were, therefore used:

TEMPRO factor for high percentage increase from 2002 to 2004 = **x 1.041**

TEMPRO factor for high percentage increase from 2002 to 2005 = **x 1.062**

Therefore, with general traffic growth (high percentage) added to our 2002 AADT:

AADT in **2004** is:  $5,073 \times 1.041 = \mathbf{5,281 \text{ vehicle movements per day}}$

AADT in **2005** is:  $5,073 \times 1.062 = \mathbf{5,388 \text{ vehicle movements per day}}$

##### **Calculated AADT for 2004 (general traffic growth plus additional domestic and commercial development traffic added, where necessary):**

Planned developments for St Audry's, Rendlesham Enterprise Park and New Rendlesham, Annington, and Deben Mill have been explained earlier in Figure F-1, together with traffic predictions for each development.

- Traffic from **St Audry's** development – it was assumed, as an optimistic forecast, that all development will be in place for 2004. Total predicted traffic flow generated by this site is 385 AADT. Using junction turning percentages explained in Figure F-1, 18 AADT (4.6%) of this traffic will travel on Section 3 of A1152. Using junction turning percentages explained in Figure F-1, 10 AADT (55%) of traffic on Section 3 will continue on to Section 4 of A1152. Using junction turning percentages explained in Figure F-1, 72% of traffic on Section 4 will continue on to Section 5 of A1152.  $72\% \text{ of } 10 \text{ } ((72 \times 10) \div 100) = \mathbf{8 \text{ AADT}}$ .
- Traffic from **Annington** development – it was assumed, as an optimistic forecast, that all development will be in place for 2004. Total predicted traffic flow generated by this site is 1,208 AADT. It was assumed that 604 (50%) of this traffic will travel on Section 4 of the A1152. Using junction turning percentages explained in Figure F-1, 72% of traffic on Section 4 will continue on to Section 5 of A1152.  $72\% \text{ of } 604 \text{ } ((72 \times 604) \div 100) = \mathbf{435 \text{ AADT}}$ .

- Traffic from **Rendlesham Enterprise Park and New Rendlesham** development – traffic predictions for 2004 from this site are detailed in Figure F-1. Total predicted external traffic flow generated by this site for 2004 that will travel on the A1152, and therefore this section of the A1152, is **756 AADT**.
- Traffic from **Deben Mill** development – it was assumed, as an optimistic forecast, that all development will be in place for 2004. Total predicted traffic flow generated by this site is 1,440 AADT. It was assumed that 50% of this traffic will pass through the Melton crossroads = 720 AADT. Using junction turning percentages explained in Figure F-1, 342 AADT (47.5%) of this traffic will travel on Section 3 of A1152. Using junction turning percentages explained in Figure F-1, 189 AADT (55%) of traffic on Section 3 will continue on to Section 4 of A1152. Using junction turning percentages explained in Figure F-1, 72% of traffic on Section 4 will continue on to Section 5 of A1152. 72% of 175  $((72 \times 175) \div 100) = 137$  AADT.
- Therefore, AADT in **2004** is:  $5,281 + 8 + 435 + 756 + 137 = 6,617$  AADT

**Calculated AADT for 2005 (general traffic growth plus additional domestic and commercial development traffic added, where necessary):**

Planned developments for St Audry's, Rendlesham Enterprise Park and New Rendlesham, Annington, and Deben Mill have been explained earlier in Figure F-1, together with traffic predictions for each development.

- Traffic from **St Audrys** development – it was assumed, as an optimistic forecast, that all development will be in place for 2005. Total predicted traffic flow generated by this site is 385 AADT. Using junction turning percentages explained in Figure F-1, 18 AADT (4.6%) of this traffic will travel on Section 3 of A1152. Using junction turning percentages explained in Figure F-1, 10 AADT (55%) of traffic on Section 3 will continue on to Section 4 of A1152. Using junction turning percentages explained in Figure F-1, 72% of traffic on Section 4 will continue on to Section 5 of A1152. 72% of 10  $((72 \times 10) \div 100) = 8$  AADT.
- Traffic from **Annington** development – it was assumed, as an optimistic forecast, that all development will be in place for 2005. Total predicted traffic flow generated by this site is 1,208 AADT. It was assumed that 604 (50%) of this traffic will travel on Section 4 of the A1152. Using junction turning percentages explained in Figure F-1, 72% of traffic on Section 4 will continue on to Section 5 of A1152. 72% of 604  $((72 \times 604) \div 100) = 435$  AADT.
- Traffic from **Rendlesham Enterprise Park and New Rendlesham** development – traffic predictions for 2005 from this site are detailed in Figure F-1. Total predicted external traffic flow generated by this site for 2005 that will travel on the A1152, and therefore this section of the A1152, is **1,183 AADT**.
- Traffic from **Deben Mill** development – It was assumed, as an optimistic forecast, that all development will be in place for 2005. Total predicted traffic flow generated by this site is 1,440 AADT. It was assumed that 50% of this traffic will pass through the Melton crossroads = 720 AADT. Using junction turning percentages explained in Figure F-1, 342 AADT (47.5%) of this traffic will travel on Section 3 of A1152. Using junction turning percentages explained in Figure F-1, 189 AADT (55%) of traffic on Section 3 will continue on to Section 4 of A1152. Using junction turning percentages explained in Figure F-1, 72% of traffic on Section 4 will continue on to Section 5 of A1152. 72% of 175  $((72 \times 175) \div 100) = 137$  AADT.
- Therefore, AADT in **2004** is:  $5,388 + 8 + 435 + 1,183 + 137 = 7,151$  AADT

### **Percentage of Heavy Duty Vehicles (HDVs) in 2004/2005:**

From the traffic count undertaken on this section of the A1152 in June 2002, the Heavy Duty Vehicle percentage of the traffic was **6.7%**. This figure has been used for the 2004 and 2005 traffic modelling predictions, as we do not have any future information with regard to HDV percentages.

### **Traffic speed (km/hr) in 2004 /2005:**

There is no speed data available for this section of the A1152, therefore the National Speed Limit of **30 mph (48 km/hr)** was used. This speed has been used for the 2004 and 2005 traffic modelling predictions.

### **Receptor site(s) = closest relevant receptor location;**

The DMRB computer model needs the distance from the nearest relevant receptor location to the centre of the road in order to predict pollutant levels at that receptor. Relevant receptor locations for the different averaging periods in each of the objectives may differ, as explained in section 2.1 of this report. The closest receptor locations, relevant to the NO<sub>2</sub> and PM<sub>10</sub> objectives, for this section of the A1152 are in Eyke, as follows:

- Distance from closest receptor location to **centre of road for NO<sub>2</sub> assessment = 5.7 m**
- Distance from closest receptor location to **centre of road for PM<sub>10</sub> assessment= 5.7 m**

### **Background levels of oxides of nitrogen (NO<sub>x</sub>), nitrogen dioxide (NO<sub>2</sub>), and particulate matter (PM<sub>10</sub>) for this section of A1152, together with the year in question (levels obtained from default maps available on the National Air Quality Archive):**

The guidance in LAQM.TG(03) provides a procedure for obtaining background concentrations to avoid double counting, which is explained in section 2.3 this report. The final background concentrations for this section of the A1152 are as follows:

- NO<sub>x</sub> (2005) = **18.1 µg/m<sup>3</sup>**
- NO<sub>2</sub> (2005) = **14.1 µg/m<sup>3</sup>**
- PM<sub>10</sub> (2004) = **18.0 µg/m<sup>3</sup>**



## Appendix G

**Information collected and assumptions made for use in Updating and Screening and Detailed Assessment (where applicable) computer modelling of nitrogen dioxide (NO<sub>2</sub>) and particulate matter (PM<sub>10</sub>) concentrations from road traffic using the B1438, including its intersection at Lime Kiln Quay Road, The Thoroughfare, and St. Johns Street in Woodbridge (further referred to as the Woodbridge junction).**

**Figure G-1** Information required for Detailed Assessment computer modelling of nitrogen dioxide and particulate matter (PM<sub>10</sub>) emissions from traffic using the B1438 and the Woodbridge junction, including detail on future developments that will affect traffic flows.

**Figure G-2** Information required for computer modelling of nitrogen dioxide emissions, using DMRB, from traffic using the B1438 at the intersection with Old Barrack Road, including detail on future developments that will affect traffic flows.

**Figure G-3** Summary of traffic count information obtained for the B1438 and Woodbridge junction from independent traffic surveys commissioned by Suffolk Coastal District Council.

**Figure G-4** Summary diagram of 1-day, 12-hour traffic survey results undertaken on the junction of Lime Kiln Quay Road, Thoroughfare and St. Johns Street in Woodbridge – the Woodbridge junction.

## **Figure G-1**

### **Information required for Detailed Assessment computer modelling of nitrogen dioxide and particulate matter (PM<sub>10</sub>) emissions from traffic using the B1438 and the Woodbridge junction, including detail on future developments that will affect traffic flows.**

Information gathered from the first round of review and assessments at the third stage concluded that traffic emissions at the Woodbridge junction would not exceed any of the objectives. The modelling was validated by diffusion tube results available for the junction, as there was no continuous monitoring data available at the time. It was decided, as recommended by Defra, that continued monitoring would be undertaken for the junction using diffusion tubes. In addition, a continuous monitor would be sited at the Melton junction and co-located with diffusion tubes. This would provide more accurate diffusion tube results and validation for any modelling undertaken. Details of all diffusion tube monitoring undertaken at this junction and a summary of results can be seen in section 7.6.1 of this report. A summary of the results of continuous monitoring undertaken at Melton can be seen in Appendix D.

In this report the DMRB screening model has not been used for the Woodbridge junction, but external consultants have been employed to undertake a Detailed Assessment, and their report is attached as Appendix I.

Automatic 7-day traffic counts were undertaken on the B1438 on Lime Kiln Quay Road and Melton Hill, a summary of which can be seen in Figure G-3. In addition, a 1-day, 12-hour manual junction turning count was undertaken at the Woodbridge junction, a summary of which can be seen in Figure G-4.

All information collected was forwarded to netcen, appointed on behalf of Suffolk Coastal District Council to undertake Detailed Assessment modelling of the Woodbridge junction. A detailed atmospheric dispersion model, ADMS version 3.1, was run for the junction in order to determine whether emissions from traffic would cause an exceedance of any of the air quality objectives for nitrogen dioxide or particulate matter (PM<sub>10</sub>). A summary of the traffic information provided to netcen is detailed below.

### **Traffic data for 2002 (base year)**

Information was gathered from commissioned traffic counts undertaken in June 2002 on the B1438, to include a 1-day, 12-hour manual turning count at the Woodbridge junction. The 1-day, 12-hour traffic count undertaken on the Woodbridge junction was commissioned to provide traffic flow data for each leg of the junction, together with the direction in which each vehicle moved. This information was necessary in order to run the computer modelling and ensured that traffic using the junction was not counted twice. A summary of the junction turning count data collected can be seen in Figure G-4 in this Appendix, further details regarding any traffic count information can be obtained from Suffolk Coastal District Council.

All traffic count information for this junction has been processed by netcen for input into the ADMS computer model, traffic data summaries can be seen in the report on the junction modelling, which is attached as Appendix I.

The information collected for the Woodbridge junction was used as the base year data for 2002. In order for the computer models to predict pollutant levels in future years (2004/2005) it is necessary to input predicted traffic flow data for these years.

## **Predicted traffic data for 2004 and 2005**

### **General traffic growth for 2004 and 2005**

For the majority of roads in the Suffolk Coastal district the traffic flows measured in a particular year are able to be predicted forward to future years through a computer model provided by Suffolk County Council, Environment and Transport Department. This computer model is known as a Trip End Modelling Programme (TEMPRO) and produces traffic growth factors for this area of the country. TEMPRO produces factors for both low and high percentage traffic growth. High percentage traffic growth figures are required by the DMRB screening model and have been used to assess all other sections of the A1152. High percentage growth figures were, therefore, also used for this junction. These figures can be seen below and were forwarded to netcen for use in factoring the traffic data forward to 2004/2005:

TEMPRO factor for high percentage increase from 2002 to 2004 = **x 1.041**

TEMPRO factor for high percentage increase from 2002 to 2005 = **x 1.062**

### **Traffic from four future domestic and commercial developments that will increase the calculated AADT in 2004 and 2005 for the B1438 and the Woodbridge junction**

The Woodbridge junction has an extra variable when predicting future traffic flows as there are four developments with detailed planning consent in this area which will impact on the traffic flow. These are: the St Audry's development at Melton, the Annington development at the RAF Woodbridge airbase in Sutton, the Rendlesham Enterprise Park and New Rendlesham development at Rendlesham, and the Deben Mill development at Melton Hill, Woodbridge.

Traffic predictions have been obtained for the majority of the St Audry's, the Annington Homes, the Rendlesham Enterprise Park and New Rendlesham, and the Deben Mill developments, together with their impact on traffic flows at the Woodbridge junction. Details follow for each site.

#### **Traffic predictions for the St. Audry's development, Melton**

This is a part conversion and part redevelopment of the former St Audry's hospital site. It includes both domestic dwellings and business, commercial and social uses. There are a total of 194 dwellings and 5 commercial/sports and social applications with detailed planning consent for this site. Details regarding this development have been explained in Appendix F, Figure F-1. To summarise the findings:

The overall predicted future traffic increase from both domestic and commercial / sports and social uses at the St Audry's development after 1 June 2002 is **385 vehicle trips per day for the site, as a 7-day average.**

The date by which the rest of the housing and commercial premises will be completed is unknown at this time and so, as an optimistic forecast, it was assumed that it will all be complete by the end of 2004.

Traffic count data collected from the junction turning count undertaken at the Melton crossroads in June 2002 has made it possible to calculate the percentage of traffic from the St Audry's development that will travel along the Melton Road arm of the junction towards/from the Woodbridge junction. Details of the count can be seen in Appendix F, Figure F-4.

The traffic count data in Appendix F, Figure F-4, shows that 4,957 vehicles in total travelled on 'The Street', which is the direction of the St Audry's development. Of the 4,957 vehicles,  $1,313 + 1,498 = 2,811$  travelled either from or to 'Melton Road'. This calculates as 56.7% of total traffic ( $4957 \div 100 = 49.57$ .  $2,811 \div 49.57 = 56.7\%$ ) which would be coming from or going to the Woodbridge junction on the B1438.

Therefore, 56.7% of the total predicted 385 vehicle trips per day for this development will travel on the B1438 through the Woodbridge junction. **This equals 219 vehicle trips per day, as a 7-day average** ( $(56.7 \times 385) \div 100 = 219$ ).

### **Traffic predictions for the Annington development at the RAF Woodbridge airbase in Sutton**

This is a replacement of 162 semi-detached bungalows at RAF Woodbridge Airbase, Sutton. Agreements have been made that of the 162 properties, 40 will be for social housing and the remaining 122 will be privately owned. The site still only has outline planning permission and, therefore, no traffic generated from it will have been included in our June 2002 counts. Details regarding this development have been explained in Appendix F, Figure F-1. To summarise the findings:

The overall predicted future traffic increase from the domestic uses at the Annington development after 1 June 2002 is **1,208 vehicle trips per day for the site**.

The date by which the housing will be completed is unknown at this time and so it was assumed, as an optimistic forecast, that it will all be complete by the end of 2004. It was also assumed that all of the traffic from the development will travel via the Melton crossroads.

Traffic count data collected from the junction turning count undertaken at the Melton crossroads in June 2002 has made it possible to calculate the percentage of traffic from the Annington development that will travel along the Melton Road arm of the junction towards/from the Woodbridge junction. Details of the count can be seen in Appendix F, Figure F-4.

The traffic count data in Appendix F, Figure F-4 shows that 10,643 vehicles in total travelled on 'Wilford Bridge Road' which is the direction of the Annington development. Of the 10,643 vehicles,  $2,022 + 1,954 = 3,976$  travelled either from or to 'Melton Road'. This calculates as 37.4% of total traffic ( $10,643 \div 100 = 106.43$ .  $3,976 \div 106.43 = 37.4\%$ ) which would be coming from or going to the Woodbridge junction on the B1438.

Therefore, 37.4% of the total predicted 1,208 vehicle trips per day for this development will travel on the B1438 through the Woodbridge junction. **This equals 452 vehicle trips per day, as a 7-day average** ( $(37.4 \times 1,208) \div 100 = 452$ ).

## **Traffic predictions for the Rendlesham Enterprise Park and New Rendlesham development, Rendlesham**

In February 1997 outline planning permission was granted for comprehensive development of R.A.F Bentwaters, which covers a total of 426 hectares of land at Rendlesham. There have been a number of historic planning applications for the site but the current proposals are for an integrated community comprising housing, employment, possibly long term storage, and recreation and leisure. The site is now split into the Rendlesham Enterprise Park (industrial) and New Rendlesham (domestic). The outline planning permission for development of the site runs until 2010 which makes it difficult to determine the proportion of the site which is likely to be developed by the required assessment dates of 2004 and 2005. Close liaison with the Suffolk Coastal Planning and Leisure Department was undertaken, to predict traffic increases from the time of the June 2002 traffic count to the end of 2004 and 2005. Information provided by the Planning and Leisure Department was taken from the December 2002 Master Plan document for the New Rendlesham Domestic Side produced by Suncourt (Property Developments) Ltd., and future traffic increase predictions were undertaken by Mr Chamberlain of the Suffolk Coastal Planning and Leisure Department.

Details regarding this development have been explained in Appendix F, Figure F-1. To summarise the findings:

The overall predicted future traffic increase from both domestic and commercial / sports and social uses at the Rendlesham Enterprise Park and New Rendlesham development after 1 June 2002 which will travel via the Melton crossroads is:

**737 vehicle trips per day for the site in 2004**  
**1,144 vehicle trips per day for the site in 2005**

Traffic count data collected from the junction turning count undertaken at the Melton crossroads in June 2002 made it possible to calculate the percentage of traffic from this development that will travel along the Melton Road arm of the junction towards/from the Woodbridge junction. Details of the count can be seen in Appendix F, Figure F-4.

The traffic count data in Appendix F, Figure F-4 shows that 10,643 vehicles in total travelled on 'Wilford Bridge Road' which is the direction of the Rendlesham Enterprise Park and New Rendlesham development. Of the 10,643 vehicles, 2,022 + 1,954 = 3,976 travelled either from or to 'Melton Road'. This calculates as 37.4% of total traffic ( $10,643 \div 100 = 106.43$ .  $3,976 \div 106.43 = 37.4\%$ ) which would be coming from or going to the Woodbridge junction on the B1438.

Therefore, 37.4% of the total predicted 737 vehicle trips per day in **2004** for this development will travel on the B1438 through the Woodbridge junction. **This equals 276 vehicle trips per day in 2004, as a 7-day average** ( $(37.4 \times 737) \div 100 = 276$ ).

Therefore, 37.4% of the total predicted 1,144 vehicle trips per day in **2005** for this development will travel on the B1438 through the Woodbridge junction. **This equals 428 vehicle trips per day in 2005, as a 7-day average** ( $(37.4 \times 1,144) \div 100 = 428$ ).

## **Traffic predictions for the Deben Mill development at Melton Hill, Woodbridge**

This is a redevelopment of the former Deben Mill site at Melton Hill, Woodbridge. It includes both domestic dwellings and commercial uses. There are a total of 90 confirmed dwellings and 3 commercial applications for this site. Some areas of housing on the site are

now completed but no traffic generated from any part of the development will have been included in our June 2002 counts. Details regarding this development have been explained in Appendix F, Figure F-1. To summarise the findings:

The overall predicted future traffic increase from the domestic uses at the Deben Mill development after 1 June 2002 is **1,440 vehicle trips per day for the site**. It was assumed that 50% of traffic generated from this development will travel on the B1438 through the Woodbridge junction. This is equal to **720 vehicle trips per day for the site**.

The date by which the housing and commercial premises will be completed is unknown at this time and so it was assumed, as an optimistic forecast that it will all be complete by the end of 2004.

The Deben Mill development is on Melton Hill and, therefore all of the **720 vehicle trips per day will be assumed to travel on the B1438 through the Woodbridge junction**.

#### **Percentage of Heavy Duty Vehicles (HDVs) in 2004 and 2005**

Percentage of HDVs using the B1438 can be seen in the traffic counts in Figure G-3. The percentage of HDVs using each section of the Woodbridge junction was calculated by netcen from the traffic count data provided and can be seen in the report in Appendix I.

#### **Traffic speed (km/hr) in 2004 and 2005**

There is no speed data available for the B1438 or the Woodbridge junction, therefore the National Speed Limit of **30 mph (48 km/hr)** was used. At the Woodbridge junction there are traffic lights and the traffic queues at peak hours, this will decrease the average speed of vehicles. Netcen has calculated reduced speeds at this junction for use in the modelling.

#### **Receptor site(s) - closest relevant receptor location**

Receptor sites at the Woodbridge junction and their distances from the centre of the road were obtained by netcen from Geographical Information System (GIS) maps provided by Suffolk Coastal District Council for this junction. Due to the complex abilities of the computer model used, predictions of pollutant levels was undertaken for all receptors at the junction.

#### **Background levels of oxides of nitrogen (NO<sub>x</sub>), nitrogen dioxide (NO<sub>2</sub>), and particulate matter (PM<sub>10</sub>)**

Background levels of the above pollutants were obtained from the UK National Atmospheric Emissions Inventory; background levels used by netcen can be seen in the report attached as Appendix I.

## Figure G-2

### Information required for computer modelling of nitrogen dioxide emissions, using DMRB, from traffic using the B1438 at the intersection with Old Barrack Road, including detail on future developments that will affect traffic flows.

#### Annual Average Daily Traffic flow (AADT) at last traffic count:

- AADT calculated from Suffolk County Council, Environment and Transport traffic count taken on the B1438 west of the Old Barrack Road junction during 2002; for details see traffic count summary table in Appendix A, Figure A-1.
- Count gave **10,370** vehicles on this section of the B1438 as a 7-day Annual Average Daily Traffic flow (AADT).

#### Calculated AADT in 2005 (with general traffic growth added):

- To calculate forward the 2002 AADT flow to **2005** (relevant year for NO<sub>2</sub> objective) general traffic growth needs to be added. These predictions were obtained from Suffolk County Council, Environment and Transport Department by using the Trip End Modelling Programme (TEMPRO) which produces traffic growth factors for this area of the country. TEMPRO produces factors for both low and high percentage traffic growth. High percentage traffic growth figures are required by the DMRB screening model and were, therefore used:

TEMPRO factor for high percentage increase from 2002 to 2005 = **x 1.062**

Therefore, with general traffic growth (high percentage) added to our 2002 AADT:

AADT in 2005 is:  $10,370 \times 1.062 = \mathbf{11,013 \text{ vehicle movements per day}}$

#### Calculated AADT for 2005 from additional domestic and commercial development traffic using the B1438:

Planned developments for St Audry's, Rendlesham Enterprise Park and New Rendlesham, Annington, and Deben Mill have been explained earlier in Figure G-1, together with traffic predictions for each development. Calculations can be seen in Figure G-1 to predict the volume of traffic that will travel through the Woodbridge junction from these developments, and is summarised below:

**St Audry's development** - 56.7% of the total predicted 385 vehicle trips per day for this development will travel on the B1438 through the Woodbridge junction. **This equals 219 vehicle trips per day, as a 7-day average.**

**Annington development** - 37.4% of the total predicted 1,208 vehicle trips per day for this development will travel on the B1438 through the Woodbridge junction. **This equals 452 vehicle trips per day, as a 7-day average.**

**Rendlesham Enterprise Park and New Rendlesham development** - 37.4% of the total predicted 1,144 vehicle trips per day in 2005 for this development will travel on the B1438 through the Woodbridge junction. **This equals 428 vehicle trips per day in 2005, as a 7-day average.**

**Deben Mill development** - is on Melton Hill and, therefore **all of the 720 vehicle trips per day will be assumed to travel on the B1438 through the Woodbridge junction.**

Therefore, the total number of vehicles from the above developments in **2005** which will travel through the Woodbridge junction is:  $219 + 452 + 428 + 720 = \mathbf{1,819 \text{ AADT}}$

The percentage of this development traffic which will travel on the B1438 at the junction with Old Barrack Road was calculated from the turning count information provided for the Woodbridge junction, see Figure G-4.

It was assumed that all development traffic will travel on the B1438 through the Woodbridge junction. Figure G-4 shows that 8,358 vehicles in total travelled on the B1438 (Lime Kiln Quay Road and Melton Hill arms), of which  $3,814 + 3,484 = 7,298$  travelled either from or to the B1438 (Lime Kiln Quay Road and Melton Hill arms). This calculates to **87.3%** of total traffic ( $8,358 \div 100 = 83.58$ .  $7,298 \div 83.58 = 87.3\%$ ).

Therefore, 87.3% of the development traffic travelling on the Woodbridge junction will also travel on the B1438 at the Old Barrack Road intersection.

$$87.3\% \text{ of } 1,819 = 1,588 \text{ AADT}$$

**Total traffic flow on the B1438 at the intersection with Old Barrack Road in 2005 will Be:**  $\mathbf{11,013 + 1,588 = 12,601 \text{ AADT}}$

#### **Percentage of Heavy Duty Vehicles (HDVs) in 2005:**

- From the traffic count undertaken on this section of the B1438 in 2002, the Heavy Duty Vehicle percentage of the traffic was **12.4%**, see Appendix A, Figure A-1. This figure has been used for the 2005 traffic modelling predictions, as we do not have any future information with regard to HDV percentages.

#### **Traffic speed (km/hr) in 2005:**

- There is no speed data available for this section of the B1438, therefore the National Speed Limit of 30 mph (48 km/hr) was used. This speed has been used for 2005 traffic modelling predictions. As the modelling was for a junction, reduced speeds 10 km/hr less than the normal road speed were used (as advised in LAQM.TG(03)), which equals **38 km/hr**.

#### **Receptor site(s) = closest relevant receptor location:**

The DMRB computer model needs the distance from the nearest relevant receptor location to the centre of the road in order to predict pollutant levels at that receptor. Relevant receptor locations for the NO<sub>2</sub> objectives are explained in section 2.1 of this report. The closest receptor locations to both roads on the junction are as follows:

- Distance from closest receptor location to **centre of road for B1438 = 5.8 m**
- Distance from closest receptor location to **centre of road for Old Barrack Road = 17.9 m**



**Background levels of oxides of nitrogen (NO<sub>x</sub>) and nitrogen dioxide (NO<sub>2</sub>), for this junction (levels obtained from default maps available on the National Air Quality Archive):**

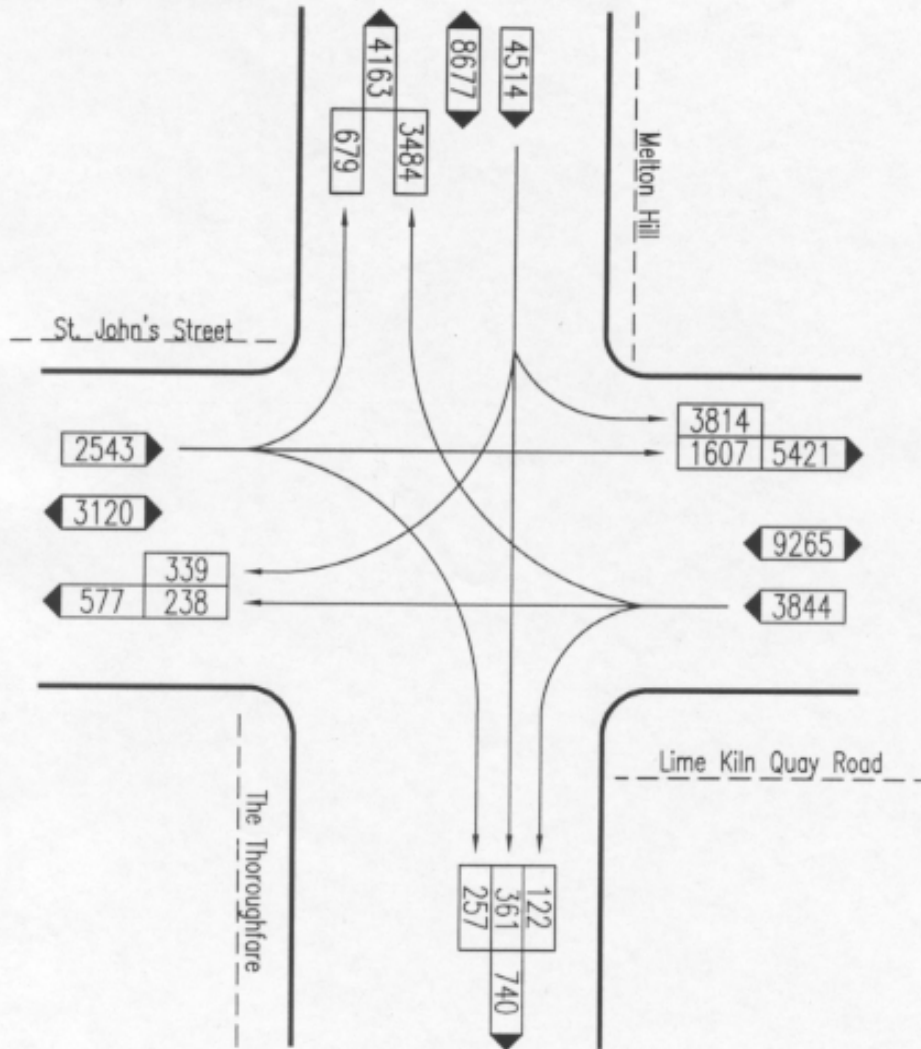
Background concentrations for the actual grid reference of the junction were used as it is within a built up area;

- **NO<sub>x</sub> (2005) = 28.7 µg/m<sup>3</sup>**  
**NO<sub>2</sub> (2005) = 19.5 µg/m<sup>3</sup>**

**Figure G-3** Summary of traffic count information obtained for the B1438 and Woodbridge junction from independent traffic surveys commissioned by Suffolk Coastal District.

<b>Road</b>	<b>Traffic count site description</b>	<b>Grid reference Eastings</b>	<b>Grid reference Northings</b>	<b>7-day AADTs – all motorised vehicles, together with year of data collection</b>	<b>% of Light Duty Vehicles (LDV)</b>	<b>% of Heavy Duty Vehicles (HDV)</b>
<b>B1438</b>	LIME KILN QUAY ROAD, WOODBRIDGE	627715	249067	10,040 (2002)	94.7 %	5.3 %
<b>B1438</b>	MELTON HILL, WOODBRIDGE	627633	249378	10,549 (2002)	95.3 %	4.7 %

**Figure G-4** Summary diagram of 1-day, 12-hour traffic survey results undertaken on the junction of Lime Kiln Quay Road, Thoroughfare and St. Johns Street in Woodbridge – the Woodbridge junction.



**SUFFOLK HIGHWAYS ENGINEERING CONSULTANCY**

**TITLE** Location Melton Hill – Woodbridge  
 Hour 07:00 to 19:00 C.P.Ref. \_\_\_\_\_  
 Date Thursday 27th June 2002 Vehicle Type(s) All

P J Thompson MSc CEng FICE, County Director of Environment & Transport

## **Appendix H**

**Details regarding three future developments that will affect traffic flows on the A1214 within the Suffolk Coastal district, and future traffic predictions for this road.**

- **The Grange Farm development at Kesgrave**
- **The Bixley farm development at Purdis farm**
- **The Martlesham Park and Ride development at Martlesham**

**Details regarding three future developments that will affect traffic flows on the A1214 within the Suffolk Coastal district, and future traffic predictions for this road.**

In addition to general traffic growth, the A1214 will have traffic increases from developments in this area of the Suffolk Coastal district that are at various stages of completion. The Planning and Leisure, Development and Policy, section for Suffolk Coastal District Council advised that there are three developments that may impact on the A1214. These are the Grange Farm development at Kesgrave, the Bixley Farm development at Purdis Farm and the Park and Ride development at Martlesham.

**The Grange Farm development at Kesgrave**

This is a development of 3,150 houses on an area of land in Kesgrave, which lies between the A1214 and Foxhall Road. The A1214 is the only access road for traffic entering and leaving this development and, therefore, all future traffic from the site will use the A1214.

The Planning and Leisure, Development and Policy, section for Suffolk Coastal District Council advised that at April 2002, 1,894 of the houses were built. Traffic counts for the A1214 were obtained in 2002 and can be seen in Appendix A, Figure A-1. Traffic that will be generated from the remaining 1,256 houses still to be built on the site, as of 2002, will need to be accounted for in our traffic predictions for 2004 and 2005.

The Planning and Leisure, Development and Policy, section for Suffolk Coastal District Council advised that the build rate for the Grange Farm development is approximated at 150-200 houses per year. It was assumed, as an optimistic forecast, that 200 houses would be built each year during 2002, 2003, 2004 and 2005.

Suffolk County Council, Environment and Transport Department provided information regarding the number of predicted daily traffic 'trips' which would be made from each dwelling using Trip Generation Factors for this type of domestic development. Trip Generation Factors were obtained from the Trip Rate Information Computer System (TRICS) model, version 5.2, December 2002. The outcome was **7.48 trips per day per dwelling, as a 7-day average.**

Additional traffic predicted for **2004** from the Grange Farm development that will use the A1214 is, therefore:

- 200 houses built per year in 2002, 2003 and 2004 = 600 additional houses
- Trip rate of 7.48 vehicle movements per house.
- 600 houses x 7.48 trips per day = **4,488 vehicle movements per day, as a 7-day average.**

Additional traffic predicted for **2005** from the Grange Farm development that will use the A1214 is, therefore:

- 200 houses built per year in 2002, 2003, 2004 and 2005 = 800 additional houses
- Trip rate of 7.48 vehicle movements per house.
- 800 houses x 7.48 trips per day = **5,984 vehicle movements per day, as a 7-day average.**

### **The Bixley Farm development at Purdis Farm**

This is a development of 1,050 houses on an area of land in Purdis Farm, which lies between the A1214 and Foxhall Road. Advice provided by The Planning and Leisure, Development and Policy, section for Suffolk Coastal District Council and the Suffolk County Council, Environment and Transport Department, was to assume that all traffic from this development will use the A1214.

The Planning and Leisure, Development and Policy, section for Suffolk Coastal District Council advised that at April 2002, 788 of the houses were built. Traffic counts for the A1214 were obtained in 2002 and can be seen in Appendix A, Figure A-1. Traffic that will be generated from the remaining 262 houses still to be built on the site, as of 2002, will need to be accounted for in our predictions for 2004 and 2005.

The Planning and Leisure, Development and Policy, section for Suffolk Coastal District Council advised that the build rate for the Bixley Farm development is approximated at 100 houses per year. It was assumed, as an optimistic forecast, that 100 houses would be built each year, which meant that all 262 houses will be built by the end of 2004.

Suffolk County Council, Environment and Transport Department provided information regarding the number of predicted daily traffic 'trips' which would be made from each dwelling using Trip Generation Factors for this type of domestic development. Trip Generation Factors were obtained from the Trip Rate Information Computer System (TRICS) model, version 5.2, December 2002. The outcome was **7.48 trips per day per dwelling, as a 7-day average.**

Additional traffic predicted for **2004** and **2005** from the Bixley Farm development that will use the A1214 is, therefore:

- All 262 houses built by 2004 = 262 additional houses
- Trip rate of 7.48 vehicle movements per house.
- 262 houses x 7.48 vehicle trips per day = **1,960 vehicle movements per day, as a 7-day average.**

### **The Park and Ride development at Martlesham**

Proposals for a Park and Ride scheme by Suffolk County Council, Environment and Transport Department at Martlesham have been accepted. The scheme will be located on the north western side of the A12/A1214 junction and will provide approximately 550 parking spaces. The aim of the scheme is to reduce the number of future vehicles travelling on the A1214 into Ipswich town centre, by providing a car parking area and an additional bus service.

An Environmental Impact Assessment, undertaken on behalf of Suffolk County Council, Environment and Transport Department, for the Park and Ride site has looked at the impacts of traffic emissions generated by the site on the air quality at nearby receptor locations. Detailed computer modelling was undertaken using the BREEZE Roads air dispersion model, to predict impacts on future concentrations of nitrogen dioxide (NO<sub>2</sub>) and particulate matter (PM<sub>10</sub>) at the receptor locations. The findings of the predictive modelling for NO<sub>2</sub> and PM<sub>10</sub> showed that no exceedances are predicted to occur for the most stringent objectives for each of these pollutants. For NO<sub>2</sub> this is the annual mean objective and for PM<sub>10</sub> this is the 24-hour

objective. No further assessment is, therefore, necessary for the Park and Ride site with regard to local air quality management.

The Park and Ride buses would travel on the A1214, and Suffolk County Council Environment and Transport Department have stated that there will be 70 buses laid on per day, each travelling to and from the Park and Ride site.

There will, therefore, be **140 additional vehicle movements** per day on the A1214 in **2004** and **2005** from this development. The effects of the Park and Ride scheme with regard to the volume of general traffic in the future is not known, but will be included in future review and assessments as the scheme progresses and traffic data is collected.

#### **Predicted AADT for the A1214 in 2004**

- 2002 traffic count = 20,165 AADT
- General traffic growth predictions to factor 2002 counts to 2004 were provided by Suffolk County Council, Environment and Transport Department through the Trip End Modelling Programme (TEMPRO) which produces traffic growth factors for this area of the country. High percentage growth factor of **1.041** for from TEMPRO used, as required by DMRB.
- $20,165 \times 1.041 = 20,992$  AADT
- Add traffic from Grange Farm development = 4,488 AADT
- Add traffic from Bixley Farm development = 1,960 AADT
- Add traffic from Park and Ride buses = 140 AADT
- **Predicted traffic flow in 2004** =  $20,992 + 4,488 + 1,960 + 140 = 27,580$  AADT

#### **Predicted AADT for the A1214 in 2005**

- 2002 traffic count = 20,165 AADT
- General traffic growth predictions to factor 2002 counts to 2004 were provided by Suffolk County Council, Environment and Transport Department through the Trip End Modelling Programme (TEMPRO) which produces traffic growth factors for this area of the country. High percentage growth factor of **1.062** for from TEMPRO used, as required by DMRB.
- $20,165 \times 1.062 = 21,416$  AADT
- Add traffic from Grange Farm development = 5,984 AADT
- Add traffic from Bixley Farm development = 1,960 AADT
- Add traffic from Park and Ride buses = 140 AADT
- **Predicted traffic flow in 2004** =  $21,416 + 5,984 + 1,960 + 140 = 29,500$  AADT

## **Appendix I**

**Report produced by the National Environmental Technology Centre (netcen) for Suffolk Coastal District Council on the Detailed Assessment of nitrogen dioxide (NO<sub>2</sub>) and particulate matter (PM<sub>10</sub>) concentrations from traffic emissions at two junctions within the Suffolk Coastal district: The junction of the A1152 and B1438 in Melton, and the junction of Lime Kiln Quay Road, Thoroughfare and St. Johns Street in Woodbridge.**



**Netcen report attached as a separate document.**

## **Appendix J**

### **Report produced by Entec UK Limited for Suffolk Coastal District Council, on sulphur dioxide (SO<sub>2</sub>) monitoring at the Port of Felixstowe.**

**Figure J-1** Comments by the Department of the Environment, Food and Rural Affairs (Defra) on the report produced by Entec UK Limited for Suffolk Coastal District Council, on sulphur dioxide (SO<sub>2</sub>) monitoring at the Port of Felixstowe.

**Figure J-2** Response from Entec UK Limited to the comments by Defra on the report produced by Entec UK Limited for Suffolk Coastal District Council, on sulphur dioxide (SO<sub>2</sub>) monitoring at the Port of Felixstowe.

Report produced by Entec UK Limited for Suffolk Coastal District Council, on sulphur dioxide (SO<sub>2</sub>) monitoring at the Port of Felixstowe.

**Figure J-1**      **Comments by the Department of the Environment, Food and Rural Affairs (Defra) on the report produced by Entec UK Limited for Suffolk Coastal District Council, on sulphur dioxide (SO<sub>2</sub>) monitoring at the Port of Felixstowe. Dated 10 January 2003.**

The report is well structured and provides most of the information specified in the Guidance.

There are a number of specific items to draw to the local authority's attention:

1. The report has been assessed against TG4(00).
2. It would have been helpful if Suffolk Coastal District Council provided further interpretation of the monitoring data, including:
  - i) A prediction to 2004/5 of each sulphur dioxide objective;
  - ii) A comparison with a long term monitoring station in an appropriate location;
  - iii) A fuller discussion of the operation of the Port of Felixstowe during the period of monitoring. For example, details of any changes to routine operations that may have affected the emissions of sulphur dioxide would be useful.

**Figure J-2**      **Response from Entec UK Limited to the comments by Defra on the report produced by Entec UK Limited for Suffolk Coastal District Council, on sulphur dioxide (SO<sub>2</sub>) monitoring at the Port of Felixstowe. Dated 12 February 2003**

1. The report was assessed against LAQM.TG4(00), as we did not consider it prudent to use the Draft Consultation Guidance document LAQM.TG(03).
2. (i) We consider that this projection would have been necessary if the results of the monitoring had revealed that the Air Quality Objectives (AQOs) were at risk of being breached. As it was, the recorded values were well within the AQOs and it was not considered of value to look at future projections.  
  
(ii) This would have helped to place the monitored results in a wider perspective, although the preferred comparison would be with a site in a similar (i.e. - port) location on the East Coast, the existence of which we are not aware of.  
  
(iii) From our work for the European Commission (completed last year), looking at shipping emissions (including in-port), there are particular difficulties with obtaining any detailed information on ship movements and times/operational mode in port in particular. In addition, given the plethora of air pollutant sources at the port, we did not consider that a sensible analysis could have been conducted within the reasonable budget for the work.

**Entec UK Limited report attached as a separate document.**