

Vehicle emissions and air quality - the biggest problem with transport?

We predict vehicle emissions and air quality impacts of all modes of transport and research attitudes to health and environmental issues. We provide tools that clients can use to predict and map current and future traffic emissions and local air quality.

The issues

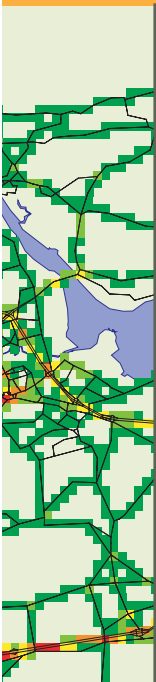
Air pollution harms our health, quality of life and our economy. Many people suffer or die from health problems caused by breathing polluted air. Road traffic is a major contributor to this poor air quality, particularly in large urban areas and near major roads and junctions.

Road traffic and aircraft add significant amounts of carbon dioxide and other greenhouse gases to the world's atmosphere, increasing global warming and adding to the pressure on the natural environment.

Our experience

We provide state-of-the-art modelling tools for predicting emissions from road and air traffic and mapping these and their impact on local air quality. The resulting maps show emissions hot spots and the impacts of changes in transport on the pattern of emissions, while the corresponding numerical outputs provide a robust quantification of the impacts.

Our projects range from town-centre traffic studies, through regional and national traffic emissions models to global air traffic demand and emissions forecasts. We use the latest methodologies for predicting vehicle emissions, taking full account of traffic volume and speed and the range of vehicle types on the road (or in the air).



Consequences of including international aviation in a carbon emission trading scheme

With our partners we undertook a study for the Dutch Government's Directorate-General of Transport and Civil Aviation (DGTL) to assess the impact of including international aviation in the European Carbon Emissions Trading Scheme (ETS) on the Dutch Aviation Sector.

Emissions forecasting across the Provence, Alpes and Côte d'Azur regions of southern France

We developed a tool for modelling emissions of atmospheric pollutants across the Provence - Alpes - Côte d'Azur regions of southern France, including Marseille, Nice, Toulon and Avignon. We used this tool to provide vehicle emissions forecasts which enabled our client to understand the pollution impacts of different speed restrictions which might be applied by local authorities to tackle periods of high air pollution.

Forecasting road traffic impacts of the Scottish Transport White Paper

We assessed the effects of various policy scenarios on future traffic volumes in Scotland, and the resulting environmental impacts, including the emissions CO₂, NO₂ and PM₁₀s. Maps were produced showing the levels of emissions and traffic congestion across central Scotland.

Emissions mapping for the Auvergne region

We produced emission maps covering the Auvergne region of France, using a methodology based on the European Environmental Agency's COPERT III (Computer Program to Calculate Emissions from Road Transport) and similar to ESCOMPTE (an atmospheric pollution research programme).

London Mayor's air quality and biodiversity strategies

We provided a team of consultants to work on the Mayor of London's Transport Strategy. The MVA team reviewed the Air Quality and Biodiversity Strategies and carried out an analysis of the targets to ensure consistency with national and EU legislation. We undertook a review of responses made by key stakeholders on the technical and policy content of the strategies and made recommendations on the changes needed to implement the strategies successfully, such as the need to meet NO₂ and PM₁₀ air quality targets.

Rail rolling stock replacement

We undertook an environmental assessment of rail rolling stock options, from diesel engines to gas turbines and electrification, for First Great Western. We predicted emissions of key pollutants for the different options on the London-Bristol and London-South Wales lines and translated these into monetary costs, based on the latest research into environmental externalities and health impacts carried out by the European Commission.

Impacts of N Ireland's regional transport strategy on vehicle emissions

We used our strategic traffic model of Northern Ireland and our specialist vehicle emissions software to predict the environmental impacts of various components of the Department for Regional Development's Regional Transport Strategy for the Province, as part of our overall appraisal of the strategy.

