Ramboll Air Quality
EIC Air Quality Working Group

Graham Harker, Air Quality Director

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RAMBOLL

Bright ideas.
Sustainable change.

Contents

UK footprint

1,300 employees

- 6 in UK Air Quality team
- Links to European and US teams

17 offices

AQ – London, Birmingham, Manchester, Newcastle

Winner 2020

Ranked 8th 2019

Building

Ranked 9th Top 150 Consultants 2019
Ranked 6th Top 50 Engineers 2019

Our approach

Sustainable Society consultant
We partner with our clients to create sustainable societies where people and nature flourish, delivering enduring structures, resource-efficient solutions and socially cohesive communities for today and tomorrow.

Multi-disciplinary services
Bringing together expertise from across our business, we bring a multitude of experience to deliver on the climate imperative and create value and long term performance.

Innovation
Our ability to develop and combine knowledge and technology and utilise it in new and different ways, creates synergies and dynamics and better results for our clients.

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Buildings

Kings Cross Central – design & engineering across 15 sites

Energy

Clyde Gateway - regen scheme energy strategy

Environment & Health

Network Rail – sustainability advice

Transport

Dún Laoghaire-Rathdown County Ireland – active travel post Covid19

UK Air Quality Services

- Impact Assessments for Planning Applications
  - Modelling of road traffic emissions – ADMS Roads
  - Modelling of point source emissions – ADMS 5, (Aermod)
- Impact Assessments for Environmental Permitting
- Qualitative assessment of Construction Dust, Minerals Dust
- Odour – qualitative and quantitative
- Monitoring – to support impact assessments and construction dust monitoring (in conjunction with Ramboll acoustics)
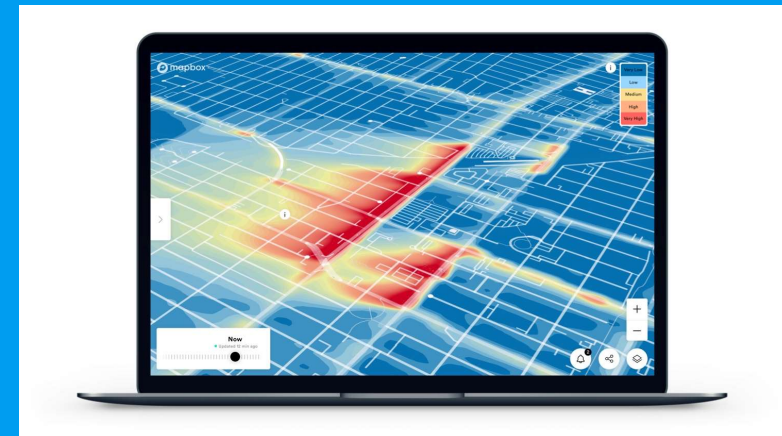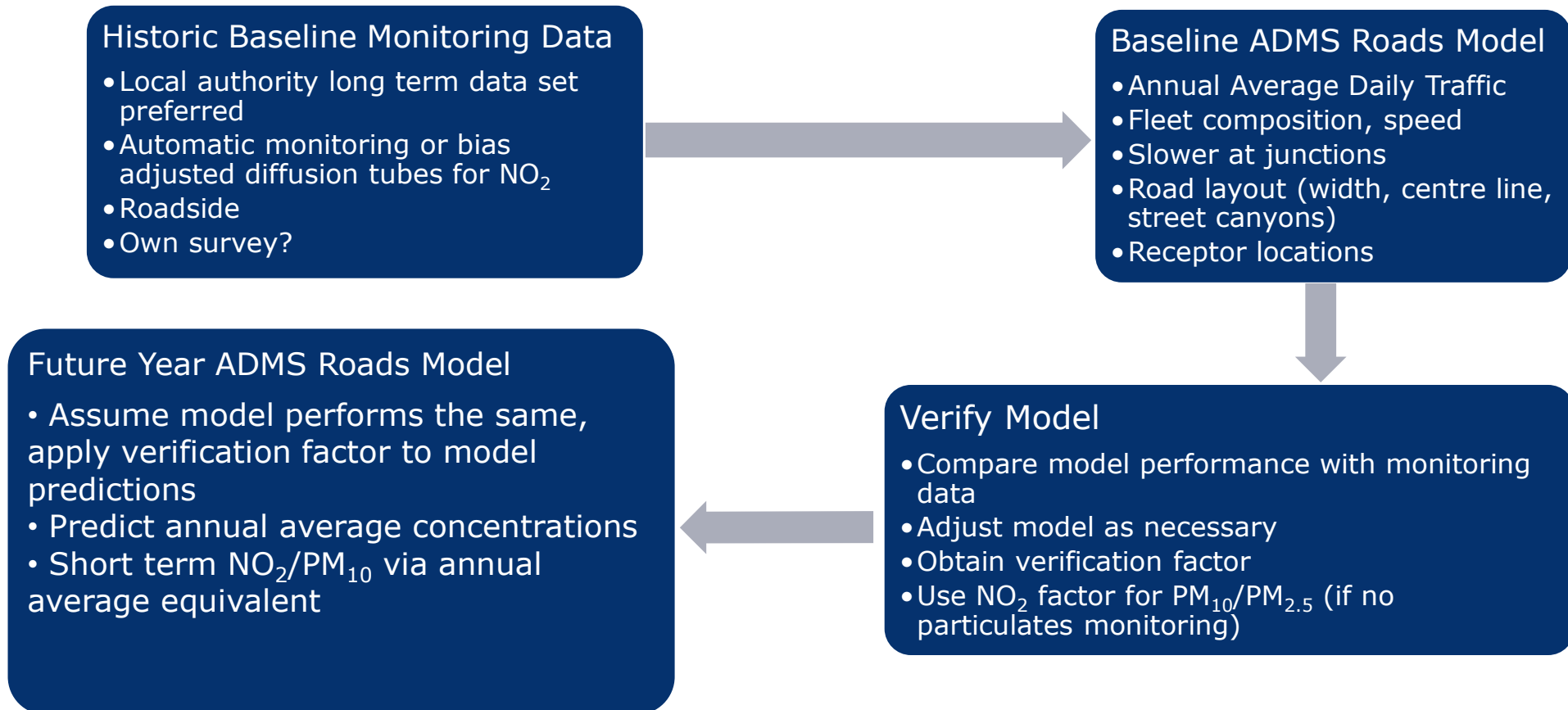- (Indoor air quality)

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US/EU Air Quality

Expertise in a variety of industries, including oil and gas, mining, ports, transportation and waste management.

- Unique regional modelling capabilities, with worldwide experience
- Expertise with numerous air quality models, including CAMx and CalEEMod, CMAQ, AERMOD, ADMS, CalPuff and SCICHEM
- Integrated risk management for air quality decision making, informed by sophisticated toxicological expertise
- Ramboll SHAIR

Monitoring input into Roads Modelling

Historic Baseline Monitoring Data

- Local authority long term data set preferred
- Automatic monitoring or bias adjusted diffusion tubes for NO_2
- Roadside
- Own survey?

Baseline ADMS Roads Model

- Annual Average Daily Traffic
- Fleet composition, speed
- Slower at junctions
- Road layout (width, centre line, street canyons)
- Receptor locations

Future Year ADMS Roads Model

- Assume model performs the same, apply verification factor to model predictions
- Predict annual average concentrations
- Short term NO_2/PM_{10} via annual average equivalent

Verify Model

- Compare model performance with monitoring data
- Adjust model as necessary
- Obtain verification factor
- Use NO_2 factor for PM_{10}/$PM_{2.5}$ (if no particulates monitoring)

Monitoring input into stack modelling

ADMS 5/AERMOD

- Input stack parameters, building parameters, receptor locations
- Rely on vendor testing of model performance, no project verification

Data Centres

- Large number of diesel standby generators, high NO_x emissions
- In emergency use, 99.79th %ile hourly average NO_2 objective is met with less than 1% chance of exceedance
- But 100%ile values exceed Daily Air Quality Index value
- EA permit Improvement Condition to undertake monitoring during generator testing to verify model predictions
- Develop plan with local authority in the event of an emergency – perimeter monitoring, wind speed/direction?

Indoor Air Quality

- New Service Offering in UK
- Investigating scope
- A few requests for fee proposals so far
- Will likely need support for monitoring

Air Quality Positive

Better Design / Reduce Exposure

- Monitor and provide real time information to minimise exposure?
- Use green infrastructure to segregate people from pollution

Innovation & Future Proofing

- Exploit new and emerging low and zero-emission technologies
- Use wide range of analysis techniques (e.g. CFD, wind tunnel, microclimate).

Question?

- Can development within a site make air quality within the site better?

Opportunities

- All large scale development in London & EIAs
- Need to provide evidence
- We have 1 site at present
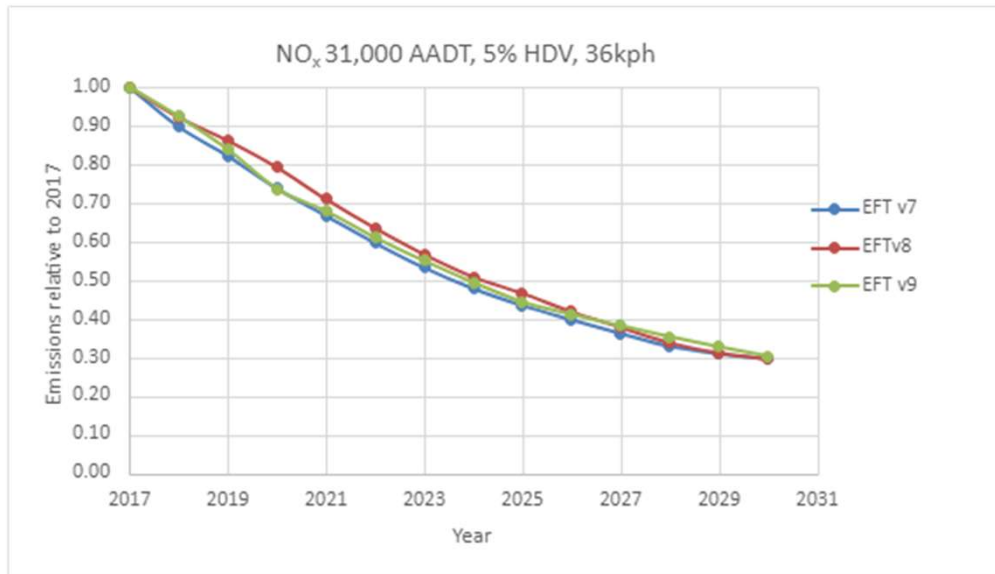
MAYOR OF LONDON

London Plan Guidance

Air Quality Positive

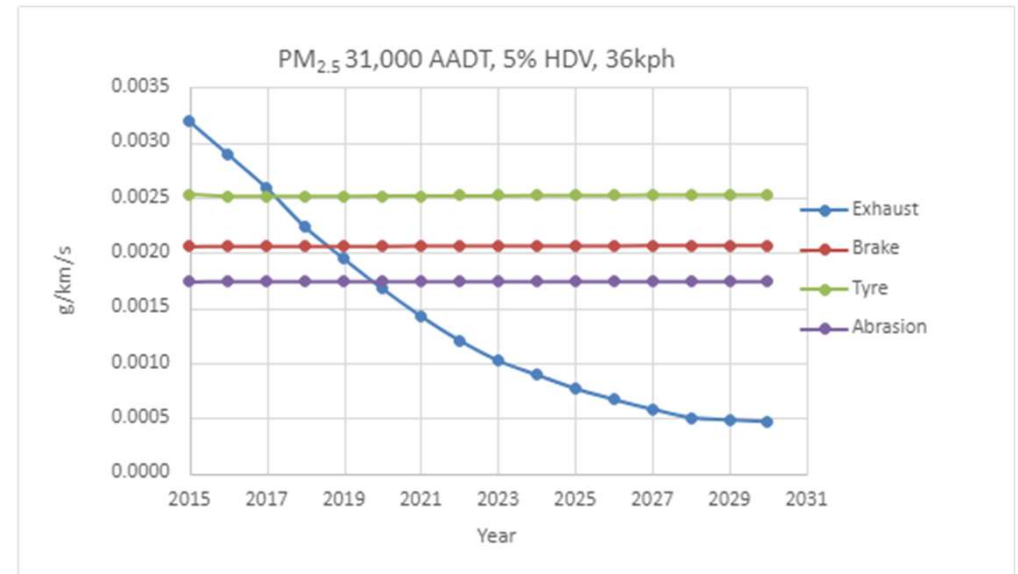**Consultation draft**
November 2021

Air Quality Neutral and Air Quality Positive Guidance | GLA Engagement Portal (london.gov.uk)

Other Innovation Opportunities - Road Traffic Particulates

Vehicle NO$_x$ emissions reducing

Vehicle PM$_{2.5}$ emissions from brake and tyre wear constant

Other innovation opportunities

Odour
- Human nose the best sensor?
- Olfactometry expensive, not immediate
- Ambient monitoring not undertaken, but would be useful

Supply chain questions?

Supply chain

- Please get in touch – gharker@ramboll.com; 07970 001781
- Happy to discuss
- Supplier questionnaire to fill in
- Buildings Innovation
- Acoustics sit in Buildings Team