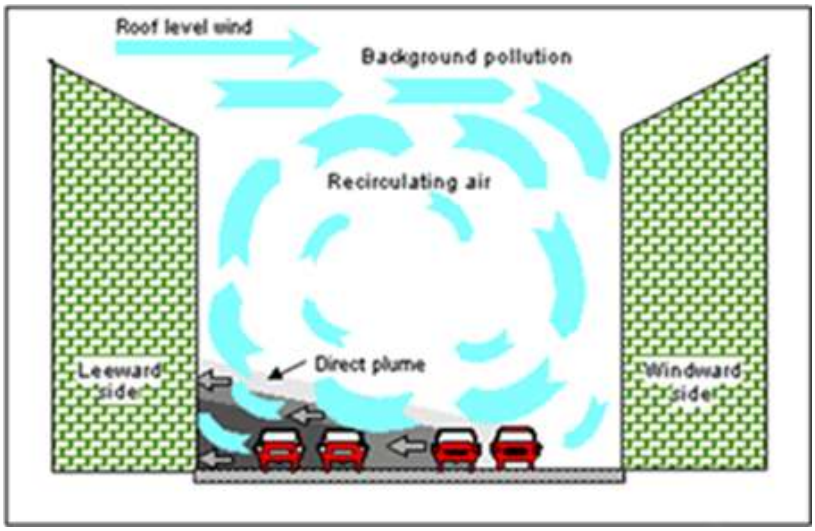
# ROSEBURN POLLUTION - DETAILED REPORT FROM JOHN LAMB

## Current situation

Two-way traffic passes through Roseburn Terrace in two lanes, due to parked vehicles on either side of the road.

Ironically, the parked vehicles are good for air quality, because the inside lanes provide an area in which exhaust gases can dilute before they reach the residential properties. Distance is a very important factor when considering nitrogen dioxide.

Roseburn Terrace is a text book example of a street canyon. Pollutants become trapped between the buildings and the prevailing wind rotates the pollutants in such a way, that they build up on the SOUTH side of the street.




Source: http://www.intechopen.com/books/air-quality-models-and-applications/urban-air-pollution-modeling

CEC measures nitrogen dioxide at the side of the kerb on both sides of the street.

The parked vehicles will provide the gases with an opportunity to dilute before they arrive at the measuring device, so the reported data are representative of a diluted concentration.

The Council uses passive diffusion tubes to measure the concentrations of nitrogen dioxide (NO2) in Roseburn Terrace, and this has shown that concentrations of NO2 on the south side of the street are higher than those on the north side (this is typical in a street canyon). Unfortunately, monitoring on the south side of street was stopped in 2009, so I have estimated the concentrations (grey text) using a mean south/north ratio of 1.34. These figures suggest that the concentrations of NO2 continued to exceeded the annual mean standard that was introduced to protect human health.

A passive diffusion tube is now in place on the south side of the street and it has confirmed that the ratio I used is reasonable.

| | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| North | 46 | 49 | 67 | 50 | 37 | 43.2 | 34.5 | 38 | 35 | 37 | 32 | 32 | 27 |
| South | 69 | 77 | 69 | 64 | 49 | 58 | 46 | 51 | 47 | 50 | 43 | 42 | 35* |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South/ North ratio | 1.5 | 1.57 | 1.04 | 1.28 | 1.33 | 1.34 | 1.34 | 1.34 | 1.34 | 1.34 | 1.34 | 1.30 | 1.30 |

NO2 measurement data in microgrammes per cubic metre (City of Edinburgh Council). *These measurements were obtained when parking was permitted, so they represent a diluted concentration. *CEC has reported a façade level of 35, but I calculated this to be 39.*

## Post Cycle Way

Parked vehicles on the south side of the street will be removed and two lanes of traffic will be moved closer to the residential buildings, where the concentrations of NO2 are already high.

The dilution zone on the south side of the street will be removed, and TWO lanes of traffic (traffic travelling west and traffic waiting to turn right into Roseburn Terrace) will be moved closer to the façade of the residential building, INCREASING the pollution.

## Important points

Roseburn Terrace is a street canyon that sits perpendicular to the prevailing wind and it is an example of the worst set of conditions for air quality. Moving traffic into the Leeward (south) side of the street should therefore be avoided.

The proposed changes to the road layout will increase the concentrations of atmospheric pollution on the leeward (south) side of Roseburn Terrace.

Roseburn Terrace is part of the City Centre Air Quality Management Area, therefore atmospheric pollution is already exceeding standards that have been put-in-place to protect human health. The impact of the proposed changes on air quality and human health should have been assessed by a suitably qualified expert using an approved dispersion modelling tool – such as ADMS-Roads. This model should be capable of assessing the complex environmental conditions that exist within a street canyon.

The findings of this assessment should be made available to the public.

**John Lamb BSc (Hons)**

**16years at SEPA, now retired**

**1/4/2019**

## City of Edinburgh Council's guidance on how to protect air quality

### City of Edinburgh Council's Local Transport Strategy 2014-2019

The Local Transport Strategy aims "To reduce pollutant emissions in order that the city meets statutory Scottish air quality standards." (Page 22) and Section 5.2.2 states "the Council will ensure that the air quality policies and actions in its Local Transport Strategy and

statutory Air Quality Action Plan are aligned;" Section 14.1.1: "Edinburgh's constrained road network, the impact of road traffic on quality of life and the need to meet climate change and air quality targets mean that it makes sense to favour strongly public transport for access into the city. The Council will support improvements to connectivity that do not increase traffic and congestion pressures in and around Edinburgh itself." The proposed changes in Roseburn is likely to increase traffic congestion and this is may increase exhaust emissions.

Appendix 1: "Outcome 2: Be healthy - promoting Active Travel with streets appropriately designed for their functions, with an emphasis on encouraging walking, cycling and public transport use and a high quality public realm; improving local air quality."

### Air Quality Action Plan 2008

Page 47: "Local air quality is a key consideration in the integration between planning and transport. The Edinburgh City Local Plan establishes the need for air quality assessment and mitigation."

### Local Development Plan: November 2016

Page 14: "The planning system has a role to play in the protection of air quality, by ensuring that development does not adversely affect air quality in Air Quality Management Areas (AQMAs) or, by cumulative impacts, lead to the creation of further AQMAs in the city. These are areas where air quality standards are not being met, and for which remedial measures should therefore be taken."

Page 107: Policy Env 22 Pollution and Air, Water and Soil Quality states: Planning permission will only be granted for development where:

• there will be no significant adverse effects for health, the environment and amenity and either

• there will be no significant adverse effects on: air, and soil quality; the quality of the water environment; or on ground stability

and:

"The potential risk and significance of pollution will be considered when assessing planning applications, in consultation where necessary with relevant agencies, such as Scottish

Environment Protection Agency and the Health and Safety Executive. Proposals will be assessed to ensure development does not adversely affect air quality in identified Air Quality Management Areas (AQMAs) or, by cumulative impacts, lead to the creation of further AQMAs in the city."

## National Institution for Health and Care Excellence

### Air pollution: outdoor air quality and health

https://www.nice.org.uk/guidance/qs181/chapter/Quality-statement-2-Planning-applications

"The built environment can affect the emission of road-traffic-related air pollutants by influencing how and how much people travel, for example, by ensuring good connections to walking and cycling networks. Buildings can affect the way air pollutants are dispersed through street design and the resulting impact on air flow. Addressing air pollution at the planning stage for major developments may reduce the need for more expensive remedial action at a later stage. It can also help to maintain people's health and wellbeing during and after construction. Assessing proposals to minimise and mitigate road-traffic-related air pollution will help to ensure they are robust and evidence based."

"Local authority planning officers assess proposals to minimise and mitigate road-traffic-related air pollution in planning applications for major developments using an agreed local framework to ensure they are evidence based. Local authority planning officers encourage applicants to modify their planning applications if necessary, to include evidence-based approaches to minimise or mitigate road-traffic-related air pollution."