

Chideock By-pass Working Group

Correlation of Nitrogen Dioxide to Particulates PM10 and PM2.5

This investigation and report is to determine the correlation between Nitrogen Dioxide(NO₂) with Particulates.

London was selected as it has the most areas where NO₂ exceeds 40ug/m³ and measures both PM10 and 2.5.

It is surprising the reduction in the latest data of NO₂ in London since 2017/18.London is acting!

The lack of sampling of Particulates was also noticeable.

This report has the following data attachments;

Appendix One- Particulate Analysis NO₂ 30-99

Appendix Two- Particulate Analysis NO₂ 54-99

Appendix Three- Traffic in Chideock V Pollution using DfT predictions on traffic change

Appendix Four- Chideock Pollutant Concentrations

Appendix Five- Chideock- Pollutant Results

The appendices One and Two show London Particulate analysis and Coefficients for large and smaller spectrum's.

Appendix Three shows the relationship between Nitrogen Dioxide Pollution and Traffic in Chideock from 2001 to 2040.

Appendix Four shows the Particulate analysis and Coefficients for both large and smaller spectrum's.

Appendix Five shows the results of Particulates in Chideock using the various Coefficients .

You can see from the **results- two,three , six and eight** that there is a close proximity between them.

The results giving both current and those predicted by the Traffic and pollution analysis using Department of Transport prediction for traffic increases.

We have selected results **Two and Three** as they provide for both current and 2030 predictions of NO₂, PM10 and PM2.5. They are based upon London data which is believed to be more reliable using State of the Art detection and reporting. Also a smaller spectrum closer to the higher data of Chideock. They also provide a larger number of results for particulates and unlike Chideock the particulate data is not based upon old data using modelling as opposed to Actual on site data.

Conclusion

Results from appendix Five -Results **Two** and **Three** show that **If nothing is done** by **2020/2021** it likely that not only will Chideock be the most polluted place in The United Kingdom for Nitrogen Dioxide but also that Chideock will have exceeded both the WHO and EU targets in **2030** for PM10 and PM2.5. Namely PM 10 **28.28 to 45.31** . Between **1.5 times** and **2.5 times**. WHO/EU target **20 UG/ M3**

PM 2.5 **12.79 to 20.50**. Between **1.25 times** and **2.0 times** .WHO/EU target **10 UG/ M3**

A Damning Conclusion if nothing is done.

This is not about Climate Change directly. This is about allowing Diesel Vehicles to replace Petrol to meet Climate Change targets for CO₂ with all the Authorities responsible doing nothing to reduce NO₂ for 13 years.

How Many People will die or have a reduced and poorer life because of inaction during the next ten years?

Author

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Appendix 1 - Particulate Analysis NO2 30 - 99

Notes:

Source data: London University (London Air), Dorset Council, WYG Environment

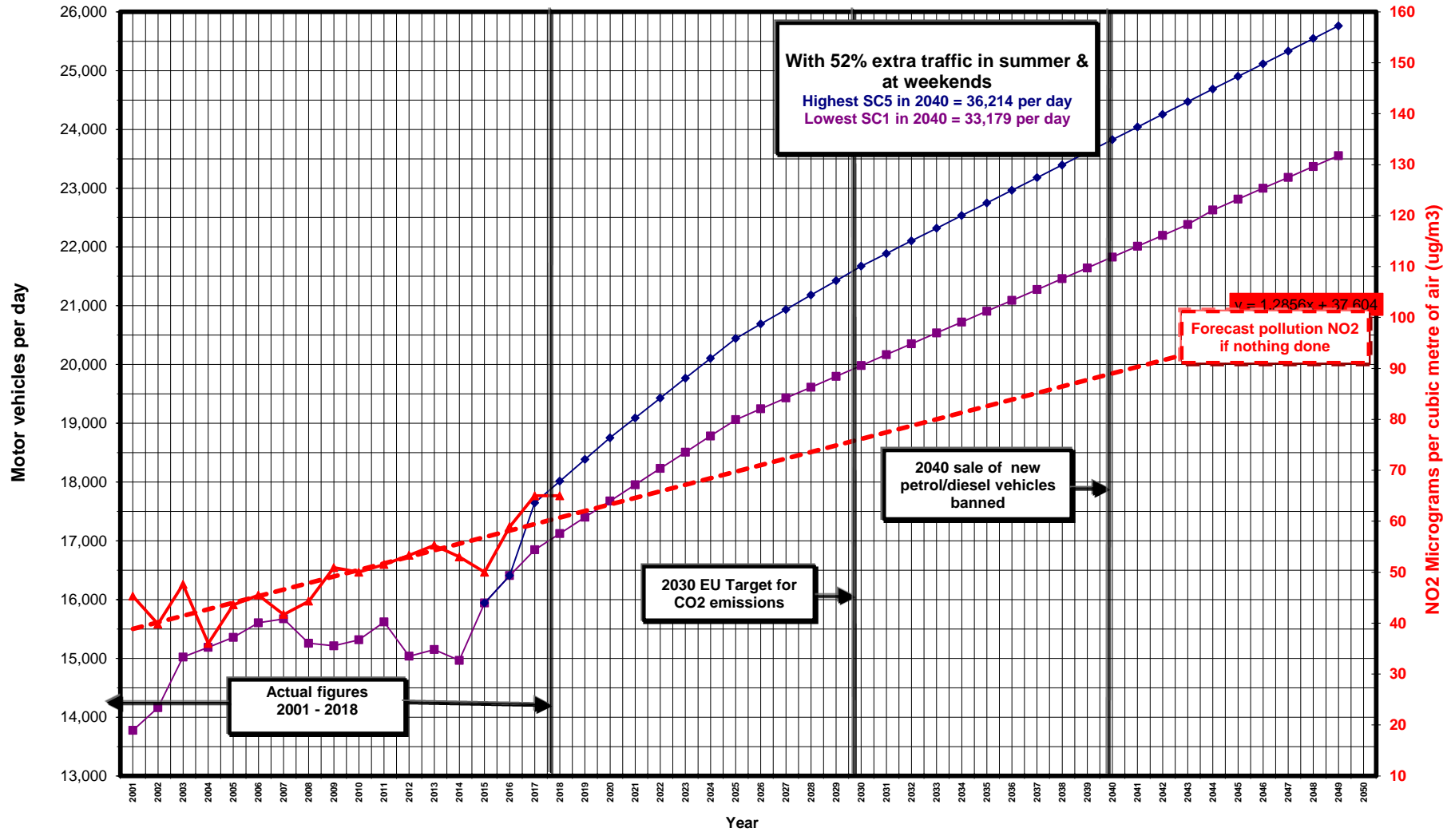
Data relates to London and Chideock

Pollution figures are mean annual figures given in micrograms per m3 Air

Data from 2017 / 2018

Location	Annual Mean NO2	PM10	PM2.5	Co-efficient PM10	Co-efficient PM2.5
Brent - Franklin Primary Academy	46.00	19	8	0.41	0.17
Brent - Ikea	71.00	32	12	0.45	0.17
Brent - John Keable Primary School	39.00	20		0.51	
Brent - Neasden Lane	39.00	28	22	0.72	0.56
Camden - Bloomsbury	36.00	17	10	0.47	0.28
Camden - Euston Road	86.00	21	15	0.24	0.17
Camden - Swiss Cottage	54.00	21	11	0.39	0.2
City of London - Beech Street	69.00	25		0.36	
City of London - Sir John Cass School	32.00	21	12	0.66	0.37
Croydon - Norbury	49.00		12		0.25
Croydon - Park Lane	41.00	21		0.51	
Ealing - Hanger Lane Gyatory	68.00	28		0.41	
Ealing - Western Avenue	53.00	28		0.53	
Enfield - Bowes Primary School	44.00	18		0.41	
Greenwich - A206 Burrigge Grove	35.00	18	13	0.51	0.37
Greenwich - Falcon Wood	39.00	21	13	0.54	0.33
Greenwich - Five Ways Sidcup Road A20	40.00	25		0.63	
Greenwich - Trafalgar Road (Hoskins Street)	43.00	22	9	0.51	0.21
Greenwich - Westhorne Avenue	38.00	18	11	0.47	0.29
Greenwich - Woolwich Flyover	57.00	25	12	0.44	0.21
Hackney - Old Street	50.00	22	10	0.44	0.2
Harrow - Pinner Road	39.00	19		0.49	
Havering Rainham	30.00	17	11	0.57	0.37
Havering Romford	38.00	20		0.53	
Islington Holloway Road	47.00	20		0.43	
Kingston upon Thames - Cromwell Road	55.00	30		0.55	
Kingston upon Thames - Kingston Vale	36.00	22		0.61	
Kingston upon Thames - Tolworth Broadway	44.00	23		0.52	
Lambeth - Bondway Interchange	54.00	34		0.63	
Lambeth - Brixton Road	99.00	30		0.30	
Lambeth - Streatham Green	34.00	20		0.59	
Lewisham - Loam Pit Vale	46.00	19		0.41	
Lewisham - New Cross	42.00	21	15	0.50	0.36
Redbridge - Gardener Close	37.00	18	15	0.49	0.41
Redbridge - Ley Street	31.00	18	12	0.58	0.39
Richmond upon Thames - Castlenau	31.00	17		0.55	
Richmond upon Thames - Chertsey Road (High Level)	34.00	21		0.62	
Southwark - A2 Old Kent Road	41.00	22		0.54	
Southwark - Elephant & Castle	32.00	20		0.63	
Sutton - Wallington	47.00	23		0.49	
Sutton - Worcester Park	52.00	20		0.39	
Thurrock - London Road Purfleet	52.00	27		0.52	
Tower Hamlets - Blackwall	51.00	24	13	0.47	0.25
Wandsworth - Battersea	34.00	25		0.74	
Wandsworth - Lavender Hill (Clapham Junction)	42.00	21		0.5	
Wandsworth - Putney	35.00	17		0.49	
Wandsworth - Putney High Street	68.00	25		0.37	
Wandsworth - Tooting High Street	53.00	23		0.43	
Westminster - Cavendish Square	57.00	26		0.46	
Westminster - Horseferry Road	31.00	17		0.55	
Westminster - Marylebone Road	85.00	24	16	0.29	0.19
Westminster - Oxford Street	63.00	27		0.43	
Westminster - Oxford Street East	68.00	26		0.38	
Windsor & Maidenhead - Frascati Way	36.00	23		0.64	
Average		22.43	12.60	0.50	0.29

Appendix 3 - Traffic in Chideock



Appendix 4 - Chideock Pollutant Concentrations

Notes:

Source data: Dorset Council, WYG Environment

Data relates to Chideock

The data variance is +/- 25% for WYG data and +/- 20% for Dorset Council data

The original WYG Environment data has been changed to actual NO2 as opposed to reducing the data by background pollution of 6.11

* These have been discarded as they are not at or near the kerbside

** These have been selected as they are closest to the current data (2018)

Ref	Location	2009 Annual Average (ugs/m3)					
		NOX	NO2	PM10	PM2.5	Co-efficient PM10	Co-efficient PM2.5
724**	Duck St	130.7	50.9	18.8	13.0	0.37	0.26
725	George Pub	72.4	33.6	16.4	10.8	0.49	0.32
726**	Village Hall	86.3	47.5	20.7	13.8	0.44	0.29
715*	Chervil Cottage	43.0	22.5	14.7	9.5	0.65	0.42
735*	Post Office	33.7	18.5	15.0	9.7	0.81	0.52
736*	Post Office	33.7	18.5	15.0	9.7	0.81	0.52
737*	Post Office	33.7	18.5	15.0	9.7	0.81	0.52
REC1	Hope Cottage	33.7	20.0	16.1	11.3	0.81	0.56
REC2	St Giles Church	65.6	31.2	15.9	10.5	0.51	0.34
REC3	Humberts	72.0	33.4	16.1	10.7	0.48	0.32
REC4**	Whitcroft	71.3	50.0	23.9	15.7	0.48	0.31
REC5**	Clock Cottages	91.8	45.9	19.6	13.2	0.43	0.29
REC6**	Warren House	80.5	36.2	16.6	11.1	0.46	0.31
REC7	Bridge Cottage	42.3	22.2	15.4	10.0	0.69	0.45
REC8	Lilac Cottage	46.3	23.9	15.0	9.8	0.63	0.41
REC9	Linnet Cottage	79.2	35.8	16.8	11.2	0.47	0.31
REC10	Park Farmhouse	58.4	28.6	15.4	10.1	0.54	0.35
REC11	1 Park Farmhouse	70.6	32.9	16.0	10.5	0.49	0.32
REC12*	Bilberry Close	45.5	23.5	14.9	9.6	0.63	0.41
REC13	Rose Cottage	56.1	27.7	16.0	10.8	0.58	0.39

Appendix 4 - Chideock Pollutant Concentrations

Notes:

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** These have been selected as they are closest to the current data (2018)

Ref	Location	2009 Annual Average (ugs/m3)					
REC14*	Duckling Cottage	28.6	16.3	14.0	8.9	0.86	0.55
REC15*	Mill Lane Cottage	22.5	13.4	13.7	8.7	1.02	0.65

Average PM10 co-efficient of 15 results (* locations have been excluded) Total 7.87 average 0.52

Average PM2.5 co-efficient of 15 results (* locations have been excluded) Total 4.91 average 0.33

** Locations have been averaged separately as their locations are closest to 2018

Average of PM10 of five coefficients of receptors total 2.18 average 0.44

Average of PM2.5 of five coefficients of receptors total 1.46 average 0.29

