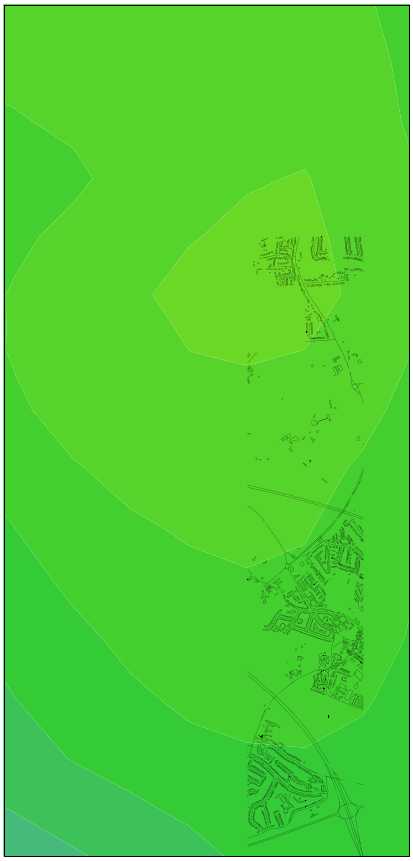
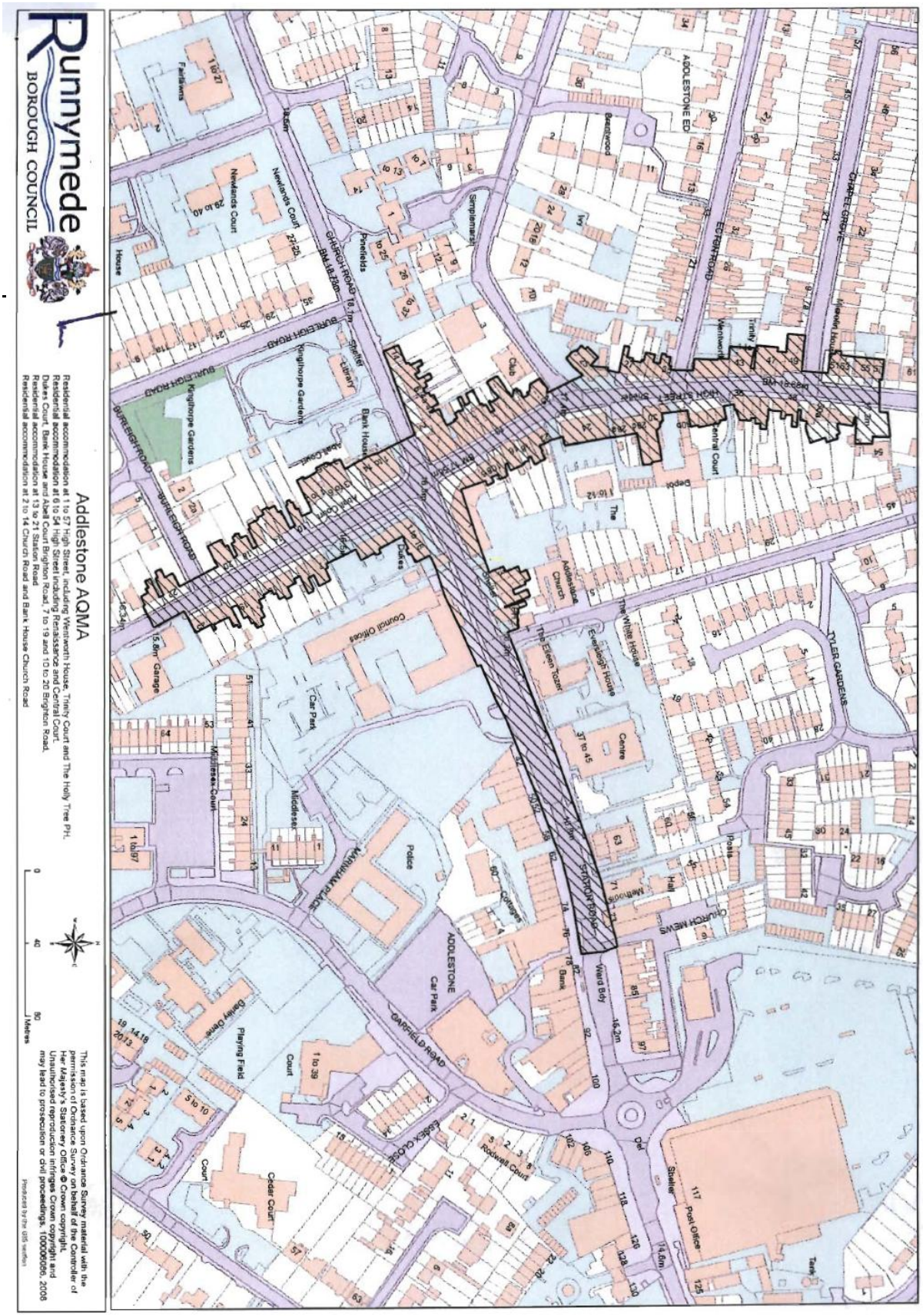


Figure 1.3 AQMA Addlestone



APPENDIX 2A QA / QC OF DIFFUSION TUBES

a) NO_2 Netcen Survey

Lab supplying and analysing the tubes / Preparation method used / Harmonisation Practical Guidance

Runnymede diffusion tubes use 50 % TEA in acetone and are supplied by Lambeth Scientific Services laboratory. Lambeth Laboratory operates in accordance with the Working Group guidance (AEA: Diffusion Tubes for Ambient NO2 Monitoring: Practical Guidance for Laboratories and Users), a group commissioned by Defra and the Devolved Administrations aimed at harmonising the methodology used in preparing, utilising and analysing diffusion tubes.

Bias Adjustment Factor

Due to poor precision of up-to-date results, the bias adjustment factor applied is a combined bias adjustment factor derived from the national database of co-location studies. The factor was established by using a spreadsheet available at the Review and Assessment website

Also, for comparison, a locally derived factor was used, as determined in the M25 Staines co-location study (details in **Chapter 2.1.2** and **Appendix 2B**). Another spreadsheet developed by AEA and available from Review and Assessment website was used to calculate (with a 95% confidence interval) the local factor.

Laboratory Performance and WASP scheme

Performance of Lambeth Laboratory in the WASP (Workplace Analysis Scheme for Proficiency) scheme between Apr 2007 and Oct 2008 was assessed as 'Good' which category contains results on average within 13% of the assigned value. According to new tightened criteria, which will come into force from Apr 2009 where 'good' amounts to average within 7.5% of the assigned value, Lambeth lab performance is assessed as 'Acceptable' results on average within 15% of the assigned value [AEA 2008].

Laboratory Precision

The precision results for the individual laboratories as indicated by the Review and Assessment Helpdesk ('Summary of Precision Results for Nitrogen Dioxide Diffusion Tube Collocation Studies, by Laboratory' available from R&A website) show that Lambeth Laboratory has 'poor' precision', which means that the Coefficient of Variation (CV) of triplicate diffusion tubes of four or more periods during the year is greater than 20% and/or the average CV of all monitoring periods is greater than 10%.

b) NO_2 HA Survey

The Highways Agency's Survey is coordinated by RPS. The samples are analysed by Gradko Laboratory, 20% TEA in water. The laboratory has got good precision. The bias factors used by RPS to adjust the results were taken from Review and Assessment Helpdesk website.

APPENDIX 2B NETCEN SURVEY MONITORING RESULTS

1 NO_2 Monitoring Results – Netcen Survey

Table 1a NO_2 Monitoring Results – Netcen Survey, 2008

NO_2 Diffusion Tube Survey (µg/m³) 2008

UWE R&A Helpdesk Bias Factor = 0.92

MONITORING SITES									
Site ID	RY1	RY3	RY4	RY6	RY8	RY9	RY10	RY11	RY12
Site Location	Civic Offices, Addlestone	Brockhurst Residential Home, Addlestone	Riverside Sheltered Housing, Addlestone	Egham Sports Centre, Egham	Ongar Place First School, Addlestone	175 New Haw Road, Addlestone	M25A Staines Site	M25A Staines Site	M25A Staines Site
Within AQMA?	Y	N	N	Y	Y	N	N	N	N
Site Type	Roadside	Urban	Urban	Roadside	Roadside	Roadside	Roadside	Roadside	Roadside
Jan	40	19	23	59	18	36	40	37	44
Feb									
Mar	38	25	24	1	4	42	59	52	54
Apr	37	23	21	41	67	18	79	79	68
May	39	26	26	35	47	45	1	2	98
Jun	32	tm	18	tm	26	31	42	39	42
Jul	34	14	17	37	14	27	45	54	45
Aug	32	12	16	36	11	25	46	45	44
Sept	42	18	25	44	34	33	68	66	71
Oct	36	20	tm	50	25	35	77	77	65
Nov	37	24	tm	55	31	42	50	53	49
Dec	47	26	26	46	32	24	51	53	49
Data Capture [%]	91.7	83.3	75.0	83.3	91.7	91.7	91.7	91.7	91.7
Annual Mean (Unadjusted)	37.6	20.9	22.0	40.4	29.9	32.5	59.7	59.6	57.2
Annual Mean (Adjusted)	36.5	20.3	21.3	39.2	29.0	31.6	49.2	49.1	55.5

Table 1b NO_2 Monitoring Results – Netcen Survey, 2007

NO_2 Diffusion Tube Survey (µg/m³) 2007

UWE R&A Helpdesk Bias Factor (NB) = 1.07

Local Bias Factor (LB) = 1.07

MONITORING SITES									
Site ID	RY1	RY3	RY4	RY6	RY8	RY9	RY10	RY11	RY12
Site Location	Civic Offices, Addlestone	Brockhurst Residential Home, Addlestone	Riverside Sheltered Housing, Addlestone	Egham Sports Centre, Egham	Ongar Place First School, Addlestone	175 New Haw Road, Addlestone	M25A Staines Site	M25A Staines Site	M25A Staines Site
Within AQMA?	Y	N	N	Y	Y	N	N	N	N
Site Type	Roadside	Urban background	Urban background	Roadside	Roadside	Roadside	Roadside	Roadside	Roadside
Jan	41	21	21	56	18	37	61	57	70
Feb	43	24	28	46	28	40	29	60	tm
Mar	43	tm	13	46	29	49	104	60	55
Apr	37	13	13	31	14	36	44	51	45
May	31	6	15	40	19	23	40	27	29
Jun	29	24	21	27	19	27	48	50	48
Jul	33	21	17	25	30	31	69	46	32
Aug	30	14	17	24	25	28	35	30	35
Sept	43	25	24	46	20	16	50	48	45
Oct	46	28	39	53	37	40	53	54	54
Nov	45	25	29	36	2	tm	48	51	53
Dec	42	27	30	52	31	46	17	70	74
Data Capture [%]	100.0	91.7	100.0	100.0	100.0	91.7	100.0	100.0	91.7
Annual Mean (Unadjusted)	38.6	20.5	22.3	40.2	22.7	33.2	49.7	51.2	49.1
Annual Mean (Adjusted NB)	41.3	22.0	23.8	43.0	24.3	35.5	53.1	54.7	52.5
Annual Mean (Adjusted LB)	41.3	22.0	23.8	43.0	24.3	35.5	53.1	54.7	52.5

Table 1c NO_2 Monitoring Results – Netcen Survey, 2006

NO_2 Diffusion Tube Survey (µg/m³) 2006

UWE R&A Helpdesk Bias Factor (NB) = 1.28
Local Bias Factor (LB) = 1.41

MONITORING SITES									
Site ID	RY1	RY3	RY4	RY6	RY8	RY9	RY10	RY11	RY12
Site Location	Civic Offices, Addlestone	Brockhurst Residential Home, Addlestone	Riverside Sheltered Housing, Addlestone	Egham Sports Centre, Egham	Ongar Place First School, Addlestone	175 New Haw Road, Addlestone	M25A Staines Site	M25A Staines Site	M25A Staines Site
Within AQMA?	Y	N	N	Y	Y	N	N	N	N
Site Type	Roadsid	Urban backgrou nd	Urban backgroun	Roadsid	Roadsid	Roadsid	Roadsid	Roadsid	Roadsid
Jan	27	14	15	16	29	32	42	36	21
Feb	30	18	27	12	18	36	60	35	33
Mar	21	tm	11	28	19	25	54	30	60
Apr	tm	21	23	37	tm	23	50	47	42
May	tm	tm	tm	tm	tm	tm	tm	tm	tm
Jun	24	14	11	32	23	29	29	47	33
Jul	26	12	12	24	15	10	37	49	57
Aug	20	15	14	42	18	24	28	35	26
Sept	33	14	20	22	16	29	41	46	45
Oct	24	14	42	11	30	30	44	47	57
Nov	45	16	21	37	15	57	60	43	60
Dec	45	21	22	49	21	29	51	46	53
Data Capture [%]	83.3	83.3	91.7	91.7	83.3	91.7	91.7	91.7	91.7
Annual Mean (Unadjusted)	29.0	16.0	19.9	28.3	20.2	29.2	46.1	41.5	40.6
Annual Mean (Adjusted-NB)	37.1	20.5	25.5	36.2	25.9	37.4	57.7	53.2	52.0
Annual Mean (Adjusted-LB)	40.9	22.6	28.1	39.9	28.5	41.1	63.6	58.6	57.3

2 Spreadsheet Results for Local Bias Adjustment Factor

Table 2a Local Bias Adjustment Factor, 2006

Checking Precision and Accuracy of Triplicate Tubes

AEA Energy & Environment
From the AEA group

Diffusion Tubes Measurements									Automatic Method		Data Quality Check	
Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 µgm⁻³	Tube 2 µgm⁻³	Tube 3 µgm⁻³	Triplicate Mean	Standard Deviation	Coefficient of Variation (CV)	95% CI of mean	Period Mean	Data Capture (% DC)	Tubes Precision Check	Automatic Monitor Data
1	01/01/2006	31/01/2006	42.0	35.0	21.0	33	10.7	33	26.6	70.7	99.6	Poor Precision	Good
2	01/02/2006	28/02/2006	60.0	35.0	33.0	43	15.0	35	37.4	68.1	99.6	Poor Precision	Good
3	01/03/2006	31/03/2006	54.0	30.0	60.0	48	15.9	33	39.4	64	99.6	Poor Precision	Good
4	01/04/2006	30/04/2006	50.0	47.0	42.0	46	4.0	9	10.0	45.9	99.6	Good	Good
5	01/05/2006	31/05/2006	no data	no data	no data					45.3	99.6		Good
6	01/06/2006	30/06/2006	29.0	47.0	33.0	36	9.5	26	23.5	70.2	99.6	Poor Precision	Good
7	01/07/2006	31/07/2006	37.0	49.0	57.0	48	10.1	21	25.0	75.3	99.6	Poor Precision	Good
8	01/08/2006	31/08/2006	28.0	33.0	26.0	29	3.6	12	9.0	43.3	99.6	Good	Good
9	01/09/2006	30/09/2006	41.0	45.0	45.0	44	2.3	5	5.7	59.5	99.6	Good	Good
10	01/10/2006	31/10/2006	44.0	47.0	17.0	36	16.5	46	41.0	55.7	99.6	Poor Precision	Good
11	01/11/2006	30/11/2006	60.0	43.0	60.0	54	9.8	18	24.4	54	99.6	Good	Good
12	01/12/2006	31/12/2006	51.0	46.0	53.0	50	3.6	7	9.0	50.4	99.6	Good	Good
13													

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

Overall survey --> Poor precision | Good Overall DC

Site Name/ ID:

Precision: 5 out of 11 periods have a CV smaller than 20%

(Check average CV & DC from Accuracy calculations)

Accuracy (with 95% confidence interval) without periods with CV larger than 20%
Bias calculated using 5 periods of data
Bias factor A: 1.13 (0.93 - 1.46)
Bias B: -12% (-32% - 8%)
Diffusion Tubes Mean: 45 µgm⁻³
Mean CV (Precision): 10 caution
Automatic Mean: 51 µgm⁻³
Data Capture for periods used: 100%
Adjusted Tubes Mean: 50 (42 - 65) µgm⁻³

Accuracy (with 95% confidence interval) WITH ALL DATA
Bias calculated using 11 periods of data
Bias factor A: 1.41 (1.19 - 1.72)
Bias B: -29% (-42% - -16%)
Diffusion Tubes Mean: 42 µgm⁻³
Mean CV (Precision): 22 caution
Automatic Mean: 60 µgm⁻³
Data Capture for periods used: 100%
Adjusted Tubes Mean: 60 (50 - 73) µgm⁻³

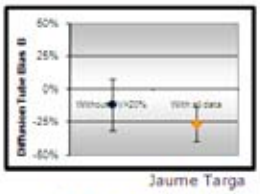


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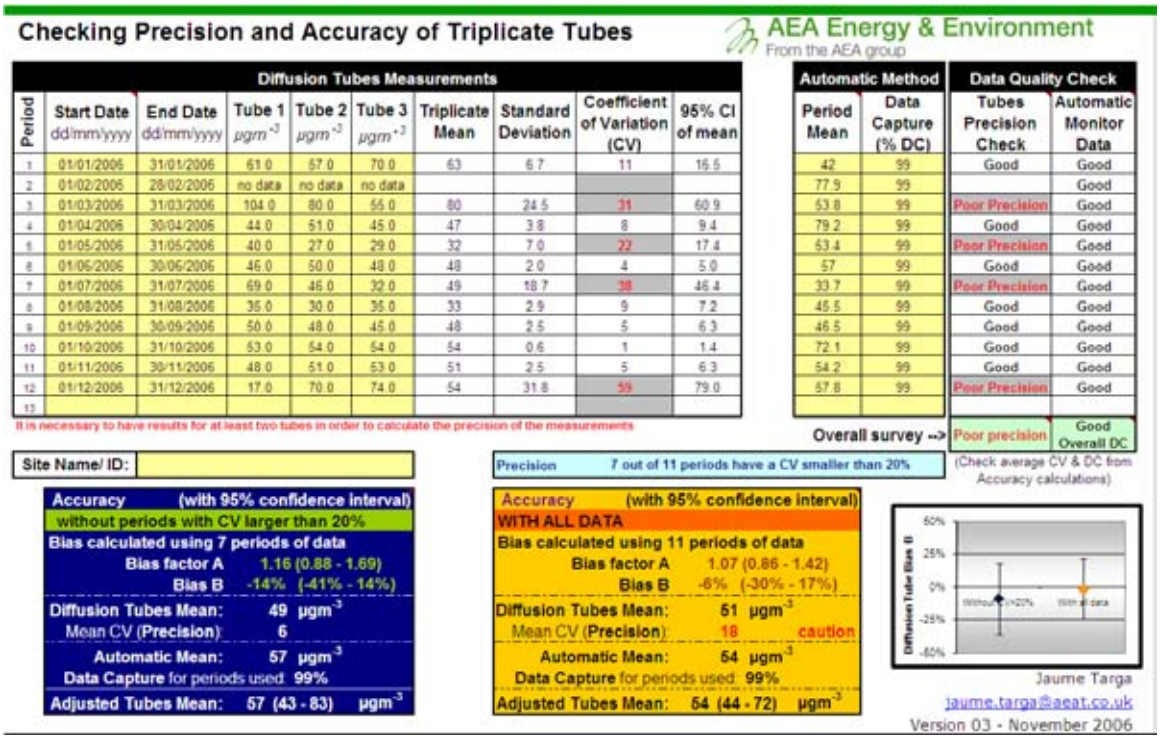
Table 2b Local Bias Adjustment Factor, 2006



Checking Precision and Accuracy of Triplicate Tubes

AEA Energy & Environment
From the AEA group

Diffusion Tubes Measurements										Automatic Method		Data Quality Check	
Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 µgm^{-3}	Tube 2 µgm^{-3}	Tube 3 µgm^{-3}	Triplicate Mean	Standard Deviation	Coefficient of Variation (CV)	95% CI of mean	Period Mean	Data Capture (% DC)	Tubes Precision Check	Automatic Monitor Data
1	01/01/2006	31/01/2006	61.0	57.0	70.0	63	6.7	11	16.5	42	99	Good	Good
2	01/02/2006	28/02/2006	no data	no data	no data					77.9	99		Good
3	01/03/2006	31/03/2006	104.0	80.0	55.0	80	24.5	31	60.9	53.8	99	Poor Precision	Good
4	01/04/2006	30/04/2006	44.0	51.0	45.0	47	3.8	8	9.4	79.2	99	Good	Good
5	01/05/2006	31/05/2006	40.0	27.0	29.0	32	7.0	22	17.4	53.4	99	Poor Precision	Good
6	01/06/2006	30/06/2006	46.0	50.0	48.0	48	2.0	4	5.0	57	99	Good	Good
7	01/07/2006	31/07/2006	69.0	46.0	32.0	49	18.7	38	46.4	33.7	99	Poor Precision	Good
8	01/08/2006	31/08/2006	35.0	30.0	35.0	33	2.9	9	7.2	45.5	99	Good	Good
9	01/09/2006	30/09/2006	50.0	48.0	45.0	48	2.5	5	6.3	46.5	99	Good	Good
10	01/10/2006	31/10/2006	53.0	54.0	54.0	54	0.6	1	1.4	72.1	99	Good	Good
11	01/11/2006	30/11/2006	48.0	51.0	53.0	51	2.5	5	6.3	54.2	99	Good	Good
12	01/12/2006	31/12/2006	17.0	70.0	74.0	54	31.8	59	79.0	57.8	99	Poor Precision	Good
13													

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

Overall survey --> Poor precision | Good Overall DC

(Check average CV & DC from Accuracy calculations)

Site Name/ ID:

Precision: 7 out of 11 periods have a CV smaller than 20%

Accuracy (with 95% confidence interval)
without periods with CV larger than 20%
Bias calculated using 7 periods of data
Bias factor A: 1.16 (0.88 - 1.69)
Bias B: -14% (-41% - 14%)
Diffusion Tubes Mean: 49 µgm^{-3}
Mean CV (Precision): 6
Automatic Mean: 57 µgm^{-3}
Data Capture for periods used: 99%
Adjusted Tubes Mean: 57 (43 - 83) µgm^{-3}

Accuracy (with 95% confidence interval)
WITH ALL DATA
Bias calculated using 11 periods of data
Bias factor A: 1.07 (0.86 - 1.42)
Bias B: -6% (-30% - 17%)
Diffusion Tubes Mean: 51 µgm^{-3}
Mean CV (Precision): 18 caution
Automatic Mean: 54 µgm^{-3}
Data Capture for periods used: 99%
Adjusted Tubes Mean: 54 (44 - 72) µgm^{-3}

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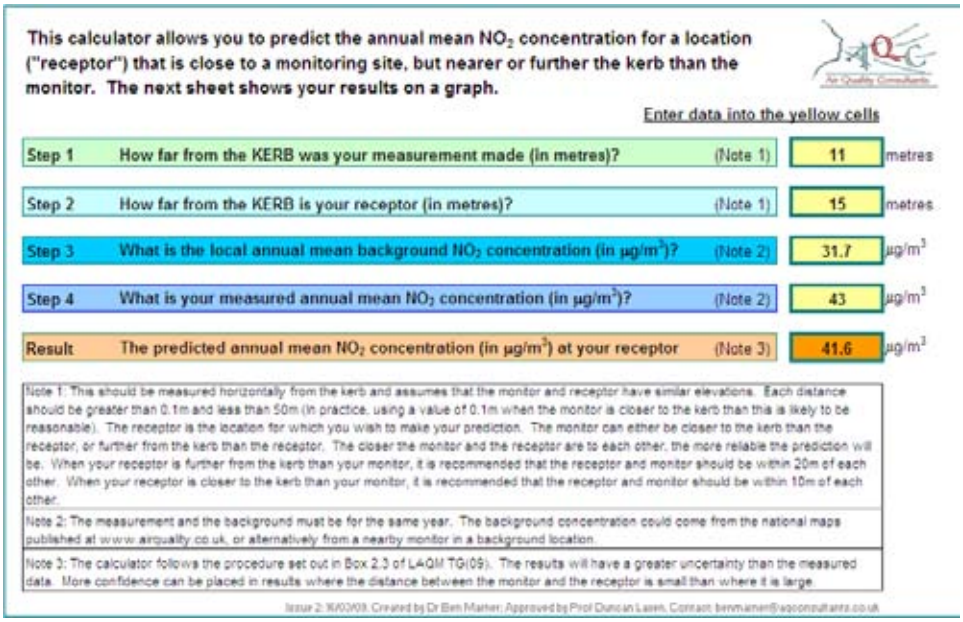
3 NO2 Fall Off With Distance From Road

Table 3a NO2 Fall Off With Distance From Road, Egham Sports Centre



This calculator allows you to predict the annual mean NO_2 concentration for a location ("receptor") that is close to a monitoring site, but nearer or further the kerb than the monitor. The next sheet shows your results on a graph.

Enter data into the yellow cells

Step 1	How far from the KERB was your measurement made (in metres)?	(Note 1)	11	metres
Step 2	How far from the KERB is your receptor (in metres)?	(Note 1)	15	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	(Note 2)	31.7	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	(Note 2)	43	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	(Note 3)	41.6	µg/m^3

Note 1: This should be measured horizontally from the kerb and assumes that the monitor and receptor have similar elevations. Each distance should be greater than 0.1m and less than 50m (in practice, using a value of 0.1m when the monitor is closer to the kerb than this is likely to be reasonable). The receptor is the location for which you wish to make your prediction. The monitor can either be closer to the kerb than the receptor, or further from the kerb than the receptor. The closer the monitor and the receptor are to each other, the more reliable the prediction will be. When your receptor is further from the kerb than your monitor, it is recommended that the receptor and monitor should be within 20m of each other. When your receptor is closer to the kerb than your monitor, it is recommended that the receptor and monitor should be within 10m of each other.

Note 2: The measurement and the background must be for the same year. The background concentration could come from the national maps published at www.airquality.co.uk, or alternatively from a nearby monitor in a background location.

Note 3: The calculator follows the procedure set out in Box 2.3 of LAQM TG(09). The results will have a greater uncertainty than the measured data. More confidence can be placed in results where the distance between the monitor and the receptor is small than where it is large.

Issue 2: 16/03/09. Created by Dr Ben Marner. Approved by Prof Duncan Laxen. Contact: benmarner@wyeconsultants.co.uk

APPENDIX 2C HIGHWAYS AGENCY SURVEY MONITORING RESULTS

1 NO_2 Monitoring Results – Netcen Survey

Highways Agency Road Network Survey (µg/m³) 2006, 2007, 2008

2006 Local Bias Factor (LF) - Collocation Study, Sheffield City Council, Tinsley AURN - 0.94
2006 UWE R&A Helpdesk Bias Factor (NF) - 0.98
"Very low result/Result below Level Of Detection

MONITORING SITES, 2006		
Site ID	51	52
Site Location	Elmside	M25 boundary
Within AQMA?	Y	Y
Site Type	Urban backgrour	Roadsid
Jan	no data	no data
Feb	no data	no data
Mar	no data	no data
Apr	49	61
May	45	55
Jun	46	<LOD*
Jul	45	47
Aug	45	60
Sept	46	60
Oct	52	no data
Nov	70	59
Dec	49	66
Data Capture [%]	75.0	58.3
Annual Mean (Unadjusted)	49.6	58.2
Annual Mean (Adjusted, LF)	46.6	54.7
Annual Mean (Adjusted, NF)	48.6	57.1

2007 Local Bias Factor (LF) - Collocation Study, Batley DC, Chichester Council, Salford, Thurrock -0.97
2007 UWE R&A Helpdesk Bias Factor (NF) - 0.89

MONITORING SITES, 2007		
Site ID	51	52
Site Location	Elmside	M25 boundary
Within AQMA?	Y	Y
Site Type	Urban backgrour	Roadsic
Jan	55	67
Feb	55	58
Mar	44	55
Apr	47	66
May	<LOD*	22
Jun	no data	no data
Jul	54	67
Aug	58	48
Sept	47	12
Oct	49	65
Nov	45	65
Dec	51	69
Data Capture [%]	83.3	91.7
Annual Mean (Unadjusted)	50.5	54.2
Annual Mean (Adjusted, LF)	48.9	52.6
Annual Mean (Adjusted, NF)	44.9	48.3

2008 Local Bias Factor (LF) - Not yet established - 0.97 taken as assumption
2008 UWE R&A Helpdesk Bias Factor (NF) - 0.90

MONITORING SITES, 2008		
Site ID	51	52
Site Location	Elmside	M25 boundary
Within AQMA?	Y	Y
Site Type	Urban backgrour	Roadsid
Jan	<LOD*	78
Feb	73	no data
Mar	52	50
Apr	<LOD*	77
May	<LOD*	52
Jun	no data	68
Jul	48	no data
Aug	60	50
Sept	42	35
Oct	53	56
Nov	53	67
Dec	51	70
Data Capture [%]	66.7	83.3
Annual Mean (Unadjusted)	53.8	60.5
Annual Mean (Adjusted, LF)	52.2	58.7
Annual Mean (Adjusted, NF)	48.4	54.4

APPENDIX 3A UNPROCESSED TRAFFIC FLOW DATA

Table 3.1 Estimated 2006 traffic count data for roads in Runnymede (RBC Review and Assessment of Air Quality. *Updating and Screening Assessment 2003. Appendix 3*)

Road	Description	AADT flow	%HGVS	SPEED (kph)
M25	M25 Jnt 12-13	104158	11.17	94
M25	J12-13	104158	11.17	100
M25	Jnt 11-12	99832	9.92	80.3
M25	M25 Jnt 13-12	93785	12.3	112.8
M25	J13-12	93785	12.3	120
M25	Jnt 12-11	93702	11.21	112.4
M25	Jnt 10-11	91738	10.36	83.4
M25	J9-10	91738	10.36	81
M25	J10-11	91738	10.36	79.2
M25	J12-13	86559	8.87	75
M25	Jnt 11-10	86048	10.98	119.1
M25	J10-9	86048	10.98	108
M25	J11-10	86048	10.98	132
M25	J11-12	78822	11.08	67.5
M3	J2-1	76803	5.28	104
M3	J2-1	76803	5.28	100.6
M25	J11-10	69866	12.47	135
M3	J3-2	65112	11.93	60
M3	J2-3	65112	11.93	55
M3	J2-3	63993	12.53	100
M3	J3-2	63993	12.53	102.5
M25	J12-11	63852	11.38	120
A317	St Peter's Way	45970	3.8	84.7
M3	J1-2	39964	6.26	108
A317	St Peter's Way	38184	8.17	86.7
M25	J12 slip on to M3 W	38115	16.16	60
B375	Bridge Road	36939	3.76	18.5
M3	J2-1	36839	4.22	108
A320	Guildford Road	35880	6.09	62.7
A320	Guildford Road	35880	6.09	60
A320	Guildford Road	35880	6.09	62.3
A317	Chertsey Road	35171	7.07	40.7
M3	J2 slip off to M25 N	33365	19.61	90
A318	Chertsey Road	32355	8.19	48.6
M3	J2-1	31747	3.85	54.5
A317	Woburn Hill	30353	6.19	54
A317	Woburn Hill	30353	6.19	56.7
B386	Holloway Hill	30264	5.23	37.8
M25	J12 slip on to M3 E	29933	14.27	80

M3	J2 Slip on to M25 S	29850	10.83	60
A317	Weybridge Road	29812	4.38	55
A317	Weybridge Road	29812	4.38	54
M25	J11 Slip Off to M3 W	29804	14.33	75
A30	London Road	29777	4.34	54.6
B3121	Spinney Hill	28371	2.64	33.3
A30	Bypass	28249	7.1	60
A308	The Causeway	27981	8.3	52.5
A30	Egham Bypass	27007	4.82	73.9
A30	London Road	26923	4.21	48.1
A320	Guildford Road	26462	3.95	48.1
M3	J1-2	25879	7.2	75
A318	Chertsey Road	25193	10.29	52.5
A30	London Road	24070	4.75	60
M25	J11 Slip Off to A317	23836	7.49	75
B3407	The Avenue	23750	4.85	54
B3407	High Street	23257	5.37	56.4
B387	Fordwater Road	22894	7.02	31.3
A320	Guildford Road	22374	9.33	60
A308	Windsor Road	22369	4.11	52.9
A320	Guildford Road	21505	4.85	89
M25	J11 Slip On W	21010	5.55	75
A308	The Causeway	20077	4.84	60
A30	Egham Hill	20006	4.94	54
A30	London Road	20006	4.94	52.6
A318	Chertsey Road	19960	7.57	32.8
A318	Chertsey Road	19960	7.57	30.8
A318	High Street	19960	7.57	60
B3376	Thorpe Lea Road	19403	4.41	24
A320	Staines Road	19221	5.56	80
A30	London Road	18655	3.78	63.6
B385	Woodham Lane	18293	7.71	40.6
A320	Staines Road	17877	5.65	53
A320	Chertsey Lane	17877	5.65	51.4
A320	Staines Road	17877	5.65	91.5
M3	J2 slip off to M25 N	17599	22.45	90
B388	Tite Hill	17370	2.22	45.2
A320	Guildford Road	17103	9.87	53.3
B385	Woodham Lane	17097	4.8	40.7
M3	J2 slip off to M25 N	16934	23.32	60
M3	J2 Slip Off to M25 S	16432	15.79	75
M25	J11 Slip On E	16182	4.54	75
B3121	Station Road	16079	2.99	26.5
A318	Byfleet Road	15932	14.22	51
A320	Guildford Road	15415	7.84	53.4
A308	The Glanty	15351	8	90
A320	Chilsey Green Road	14986	7.9	55
B3121	Station Road	14678	7.07	30.7
A320	Guildford Road	14570	11.59	55
B3407	High Street	14474	0.75	49.4

A320	Chertsey Lane	14290	4.28	54
B386	Longcross Road	14221	5.17	57.3
B386	Longcross Road	14221	5.17	55.7
M3	J2 Slip on to M25 S	14085	4.55	75
M3	J2 Slip on to M25 S	13419	4.77	60
M25	J12 slip on to M3 W	13274	16.72	80
B3376	New Wickham Lane	13125	4.61	47
C10	Stroude Road	13125	4.61	59.5
C10	Stroude Road	13125	4.61	59.2
C10	Stroude Road	13125	4.61	63
M25	J11Slip Off to A317	12915	5.98	75
B388	Vicarage Road	12654	5.8	35
A317	Eastworth Road	12277	7.15	51.2
B3376	Thorpe Lea Road	11920	3.83	50
B388	Vicarage Road	11436	5.92	51
B388	Vicarage Road	11436	5.92	48
B375	Bridge Road	11376	4.19	52
B375	St. Anns Road	10893	2.14	49.8
B389	Green Road	10693	9.28	63
B3121	Church Road	10543	4	45.9
B3121	Church Road	10543	4	45.5
B388	Thorpe Lea Road	10231	5.16	48
A328	St Jude's Road	10121	4.85	64.5
A328	Priest Road	10121	4.85	66

Table 3.2 Traffic count data for roads in Runnymede, 2006-2008

Traffic data from Surrey's permenant sites and DfT MCC counts in Runnymede Borough

From years 2006 - 2008

Notes:

DfT sites

2006 - 07 HGV data from Surrey's volumetric sites have been calculated using HGV% from a DfT count of the same road type. The CP shows which DfT count was used.

2006 - 07 LGV data from Surrey's volumetric sites have been calculated using LGV% from a DfT count of the same road type.

DfT counts in 2008 are not available yet.

2008 LGVs and HGVs data from Surrey sites have been calculated using HGVs% & LGVs% in 2007 from the same count.

Real- time site, but only became real-time in 2008

For Real-Time site speed had to be extracted for a week of each month instead of a whole month due to software restrictions.

The AADT for A308 00021C in 2008 was low due to road work and lane closures on the A308 near M25 between Jan - Apr 08.

Source	DfT CP	Site Name	Type	Grid Reference		AADT			HGVs			HGVs %			LGVs			LGVs %			Mean Speed			85%ile			Road Width
				Easting	Northing	2008	2007	2006	2008	2007	2006	2008	2007	2006	2008	2007	2006	2008	2007	2006	2008	2007	2006	2008	2007	2006	(metres)
DfT	7773	A0308 7773 WINDSOR ROAD	FACTORED FROM 12H MCC	500000	172700		17495	17455		420	412		2.40%	2.36%		1477	1334		8.44%	7.64%							6.5
DfT	26906	A0308 26906 THE CAUSEWAY	FACTORED FROM 12H MCC	503000	171500		23145	24065		301	306		1.30%	1.27%		2415	2256		10.43%	9.37%							13.6
DfT	6904	A0320 6904 CHERTSEY LANE	FACTORED FROM 12H MCC	503450	170000		15955	16204		210	207		1.32%	1.28%		1475	1407		9.24%	8.68%							10.2
DfT	18032	A0030 18032 EGHAM BYPASS	FACTORED FROM 12H MCC	501076	171713		22960	24119		489	524		2.13%	2.17%		2554	1882		11.12%	7.80%							15.7
DfT	73990	A0329 73990 BLACKNEST RD	FACTORED FROM 12H MCC	497000	168700		10990	11102		348	317		3.17%	2.86%		1142	1036		10.39%	9.33%							6
DfT	46313	A0030 46313 LONDON RD	FACTORED FROM 12H MCC	496400	167600		14782	15017		302	332		2.04%	2.21%		1418	1352		9.59%	9.00%							14
DfT	56314	A0317 56314 ST PETERS WAY EAST	FACTORED FROM 12H MCC	504500	165300		33299	33037		1187	1161		3.56%	3.51%		4415	3985		13.26%	12.06%							15.2
DfT	37990	A0320 37990 ST PETERS WAY WEST	FACTORED FROM 12H MCC	503000	164740		38694	36833		1165	1132		3.01%	3.07%		3681	4792		9.51%	13.01%							15.2
DfT	26948	A0328 26948 ST JUDES RD	FACTORED FROM 12H MCC	499140	172000		9487	9620		105	95		1.11%	0.99%		834	757		8.79%	7.87%							5.7
DfT	36955	A0320 36955 GUILDFORD RD	FACTORED FROM 12H MCC	502040	163000		23945	23634		666	804		2.78%	3.40%		2310	2538		9.65%	10.74%							9.4
DfT	46312	A30 46312 LONDON ROAD	FACTORED FROM 12H MCC	499050	170000		21814	21732		504	490		2.31%	2.25%		2090	1886		9.58%	8.68%							9.3
DfT	78398	A320 78398 STAINES ROAD	FACTORED FROM 12H MCC	503500	167300		14485	14637		848	898		5.85%	6.14%		1973	1874		13.62%	12.80%							14
DfT	78399	A320 78399 STAINES ROAD	FACTORED FROM 12H MCC	504050	168250		14894	15316		215	348		1.44%	2.27%		1313	1756		8.82%	11.47%							14.3
DfT	56311	A30 56311 LONDON ROAD	FACTORED FROM 12H MCC	497900	168600		26189	32038		516	823		1.97%	2.57%		2499	3041		9.54%	9.49%							12.2
DfT	78400	A30 78400 LONDON ROAD	FACTORED FROM 12H MCC	499250	170320		23123	23037		535	519		2.31%	2.25%		2215	1999		9.58%	8.68%							9.3
DfT	6309	A30 6309 EGHAM HILL	FACTORED FROM 12H MCC	500000	170870		19146	19366		409	434		2.14%	2.24%		1891	1796		9.88%	9.27%							9.2
DfT	7776	A317 7776 EASTWORTH ROAD	FACTORED FROM 12H MCC	504000	166470		13347	13491		257	276		1.93%	2.05%		1467	1393		10.99%	10.33%							7.5
DfT	26923	A318 26923 CHERTSEY ROAD	FACTORED FROM 12H MCC	504970	165000		18463	17846		340	363		1.84%	2.03%		2323	2300		12.58%	12.89%							9
DfT	46933	A320 46933 GUILDFORD ROAD	FACTORED FROM 12H MCC	502300	164000		35717	35475		1246	1213		3.49%	3.42%		4358	3933		12.20%	11.09%							8.5
DfT	56699	A320 56699 GUILDFORD ROAD	FACTORED FROM 12H MCC	502769	165000		24011	23882		727	710		3.03%	2.97%		2733	2467		11.38%	10.33%							6.3
DfT	26925	A320 26925 CHILSEY GREEN ROAD	FACTORED FROM 12H MCC	503430	167000		14344	14490		841	889		5.86%	6.14%		1954	1855		13.62%	12.80%							7
DfT	36975	A328 36975 ST JUDE'S ROAD	FACTORED FROM 12H MCC	499400	170600		12136	12261		174	185		1.43%	1.51%		1433	1361		11.81%	11.10%							5.7
DfT	46930	A317 46930 WOBURN HILL	FACTORED FROM 12H MCC	505115	165675		23143	23946		535	543		2.31%	2.27%		2254	2065		9.74%	8.62%							
SCC	7773	A0308 WINDSOR ROAD 00021C	Volume	501100	172200	14986	17434	17969	354	419	424	2.36%	2.40%	2.36%	1265	1472	1332	8.44%	8.44%	7.64%							6.5
SCC	26906	A0308 THE CAUSEWAY 00190B	Volume	502274	171668	20930	21347	21591	272	278	275	1.30%	1.30%	1.27%	2184	2227	2001	10.43%	10.43%	9.37%							13.6
SCC	6904	A0320 CHERTSEY LANE 00261D	Class	503463	170251	15517	16068	15514	204	211	198	1.32%	1.32%	1.28%	1435	1485	1395	9.24%	9.24%	8.68%	39.61			44			10.2
SCC	18032	A0030 EGHAM BYPASS 00170A	Volume	500900	171700	22394	22864	24450	477	487	531	2.13%	2.13%	2.17%	2491	2543	1784	11.12%	11.12%	7.80%							15.7
SCC	73990	A0329 BLACKNEST RD 00070B	Volume	496800	168700	10760	10870	10944	341	344	312	3.17%	3.17%	2.86%	1118	1130	1014	10.39%	10.39%	9.33%							6
SCC	46313	A0030 LONDON RD 00082A	Volume	497622	168322	13469	13930	14706	275	285	325	2.04%	2.04%	2.21%	1292	1336	1254	9.59%	9.59%	9.00%							14
SCC		B0386 LONGCROSS RD 00452B	Volume	499400	165500	5066	5463	5534																			
SCC		A0319 CHOBHAM ROAD 00403A	Volume	501900	163800	8102	7718	7316	110	105	171	1.36%	1.36%	2.34%	885	843	671	10.93%	10.93%	9.17%							
SCC	56314	A0317 ST PETERS WAY EAST 00500A	Class	504248	165153	28610	29783	29417	1020	1062	1034	3.56%	3.56%	3.51%	3793	3949	3548	13.26%	13.26%	12.06%		48.07			57		15.2
SCC		A0317 WEYBRIDGE RD 00551B	Class	506360	164883	24719	24784	24323	381	382	423	1.54%	1.54%	1.74%	2462	2469	2392	9.96%	9.96%	9.83%	38.43			45			
SCC		A0318 BYFLEET RD 00571B	Volume	505600	162600	15942	14783	14597	294	272	297	1.84%	1.84%	2.03%	2006	1860	1881	12.58%	12.58%	12.89%							
SCC	37990	A0320 ST PETERS WAY WEST 00430A	Real-time	503099	164775	36359	36001	36263	2007	1084	1114	5.52%	3.01%	3.07%	1899	3425	4718	5.22%	9.51%	13.01%	50.53			59			15.2
SCC		B3376 THORPE RD 00252C	Class	503000	171290	8848	9248	9020																			
SCC	26948	A0328 ST JUDES RD 00012B	Volume	499100	172000	7297	7659	7185	81	85	71	1.11%	1.11%	0.99%	641	673	565	8.79%	8.79%	7.87%							5.7
SCC		B0385 WOODHAM LN 00562B	Volume	503800	161700	9512	10105	10082																			
SCC	36955	A0320 GUILDFORD RD 00410A	Volume	502000	162600	25482	26012	25027	709	723	851	2.78%	2.78%	3.40%	2458	2509	2688	9.65%	9.65%	10.74%							9.4
HA		M03 J01-02	Volume	505783	167169		60864	62018																			
HA		M03 J02-03	Volume	500458	167148		126480	121994																			
HA		M25 J09-10	Volume	510557	157715		146226	153529																			
HA		M25 J10-11	Volume	505500	162200		170875	169301																			
HA		M25 J11-12	Volume	502941	166249		177034	181303																			
HA		M25 J12-13	Volume	501623	169907		187393	180862																			
SCC		A317 Chertsey Road 00490A	Short ATC (7-16 Dec 07, 11-	504875	166000	25858	26402														32.32	32.76		37	38		
SCC		A318 New Haw Road 00542B	Short term (28/2-7/3 06, 15-21 O	505409	163564	18173	19986	18968													28.55	29.77	30.67	33	35	35	

Table 3.3 Excel workbook for the M25 Junctions 11 & 12 as supplied by Highways Agency

Yearly classified during 2008 for site 5/9507

AC, M25, Junction 11 Onslip(E503993, N164935) view site location on map

Month	24hr				18hr				16hr				12hr				ATC
	ADT	%>6.6m	AWT	%>6.6m	ADT	%>6.6m	AWT	%6.6m	ADT	%>6.6m	AWT	%>6.6m	ADT	%>6.6m	AWT	%>6.6m	DAY
b Jan	9025	4.5	10283	5	8813	4.4	10070	4.9	8628	4.4	9885	4.9	7605	4.4	8693	5	29
Feb	9792	4.9	11176	5.6	9573	4.8	10958	5.4	9367	4.9	10751	5.5	8243	5	9441	5.6	29
bt Mar	9422	4.7	10702	5.3	9181	4.6	10451	5.1	8982	4.6	10240	5.1	7857	4.7	8944	5.2	30
r Apr	9972	5.1	11366	5.7	9676	4.8	11051	5.3	9459	4.8	10828	5.4	8253	4.9	9433	5.5	29
b May	9916	5	11105	5.6	9652	4.8	10850	5.5	9423	4.9	10623	5.5	8149	5	9183	5.7	31
Jun	10256	5.2	11548	5.8	9973	5	11268	5.6	9727	5.1	11029	5.7	8391	5.2	9540	5.9	29
r Jul	10298	5.2	11524	5.9	10016	5.1	11247	5.7	9764	5.1	11004	5.8	8386	5.3	9484	6	31
b Aug	9571	5.1	10771	5.6	9300	5	10515	5.5	9072	5	10277	5.5	7710	5.3	8778	5.9	30
a Sep	9894	5	11167	5.5	9628	4.8	10911	5.4	9408	4.9	10689	5.4	8213	5	9325	5.6	29
t Oct	10016	4.7	11251	5.4	9785	4.6	11026	5.2	9470	4.6	10738	5.3	8194	4.8	9290	5.5	30
Nov	9553	4.5	10866	5	9338	4.3	10652	4.8	9110	4.4	10429	4.9	7983	4.4	9160	5	28
b Dec	8200	4.2	9183	4.7	7973	4	8967	4.5	7746	4.1	8727	4.6	6821	4.1	7678	4.6	31
Avg	9660	4.8	10912	5.4	9409	4.7	10664	5.3	9180	4.7	10435	5.3	7984	4.9	9079	5.4	356

b Bank Holiday w Weather a Accident t Time change r Road Works s Sporting Event o Other

Showing only complete days. No estimated data. Not including hidden data.

Table 3.4 Data input for the TEMPRO model

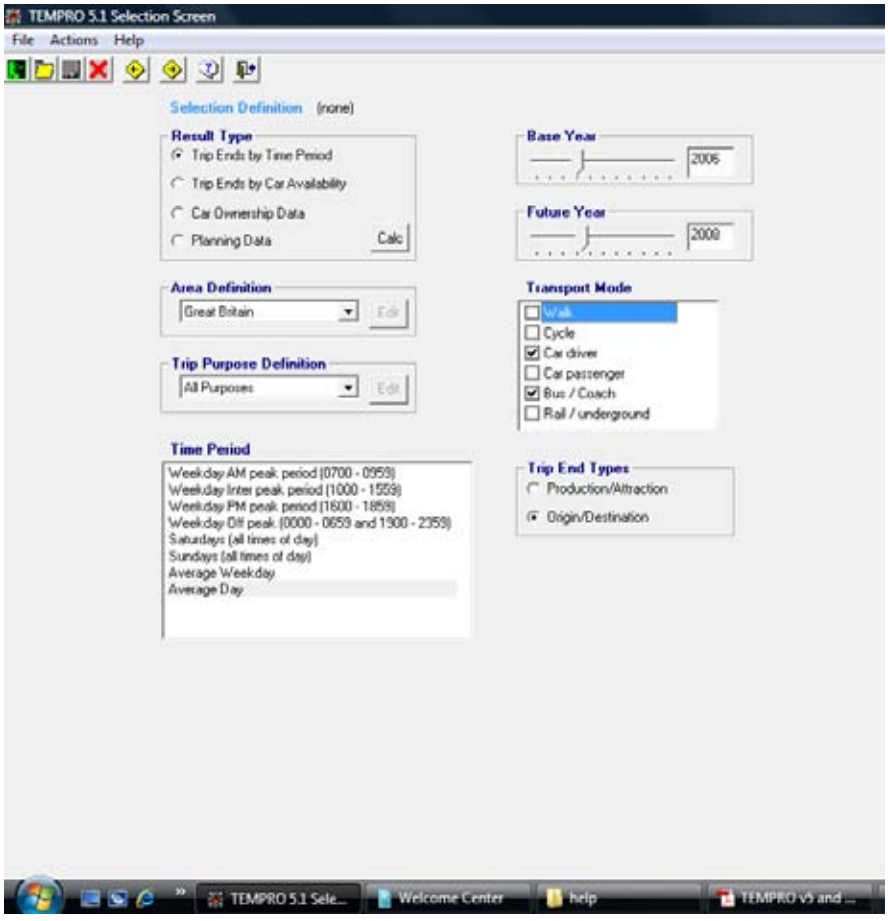
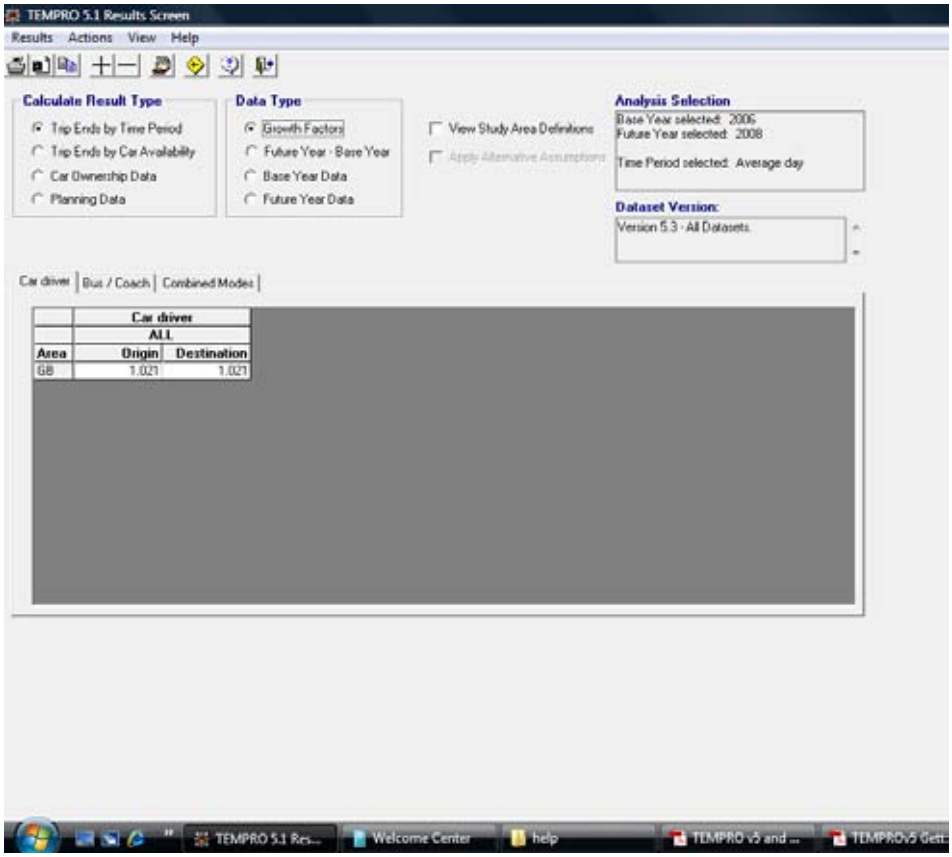


Table 3.5 Growth factor for traffic flows from 2006 to 2008 - TEMPRO model



APPENDIX 3B ROAD ASSESSMENT OF 'BUSY' STREETS AND JUNCTIONS

Traffic flow data estimates for 2006 used in the model were supplied by Surrey County Council (Appendix 3A).

Traffic growth factor from 2006 to 2008 was determined using a TEMPRO model and amounted to about 2% (1.021). **The** ***copy of Tempro model input data can be found in Appendix 3A.***

2008 AADT flows were calculated by multiplying traffic flow data estimates for 2006 by the growth factor of 1.021.

I ADDLESTONE – STATION ROAD

DMRB Input Data:

AADT flow, Station Road (1st link): **16,417 (16,079* (higher of the two entries as worst-case) x 1.021)**

AADT flow, Garfield Road (2nd link): **5,000 (assumed number of vehicles on a minor road)**

Station Road's road category: **Type B road**

Receptor Number	Receptor Description	Number of links	Distance from link centre to receptor	Annual average speed at receptor	% LGVs
1	Outdoor Café at Church Mews	1	11m	26.5*	2.99*
2	Bus Stop at Tesco's	2	Link 1 – 8m Link 2 – 44m	20.0** 20.0**	2.99* 0.10**
3	Bus Stop at Addlestone Railway Station	1	6m	20.0**	2.99*

* Data supplied by Surrey County Council (Appendix 3A)
** Assumed data

NO_2 Background Data

Receptor Number	Receptor Coordinates	NO_x grid coordinates closest to receptor	Background NO_x [µg/m^3]	Background NO_2 [µg/m^3]
1	505296; 164677	505500; 164500	**30.60**	**22.26**
2	505390; 164718	505500; 164500	**30.60**	**22.26**
3	505584; 164839	505500; 164500	**30.60**	**22.26**

Predicted Concentrations of NO_2 at Receptors

Receptor Number	Concentration of NO_2 at receptor [$\mu g/m^3$]
1	**26.3**
2	**27.3**
3	**27.1**

Data input for the DMRB model are shown in **Figure 3.1**, whereas the results can be seen in **Figure 3.2**.

Figure 3.1 DMRB input data for Station Road, Addlestone

Figure 3.2 DMRB results for Station Road, Addlestone

All receptors			Pollutant concentrations at receptor						
Receptor number	Name	Year	CO * Annual mean mg/m³	Benzene Annual mean µg/m³	1,3-butadiene Annual mean µg/m³	NO_x Annual mean µg/m³	NO_2 * Annual mean µg/m³	PM_{10} Annual mean µg/m³	PM_{10} Days >50µg/m³
1	Station Road	2008	0.11	0.12	0.08	45.61	26.29	2.04	0.00
2	Station Road	2008	0.16	0.18	0.12	49.61	27.26	2.73	0.00
3	Station Road	2008	0.15	0.17	0.11	48.93	27.10	2.58	0.00

* See Footnote 32 in DMRB Volume 11 Chapter 3

II CHERTSEY – LONDON STREET

DMRB Input Data:

AADT flow, London Street (1st link): **15,000 (assumed from comparison with similar type roads)**

AADT flow, Bridge Road (2nd link): **11,615 (11,376* x 1.021)**

AADT flow Herriot Road (2nd link): **15,000 (assumed from comparison with similar type roads)**

London Street's road category: **Type B road**

Receptor Number	Receptor Description	Number of links	Distance from link centre to receptor	Annual average speed at receptor	% LGVs
4	Outdoor pub at Bridge Road junction	2	Link 1 – 6m Link 2 – 34m	20.0** 20.0**	3.00** 3.00**
5	Outdoor Restaurant at Herriot Road	2	Link 1 – 12m Link 2 – 28m	25.0** 25.0**	3.00** 3.00**

* Data supplied by Surrey County Council (Appendix 3A)
** Assumed data

NO_2 Background Data

Receptor Number	Receptor Coordinates	NO_x grid coordinates closest to receptor	Background NO_x [µg/m^3]	Background NO_2 [µg/m^3]
4	504241; 166963	504500; 166500	**31.81**	**22.96**
5	504578; 166800	504500; 166500	**31.81**	**22.96**

Predicted Concentrations of NO_2 at Receptors

Receptor Number	Concentration of NO_2 at receptor [µg/m^3]
4	**29.1**
5	**29.0**

Data input for the DMRB model are shown in **Figure 3.3** and the results can be seen in **Figure 3.4**.

Figure 3.3 DMRB input data for London Street, Chertsey

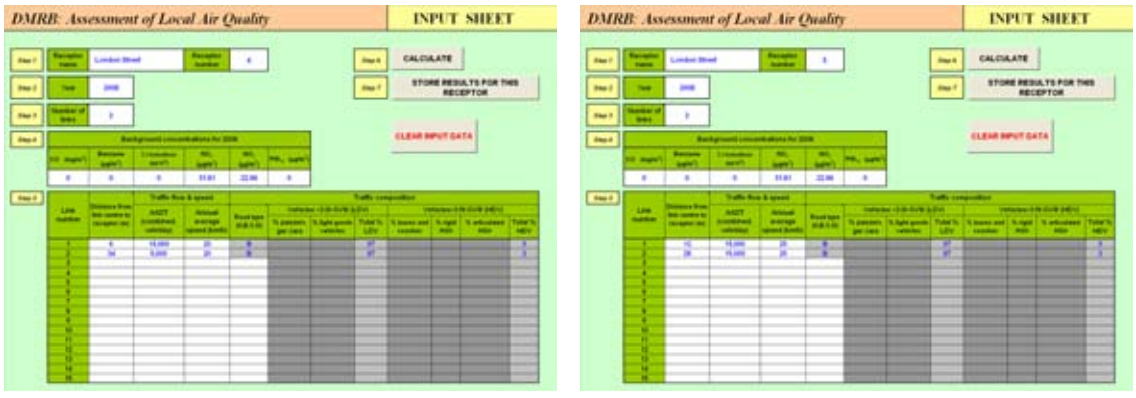
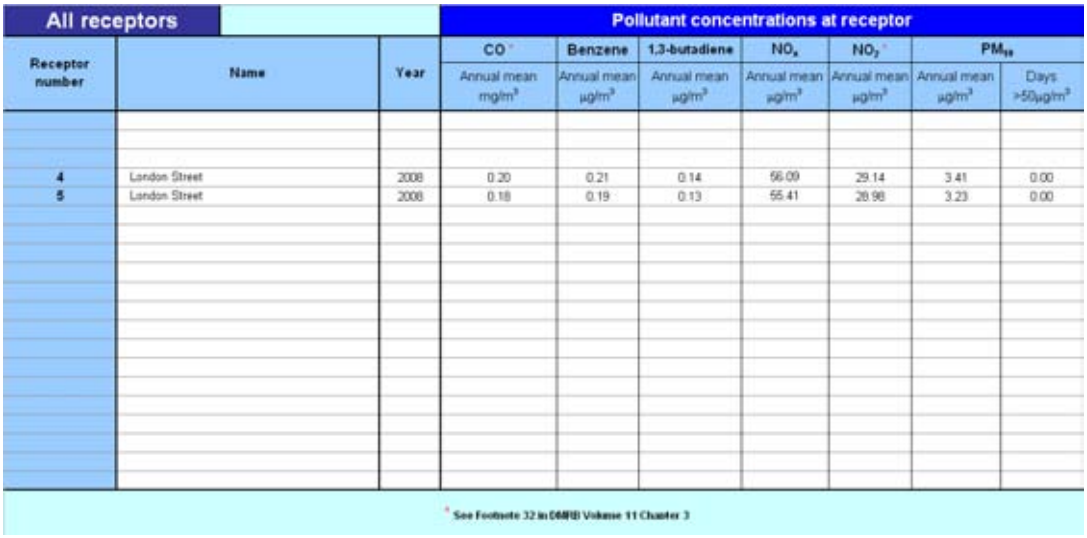


Figure 3.4 DMRB results for London Street, Chertsey



All receptors			Pollutant concentrations at receptor						
Receptor number	Name	Year	CO *	Benzene	1,3-butadiene	NO_x	NO_2 *	PM_{10}	
			Annual mean mg/m³	Annual mean µg/m³	Annual mean µg/m³	Annual mean µg/m³	Annual mean µg/m³	Annual mean µg/m³	Days >50µg/m³
4	London Street	2008	0.20	0.21	0.14	56.09	29.14	3.41	0.00
5	London Street	2008	0.18	0.19	0.13	55.41	28.98	3.23	0.00

* See Footnote 32 in DMRB Volume 11 Chapter 3

III CHERTSEY – WINDSOR STREET

DMRB Input Data:

AADT flow, Windsor Street: **15,000 (assumed from comparison with similar type roads)**

Windsor Street's road category: **Type B road**

Receptor Number	Receptor Description	Number of links	Distance from link centre to receptor	Annual average speed at receptor	% LGVs
6	Chertsey Museum	1	10m	25.0**	3.00**

** Assumed data

NO_2 Background Data

Receptor Number	Receptor Coordinates	NO_x grid coordinates closest to receptor	Background NO_x [µg/m^3]	Background NO_2 [µg/m^3]
6	504094; 167071	504500; 167500	**32.61**	**23.43**

Predicted Concentrations of NO_2 at Receptors

Receptor Number	Concentration of NO_2 at receptor [µg/m^3]
6	**27.5**

Data input for the DMRB model are shown in **Figure 3.5** and the results can be seen in **Figure 3.6**.

Figure 3.5 DMRB input data for Windsor Street, Chertsey

Figure 3.6 DMRB results for Windsor Street, Chertsey

All receptors			Pollutant concentrations at receptor						
Receptor number	Name	Year	CO *	Benzene	1,3-butadiene	NO_x	NO_2 *	PM_{10}	
			Annual mean mg/m³	Annual mean µg/m³	Annual mean µg/m³	Annual mean µg/m³	Annual mean µg/m³	Annual mean µg/m³	Days >50µg/m³
6	Windsor Street	2000	0.11	0.12	0.00	47.75	27.45	2.00	0.00

* See Footnote 32 in DMRB Volume 11 Chapter 3

IV EGHAM – STATION ROAD

DMRB Input Data:

AADT flow, Station Road: **10,000 (assumed from comparison with similar type roads)**

Station Road's road category: **Minor road**

Receptor Number	Receptor Description	Number of links	Distance from link centre to receptor	Annual average speed at receptor	% LGVs
7	Shops between Church RD and Band Ln	1	5m	15.0**	3.00**
8	Bus stop at railway crossing	1	8m	10.0**	3.00**

** Assumed data

NO_2 Background Data

Receptor Number	Receptor Coordinates	NO_x grid coordinates closest to receptor	Background NO_x [µg/m^3]	Background NO_2 [µg/m^3]
7	501124; 170972	501500; 170500	**42.5**	**28.7**
8	501036; 171154	501500 701500	**49.1**	**31.7**

Predicted Concentrations of NO_2 at Receptors

Receptor Number	Concentration of NO_2 at receptor [µg/m^3]
7	**32.4**
8	**35.6**

Data input for the DMRB model are shown in **Figure 3.7** and the results can be seen in **Figure 3.8**.

Figure 3.7 DMRB input data for Station Road, Egham

Figure 3.8 DMRB results for Station Road, Egham

All receptors			Pollutant concentrations at receptor						
Receptor number	Name	Year	CO *	Benzene	1,3-butadiene	NO_x	NO_2 *	PM_{10}	
			Annual mean mg/m^3	Annual mean µg/m^3	Annual mean µg/m^3	Annual mean µg/m^3	Annual mean µg/m^3	Annual mean µg/m^3	Days >50µg/m^3
7	Station Road, Egham	2008	0.12	0.12	0.09	57.06	32.39	2.14	0.00
8	Station Road, Egham	2008	0.16	0.15	0.12	65.08	35.60	2.40	0.00

* See Footnote 32 in DMRB Volume 11 Chapter 3

V EGHAM – EGHAM HILL

DMRB Input Data:

AADT flow, Egham Hill: **20,426 (20,006* x 1.021)**

Egham Hill's road category: **Type B road**

Receptor Number	Receptor Description	Number of links	Distance from link centre to receptor	Annual average speed at receptor	% LGVs
9	Outdoor Café at Chestnut Drive	1	15m	54.0*	4.94*

* Data supplied by Surrey County Council (Appendix 3A)

NO_2 Background Data

Receptor Number	Receptor Coordinates	NO_x grid coordinates closest to receptor	Background NO_x [µg/m^3]	Background NO_2 [µg/m^3]
9	499941; 170863	499500; 170500	**25.7**	**19.6**

Predicted Concentrations of NO_2 at Receptors

Receptor Number	Concentration of NO_2 at receptor [µg/m^3]
9	**23.8**

Data input for the DMRB model are shown in **Figure 3.9** and the results can be seen in **Figure 3.10**.

Figure 3.9 DMRB input data for Egham Hill, Egham

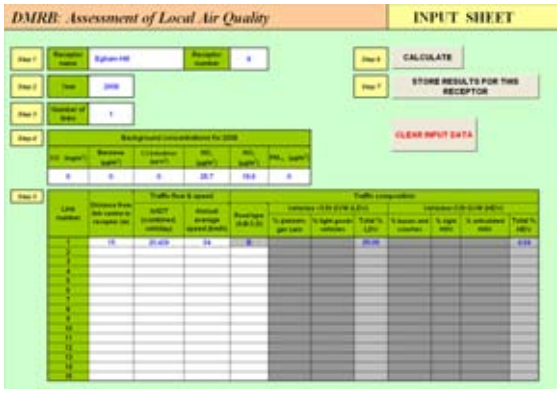


Figure 3.10 DMRB results for Egham Hill, Egham

All receptors			Pollutant concentrations at receptor						
Receptor number	Name	Year	CO *	Benzene	1,3-butadiene	NO_x	NO_2 *	PM_{10}	
			Annual mean mg/m³	Annual mean µg/m³	Annual mean µg/m³	Annual mean µg/m³	Annual mean µg/m³	Annual mean µg/m³	Days >50µg/m³
9	Egham Hill	2008	0.06	0.08	0.07	40.98	23.82	1.54	0.00

* See Footnote 32 in DMRB Volume 11 Chapter 3

VI HIGH STREET AND EGHAM HILL JUNCTION

DMRB Input Data:

AADT flow, High Street (1st link): **23,745 (23,257* (higher of the two entries as worst-case) x 1.021)**

AADT flow, Egham Bypass (2nd link): **27,574 (27,007* x 1.021)**

High Street's road category: **Type B road**

Egham Bypass's road category: **Type A road**

Receptor Number	Receptor Description	Number of links	Distance from link centre to receptor	Annual average speed at receptor	% LGVs
10	Outdoor bar at the junction	2	Link 1 – 9m Link 2 – 19m	20.0** 20.0**	5.37* 4.82*

* Data supplied by Surrey County Council (Appendix 3A)

** Assumed data

NO_2 and PM_{10} Background Data

Receptor Number	Receptor Coordinates	NO_x grid coordinates closest to receptor	Background NO_x [µg/m³]	Background NO_2 [µg/m³]	Background PM_{10} [µg/m³]
10	500639; 171302	500500; 171500	**28.7**	**21.2**	**19.6**

Predicted Concentrations of NO_2 and PM_{10} at Receptors

Receptor Number	Concentration of NO_2 at receptor [µg/m³]	Concentration of PM_{10} at receptor [µg/m³]	Number of days PM_{10} exceeded 50 µg/m³
10	**32.9**	**26.1**	**15**

Data input for the DMRB model are shown in **Figure 3.11** and the results can be seen in **Figure 3.12**.

Figure 3.11 DMRB input data for High Street and Egham Bypass junction, Egham

Figure 3.12 DMRB results for Egham Hill, Egham

All receptors			Pollutant concentrations at receptor						
Receptor number	Name	Year	CO *	Benzene	1,3-butadiene	NO_x	NO_2 *	PM_{10}	
			Annual mean mg/m³	Annual mean µg/m³	Annual mean µg/m³	Annual mean µg/m³	Annual mean µg/m³	Annual mean µg/m³	Days >50µg/m³
10	High St/Egham Bypass	2008	0.30	0.42	0.37	79.30	32.88	26.09	15.16

* See Footnote 32 in DMRB Volume 11 Chapter 3

APPENDIX 5 PERMITTED ACTIVITIES IN RUNNYMEDE UNDER IPPC LEGISLATION

Permitted Activities in the Runnymede Borough Council Area Under the Pollution Prevention Control Act 1999

Part B Activities

Permit Number	Type of Activity	Operators Name and Site Contact	Permitted Address	Registered Address, Other Contact address and fee invoice address where appropriate
PPC4(1)	Sec 3.1 Cement Mortar Batching	Lafarge Aggregates Limited. Mr Rick Waghorn 07972 533583	Longside, Thorpe Lea Road, Egham, Surrey, TW20 8RH	Lafarge Aggregates Limited, The Old Rectory, Misteron, Lutterworth, Leicestershire, LE17 4LP.
PPC7(1)	Sec 6.4 Respraying Road Vehicles	Medcalf & Company (Coachbuilders) Limited. Mr Angelo Scandone 01932 563026	Medcalf & Company (Coachbuilders) Limited, Fordwater Trading Estate, Fordwater Road, Chertsey, Surrey, KT16 8HG	Medcalf & Company (Coachbuilders) Limited, Fordwater Trading Estate, Fordwater Road, Chertsey, Surrey, KT16 8HG
PPC8(1)	Sec 6.4 Respraying Road Vehicles	LA Coachworks (Weybridge) Limited. Mr Paul Mullen 01932 858879	LA Coachworks (Weybridge) Limited, Byron Road, Addlestone, Surrey, KT15 2SY	LA Coachworks (Weybridge) Limited, Byron Road, Addlestone, Surrey, KT15 2SY
PPC10(1)	Sec 3.5 Mobile Crusher	Capital Demolition Limited. Mr Dennis Read 01932 346222	Capital Demolition Limited, Capital House, Woodham Park Road, Woodham, Addlestone, Surrey, KT15 3TG	Capital Demolition Limited, Capital House, Woodham Park Road, Woodham, Addlestone, Surrey, KT15 3TG
PPC15(1)	Sec 6.4 Respraying Road Vehicles	Mr David Hutchens, trading as Panel-wise. Mr David Hutchens 01932 856460	Mr David Hutchens, trading as Panel-wise, Hamm Moor Lane, Weybridge Trading Estate, Weybridge, Surrey, KT15 2SD	Mr David Hutchens, trading as Panel-wise, Hamm Moor Lane, Weybridge Trading Estate, Weybridge, Surrey, KT15 2SD
PPC18(1)	Sec 1.2 Petrol Storage	Wheatsheaf Service Station. Service Station 01344 846130	Wheatsheaf Service Station, London Road, Virginia Water, Surrey, GU25 4QE	Total UK Limited, 40 Clarendon Road Watford, Hertfordshire, WD17 1TQ Sheila Disspain (Administration Assistant) - 01923 694000
PPC19(1)	Sec 1.2 Petrol Storage	Ayebridges Service Station. Service Station 01784 455970	Ayebridges Service Station, 171 Thorpe Lea Road, Egham, Surrey, TW20 8HP	Total UK Limited, 40 Clarendon Road Watford, Hertfordshire, WD17 1TQ Sheila Disspain (Administration Assistant) - 01923 694000
PPC20(1)	Sec 1.2 Petrol Storage	Shell Ottershaw. Service Station 01932 879930	Shell Ottershaw, Guildford Road, Ottershaw, Chertsey Surrey,	Shell UK Retail, Rourke House, 3 Waterman's Business Park, The Causeway, Staines, TW18 3ZB

			KT16 PG	Ms Patrycja Drozdz – 01784 897850 Ms Kirstine Ruston – 0845 3093091

Permit Number	Type of Activity	Operators Name and Site Contact	Permitted Address	Registered Address, Other Contact address and fee invoice address where appropriate
PPC21(1)	Sec 1.2 Petrol Storage	Trident Garages Limited. Service Station 01932 874411	Trident Garages Limited, Guildford Road, Ottershaw, Nr Chertsey, KT16 0NZ	Trident Garages Limited, Guildford Road, Ottershaw, Nr Chertsey, KT16 0NZ Mr R Roberts (Managing Director) 01932 874411
PPC22(1)	Sec 1.2 Petrol Storage	Staines Service Station. Service Station 01784 463572	Staines Service Station, Chertsey Lane, Staines, Middlesex, TW18 3LS	Total UK Limited, 40 Clarendon Road Watford, Hertfordshire, WD17 1TQ Sheila Disspain (Administration Assistant) - 01923 694000
PPC23(1)	Sec 1.2 Petrol Storage	Addlestone Service Station. Service Station 01932 839960	Addlestone Service Station, Chertsey Road, Addlestone, Surrey, KT15 2ED	Total UK Limited, 40 Clarendon Road Watford, Hertfordshire, WD17 1TQ Sheila Disspain (Administration Assistant) - 01923 694000
PPC24(1)	Sec 1.2 Petrol Storage	Egham Service Station. Service Station 01784 430930	Egham Service Station, 186/7 High Street, Egham, Surrey, TW20 9DX	Shell UK Retail, Rourke House, 3 Waterman's Business Park, The Causeway, Staines, TW18 3ZB Ms Patrycja Drozdz – 01784 897850 Ms Kirstine Ruston – 0845 3093091
PPC25(2)	Sec 1.2 Petrol Storage	Chertsey Service Station. Service Station 01932 562702	Chertsey Service Station, 102 Bridge Road, Chertsey, Surrey, KT16 7LR	Seyon Limited, 11 Fairfield Road, Wraysbury, Staines, Middex, TW19 5DU Mr Somasundaram Satha 01932 562702
PPC26(1)	Sec 1.2 Petrol Storage	Runnymede Service Station. Service Station 01784 485982	Runnymede Service Station, 38-45 The Avenue, Egham, Surrey, TW20 9AD	Total UK Limited, 40 Clarendon Road Watford, Hertfordshire, WD17 1TQ Sheila Disspain (Administration Assistant) - 01923 694000
PPC28(1)	Sec 1.2 Petrol Storage	Egham Hill Service Station. Service Station 01784 497589	Egham Hill Service Station, 1 Egham Hill, Egham, Surrey, TW20 0ET	BP Oil U.K. Limited, Witan Gate House, 500-600 Witan Gate, Central Milton Keynes, Bucks, MK9 1EF Mr Ryan Anderson (Licensing Assistant) 01908 853398
PPC30(1)	Sec 1.2 Petrol Storage	Sainsbury Supermarkets Limited. Service Station 01784 456644	Sainsbury Supermarkets Ltd, The causeway, Staines, Middlesex, TW18 3AG	Sainsbury Supermarkets Limited, 33 Holborn, London, EC1N 2HT Ms Marjorie Manning-Dehaney (Petroleum Licensing Officer) 0207 6956720

Permit Number	Type of Activity	Operators Name and Site Contact	Permitted Address	Registered Address, Other Contact address and fee invoice address where appropriate
PPC33(1)	Sec 1.2 Petrol Storage	Sainsbury Supermarkets Limited. Service Station 01932 566503	1 The Sainsbury Centre Heriot Road Chertsey Surrey KT16 9AQ	Sainsbury Supermarkets Limited, 33 Holborn, London, EC1N 2HT Ms Marjorie Manning-Dehaney (Petroleum Licensing Officer) 0207 6956720
PPC36(1)	Sec 1.2 Petrol Storage	Tesco Filling Station. Service Station 01932 741407	Tesco Filling Station, 117 Station Road, Addlestone, Surrey, KT15 2AS	Tesco Stores Limited, Tesco House, Delamare Road, Cheshunt, Hertfordshire, EN8 9SL Mr Rory Hennessy (Fire & Petroleum Risk Manager) – 01707 634059
PPC37(1)	Sec 3.5 Mobile Crusher	Capital Demolition Limited. Mr Dennis Read 01932 346222	Capital Demolition Limited, Capital House, Woodham Park Road, Woodham, Addlestone, Surrey, KT15 3TG	Capital Demolition Limited, Capital House, Woodham Park Road, Woodham, Addlestone, Surrey, KT15 3TG
PPC38(2)	Sec 3.5 Mobile Crusher	Metro Demolition Limited. Mr Andy Woods 01372 721800	Metro Demolition Limited, Trumps Farm, Kitsmead Lane, Longcross, Chertsey, KT16 0EF	Metro Demolition Limited, Studio 3, Ryebrook Studios, Woodcote Side, Epsom, Surrey, KT18 7HD
PPC40(1)	Sec 7 Dry Cleaners	Zekmur Bros Limited. Mr Kusdil 01932 847411	Zeki Dry Cleaner & Laundry, 83 Station Road, Addlestone, surrey, KT15 2AR	Zeki Dry Cleaner & Laundry, 83 Station Road, Addlestone, surrey, KT15 2AR
PPC41(2)	Sec 6.4 Respraying Road Vehicles	Chertsey coachworks Ltd. Mr Martin Martindale 01932 569333	Chertsey coachworks Ltd. Crystal Haven House, Hanworth Lane Trading Estate, Chertsey, Surrey, KT16 9JX	Robert James Partnership, AC Court, High Street, Thames Ditton, KT7 0SR **Correspondence address:** Chertsey coachworks Ltd. Crystal Haven House, Hanworth Lane Trading Estate, Chertsey, Surrey, KT16 9JX

Permit Number	Type of Activity	Operators Name and Site Contact	Permitted Address	Registered Address, Other Contact address and fee invoice address where appropriate
PPC44	Sec 7 Dry Cleaning	Lampton Cleaners Ltd T/A Harringtons. Michael Corby 01784 433439	9 Station Approach Virginia Water Surrey GU25 4DW	Lampton Cleaners Ltd Trading as Harringtons 9 Station Approach, Virginia Water Surrey, GU25 4DW
PPC46	Sec 7	Saphire Dry	15 The Broadway	Saphire Dry Cleaners

	Dry Cleaning	Cleaners Mrs S Waters 01932 353735	New Haw Addlestone Surrey KT15 3EU	15 The Broadway New Haw, Addlestone Surrey, KT15 3EU
PPC47	Sec 7 Dry Cleaning	Softly Clean Dry Cleaners T/A Softly Clean Mr A Cachra 01932 851900	1 High Street Addlestone Surrey KT15 1TL	Softly Clean Dry Cleaners T/A Softly Clean 1 High Street, Addlestone Surrey, KT15 1TL
PPC48	Sec 7 Dry Cleaning	Tele-Dry Cleaning T/A Launderama Ms F Rouhani 01784 435541	71 High Street Egham Surrey TW20 9EY	Tele-Dry Cleaning T/A Launderama 71 High Street, Egham Surrey, TW20 9EY
PPC49(1)	Sec 7 Dry Cleaning	Mr Abdul Ghafoor T/A Riva Dry Cleaners Mr A Ghafoor 01932 560555	3 Burwood Parade Guildford Street Chertsey Surrey KT15 3JH	Mr Abdul Ghafoor T/A Riva Dry Cleaners 3 Burwood Parade, Guildford Street Chertsey, Surrey KT15 3JH
PPC50	Sec 7 Dry Cleaning	Egham Dry Cleaners Mr B Tamraz 01784 477300	44 High Street Egham Surrey TW20 9DP	Egham Dry Cleaners Surrey & North Hampshire Area, Duke's Court, S Duke Street, Woking, Surrey, GU21 5XR Fee Address Egham.
PPC51	Sec 7 Dry Cleaning	Johnson Dry Cleaners Mr Darryl Neville 02073521763 07949050662	Sainsbury's The Causeway, Staines, TW18 3AP	Johnson Cleaners (UK) Ltd, Lydia House, Puma Court, Kings Business Park, Kings Drive, Prescot, L34 1PJ **Fee address** Johnson Cleaners (UK) Ltd, 406-408 Kings Road, Chelsea, London, SW10 0LJ
PPC52	Sec 7 Dry Cleaning	Direct Dry Cleaning Mr Paul MaGill 01737 361666 07947 780807	Direct Dry Cleaning, Unit 2 Fordwater, Trading Estate, Ford Road, Chertsey, Surrey, KT16 8HG	Direct Dry Cleaning, 54 High Street, Banstead, Surrey,SM7 2LX **Fee address** 8 Bridge Gardens, Ashford, Middex, TW15 1UR

Part A2 Activities

None

Part A1 Activities – Permitted and Regulated by the Environment Agency

Permit Number	Type of Activity	Operators Name	Permitted Address	Registered Address
AP3039SD	Sec 5.1 A(1)(a) And 5.1 A(1)(d) Incineration	The Veterinary Laboratories Agency.	The Weybridge Incineration Plant, Veterinary Laboratories Agency, Woodham Lane, New Haw, Addlestone, KT15 3NB	The Veterinary Laboratories Agency, Woodham Lane, New Haw, Addlestone, KT15 3NB
WP3635SJ	Sec 5.2A(1)(b) Disposal of waste in landfil	Cemex UK Materials Limited.	Cemex UK Materials Limited, Addlestone Quarry,	Cemex UK Materials Limited, Cemex House, Coldharbour Lane, Thorpe, Egham, Surrey, TW20

			Byfleet Road, Addlestone, Weybridge, Surrey, KT15 3LA	8TD
CP3334LF	Sec 5.2A(1)(b) Disposal of waste in landfil	Cemex UK Materials Limited	Cemex UK Materials Limited, Norlands Lane, Thorpe, Egham, Surrey, TW20 8SS	Cemex UK Materials Limited, Cemex House, Coldharbour Lane, Thorpe, Egham, Surrey, TW20 8TD
Permit application No. EP3635GV (EAEPREP3635GVA001) **Note: This is still at the application stage (as of January 2009)**	Sec 5.1 (c) Incineration of waste & generation of electricity	Surrey Waste Management, Vine Court, Chalkpit Lane, Dorking, Surrey, RH4 1AJ	Land adjacent to Trumps Farm, Kitsmead Lane, Longcross, Surrey, KT16 0EF	Surrey Waste Management, Vine Court, Chalkpit Lane, Dorking, Surrey, RH4 1AJ
EPR/DP3090SF	Sec 5.3 Disposal of waste other than by incineration or landfill. (Sewage Sludge Treatment, less than 250,000tpa)	Thames Water Utilities Ltd, Chertsey Sewage Treatment Works	Thames Water Utilities Ltd, Chertsey Sewage Treatment Works, Lyne Lane, Lyne, Chertsey, KT16 0AR	Thames Water Utilities Ltd, Clearwater Court, Vastern Road, Reading, Berkshire, RG1 8DB

Updated 10th June 2009