

Mid Devon District Council

**Crediton Air Quality Management Area
Air Quality Action Plan
June 2006**

Local Air Quality Management
Environment Act 1995

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EXECUTIVE SUMMARY

Mid Devon District Council's Environmental Health Services has produced this Action Plan and undertaken a Further Assessment of air quality in Crediton as part of its duty under the Environment Act 1995. The Action Plan was approved by Mid Devon District Council Community Services Committee in July 2006 (subject to Defra Appraisal).

Part IV of the Environment Act 1995 requires local authorities 'from time to time' to review and assess the current, and likely future, air quality in their areas against those objectives in the National Air Quality Strategy. Where objectives are not likely to be met then the local authority is required to designate an Air Quality Management Area (AQMA) at the relevant locations. The local authority must then draw up an action plan setting out the measures it intends to take in pursuit of the air quality objectives within the area covered by the AQMA.

The report follows on from the Detailed Assessment of Nitrogen Dioxide (NO₂) and Particulate Matter (PM₁₀) in Crediton completed in 2004, which led to the designation of the Crediton Air Quality Management Area (AQMA). This includes further monitoring and modelling of roadside air quality in Exeter Road and the High Street within the town which has indicated that NO₂ and PM₁₀ concentrations will not decline to acceptable levels sufficiently quickly unless intervention action is taken. An Action Plan has therefore been drawn up outlining the various options and further investigations available to tackle the pollution levels, particularly those directly linked to road traffic emissions. The effects of the options have been examined in detail, with the most effective, practical package of measures chosen for implementation in Exeter Road and the High Street.

An in-depth examination of this package takes place with this document, concluding that the Action Plan, if successfully implemented, will result in a reduction in NO₂ and PM₁₀ concentrations sufficient to meet the current Government Air Quality Objectives. The Council is committed to continuing its air quality-monitoring programme in Crediton to confirm the expected reductions in concentrations as measures are implemented. The ultimate aim is revoke the Air Quality Management Area (AQMA). The package includes measures that are short, medium and long-term. Long-term measures designed for Exeter Road could take five or more years to realise and as such a total revocation of the AQMA may not be possible until around 2012. Short-term and medium-term measures covering both Exeter Road and the High Street are expected however to bring improvements in air quality sooner.

The Action Plan is subject to on-going review and will be updated annually by means of an AQMA Action Plan Progress Report.

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1. INTRODUCTION

1.1 Background

Mid Devon District Council (MDDC) has a statutory responsibility under Section 84(2) of the Environment Act 1995 to produce an Air Quality Action Plan following the designation of an Air Quality Management Area (AQMA). This must outline steps or measures to be taken to improve air quality in the AQMA that was designated in September 2004 and came into effect in November 2004¹. In accordance with the Act, the chosen measures seek to improve air quality in pursuit of the Air Quality Objectives.

1.2 The Crediton Air Quality Management Area

Mid Devon District Council completed the first step towards the designation of the AQMA in 2003 with the outcomes of an air quality screening assessment published in the following report:

- Updating and Screening Assessment (USA) report, Mid Devon District Council (May 2003)

The USA report concluded that it was necessary to proceed with a Detailed Assessment as follows:

- For Nitrogen Dioxide at Exeter Road, Crediton
- For Nitrogen Dioxide at High Street, Crediton

Both of the above locations were identified as having predicted Nitrogen Dioxide concentrations greater than the statutory air quality objective in 2005 (annual mean concentration of 40 µg/m³ to be achieved by the 31 December 2005). The most important source of Nitrogen Dioxide at these locations is likely to be road traffic emissions and concentrations are likely to be adversely affected by the street canyon nature of the roads. The USA report also concluded that there was a risk of exceeding current and provisional objectives for particulate matter (PM₁₀) although lack of real-time monitoring data for this pollutant meant that accurate comparison with air quality objectives was not possible at that time.

A Detailed Assessment was commenced in April 2003 for Nitrogen Dioxide and PM₁₀ at Exeter Road and for Nitrogen Dioxide at the High Street, Crediton. This assessment was completed in April 2004² and concluded the following:

- Current and forward-predicted exceedences of the relevant air quality objectives for Nitrogen Dioxide (NO₂) were identified at the High Street and for both NO₂ and Particles (PM₁₀) at Exeter Road.
- Relevant air quality objectives are as set out in the Air Quality Regulations (England) (Wales) 2000 and in the Air Quality (England) (Wales) (Amendment) Regulations 2002 which are made under the Environment Act 1995, as well as provisional objectives not currently set in the Regulations.

¹The Crediton Air Quality Management Area Order 2004, Mid Devon District Council (20 September 2004)

²Detailed Assessment Report Crediton Air Quality Mid Devon District Council (April 2004)

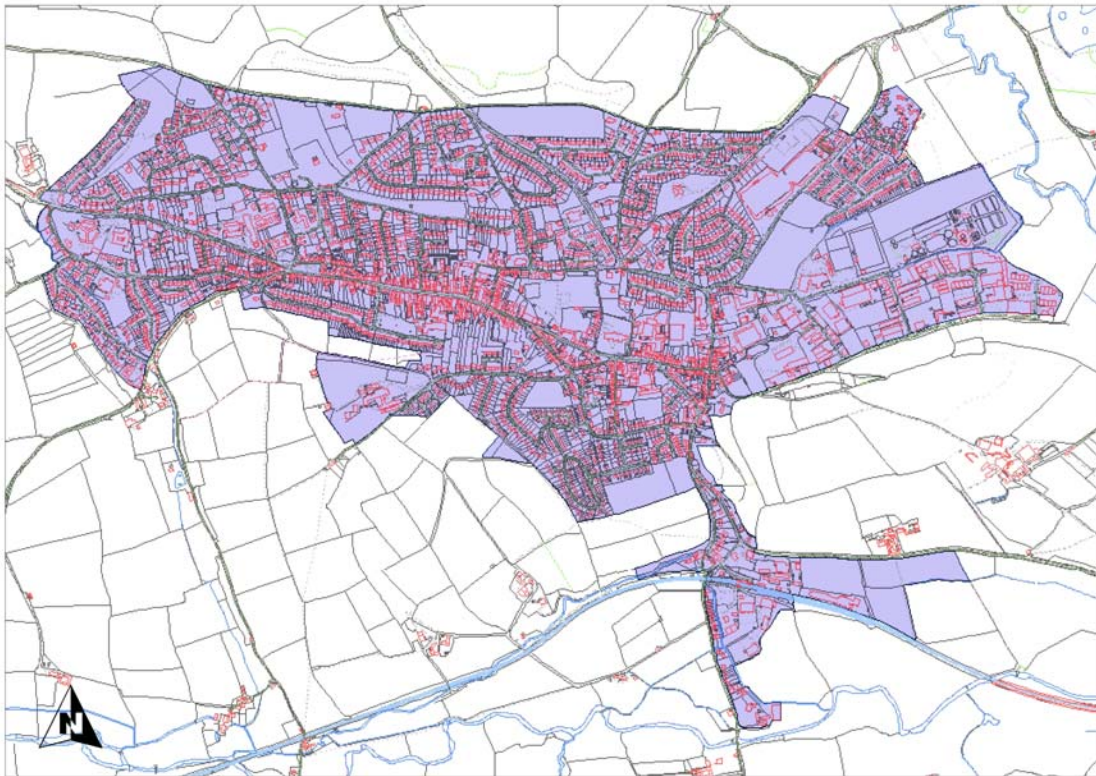
- The spatial extent of air quality objectives can be defined with reasonable certainty and includes areas of relevant public exposure i.e. shopping areas (High Street) and residential properties (Exeter Road and High Street)

As a result of the Detailed Assessment recommended that an Air Quality Management Area (AQMA) is required for Nitrogen Dioxide and Particles in Exeter Road and Nitrogen Dioxide in the High Street in Crediton. This recommendation was made in accordance with section 83(1) of the Environment Act 1995.

The subsequent statutory review, completed by Air Quality Consultants on behalf of Defra, accepted the findings of the second round of review and assessment and concurred with the USA and Detailed Assessment conclusions.

The designation of the AQMA was preceded by a wide consultation on options for the AQMA boundary. This resulted in the designation of a wide boundary as shown below.

Crediton Air Quality Management Area (AQMA)



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The Crediton AQMA boundary has the following features:

- Does not discriminate – includes the whole town
- Represents the widest boundary for action planning purposes – ensures attention to the issue of air quality is given a wide emphasis

- A relatively simple, existing boundary that avoids artificially precise lines within the town – potentially the easiest to communicate and administer
- Allows for a wide uncertainty in the full extent of areas affected by elevated pollution levels
- Mirrors the settlement boundary used for forward planning purposes and includes some sites allocated for new residential and commercial development which may impact upon the AQMA in future years

Both Exeter Road the High Street form part of the A377 Exeter to Barnstaple route. This is a national primary route. The Annual Average Daily Traffic flow (AADT) and average weekday 16hour traffic flows at these locations now exceeds 14000 vehicles including up to 9% Heavy Duty Vehicles (HDVs)¹.

Poor quality is occurring at street canyon locations (where the height of the buildings typically exceeds the width of the road) also associated with poor traffic flow (congestion) and residential properties often close to the kerbside. Exeter Road is also on an incline that rises from the outskirts of the town to the town centre at the High Street. Photographs of these locations are given in Appendix 5.

A summary of the air quality with the AQMA is given in Tables 1, 2 and 3 below. The air quality monitoring locations are shown in Appendix 5.

Table 1: Crediton AQMA Exeter Road annual mean continuous PM₁₀ monitoring results 2003-2005 (ratified data µg m³)

Id	Location	Ratified Annual Mean µg m ³ (year)	Number of 24-hour means >50 µg m ³ (year)	Predicted Annual Mean 2010 µg m ³ ** (number of 24-hour mean exceedences***)	% change ratified annual mean 2003-2005
MS2	Crediton (Exeter Road)	40.75 (2003)* 39.57 (2004) 36.49 (2005)	60 (2003)* 80 (2004) 66 (2005)	- 36.90 (60) 36.75 (59)	-10.5%

Figures in red exceed the statutory 2004 annual mean Air Quality Objective of 40 (µg m³) or the 24-hour mean objective of 50 (µg m³) with >35 exceedences.

Figures in blue exceed the provisional 2010 annual mean UK objective of 20 (µg m³) or the provisional 24-hour mean objective with >7 exceedences..

* April –December only

**Calculated using the Year Adjustment Calculator version 2.2a which replaces Box 8.7 in LAQM.TG(03) available from http://www.airquality.co.uk/archive/laqm/tools/Year_Adjustment_Calculator22a.xls

***Calculated using formula $y = -18.5 + (0.00145 \times \text{annual mean}^3) + (206 / \text{annual mean})$ from Fig8.1 in LAQM.TG(03) where y=predicted number of 24-hour exceedences >50µg m³. Results rounded to 0 decimal places.

Table 1 shows that in Exeter Road the annual mean objective for PM₁₀ was exceeded in 2003 and remained significantly close in 2004 and 2005. Significant exceedences of the 24-hour objective were recorded in all years. For the most recent year of monitoring (2005) the 24-hour objective was exceeded on 31 more days than the permitted 35 days (66 days in total). This means that currently a 53% reduction in the number of days exceeding 50µg m³ is required to meet the 2004 objective within the AQMA.

¹Crediton Pollution Monitoring Study Devon County Council (January 2005)

Table 2: Crediton AQMA Exeter Road annual mean continuous Nitrogen Dioxide (NO₂) monitoring results 2003-2005 (ratified data µg m³)

Id	Location	Ratified Annual Mean µg m³ (year)	Number of 1-hour means >200 µg m³ (year)	Predicted Annual Mean 2010 µg m³** (year of source annual mean)	% change ratified annual mean 2003-2005
MS2	Crediton (Exeter Road)	59.71 (2003)* 53.84 (2004) 54.92 (2005)	51 (2003) 2 (2004) 2 (2005)	47.18 (2003) 44.00 (2004) 46.20 (2005)	-8.7%
<p>Figures in red exceed the statutory 2005 annual mean Air Quality Objective of 40 (µg m³).</p> <p>Figures in blue exceed the non-statutory 2010 annual mean EU Daughter Directive objective of 40 (µg m³).</p>					

* April –December only

**Calculated using the Year Adjustment Calculator version 2.2a which replaces Box 6.6 in LAQM.TG(03) available from http://www.airquality.co.uk/archive/laqm/tools/Year_Adjustment_Calculator22a.xls

Table 3: Long-term Crediton AQMA Nitrogen Dioxide diffusion tube monitoring sites annual mean results 1999-2005 (ratified data µg m³)

Id	Location	Bias-adjusted Annual Mean* µg m³ (year)	Predicted Annual Mean 2010** µg m³ (year of annual mean source data)	% change bias adjusted annual mean 1999-2005 or 2003-2005
10	Crediton (Exeter Road – top)	50.48 (2003) 44.73 (2004) 46.94 (2005)	36.89 (2003) 36.55 (2004) 39.48 (2005)	-7.5%
11	Crediton (Exeter Road – middle)	44.57 (1999) 54.09 (2000) 51.89 (2001) 51.18 (2002) 51.67 (2003) 46.86 (2004) 47.27 (2005)	29.94 (1999) 38.14 (2000) 38.15 (2001) 39.14 (2002) 40.83 (2003) 38.29 (2004) 39.76 (2005)	+5.7%
12	Crediton (Exeter Road – bottom)	51.86 (2003) 48.14 (2004) 50.81 (2005)	40.98 (2003) 39.34 (2004) 42.74 (2005)	-2.1%
13-15	Crediton (Exeter Road – average result of triplicate tubes at monitoring station)	58.88 (2003) 52.69 (2004) 56.91 (2005)	46.52 (2003) 43.06 (2004) 47.87 (2005)	-3.5%
16	Crediton (High Street – HSBC)	53.98 (2003) 45.00 (2004) 44.90 (2005)	42.65 (2003) 36.77 (2004) 37.77 (2005)	-20.2%
17	Crediton (High Street – middle)	44.29 (1999) 44.18 (2000) 48.23 (2001) 41.70 (2002) 45.58 (2003) 37.56 (2004) 42.82 (2005)	29.75 (1999) 31.15 (2000) 35.46 (2001) 31.89 (2002) 36.01 (2003) 30.69 (2004) 36.02 (2005)	-3.4%

18	Crediton (High Street – Duke of York)	52.26 (2003) 49.36 (2004) 47.31 (2005)	41.29 (2003) 40.34 (2004) 39.79 (2005)	-10.5%
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Figures in red exceed the statutory 2005 annual mean Air Quality Objective of 40 ($\mu\text{g m}^3$).

Figures in blue exceed the non-statutory 2010 annual mean EU Daughter Directive objective of 40 ($\mu\text{g m}^3$).

*Prior to 2003, a default bias adjustment factor of 1.39 has been applied based upon the AQC report of November 2002¹. From 2003 a local Mid Devon adjustment factor has applied based upon results from the triplicate diffusion tubes co-located with the continuous monitoring station (more details are given Appendix 1)

**Calculated using the Year Adjustment Calculator version 2.2a which replaces Box 6.6 in LAQM.TG(03) available from http://www.airquality.co.uk/archive/laqm/tools/Year_Adjustment_Calculator22a.xls

Monitoring at for NO₂ at Exeter Road and the High Street indicates that current and predicted Nitrogen Dioxide concentrations remain above the UK annual mean objective of 40 $\mu\text{g m}^3$ at all monitoring locations. The hourly objective of 200 $\mu\text{g m}^3$ (18 permitted exceedences a year) is already being met.

For the majority of the NO₂ monitoring locations, concentrations for 2005 were higher than 2004 and therefore no clear downward trend can be observed. This is despite the fact that all monitoring locations within the AQMA excluding mid-Exeter Road (Site 11) show lower results in 2005 than for the first year of monitoring (either 1999 or 2003).

The maximum exceedence of the 2005 NO₂ annual mean objective was recorded at the Mid-Exeter Road monitoring location using the triplicate diffusion tubes sited on the continuous monitoring station. The 2005 mean at this location was 56.91 $\mu\text{g m}^3$. This means that currently a maximum 30% reduction in NO₂ concentrations is required to meet the 2005 objective within the AQMA. The minimum exceedence of the 2005 NO₂ annual mean objective was recorded at the HSBC diffusion tube monitoring location in the High Street. The 2005 mean at this location was 44.90 $\mu\text{g m}^3$. This means that currently a minimum 11% reduction in NO₂ concentrations is required to meet the 2005 objective within the AQMA.

1.3 Consensus approach to Action Plan development

In the production of this report MDDC has taken a consensus approach. To ensure that an action plan is effective, the effects of any actions need to be considered and weighed against the likely benefits for air quality. To this end, the Council sought to gain the consensus of as many people and stakeholders as possible in developing the plan. Central to this process was the Crediton Air Quality Steering Group that was established at the very start of the action planning process. The membership and remit of the Steering Group was agreed at a stakeholder workshop held in Crediton in November 2004 and the Group met for the first time in January 2005. The Group has held regular meetings since in to guide the Action Plan development process and to ensure that there has been a wide engagement from all interested parties.

Details of the full membership and remit of the Steering Group is given in Appendix 4.

A timeline of the stakeholder and public consultation carried out during the development of the Action Plan is given in Table 4 below.

Table 4: Consultation Timeline and Outcomes

Milestone Date	Description	Outcomes
July 2004	Public meeting held in Crediton. Attended by local residents and media. Presentations and Q&A by MDDC and Mid Devon PCT.	Awareness raising and public information goals achieved. Public distribution of AQMA boundary consultation document.
November 2004	Stakeholder workshop facilitated by Beth Conlan (AEAT). Held in Crediton. Attendees from MDDC, DCC, Mid Devon PCT, Crediton Town Council, MDDC and DCC Councillors, Environment Agency, Local Residents.	Explanation of AQMA and Action Plan development process. Initial lists of potential Action Plan measures. Agreement on format, scope and membership of Crediton Air Quality Steering Group.
March 2005	Public consultation document released, sent to MDDC Citizens Panel in EX17 postcode area, available alongside AQMA information displays in key public locations in Crediton and sent direct to local business, interested parties and stakeholders. Web published document.	Action Plan potential measures ideas gathering exercise. 180 response forms returned with over 1300 ideas suggested. Local media interest and reporting.
August – September 2005	Further meetings with key stakeholder to refine potential Action Plan measures. Includes officer meetings with DCC Highways and the Mid Devon Primary Care Trust.	Further refinement of potential Action Plan measures. Identification of new measures.
October- November 2005	Further individual meetings with key stakeholders aimed principally at further developing highways, public transport and industrial emissions Action Plan measures.	Further development and clarification of specific action plan measures including a traffic-management scheme in the High Street and a link road into Lords Meadow Industrial Estate and a measure to improve emissions from the Milk Link boiler plant
November 2005	Combined Stakeholder Group Workshop attended by local residents and representatives of QECC, Chamber of Commerce and Lords Meadow Business Forum.	Consultation views obtained on specific proposals included within the workshop (highways measures and school transport). Additional ideas put forward on specific small-scale new measures.
January 2006	Action Plan development progress report to MDDC Community Services Committee.	Report noted. Views gained on proposed major consultation on draft Action Plan measures. Scope of consultation agreed. Members kept informed.
February 2006	Key consultation issued to all Crediton residents, EX17 postcode area of Citizens Panel, Local Businesses, Crediton Town Council, Chamber of Commerce, Lords Meadow Business Forum, Local Stakeholder Groups and MDDC services. Purpose of consultation to gain views and feedback on 14 key proposed Action Plan measures. Document also web published.	Over 1000 responses received. Heightened public awareness, successful consultation with high quality data obtained. Local media interest and reporting. Outcomes document web published.
April 2006	Focus Group meeting attended by Crediton Town Council, Crediton Mayor, Chamber of Commerce and Devon County Council to look at consultation outcomes and revisions regarding High Street traffic management proposals	Revised traffic management proposals to accommodate consultation outcomes where possible

2. FURTHER ASSESSMENT

A Further Assessment is a formal part of the Local Air Quality Management (LAQM) process following the designation of an AQMA. A Further Assessment¹ has been completed for the Crediton AQMA by consultants on behalf of MDDC. The purpose of the assessment was as follows:

- To clarify the likely boundaries of areas where the air quality objectives are exceeded
- Provide source apportionment information to identify which emissions sources contribute most in the areas of exceedence
- To conduct testing of possible action planning scenarios and assess the likely impact they may have on pollutant concentrations

The Further Assessment is a technical appendix of the Action Plan and can be found in Appendix 1.

The assessment was carried out for both Nitrogen Dioxide (NO₂) and PM₁₀ using dispersion modelling (ADMS-3 and Netcen Local Area Dispersion System, LADS). Key local traffic fleet composition and flow data was provided by a traffic survey conducted by Devon County Council². The modelling output was validated by assessment against local MDDC monitoring data in Crediton. Additional information on the background emissions sources within the AQMA was obtained from the web-based National Atmospheric Emissions Inventory 1kmx1km data at http://www.naei.org.uk/data_warehouse.php. Given the potential complexity of emissions sources for PM₁₀, additional characterisation information has been provided by laboratory analysis³ of a PM₁₀ sample collected on filters in the automatic monitoring station at Exeter Road.

A summary of the Further Assessment results is provided below.

Figures 1-4 show the pollutant contour maps for NO₂ and PM₁₀ in Exeter Road and the High Street respectively.

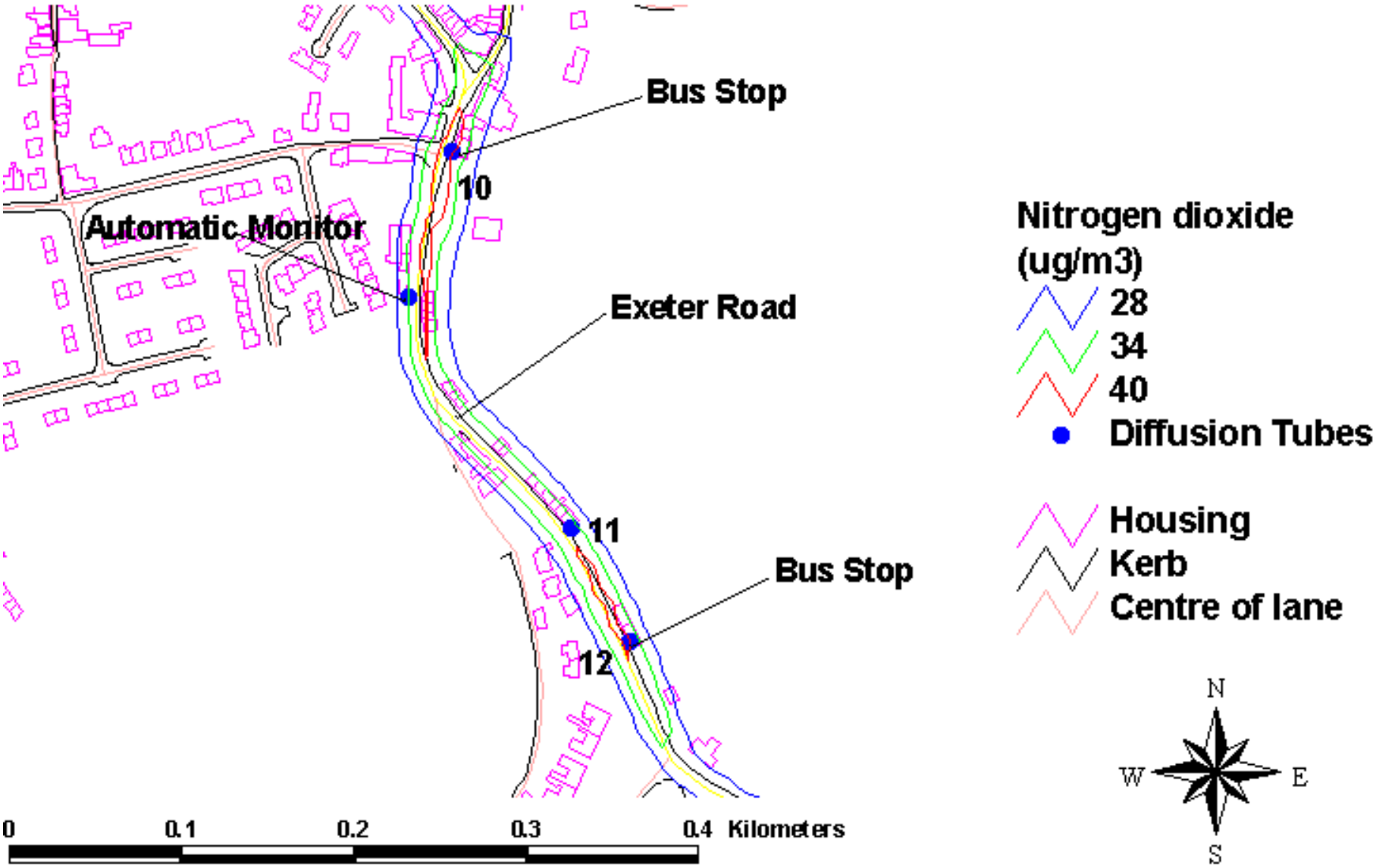
Figures 5-8 provide source apportionment information for NO₂ and PM₁₀ in Exeter Road and the High Street respectively.

¹Air Quality Review and Assessment – Further, A report for MDDC, netcen/ED49322001/Issue 3 (December 2005)

²Crediton Pollution Monitoring Study Devon County Council (January 2005)

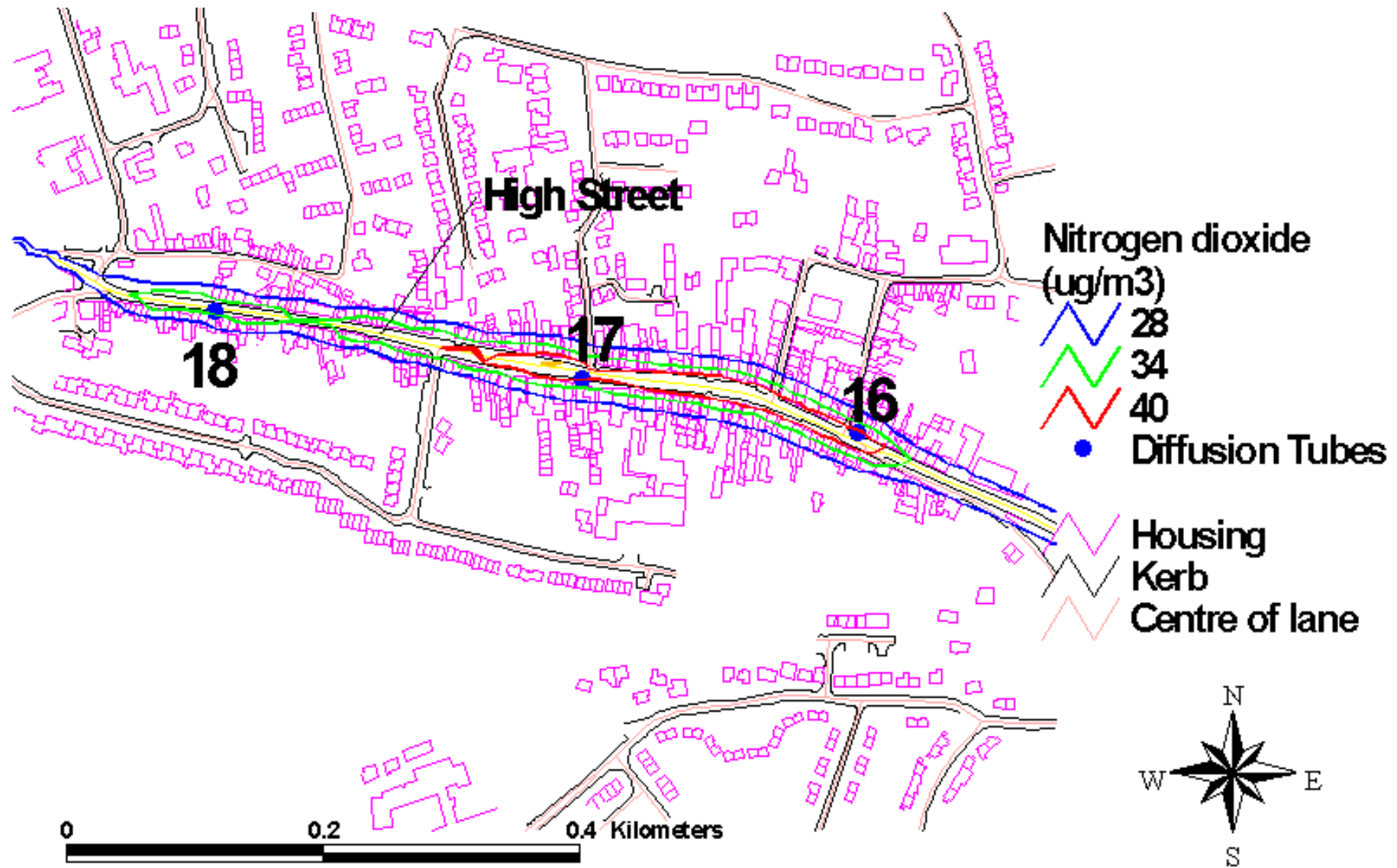
³A Report on Characterisation of a TEOM PM₁₀ Sample Collected from Exeter Road Crediton for MDDC, Advance Environmental (September 2005)

Figure 1: Predicted Nitrogen Dioxide Concentrations Exeter Road 2005



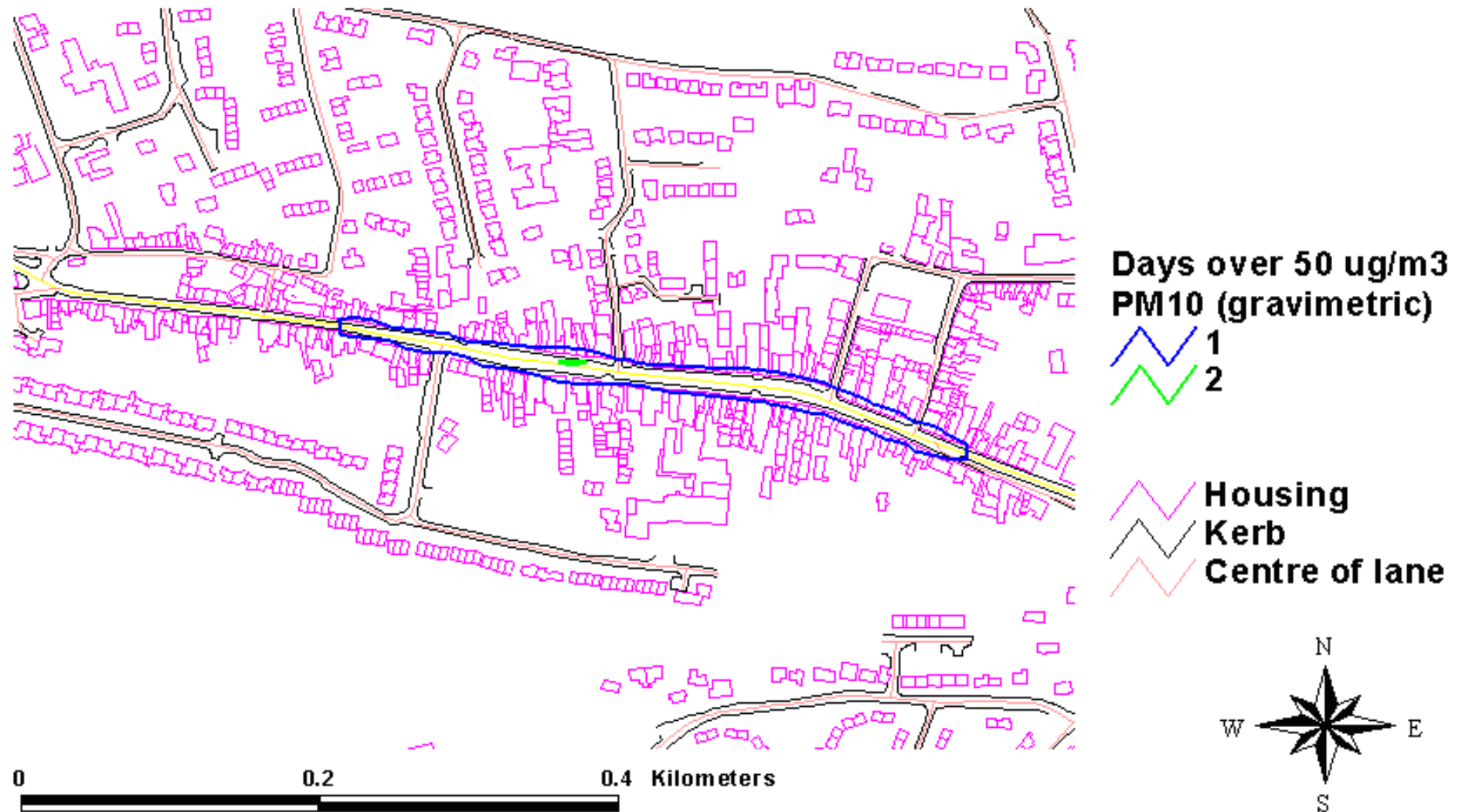
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Figure 2: Predicted Nitrogen Dioxide Concentrations High Street 2005



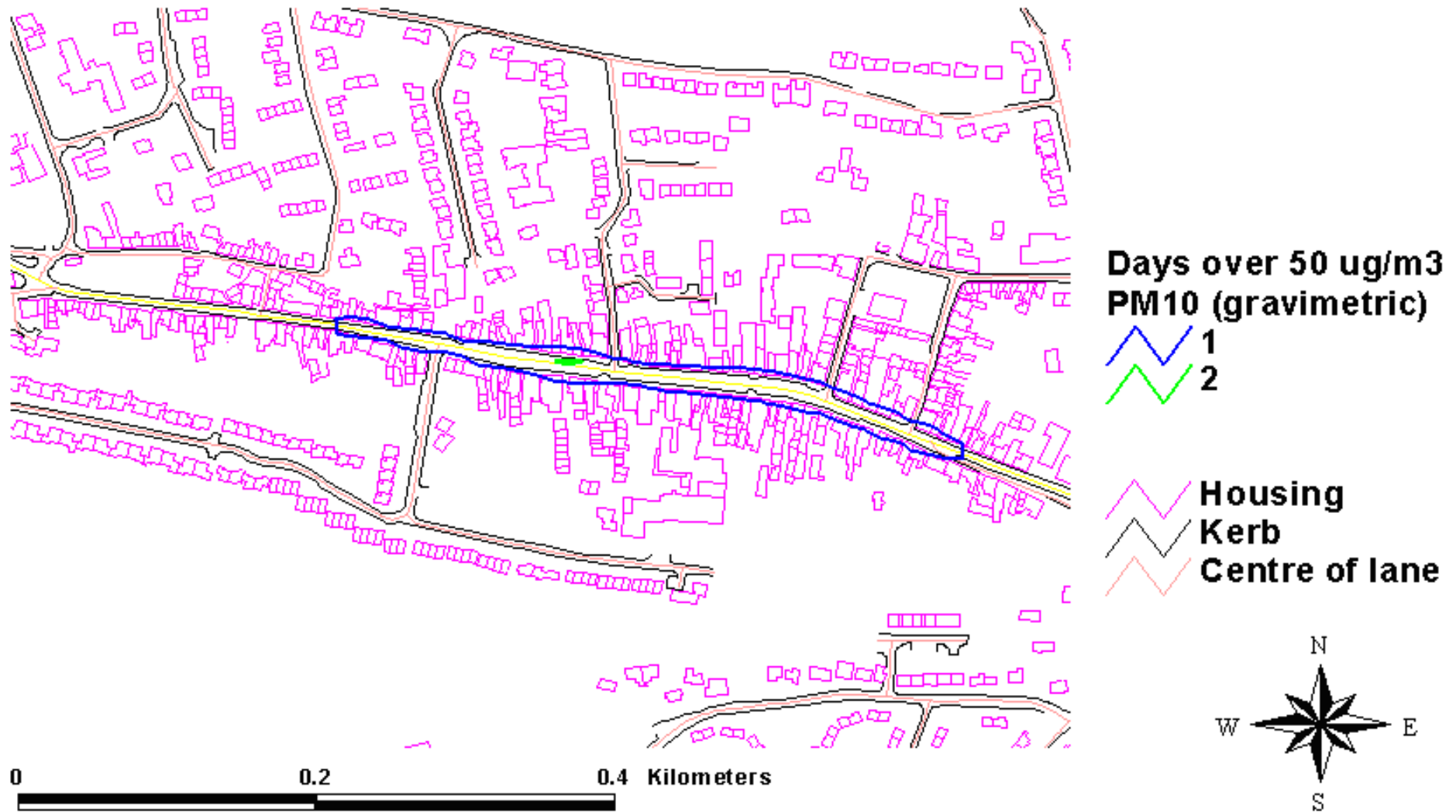
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Figure 3: Predicted number of days PM₁₀ over air quality objective (50 µg m³) Exeter Road 2004



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Figure 4: Predicted number of days PM₁₀ over air quality objective (50 µg m³) High Street 2004



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A comparison between the modelled results and the MDDC monitoring data showed relatively good agreement for Nitrogen Dioxide (NO_2) and poor agreement for PM_{10} . For NO_2 , the modelling report by AEAT recommended to allow for some modelling uncertainty and therefore adopt the $34\mu\text{g m}^3$ contour line (shown in green) as the probable spatial extent of air quality exceedences in both Exeter Road and the High Street. This contour line includes part or all of a large number of residential properties (full or part residential occupation).

For PM_{10} , the model failed to compare favourably with the local monitoring data and as a result the model output should be used only to show spatial variation in PM_{10} concentration (i.e. indicate locations which are likely to be higher than others) rather than possible concentration.

A number of possible explanations for modelling uncertainty/bias are given below:

- Difficulty in modelling street-canyon locations (includes both Exeter Road and the High Street) where stagnant air conditions may exist
- Difficulty in modelling local congestion which is variable and difficult to predict
- Difficulty in modelling up-hill gradients (Exeter Road)
- Greater uncertainty in PM_{10} emissions factors compared to NO_2
- Possible under-prediction of PM_{10} emissions resulting from road dust re-suspension

Given the uncertainty that the discrepancy between the PM_{10} modelled and monitored results causes AEAT recommended that PM_{10} should be included within the AQMA. Furthermore, given that dominant local emissions sources for both PM_{10} and NO_2 are road traffic, that exceedence areas for PM_{10} should coincide with and be a subset of those for NO_2 .

Figure 5: Predicted Sources of NO_2 in Exeter Road

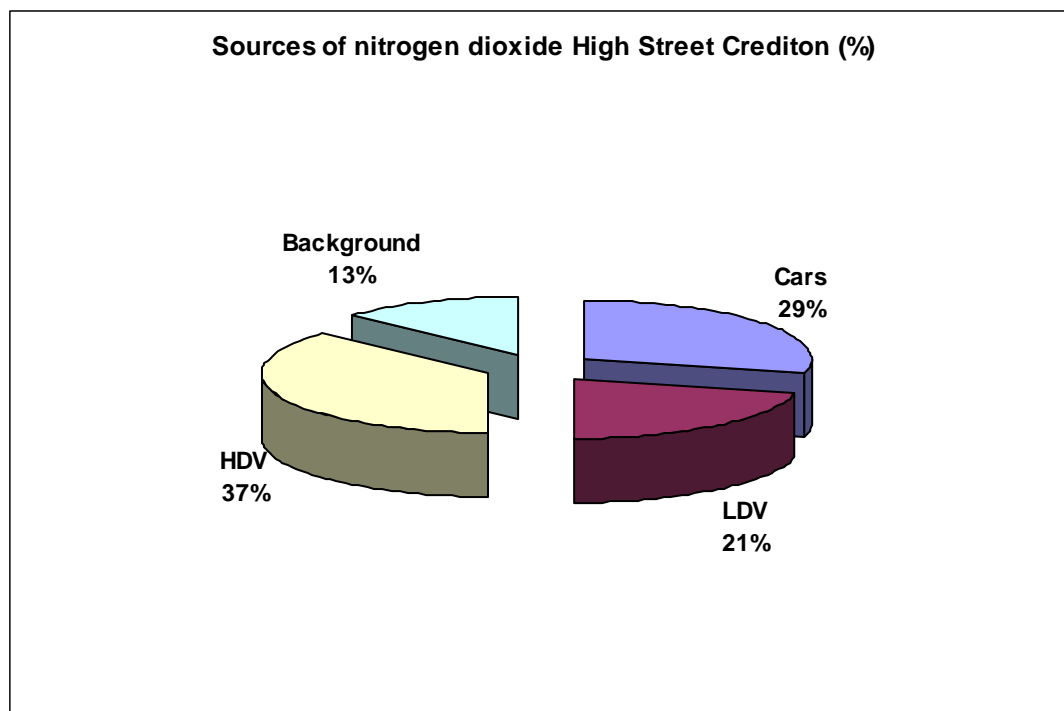


Figure 6: Predicted Sources of NO₂ in the High Street

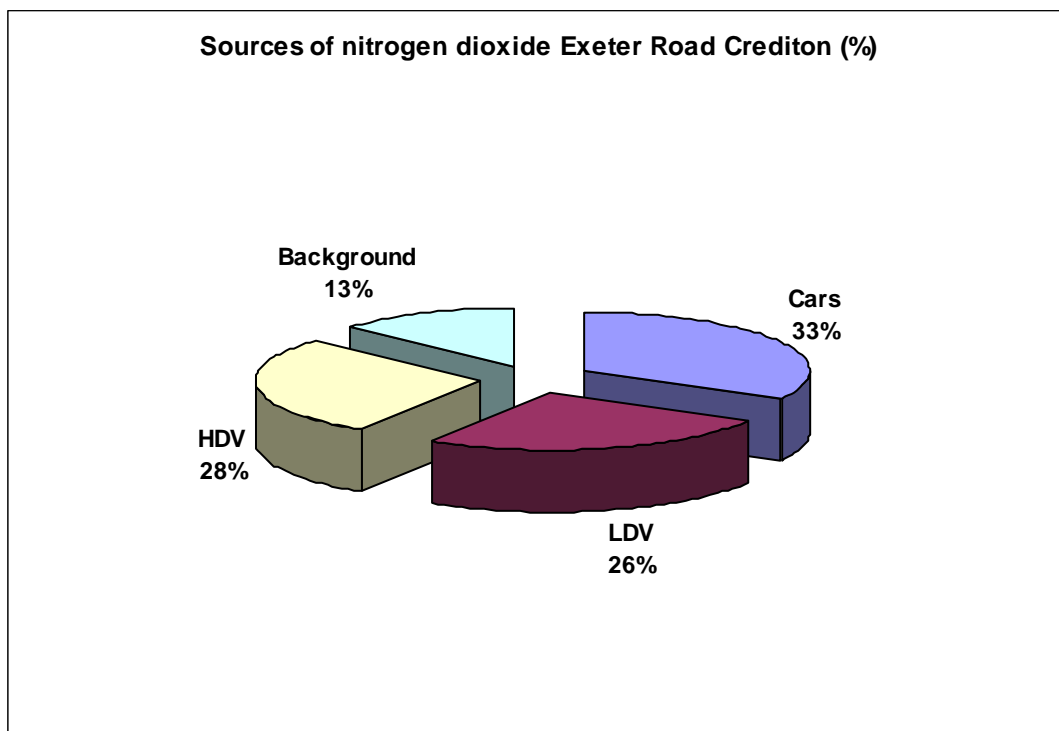
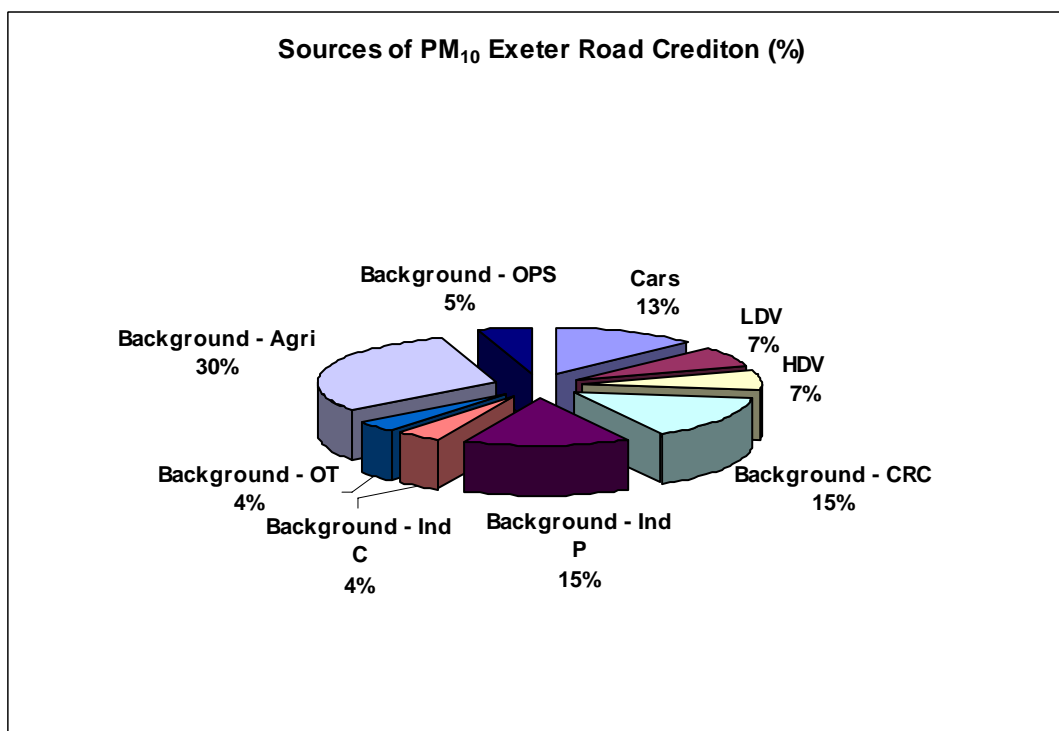
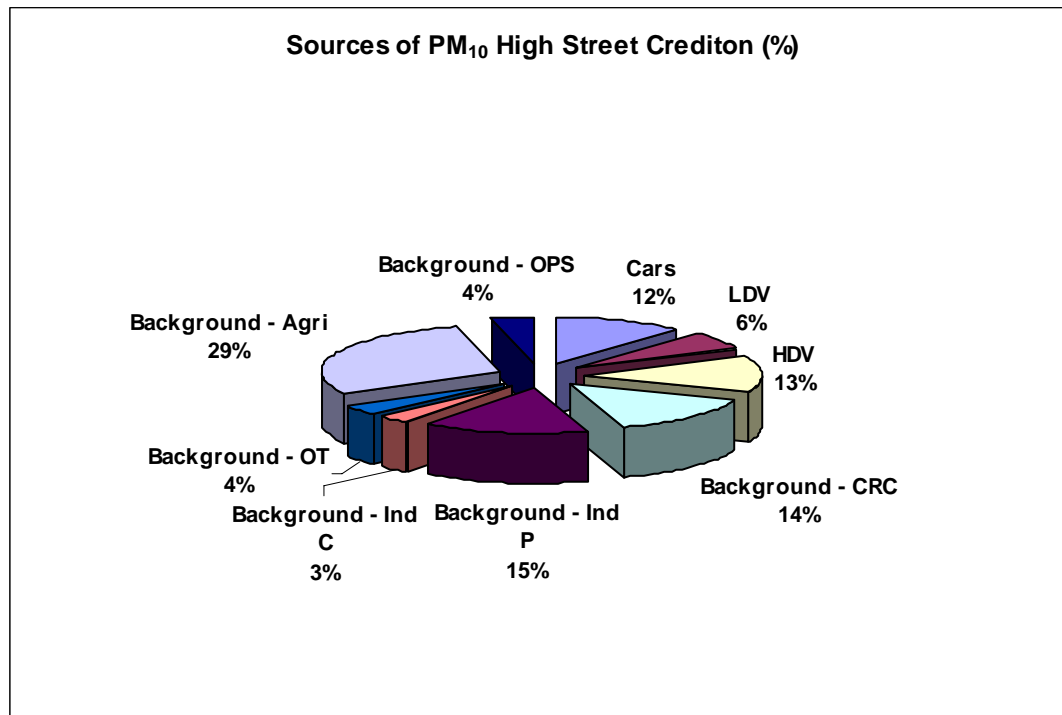


Figure 7: Predicted Sources of PM₁₀ in Exeter Road



Key: HDV (Heavy Duty Vehicle), LDV (Light Duty Vehicle), CRC (Commercial and Residential Combustion). Ind P (Industrial Processes), Ind C (Industrial Combustion), OT (Other Transport), Agri (Agricultural), OPS (Other Point Sources)

Figure 8: Predicted Sources of PM₁₀ in the High Street

The source apportionment for Nitrogen Dioxide indicates that road transport is by far the dominant emission source (87% in total for both Exeter Road and the High Street). Although HDVs are less than 10% of the traffic flow at these locations, they account for a disproportionate amount of the total concentrations (37% in Exeter Road and 28% in the High Street).

The source apportionment for PM₁₀ indicates the complex range of local emission sources and regional or sub-regional 'background' particles that are also be present. Of the local sources, again road transport dominates with up to 31% of the total (High Street). Further source apportionment information has been obtained from the results of a laboratory particle characterisation analysis as discussed above. In summary, the laboratory results indicate that a particle sample taken in Exeter Road in September 2005 was characterised as follows:

- A black coloured sample with a reported mean mass concentration for PM₁₀ of 39.3 µg m⁻³ for the 170-hour collection period between the 5th of September and 12th September.
- Aqueous soluble material accounted for 3.8 µg m⁻³ or 10% of the total sample mass. These salts were predominantly sodium chloride and mixed cation sulphate-base materials, typical of sea salt and secondary particulate matter. Unusually for a TEOM sample, it contained a trace of nitrate-based material.
- Analysis of the aqueous soluble component was undertaken using a Dionex ion chromatograph. Results from the anion analysis yielded an additional unidentified peak. This could represent an organic acid such as acetate, glycolate or formate. The most likely is acetate, which is a conjugate base of acetic acid. This is a common component of many products such as vinegar, wood pulp or plastics. In order to establish if this extra peak was not an artefact from the TEOM filter, an unused TEOM filter stub was also analysed. This generated a blank result, indicating the extraneous peak to be legitimate.

- The most dominant component of the insoluble fraction was a very heavy loading of soot. These combustion-based particles were present as massive coating of millions of 0.1 to 0.2µm carbonaceous particles. These were probably responsible for the black coloration of the sample.
- Characterisation of the resultant sample demonstrated soot was dominant. This combustion product may be related to either diesel emissions or smoke from other combustion sources such as bonfires, coal or wood fires. The presence of spherical flyash and larger angular carbonaceous suggests these to be potential sources. However, the roadside monitoring location would indicate vehicle emissions as the dominant source for the majority of the soot. The sample also included a substantial mineral component, especially soil-based materials. This was likely to have been derived from the re-suspension of road dusts.
- The presence of occasional angular iron-based particles within the sample may also be associated with the re-suspension of road dust or from corroded vehicle exhaust systems.
- The sample also included approximately 2µg m³ of sea salt and a similar value for secondary sulphate-based particles. These regionally significant particles were only responsible for a small component of the recorded PM₁₀.

The laboratory results confirm that PM₁₀ particles measured in Exeter Road are dominated by combustion products (soot) deriving from vehicle exhaust emissions. The analysis also indicates the potential for re-suspended road dusts to be an important component.

Overall, the Further Assessment has confirmed that spatial extent of elevated concentrations of Nitrogen Dioxide and PM₁₀ within the AQMA and that Action Plan measures should focus upon measures to reduce the impact of road vehicles.

3. ACTION PLAN MEASURES

This section provides an overview of the package of measures currently available to improve air quality within the Crediton Air Quality Management Area (AQMA). This package has been developed following the extensive stakeholder participation/consultation and Further Assessment process detailed in Section 1 and 2 of this report. Overall, the package represents the most cost-effective, practical and ultimately achievable approach to improving air quality in Crediton on the basis of current knowledge.

The responsibility for each specific measure is detailed and a number of external organisations will lead the specific measures. In addition to the implementation of specific measures, MDDC will oversee the implementation of the Action Plan in conjunction with the Crediton Air Quality Steering Group (whose remit will be refined to reflect this role). The Group will meet once ever 4-months and annually MDDC will produce an Action Plan Progress Report. The Action Plan package of measures may be updated in future years as measures are completed and/or where further feasibility studies are required.

Each measure has a timescale and estimated cost. Where possible, the potential air quality impact has been quantified or estimated. These factors combine to give a cost-benefit analysis score for each measure. The cost-benefit model adopted is straightforward and based upon that put forward in the Defra Addendum to the LAQM Policy Guidance published in 2005¹. Other impacts of specific measures have also been indicated where applicable.

The following key is applicable to Table 5 - Action Plan measures summary.

Key:

Cost:

££££/1=>£1million £££/2=£500K-1million ££/3=£100K-500K £/4=<100K

Air Quality Impact (shown as reduction in annual mean NO₂ or PM₁₀):

VERY HIGH/5=>2.0ug HIGH/4=1.5-2.0ug MODERATE/3=1.0-1.5ug

LOW/2=0.2-1.0ug NEGLIGIBLE/1=<0.2ug

Timescale:

LONG=5-10years MEDIUM=2-5years SHORT=<2years

italics means estimated non-italics means quantified

Organisation:

DCC =Devon County Council (**LSG**=Local Service Group, **LTP2**=Local Transport Plan 2006-11, **LEA**=Local Education Authority, **TW**=TravelWise Officer)

MDDC=Mid Devon District Council (**EHS**=Environmental Health, **EP**=Environmental Protection, **Lic**=Licensing, **OP**=Operations, **DC**=Development Control, **FP**=Forward Planning, **CP**=Corporate Plan **LSP**=Local Strategic Partnership)

EA=Environment Agency

MDPCT=Mid Devon Primary Care Trust

QECC= Queen Elizabeth Community College

Other:

HDV=Heavy Duty Vehicle **LDV**=Light Duty Vehicle

s106= Section 106 Agreement (Planning)

¹Policy Guidance: Addendum LAQM.PGA(05) – Chapter 2 Defra (March 2005)

Table 5 – Summary of Action Plan Measures (as approved by MDDC Community Services Committee July 2006)

Transport - Highways										
Ref	Measure	Description	Lead/Key Organisation	Air Quality Impact	Timescale	Cost	Cost Effectiveness	Overall Ranking	Other Impacts	
1	Lords Meadow Link Road	Development of a new link road, subject to planning, environmental and financial considerations, between Exeter Road southwest of Crediton to Lords Meadow Industrial Estate. This has the potential to divert significant HDV/LDV traffic movements and some car traffic away from Exeter Rd. <i>Further Details given in Appendix 3.</i>	DCC Highways/LTP2	VERY HIGH	5 LONG	££££	1	5	5	Reduction in traffic noise along Exeter Road, Charlotte Street, and Mill Street Route much more suitable for HDV access Reduced congestion Reduced journey times
2	Traffic Management High Street	Changes to road layout and increased loading bays. Subject to further testing following amendments arising from consultation. <i>Further details given in Appendix 2.</i>	DCC LSG/LTP2	HIGH	4 MEDIUM	££	3	12	1	Reduction in traffic noise along High Street Reduced congestion Reduced journey times Limited loss of on-street parking
3	Resurfacing to Exeter Road	Change to road surface to reduce re-suspended road dust. First section has been resurfaced, further work to be carried out.	DCC LSG	LOW	2 SHORT	£	4	8	3	Reduction in traffic noise along Exeter Road

Transport - Public Transport									
Ref	Measure	Description	Lead/Key Organisation	Air Quality Impact	Timescale	Cost	Cost Effectiveness	Overall Ranking	Other Impacts
4	Stationary engine powers	The Council will investigate the feasibility of adopting legal powers under the Road Traffic (Vehicle Emissions) (Fixed Penalty) (England) Regulations 2002 in respect of requiring engines to be switched off when the vehicles are stationary on the road (unless halted temporarily for traffic reasons) with particular emphasis on light and heavy goods vehicles, buses/coaches and taxi vehicles using the High Street.	MDDC EHS-EP, DCC and Public Transport Operators	NEGLIGIBLE	1 SHORT	£	4	6	Visual intrusion of signage/planning advertisement consent required Enforcement pressures – cost and staff resources Increased public awareness Cold-start emissions
5	Extended Crediton Town Bus Service	The Council will work in partnership with the County Council, the bus operators and the Devon & Cornwall Rail Partnership to undertake a feasibility study into an enhanced Town Bus 607 service to include half-hourly services (second town bus) with an extended route to link with the rail station/park & ride. Funding for the setting up of this service could potentially come from the development of a new Tesco store in Crediton. However, this development is subject to a separate air quality assessment as part of the application determination process. No assessment has been received to date	DCC Transport Co-ordination Service	LOW	2 MEDIUM	££	3	4	Integrated local transport system bus-rail Increased use of alternative transport

6	Taxi engine standards	The Council will investigate potential changes to licensing procedures in order to require Mid Devon taxis to be of a minimum age/emission standard (Euro III engine standard proposed)	MDDC EHS-LIC	LOW	2	SHORT	£	4	8	3	Extra cost-burden to operators due to unplanned replacement of vehicles. More modern vehicles could offer small cost savings due to increased fuel efficiency and better image/passenger experience
7	'Devon-wide' scheme	The DCC/Devon LA 'Devon-wide' scheme of 100% concession rate for bus users in the eligible groups has been in place since April 1st 2006. Rail discounts continue to be offered as part of the scheme. Details and application form are available from the Crediton Tourist Information Centre. Continue to support the scheme and the Devon-wide Partnership.	DCC 'Devon-wide' co-ordinator and MDDC	LOW	2	SHORT	£	4	8	3	Mandatory scheme - potential extra cost-burden to MDDC via subsidy. Possible additional Government funding to be provided but not yet confirmed. Increased use of alternative transport

Transport - School Transport

Ref	Measure	Description	Lead/Key Organisation	Air Quality Impact	Timescale	Cost	Cost Effectiveness	Overall Ranking	Other Impacts		
8	Reduction in emissions from School buses in Crediton	School buses represent an important number of vehicle movements along Exeter Road and the High Street at peak morning and afternoon times during the school term. The proposal is to target the most polluting vehicles and where necessary improve their emissions. This would involve the local education authority (the County Council) introducing a procurement policy stipulating a minimum (Euro) engine standard for	DCC Transport Co-ordination Service	LOW	2	MEDIUM	££	3	6	4	Potential cost burden on small local bus and coach operators

		school buses. The Devon LTP2 states; “In addition measures are being taken to improve the quality of school buses to reduce their emissions as they travel through the High Street”.									
9	School Green Travel Plans	The aim is to ensure all Crediton schools develop and implement travel plans to reduce to the impact of their activities. The Council will also actively support local events in conjunction with the Walking to School campaign	DCC LEA (School Travel Plan Information Officer)	LOW	2	SHORT	£	4	8	3	Pupil, parent and staff health benefits from walking programmes
10	Walking to School Campaign	The Council will actively support local events targeted towards reducing private car transport to Crediton Schools in conjunction with the national Walking to School campaign	DCC LEA (School Travel Plan Information Officer) and MDDC EHS	LOW	2	SHORT	£	4	8	3	Pupil and parent health benefits from walking programmes
11	Single site QECC school	It is recognised that there have been various proposals to re-site QECC to a single site for a number of years. A possible location for a single-site college in the vicinity Lords Meadow Industrial Estate is currently undergoing a feasibility study. A single-site college would reduce the number of school bus movements along the High Street as well as reducing the overall number of vehicle movements throughout Crediton which are associated with the college, especially those movements between the current split sites.	DCC LEA, QECC and MDDC DC	LOW	2	MEDIUM	££££	1	2	7	Improved delivery of secondary education in Crediton Revised school travel plan required

Transport – Other									
Ref	Measure	Description	Lead/Key Organisation	Air Quality Impact	Timescale	Cost	Cost Effectiveness	Overall Ranking	Other Impacts
12	Commercial vehicle roadside emission testing	Commercial vehicles (light and heavy goods vehicles over 3.5 tonnes) are typically more polluting than passenger cars and other non-commercial vehicles. The proposal is for the Council to work in partnership with VOSA (Vehicle & Operator Services Agency) to investigate the feasibility of targeted roadside roadworthiness and emissions testing for commercial Light Duty Vehicles (LDV) and Heavy Duty Vehicles (HDV) vehicles on the Crediton road network.	MDDC and VOSA	LOW	2 SHORT	£	4 8	3	Improved vehicle road safety Increased operator and public awareness Cost to vehicle owners
13	All vehicle roadside emission testing	The Council will investigate the feasibility of adopting legal powers under the Road Traffic (Vehicle Emissions) (Fixed Penalty) (England) Regulations 2002 in respect of carrying out roadside vehicle emission testing and issuing of fixed penalty notices on vehicles failing to meet the current minimum MOT standard. This would be carried out in partnership with the Police and possibly with other local authorities in Devon.	MDDC EHS-EP, DAQMG and Devon and Cornwall Police	LOW	2 SHORT	£	4 8	3	Cost burden to MDDC Public awareness Cost to vehicle owners

14	Engine switch-off stationary vehicles	Investigate feasibility of the Council adopting its duties under Road Traffic (Vehicle Emissions) (Fixed Penalty) (England) Regs. 2002 in respect of stopping of engines when vehicles are stationary with particular emphasis on LDV, HDV, Bus/Coach and Taxi vehicles in Crediton High Street	MDDC EHS-EP and DCC	LOW	2	SHORT	£	4	8	3	Cost burden to the Council
15	Secure cycle parking facility	New cycle parking facilities have been implemented as part of the recent Town Square redevelopment. MDDC will continue to promote cycling within the town and will investigate the feasibility of installing secure cycle parking facilities at strategic points throughout Crediton. These facilities would be in addition to the currently under construction. Investigate feasibility of a secure cycle parking facility in Crediton Town centre.	MDDC EHS/FP (and DCC LTP2)	NEGLIGIBLE	1	SHORT	£	4	4	6	Cost burden unless can be provided via s106 agreement(s) in conjunction with development

Parking

Ref	Measure	Description	Lead/Key Organisation	Air Quality Impact	Timescale	Cost	Cost Effectiveness	Overall Ranking	Other Impacts		
16	Crediton Car Parking Strategy	Council is committed to addressing the wider parking issues in the town on a mid to long-term basis and is committed to the completion and implementation of a Car Parking Strategy for Crediton. This is of particular importance given the impact of loss of parking in Market Place (due to Town Square) and limited loss of spaces to implement measure 2.	MDDC OP and DCC	LOW	2	SHORT	£	4	8	3	

17	Other parking charges	As part of an overall car parking strategy the Council will investigate changes to parking charges in Crediton Pay and Display Car Parks to provide cheaper 1-2 hour initial and/or medium-term parking charges/status in order to offset impact of the limited loss of spaces in the High Street (see measure 5) and greater provision of free spaces around the new Town Square. To be completed as part of measure 16.	MDDC OP	LOW	2	SHORT	£	4	8	3	Cost burden to the Council, potential loss of parking income Improved flexibility of parking arrangements for Car park users
18	Parking Spaces	Investigate as part of the car parking strategy the feasibility of creation of limited number of additional spaces in St Saviours Way Car Park by re-marking and relocation of recycling facilities. To be completed as part of measure 16.	MDDC OP	LOW	2	SHORT	£	4	8	3	Cost burden to the Council. Limited number of potential locations for alternative recycling facility on eastern-side of Crediton

Regulatory - Industrial/Commercial

Ref	Measure	Description	Lead/Key Organisation	Air Quality Impact	Timescale	Cost	Cost Effectiveness	Ranking	Non-Air Quality Impact	
19	Smoke Control Area	Possible 'Smoke Control Order' bringing into effect the prohibition of burning of non-authorized fuels. Reduction in smoke emissions with improvements to background emissions of PM ₁₀ . Subject to further feasibility study (see measure 21).	MDDC EHS-EP	LOW	2 SHORT	£	4	8	3	Impact to some local businesses using non-authorized appliances especially to provide space-heating
20	Milk Link Dairy boiler	The Council are working with the Environment Agency to achieve improvements in the emissions of this important emission source in the town, notably by securing a formal commitment to switch the boiler fuel from heavy fuel oil to gas, which is much cleaner to burn. PPC Permit Improvement Condition requiring switch from Heavy Fuel Oil to Gas at the Dairy Boiler Plant	EA/Milk Link	MODERATE	3 SHORT	££	3	9	2	Reduced fuel costs and greater fuel efficiency at Milk Link.

Regulatory – Residential

Ref	Measure	Description	Lead/Key Organisation	Air Quality Impact	Timescale	Cost	Cost Effectiveness	Overall Ranking	Other Impacts	
21	Smoke Control Area	The Council will investigate the introduction of a legal smoke control area under powers granted by the Clean Air Act 1993. This would affect residential premises and make it an offence to burn non-authorized fuels (e.g. traditional coal and wood) and/or use non-approved heating appliances. Certain non-approved appliances may be exempt if they do not produce smoke.	MDDC EHS-EP	LOW	2 SHORT	£	4	8	3	Potential fuel poverty issues - could be offset by existing fuel efficiency and heating grants (see energy efficiency measure 32)

		<p>The aim of this proposal is to reduce background levels of pollutants resulting from smoky, poorly controlled combustion. A smoke control order would not prohibit open garden bonfires at residential locations. Such bonfires are can be controlled by separate statutory nuisance legislation. A survey of domestic fuel use was carried out as part of the wider public consultation exercise in the development of this measure.</p> <p>The Council will investigate feasibility/mechanisms to reduce or prohibit local emissions resulting from combustion of solid fuels. These lines of enquiry will also look at issues such as smoke control education, assessment of change mechanisms and potential grant funding The proposal would consider whether a smoke control area within the same boundary as the Air Quality Management Area (i.e. the whole of built-up Crediton) is appropriate in order to simplify its administration and maximise improvements to local air quality. Alternatively a small boundary, possibly more than one could be used to target key areas.</p>								
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Quality of Life and Health										
Ref	Measure	Description	Lead/Key Organisation	Air Quality Impact	Timescale	Cost	Cost Effectiveness	Overall Ranking	Other Impacts	
22	Crediton Walking for Health	PCT led walking initiative. Scheme to promote health benefits of walking versus car driving. Guided local walks in Town	MDPCT	NEGLIGIBLE 1	SHORT	£	4	4	6	Health benefits from exercise
23	Health inequalities	Local Strategic Partnership (LSP) initiatives and Mid Devon Community Plan: Specific initiatives will be identified to tackle health-inequalities in the town.	Mid Devon LSP	NEGLIGIBLE	SHORT	£	4	4	6	Early identification of health-related problems
Promotional/Voluntary/Publicity										
Ref	Measure	Description	Lead/Key Organisation	Air Quality Impact	Timescale	Cost	Cost Effectiveness	Overall Ranking	Other Impacts	
24	Air quality information	Expansion of the existing air quality information provision service to include interactive access to near-live air quality and health information via the development of <i>middevon.airqualitydata.com</i> website	MDDC EHS-EP	NEGLIGIBLE 1	SHORT	£	4	4	6	Increased public awareness
25	Voluntary emissions testing	Investigate feasibility of a pilot scheme providing free vehicle emissions tests for private motorists at a number of venues across the District starting with Crediton	MDDC EHS-EP	NEGLIGIBLE	SHORT	£	4	4	6	Increased public awareness
26	Car Share Devon	Increased promotion targeted in Crediton of the Car Share Devon scheme	DCC TW	NEGLIGIBLE	SHORT	£	4	4	6	Increased public awareness

Other Mid Devon DC Policies and Initiatives

Ref	Measure	Description	Lead/Key Organisation	Air Quality Impact	Timescale	Cost	Cost Effectiveness	Overall Ranking	Other Impacts
27	Council owned vehicle fleet	MDDC will continue to work to improved fuel efficiency, engine emission standards and emission control of Council owned vehicles. Particular attention will be given to HDV/LDV vehicles to ensure better than the legal minimum emission standards and high fuel efficiencies are achieved	MDDC OP	LOW	2 SHORT	£ 4	8	3	Council sets example in vehicle emission control Reduced vehicle operational costs
28	Council Bio-Diesel trial	Conversion of HDV vehicle to bio-diesel (trial). Examine potential for on-site bio-diesel production.	MDDC OP	NEGLIGIBLE	1 SHORT	£ 4	4	6	Council sets example in vehicle emission control. Reduced vehicle operational costs
29	Air Quality Planning Policy	Development of Air Quality Supplementary Planning Document (SPD) under new Strategic Development Framework	MDDC FP and EHS	LOW	2 SHORT	£ 4	8	3	
30	Green Travel Plan	MDDC will continue to develop and implement its Green Travel Plan in order to identify and implement reforms to reduce Council business mileage and encourage use of the cleanest and most-fuel efficient vehicles.	MDDC Green Travel Plan Working Group	NEGLIGIBLE	1 SHORT	£ 4	4	6	Possible cost savings

31	Energy Efficiency	The Council will continue to implement its Home Energy Conservation Act (HECA) Policy for residential properties by continuing to support the following grants, programmes and initiatives: HEAT Devon, Warm Front, Energy Efficiency Commitment (EEC), Devon Energy Advice Centre, Devon Sustainable Energy Network, Devon Affordable Warmth Strategy and the Mid Devon Fuel Poverty Policy and HECA reports. These schemes aim to reduce fuel demand for residential properties with a direct reduction in fuel combustion emissions to air.	MDDC EHS and Affordable Warmth Officer in partnership with Devon Energy Advice Centre and other Devon Local Authorities	LOW	2	SHORT (on-going)	£	4	4	6	Tackles fuel poverty and affordable warmth issues. The Boniface and Lawrence Wards in Crediton have >22% fuel poverty. Reduced climate change impact from Mid Devon residential properties
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APPENDIX 1 - FURTHER ASSESSMENT TECHNICAL REPORTS

APPENDIX 2 - HIGH STREET TRAFFIC MANAGEMENT MEASURES

This Appendix contains more detailed information on Action Plan measure 2, namely the introduction of traffic management measures in the High Street.

The High Street is characterised by a street-canyon (tall, mostly terraced buildings generally taller than the road carriageway width) with on-street parking, loading bays, crossing points and bus stops etc. The results of such a street topography are relatively poor dispersion conditions coupled with traffic congestion, particularly due to obstructive bus stops and the double-parking of delivery vehicles. The Action Plan measure is designed to reduce congestion and improve vehicle flow resulting in an improvement in air quality. During the development of the Action Plan, the measure has been subject to consultation and revision and further amendments may be required following detailed survey work, though any subsequent changes are unlikely to be significant.

This is a detailed measure, itself a package of traffic management changes. A summary of the key changes is given below.

- New bus stops at St Lawrence Green (western-end of the High Street) and at the War Memorial (eastern-end of the High Street at Union Road).

The purpose of this is to remove reduce congestion caused by the buses stopping in the carriageway. The new stops will be in lay-bys off the carriageway allowing vehicles to pass. Detailed survey work may identify an existing bus-stop west of St Lawrence Green as an alternative to a new lay-by at the Green.

- Re-alignment of carriageway immediately west of the junction with Searle Street at the approximate centre of the High Street.

This will result in a newly curved carriageway around the current bus stop next to the Searle Street junction. The purpose of this is to reduce congestion by allowing a freer flow of vehicles around the bus stop with would effectively then be situated out of the main carriageway. The impracticability of relocating this bus stop due street camber and disabled access arrangements has resulted in the realignment of the carriageway. To accommodate the realignment some on-street parking has been removed on the opposite (southern) side of the High Street. More Detail on changes to parking provisions is given below.

- Pedestrian (non-traffic light controlled) crossing point currently next to the Searle Street junction bus stop moved to east of the Searle Street.

This change is a necessity of the carriageway realignment discussed above.

- Increased provision of vehicle loading bays in conjunction with loading bay times being reduced from 8:00am - 2:00pm to 8:00am - 11:30am.

The purpose of this change is to increase to amount of available space for delivery vehicles servicing the High Street commercial premises. This will result in a reduction in the number and frequency of delivery vehicles double-parking alongside other parking areas, which currently result in frequent temporary blockages of the carriageway. By reducing the loading bay times the aim is to focus deliveries during a shorter period and maximise the amount of available on-street parking outside of these hours. This will mostly offset the reduction in parking caused by the increase in loading bay areas and the removal of parking described above.

- Repositioning of loading bay outside 22 High Street.

Under the proposals this loading bay will move to outside 23-25 High Street. The parking area currently at 23-25 High Street will then be recreated outside 22 High Street. The purpose of this repositioning is to improve forward access into the loading bay for larger commercial vehicles. At present, such access is restricted owing to the adjacent pedestrian crossing point outside 21 High Street.

A summary of the current High Street parking and loading bay provisions and changes arising from proposed traffic management changes is given below.

Current:	57 parking spaces available between 8:00am & 6:00pm
	3 Disabled parking spaces
	1 Taxi Space
	1 Vet Space
	6 parking spaces available in loading bays after 2:00pm
	57 metres of loading bays

Total available parking time 594 hours equivalent of 792 units of parking.

New Scheme:	51 parking spaces available between
	8:00am & 6:00pm
	3 Disabled parking spaces
	1 Taxi Space
	1 Vet Space
	8 parking spaces available in loading bays between
	11:30 am and 6:00pm.
	70 metres of loading bays

Total available parking time 561.5 hours equivalent to 748 units of parking.

These figures have been calculated based on a requirement for car parking of 6 metres per car. This is fairly generous and could potentially be reduced to 5.5 metres, which would increase the number of car parking spaces.

The implementation of High Street traffic management measures is a specific commitment within the recently published Devon Local Transport Plan for 2006-2011, which states:

“Traffic management measures to reduce queuing and delays in the High Street have been developed. It has been assessed that this intervention will result in reduced concentrations of nitrogen dioxide to levels below that which constitutes an exceedance. These measures are included in the Towns, Villages and Rural Communities Programme.”

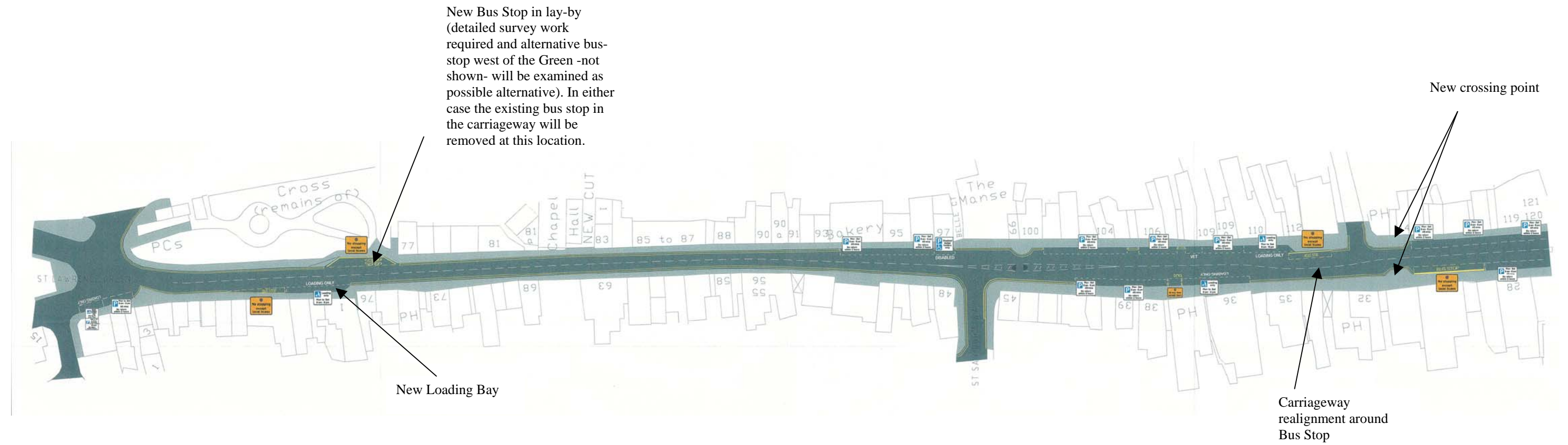
Figures 9 and 10 show the changes to the High Street following the implementation of the changes described above excluding the changes to the loading bay times (*loading bay times shown in the plan are standard times only and not those proposed*).

Figure 11 shows the potential reduction in Nitrogen Dioxide concentrations in the High Street as a result of the introduction of traffic management measures and should be compared with Figure 2 (page 9 of this report), which shows the current concentrations. The predicted air quality improvements shown in Figure 11 are the

result of a modelling exercise carried out during the further assessment work described in Section 2 of this report. Following consultation on the traffic management proposals some changes have been made compared to the traffic scheme that was modelled. However, all key components of the scheme have been modelled (excluding one loading bay now removed from the scheme) and therefore the results give a good indication of the scheme effectiveness.

As shown, the modelling results indicate that a traffic management scheme will reduce Nitrogen Dioxide concentrations to a minimum of $28 \mu\text{g m}^3$ and therefore below the air quality objective of $40 \mu\text{g m}^3$. A further modelling exercise is required to refine this estimate and will be completed following detailed survey work.

Figure 9: High Street Traffic Management Proposals (changes only shown)

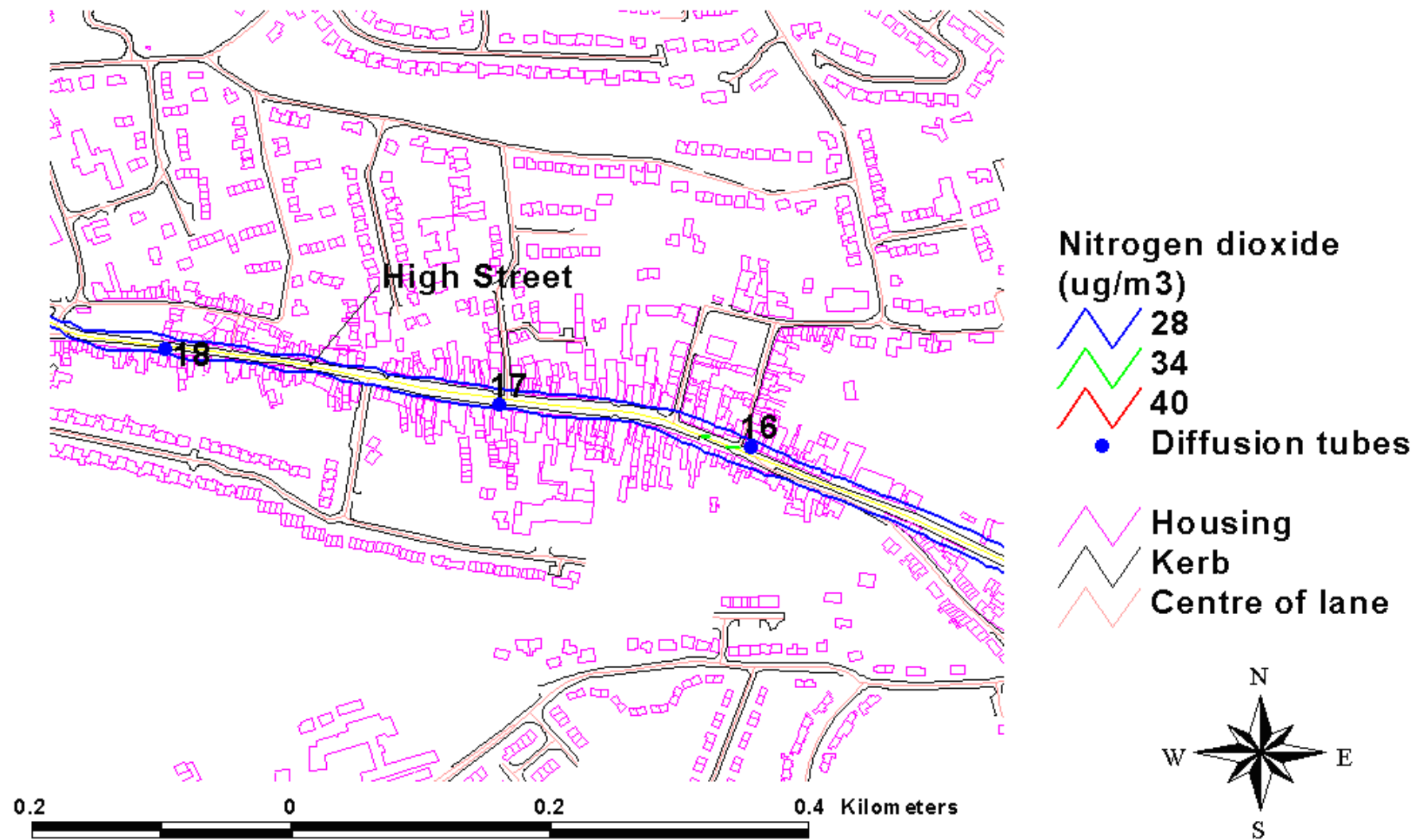


Note: Loading bay restriction times shown are those currently in force.
Proposals are for these to be changed to loading only 8:00am and 11:30am with the exception of the loading bay at number 36 (Tesco metro) which would be changed to loading only between 7:00am and 6:00pm

Figure 10: High Street Traffic Management Proposals



Figure 11: Predicted Nitrogen Dioxide Concentrations High Street 2005 with congestion controls



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APPENDIX 3 - LORDS MEADOW INDUSTRIAL ESTATE LINK ROAD

This Appendix contains more detailed information on Action Plan measure 1, namely the introduction of a link road from the A377 to Lords Meadow Industrial Estate.

The aim of this measure is to relieve Exeter Road (A377) of a significant proportion of Heavy Goods Vehicles (HGVs) which currently have no option of using this road as part of the access route to the major industrial estate of Lords Meadow when entering Crediton from the south.

Exeter Road is characterised by a narrow carriageway and a street canyon with properties and other street features very close to the kerbside. The result is frequent congestion, especially when large vehicles meet combined with poor dispersion conditions for pollutants. The fact that the road is on an incline also results in an increase in vehicle emissions due to increased engine workloads and reduced efficiencies.

Due to the narrow carriageway and historic buildings there are no traffic management options along Exeter Road. As a result, a link road proposal has been identified which would offer a direct route into the Lords Meadow Industrial Estate for HGVs and other traffic thereby effectively by-passing Exeter Road within the town and other roads along the access route. There are a number of possible routes for a link road and a feasibility study is required to identify the best option taking into account planning, financial and environmental considerations. Since no final route has been identified no detailed dispersion modelling has been carried out. However, the conservative estimate is for a minimum of a 20% reduction in Nitrogen Dioxide and PM₁₀ concentrations based upon a reduction of around 200 HGV movements per day along Exeter Road. This estimate does not account for further improvements that would result in the diversion of other light duty, bus/coach and passenger car movements associated with Lords Meadow.

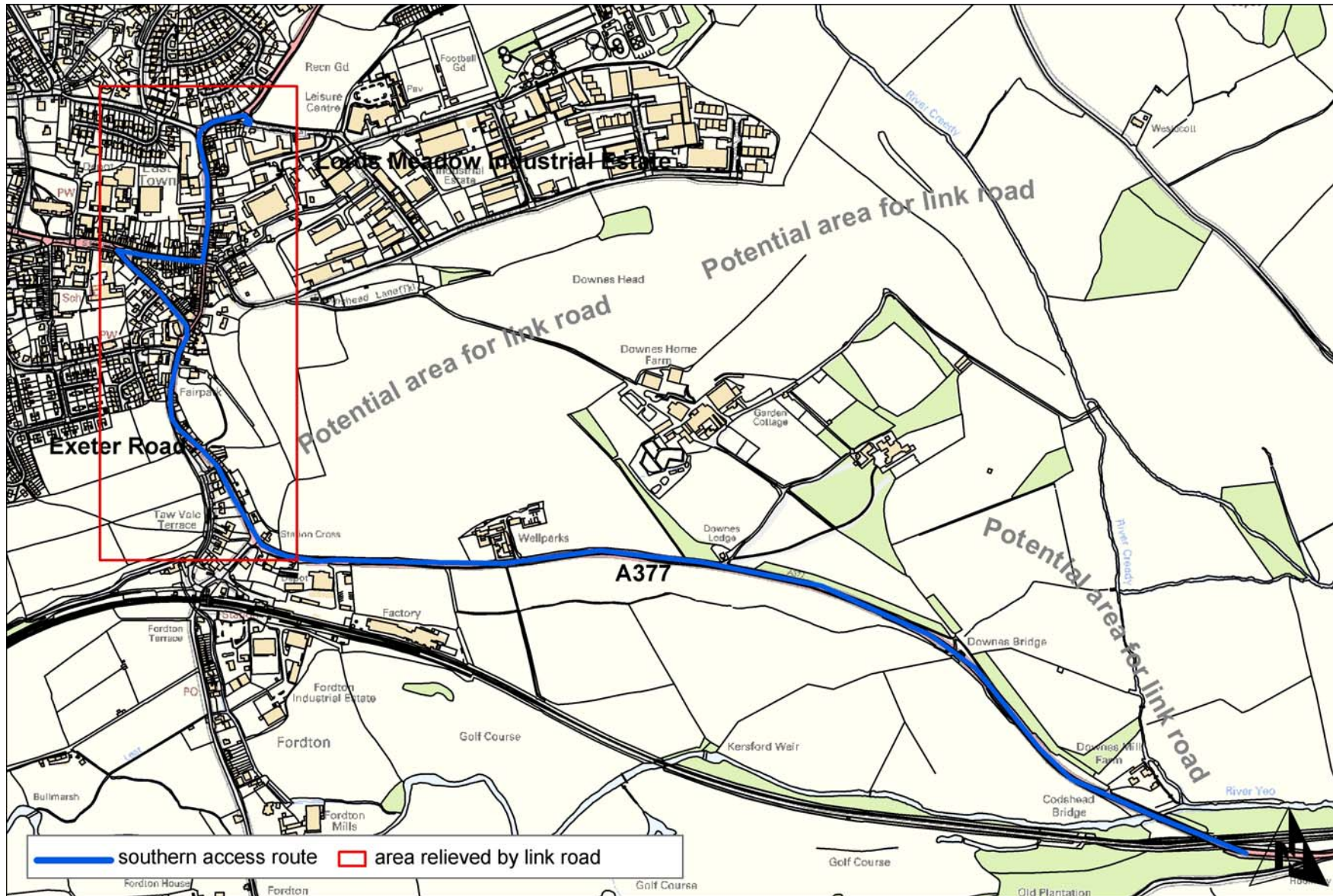
The Devon Local Transport Plan for 2006-2011 states the following in respect of this measure:

“Analysis has indicated that assessed options for traffic management are unlikely to resolve the pollution problems in Exeter Road. One of the proposals to emerge from a “Planning for Real” exercise in Crediton was the concept of a link road between the Lords Meadow industrial area and the A377, bypassing Exeter Road. Analysis has indicated that such a proposal could reduce traffic emissions in Exeter Road by up to 20%. Work is proceeding, researching options to overcome environmental concerns including the effect of a link road scheme on the flood plain. However, there are significant costs involved in constructing a link road, and the assessed benefits are unlikely to justify the level of transport funding required. The District Council is being encouraged to seek contributions towards this scheme from any development that increases traffic in Exeter Road through Supplementary Planning Guidance.

Subject to progress with planned development in the area, it may be necessary to identify funding contributions from the Local Transport Plan towards the end of the five year programme.”

Figure 12 shows the current Lords Meadow access route from the south and the potential areas for the location of the link road.

Figure 12: Potential Link Road to Lords Meadow Industrial Estate



APPENDIX 4 - CREDITON AIR QUALITY STEERING GROUP

The Crediton Air Quality Steering Group was established in November 2004 and was vital to the production of the Action Plan.

More information on the membership and remit of the Steering Group is given below.

CREDITON AIR QUALITY STEERING GROUP				
Chair – Jan Shadbolt (Corporate Services Director MDDC) (replaced Peter Hancock – Community Services Director MDDC)				
Environmental Health Services	Devon County Council	Crediton Town Council	MDDC and DCC Elected Member	Local Resident
Simon Newcombe (Environmental Protection Officer)	Alan Mitchard (Manager Mid Devon Local Service Group)	Cllr Walter Brown	Cllr Nick Way (replaced Cllr M. Squires)	Sarah Bramley
John Mathias (Environmental Projects Officer) Roles:	Roles: Local Highways representative	Roles: Representative of Crediton Town Council	Roles: Elected member of both MDDC and DCC for wards in Crediton	Roles: Independent local resident
Lead Air Quality Officers Liaison with Defra Liaison with other interested parties Liaison with other MDDC departments Liaison with other Steering Group members Project Management	Liaison with other DCC services including Highways Planning and Local Transport Plan	Liaison with local residents and interest groups	Liaison with local residents and interest groups	Clerk to Steering Group

The membership of the Steering Group was flexible and representatives of the other interested parties and other elected MDDC members joined Steering Group meetings on an occasional basis during the Action Plan development process.

The remit of the Steering Group was:

- Conducting stakeholder interviews (one to one, correspondence, questionnaires etc) to gain opinion on options
- On-going liaison with key service departments and other agencies
- Hold further Stakeholder Group Meetings to ascertain the value of proposed options and identify gaps
- Undertake wider public consultation as appropriate
- Oversee progress, including the work of other individuals and officers on specific Action Plan measures and in respect of milestone tasks and the overall Action Plan production timetable
- Identification and facilitation of a Stakeholder Group within 6 months.
- Overall production of the Action Plan by June 2006

APPENDIX 5 - PLANS AND PHOTOGRAPHS

Appendix 5 contains a plan showing the air quality monitoring locations in Crediton in addition to photographs of both Exeter Road and the High Street within the Air Quality Management Area.

Crediton air quality monitoring sites



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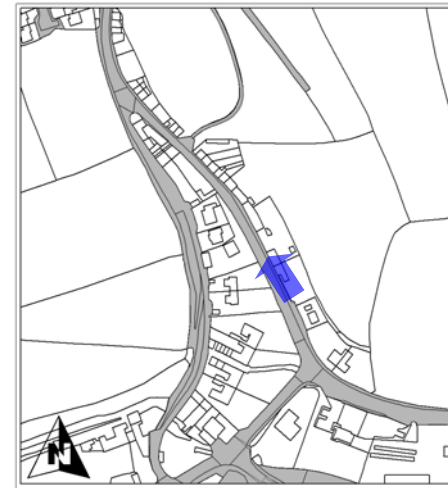
Photograph 1: Exeter Road looking north-west



Notes:

Narrow carriageway with insufficient width for HDVs to pass at pinch points with resultant congestion. Incline street canyon with residential properties close to kerbside

Location of measured elevated PM₁₀ and NO₂



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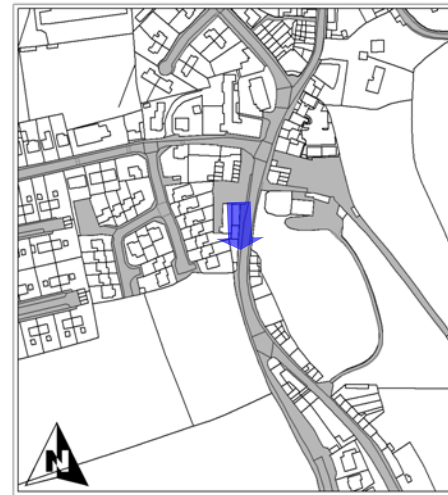
Photograph 2: Exeter Road looking south south-east



Notes:

Street features and topography as above

Location of measured elevated PM₁₀ and NO₂



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Photograph 3: Exeter Road Air Quality Monitoring Station

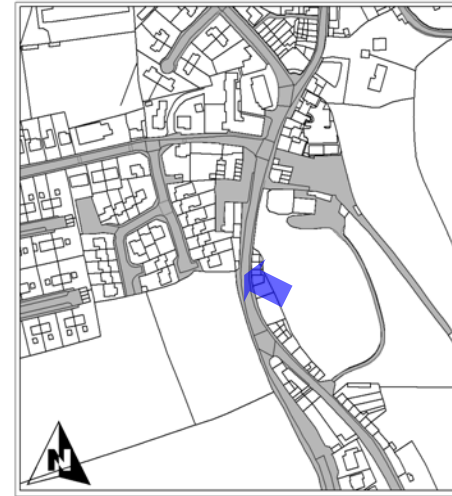


Notes:

Street features and topography as above

Continuous automatic PM₁₀ and NO₂ monitoring station with co-location triplicate NO₂ diffusion tubes. Station in parallel with adjacent building façade

Chimney shown near monitoring station inlets not in use



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Photograph 4: High Street looking west- north-west

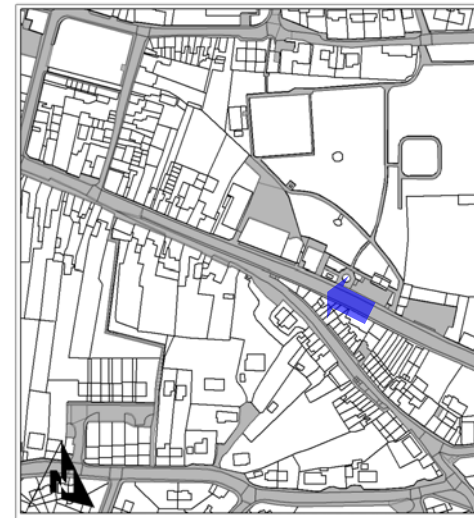


Notes:

Busy shopping area with two and three storey buildings in a terrace. On-street parking and other traffic pinch points due to bus stops, loading bays and crossings etc. Resultant traffic congestion. Street canyon.

Prevalence of first and second floor residential accommodation

Location of measured elevated NO₂



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Photograph 5: High Street looking east



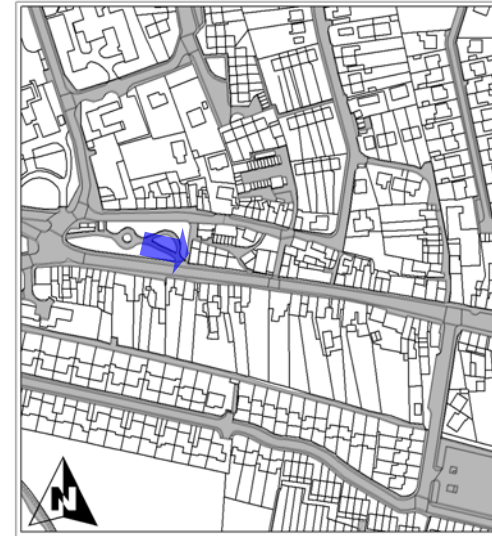
Notes:

Street features and topography as above

More residential properties are ground and first floor, some close to kerbside

Bus stop in carriageway

Location of measured elevated NO₂



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