

DEFRA LOCAL AUTHORITY AIR QUALITY GRANT 2011/2012 – PROGRESS REPORTING

Under the air quality grant terms and conditions; local authorities awarded grant are required to provide a progress report on the supported project(s) around October the year after the grant has been paid to the authority. Reports should be provided on an annual basis for the duration of the project, including a report produced upon completion of the project. The form set out below should be used to report progress in all cases. Please return completed form/s to the email address; air.quality@defra.gsi.gov.uk.

1. Local authority name, key contact details and project title/code.

Please provide the lead local authority name, contact details for the lead project contact and the title and reference number of the project.

[REDACTED]
Wandsworth Council

[REDACTED]
LONDON
SW18 9AQ
[REDACTED]
[REDACTED]

2. Provide a brief description of the project.

Please provide a brief description of the project and its aims. Please include details of project partners and division of work. Refer to Section 2 of the Project Plan if no changes to initial plans have occurred (300 words or less).

Aim

The aim of the project is to quantify the contribution of each vehicle class to concentrations which exceed of the hourly mean EU Limit Value for NO₂, allowing subsequent targeted action to work towards compliance.

The project will use high resolution (1 minute) NOX/NO₂ measurements combined with detailed vehicle emissions data to relate vehicle class, age and fuel type at the kerb and the adjacent building facade. NO₂ concentrations will be characterised according to meteorological conditions, time of day, day of week, vehicle class and level of congestion. This characterisation will be used as an evidence base in order to prioritise traffic management measures.

These aims relate to our air quality action plan as they look to identify the potential sources of high nitrogen dioxide concentrations and identify targeted measures that can be implemented to attempt to reduce concentrations in Putney High Street. The air quality action plan does not contain a specific action relating to Putney High Street as at the time of its writing the high hourly nitrogen dioxide concentrations had not been identified.

However, the whole of the London Borough of Wandsworth was declared an air quality management area on the basis of predicted exceedences of objectives for fine particles and nitrogen dioxide. Hence the measures within the air quality action plan are set to bring about reductions in both pollutants. The air quality action plan is due to be revised in 2013, at which point targeted measures for Putney High Street can be introduced.

Delays in the award of the project during 2012 meant that the original aim of evaluating the impacts of phase 3 and 4 of the London LEZ was not possible, as anticipated in the project plan. However, during early 2012 agreement was secured between Wandsworth Council and Transport for London that the introduction of ultra low emission buses would be prioritised on routes passing along Putney High Street. This provided an intervention opportunity for the evaluation phase to replace the LEZ evaluation. Therefore, the overall aims of the project could remain largely unchanged, but the timescale had to shift, to fit in with TfL's technology roll out between January and March 2013. WP1 (monitoring) will now be complete in April 2013, WP2 (analysis) will be complete by July 2013 and WP3 and 4 complete by September 2013.

Project Team

██████████ Team Leader, Environmental Initiatives Team, Wandsworth Council will be the lead contact for the project. The project will be undertaken with King's College London Environmental Research Group (led by ██████████) and Transport for London.

The project management role will be undertaken by ██████████ at Wandsworth Council.

The delivery team will be Environmental Research Group of King's College London (King's ERG).

Other key stake holders are Transport for London who will be supplying the ANPR cameras and the company who will be supplying the air quality monitoring station.

| | |
|--------------------------|-------------|
| Project Status | Y/N? |
| Is the project complete? | N |

3. Please indicate which study area(s) / emissions source(s) are relevant to this project.

| Study Area(s) | Y/N? | Emission Source | Y/N? | Pollutant | Y/N? |
|--------------------------------|------|-----------------|------|------------------|------|
| Low Emission Zones | N | Cars | Y | NO ₂ | Y |
| Emissions Abatement Technology | Y | HGVs | Y | PM ₁₀ | Y |
| Remote Sensing | N | Buses | Y | Other | N |
| Communication | Y | Trains | N | | |
| Monitoring | Y | Biomass | N | | |
| Modelling | N | Other | N | | |
| Behavioural Change | N | | | | |
| Fleet Improvement | Y | | | | |
| Traffic Management | Y | | | | |
| Other | N | | | | |

4. Progress to Date

Please provide a brief description of the work carried out to date (500 words or less), with reference to key milestones. This should include whether or not the project is proceeding in accordance with the estimated timescales in Section 3 of the Project Plan. Where delays have occurred, an indication of revised project timescales should be provided.

WP1 – Monitoring

This phase of the project aimed to provide pollution measurements and vehicle emissions data to underpin subsequent work packages. It involved the extended operation and management of kerbside and façade continuous high resolution NO₂ monitoring sites on Putney High Street. It also required the configuration and installation of two continuous ANPR cameras to record all vehicle details passing the monitoring sites over a four month period in 2012.

The first key milestone was the commissioning of the ANPR cameras adjacent to the existing monitoring site. Two ANPR cameras were obtained on long-term loan from TfL and commissioned in July 2012. The second key milestone was reached in December 2012 when more than months of co-incidental high resolution NO₂ and vehicle data had been gathered. NO₂ measurements and vehicle captures will continue to be taken throughout the first four months of 2013.

WP2 – Analysis

The second phase of the project will be to apply advanced statistical analysis methods to relate vehicle emissions to pollution data. The combination of concentrations recorded at the façade and kerb will provide a unique method of estimating direct NO₂ concentrations classified by vehicle class, fuel and emissions class. The study will utilise measurements from Wandsworth Council's LAQN background site ('Wandsworth – Putney') approximately 200m to the north as a control to account for non-local NO₂/NO_x emissions.

Vehicle data will continue to be gathered during TfL's bus replacement programme then for one additional month. This is due for completion in April 2013. Therefore, the analysis phase will commence in May 2013.

WP3 – Action

This part of the study was pre-empted by Wandsworth Council and TfL following the publication of a prior Defra grant-funded project, which identified buses as the main cause of elevated NO₂ concentrations. This led to the commitment from Transport for London that the introduction of ultra low emission buses would be prioritised on routes passing along Putney High Street. WP3 could therefore be merged with WP4.

WP4 – Evaluation

This final phase of the project will be an evaluation of the impact of the upgrading of buses passing along Putney High Street. This will be done by relating changes in vehicle emissions profiles, derived from the ANPR data, with changes in pollution concentrations. The evaluation phase will be carried out in July 2013. A final report from the project will be issued by September 2013, and associated knowledge transfer activities will be carried out in the second half of 2013.

5. Project Outputs

Please provide a summary of any initial or final observations / conclusions that can be drawn from the project, and in particular, details of any observed or estimated reductions in emissions, and / or pollutant concentrations (500 words or less).

A complete list of project outputs (both completed and expected) should also be provided including the date of publication and location / source from which the outputs can be obtained. Electronic copies of any completed outputs should be submitted alongside this form.

As the project is still in data gathering phase, no outputs have been produced to date.

6. Problems faced

Please provide a brief description of any problems faced or anticipated that may or have affected project outcomes or the timescales for delivery (500 words or less).

As a key part of the project is an evaluation of the impact of ultra-low emission buses introduced to bus routes following Putney High Street, timescales are dependent on the timing of fleet upgrades dictated by TfL. A timetable for the upgrade supplied by TfL in November 2012 shows that the upgrade will occur incrementally during January, February and March 2013. We will continue to gather vehicle capture data with the ANPR cameras until the end of April 2013, then move to the analysis and interpretation phases. It is anticipated that the project will be completed by September 2013.

This potential delay was highlighted as a risk in the project plan.

Problems with data transfer of vehicle ID captures, including intermittent camera faults. These interruptions will not have any impact on project outcomes or timescales, as continuous capture is not required for the analysis and evaluation phase, providing a necessary capture rate is reached. This capture rate was reached in the pre-intervention phase. The stability and backup of the camera data feed has now been improved and we do not anticipate and problems during the post-intervention phase.

7. Knowledge Transfer

Where possible, please provide an evaluation of the project against the plans for knowledge transfer detailed in Section 5 of the Project Plan (500 words or less)

As the project is still in data gathering phase, no knowledge transfer activities have been produced to date, however the project has been publicised on the LAQN website, at the 2012 IAPSC summer conference and by Wandsworth Council.

8. Project Evaluation

Where possible, please provide an evaluation of the project against the success criteria detailed in Section 7 of the Project Plan (500 words or less)

It is not possible to provide an evaluation at this stage.

9. Financial Performance.

Please provide details of the anticipated project spend at this stage of the project, the actual project spend, and the reasons for any difference between these figures.

The anticipated spend at this stage of the project was £37,000 and the actual spend is £36,495.38. The difference between these two figures (£504.62) is as a result of the cost of the air quality monitoring station being very slightly less than estimated. However a further £514.80 is being spent on 10 nitrogen dioxide diffusion tubes located at the air quality monitoring station (3) centre of pavement (2), façade 1st floor (2), façade 2nd floor (2) and façade 3rd floor (2) for one year to provide further information on nitrogen dioxide concentrations.

The remaining funding will be spent on completion of the further stages as stated in the project plan.

Breakdown of spend to date:

| | |
|---|---------|
| Modem, power supply and cable, software reconfiguration | £6,000 |
| Installation, connection and removal of ANPR cameras | £2,000 |
| Data Management | £11,000 |
| 12 months Air Quality Monitoring at 2 sites in Putney High Street from 1 January to 31 December 2012 (including LSO visits, equipment, gas and servicing) | £17,4 |

Signature of Officer at the local authority

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1. Local authority name, key contact details and project title/code.

Please provide the lead local authority name, contact details for the lead project contact and the title and reference number of the project.

Leeds City Council

Low Emission Zone Feasibility Study
Project Reference 1432011

2. Provide a brief description of the project.

Please provide a brief description of the project and its aims. Please include details of project partners and division of work. Refer to Section 2 of the Project Plan if no changes to initial plans have occurred (300 words or less).

The Low Emission Zone (LEZ) feasibility project aims to establish whether a scenario exists via this process to deliver cleaner air to the city of Leeds, meeting the EU Directive limit values for NO₂, through the control of vehicles entering or operating within the city.

This project has involved the cooperation & consultation with Leeds air quality & transport policy professionals, backed up with support from external consultants & academics from local Universities & Primary Care Trust's, to determine whether a LEZ scenario could achieve a cost effective solution to air quality improvements & compliance of the EU Directive.

Leeds City Council (LCC) has worked closely with the City of Bradford Metropolitan District Council (CBMDC), who is also conducting a LEZ feasibility project. Partnership working between the 2 Local Authorities has enabled the pooling of expertise & created effective cost savings. Joint working has taken place within the following elements of the LEZ feasibility study:- ANPR analysis of city fleets, the production of the fleet emissions profile, the health impact assessment & developing the specification to outsource the economic impact assessment.

In addition to these aims, LCC has passed the following resolution: 'This Council recognises the health & environmental benefits of reduced air pollution to Leeds Communities, especially to inner city areas. It notes the success of LEZ's in London & Oxford, which prevents the most polluting vehicles from entering the city. The Council therefore requests the Executive Board to undertake a feasibility study, with a view to implementing a similar scheme in Leeds'

| | |
|--------------------------|-------------|
| Project Status | Y/N? |
| Is the project complete? | N |

3. Please indicate which study area(s) / emissions source(s) are relevant to this project.

| Study Area(s) | Y/N? | Emission Source | Y/N? | Pollutant | Y/N? |
|--------------------------------|-------------|------------------------|-------------|--------------------------|-------------|
| Low Emission Zones | Y | Cars | Y | NO ₂ | Y |
| Emissions Abatement Technology | Y | HGVs | Y | PM ₁₀ | Y |
| Remote Sensing | Y | Buses | Y | Other (CO ₂) | Y |
| Communication | Y | Trains | N | | |
| Monitoring | Y | Biomass | N | | |
| Modelling | Y | Other | Y | | |
| Behavioural Change | Y | | | | |
| Fleet Improvement | Y | | | | |
| Traffic Management | Y | | | | |
| Other | Y | | | | |

4. Progress to Date

Please provide a brief description of the work carried out to date (500 words or less), with reference to key milestones. This should include whether or not the project is proceeding in accordance with the estimated timescales in Section 3 of the Project Plan. Where delays have occurred, an indication of revised project timescales should be provided.

The LEZ feasibility has progressed steadily. However delays in getting the work started have had knock on effects with the order of some of the work packages being altered. The reasons for these delays are outlined in Section 6 below. The progress that has been made is outlined below:-

WP 1: Project design, specification, procurement & assignment of tasks.

Following acceptance of the project plan & subsequent DEFRA workshops in Leicester, it was agreed preferable for LCC to work closely with CBMDC. This partnership has worked well in terms of added value for money, however it has introduced the need to work in tandem and to utilise CBMDC's original timescales, which have a longer time horizon than LCC's. A joint HIA has been substantially completed and the Tender documents for a joint Economic Impact and opportunities Assessment has been completed.

WP2: Assessment of local vehicle fleet.

All key milestones in WP2 have been completed.

Statistically representative vehicle samples have been collected via ANPR cameras covering the main radial roads between the Inner and Outer Ring Roads of Leeds. These datasets were analysed by DfT, providing sufficient detail to build a local fleet profile compatible with the NAEI Emission Factors. EURO status was calculated from the date of registration.

Additional data was obtained from Carweb for buses and LGVs where it was deemed to be helpful.

WP3: Emissions assessment of Leeds vehicle fleet

WP3 is substantially complete. Newcastle University have developed PITHEM (Was SEMFrame) to allow bespoke fleet profiles to be input and updated. Delays have been encountered due to the release of the new EFT5.1 emission factors. Discrepancies were found between the output of PITHEM using COPERT 4 emission factors, compared with the new EFT5.1 (See Section 6). The discrepancies have been rectified and PITHEM is expected to be ready for use by the second week in November.

WP4: LEZ options emission appraisal

SATURN and the Transport for Leeds models are being used to calculate the expected traffic flows for the 2011 Baseline year plus various Do-minimum and Do-something LEZ scenarios. It is anticipated that 5/6 LEZ scenarios shall be assessed. Some modelling has been completed and it is expected that the years 2016, 2018, 2021 and 2026 will eventually be available. Future years will now be modelled with and without the proposed NGT Rapid Transit system for Leeds. Discussions on realistic future traffic growth and NGT impacts are currently underway.

WP5: Detailed assessment of favoured LEZ options and deliverable Air Quality Improvements

Understandably much of the tasks under this WP have not begun. SMHI has completed a software script to allow the outputs of PITHEM to be input easily into the Airviro dispersion model in preparation and some stakeholder communication has begun.

WP6: Detailed assessment of favoured LEZ options

LCC has worked jointly with CBMDC and the the local health agencies/PCT's to substantially complete the work associated with the Health Impact Assessment. Agreement has been reached to form an assessment panel which will use the HIA document that has been produced to assess the health impacts of the modelled outcomes for each LEZ scenario.

WP7: The Economic Impact Assessment (EcIA)

A time extension has recently been approved, to allow LCC to conduct a more extensive assessment than originally stated in the project plan. LCC, in partnership with CBMDC have produced a specification to outsource this work to consultants. The EcIA will utilise DCC's & MACC's & shall assess Economic Advantage issues for the best performing LEZ scenario (Sorry for word exceedance)

5. Project Outputs

Please provide a summary of any initial or final observations / conclusions that can be drawn from the project, and in particular, details of any observed or estimated reductions in emissions and / or pollutant concentrations (500 words or less).

A complete list of project outputs (both completed and expected) should also be provided including the date of publication and location / source from which the outputs can be obtained. Electronic copies of any completed outputs should be submitted alongside this form.

Based on the ANPR fleet data for Leeds, the PITHAM emission profile model has identified significant changes in air pollutant emissions, when compared with NAEI emissions factors. These include, between a 4 to 10% increase in all air pollutant emissions & a 20% decrease for H/C's. At present no further observations or conclusions can be identified, as the emission modelling for the LEZ scenarios is just about to start.

Good progress has been made on the HIA, this has been lead by [REDACTED] from the Bradford PCT's, on behalf of both LCC & CBMDC. The methodology for this HIA has great potential to be used as a template for other Local authorities. [REDACTED] has been asked to present this HIA methodology at a future IAPSC conference.

The outputs from the LCC HIA shall be used to help support other major projects in Leeds, such as the New Generation Transport (NGT) rapid transit scheme.

6. Problems faced

Please provide a brief description of any problems faced or anticipated that may or have affected project outcomes or the timescales for delivery (500 words or less).

The Project has suffered from a number of unforeseen problems which have affected the original timescale for delivery. However, latterly there has also been a deliberate move towards working in tandem with Bradford MDC to achieve better value for money and cover a wider scope than originally planned.

The main delays have been around the ability to collect, process and collate the technical information on the local Fleet hierarchy and adapting the emission modelling software to accept bespoke fleet inputs rather than the standard UK fleet mix. Delays have been caused by the following issues:-

- * Initial delay in approved funding caused the ANPR camera data collection survey to be delayed until after the Christmas holiday period.
- * Technical problems with the ANPR cameras caused the survey to be repeated 3 times because the data could not be downloaded off the cameras post survey.
- * Problems with agreeing the legal implications of the Defra agreement over the Intellectual Property Rights of third parties with Newcastle University, delayed our ability to commission work on the PITHEM software (formerly known as SEMFrame) to be adapted for our requirements for this project.
- * Changes in the national EFT to v5.1 caused further delays whilst COPERT 4 factors were included within PITHEM. (Problems ensuring the output of PITHEM replicated EFT5.1 subsequently highlighted that the EFT5.1 toolkit had errors within)
- * Changes to the interpretation of the Data Protection Act by DfT delayed getting the second round of ANPR data back in sufficient format to get vital extra detail on the Bus fleets.

7. Knowledge Transfer

Where possible, please provide an evaluation of the project against the plans for knowledge transfer detailed in Section 5 of the Project Plan (500 words or less)

The progress of the LCC LEZ feasibility study is being regularly disseminated to WYTEG, which feeds information into the W Yorks LTP3 Partnership & Board. I am currently tasked with providing a LEZ progress report to WYLTP3 Board on November 9th.

The LCC & CBMDC LEZ feasibility studies shall be used to disseminate the most effective measures to the remaining 3 Districts within W Yorks. This work will play an important role in the further development of the DEFRA funded W Yorks Low Emission Strategy, which starts in December 2012. Other interested groups such as YAHPAC & AWYA's have also been informed of our LEZ progress. Discussions regarding our LEZ related work has been voiced at recent Leeds University events & at a Transport Planning Society meeting held at the W Yorks ITA.

There was considerable interest & discussion about our LEZ & vehicle emissions related work, at the recent Special Air Quality workshop, hosted by SMMT in London.

LCC Cllr's continue to express interest in the LEZ feasibility study, a formal reporting process will take place with the LCC Executive Board, following completion of this study

8. Project Evaluation

Where possible, please provide an evaluation of the project against the success criteria detailed in Section 7 of the Project Plan (500 words or less)

With reference to success criteria, we cannot yet comment on whether any LEZ scenarios will provide cost effective measures to enable compliance of the EU Directive for NO₂ & to help mitigate existing AQMA's. However, it is likely that the HIA findings using DCC's & MACC's, will provide potential cost effective measures for reducing PM, again we are not sure regarding NO_x/NO₂ & CO₂ emissions.

Whatever the outcome of this LEZ feasibility study, has/will provide other benefits for Leeds, in it's quest to improve local air quality. Initial work has enabled an improved Leeds vehicle fleet profile & resultant emissions profile to be developed. The HIA will provide a wealth of local health information, concerning air quality impacts & associated costs. These indirect benefits that result from this LEZ feasibility study, will improve our ability to conduct EIA's for future transport schemes

9. Financial Performance.

Please provide details of the anticipated project spend at this stage of the project, the actual project spend, and the reasons for any difference between these figures.

Costs incurred so far in the project have been less than expected both through negotiation, joint working with Bradford MDC and a sub-contractor rebate due to technical problems with their survey equipment.

The ability to "screen" ANPR data using DfT significantly reduced the expected costs associated with obtaining detailed vehicle information from private suppliers.

Monies invoiced and already committed on the project are as follows:- (rounded)

- * ANPR camera hire and survey £ 3,200 (invoiced)
- * Detailed fleet data from Carweb £800 (invoiced)
- * Newcastle University - PITHEM adaption and Technical support £2000 committed
- * SMHI - Airviro Dispersion Software provision support and Software £2,200 committed
- * Travel and Training expenses £ 600 invoiced
- * Economic Impact and Opportunities Assessment 50% share of joint contract to be let with Bradford MDC £20,000 (expected)
- * Training day on the use of PITHEM £1,000 (expected)

Total Invoiced and committed, £8,860.

Total expected future spend £21 ,000

Total staff spend done by other LCC Depts, eg. Traffic modelling £6,000

Signature of Officer at the local authority



Name of local authority

Leeds City Council

Date

1/11/2012

