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Report 00.526

11 July 2000

File: ENV/6/1/3

[Report 2000.Env00526.PD:mm]

Report to Environment Committee
from Perry Davy, Air Quality Scientist

Wellington Regional Ambient Air Quality Monitoring Strategy 2000-2005

1. Purpose

To present to the Committee the principle elements of the Regional Ambient Air Quality Monitoring Strategy, which has been designed for implementation in the Wellington Region over the period 2000 - 2005.

2. Background

Method 6.1.2 of the Regional Air Quality Management Plan states that the Wellington Regional Council will:

“Develop and implement an ambient air quality monitoring programme within four years of the adoption of this plan, sufficient to provide appropriate information on which to base future air quality management decisions.”

The need to implement this method was reinforced in Measuring Up – the State of the Environment Report for the Wellington Region which concluded that there was insufficient information currently available about the state of the Region’s air quality to effectively assess our performance in managing this resource.

The Wellington Regional Ambient Air Quality Monitoring Strategy outlines how we propose to establish a baseline monitoring network over the next five years.

3. The Strategy

3.1 Context

Ambient air quality is the general quality of the air that surrounds us. Ambient air quality reflects the cumulative effects of contaminants discharged to air from all activities, both anthropogenic (from human activities) and natural.

The Wellington Region is divided into a series of airsheds, delineated by valleys in between steep hills or mountains. This produces unique microclimates and meteorological conditions for each of these sub-regional airsheds. Each location has pressures on the air quality resource and resultant effects on air quality that cannot be inferred from one site to another. The main airsheds that have been identified as subject to air quality pressures include Wellington City, Lower Hutt Valley, Upper Hutt Valley, Wairarapa Valley, Porirua, Kapiti Coast, Karori and Wainuiomata.

Since 1997 the Regional Council has embarked on a series of screening investigations of air quality and various climatological aspects that influence air pollution meteorology within the Wellington Region. Additionally, an inventory of emissions to air within the Wellington Region has been completed.

The locations of the baseline monitoring stations are based on the results of the screening investigations and the emissions inventory.

3.2 Monitoring Sites

The monitoring strategy has two main components:

- i the establishment of permanent ambient air quality monitoring stations
- ii the establishment of meteorological monitoring stations

The three new permanent air quality monitoring stations will be established consecutively in the 2000-2001, 2002-2003, and the 2004-2005 financial years. The air pollutants that will be monitored on a permanent basis are particulate matter (PM_{2.5} and PM₁₀), carbon monoxide (CO), nitrogen oxides (NO_x), and hazardous air pollutants (HAPs). It is likely they are the most widely dispersed air pollutants in the Wellington Region and are known to endanger human health and well-being, as well as to have other adverse environmental effects.

The locations shown in Table 3.1 have been identified as permanent monitoring sites based on the results of the screening surveys and the results of the Wellington Regional Emissions Inventory. Factors taken into account include population densities, traffic density, industrial activity, topography and meteorology, which contribute to the pressures on the local air resource. Air quality monitoring in the Petone/Seaview area and Wellington City streets will be set up in conjunction with the Consents Management Department and the Transport Division respectively.

Table 3.1: Identified Monitoring Locations

Location	Pressure/Source	Pollutant/Parameter
Lower Hutt	Vehicles, Industry, Domestic	HAPs, CO, NO _x , PM ₁₀
Masterton	Domestic, Vehicles	CO, NO _x , PM ₁₀
Upper Hutt	Domestic, Vehicles	CO, NO _x , PM ₁₀
Petone/Seaview	Industry, Vehicles	HAPs, CO, PM ₁₀ , NO _x , SO ₂
Wellington City	Vehicles	CO, NO _x , PM ₁₀

Meteorological monitoring is necessary to characterise the air pollution transport mechanisms operating within an air shed and to provide meteorological datasets for dispersion modelling of pollutants. Meteorological monitoring sites will be established in the Wairarapa Valley and at Porirua during the 2001-2002 and 2003-2004 financial years respectively as these areas have been identified as currently lacking sufficient meteorological information.

3.3 Continuation of Screening Surveys

It is intended to continue with a series of ambient air quality screening surveys in areas that have not been monitored to date. Locations identified for screening surveys are listed in Table 3.2 and are based on an evaluation of local pressures on the air resource.

Table 3.2: Sites Identified for Screening Surveys

Location	Pressure/Source	Pollutant/Parameter
Karori	Domestic, Vehicles	CO, PM ₁₀ NO _x
Carterton	Domestic	PM ₁₀ , CO, NO _x
Wainuiomata	Domestic, Vehicles	CO, PM ₁₀ , NO _x
Elsdon/Porirua	Vehicles, Industry	CO, HAPs, PM ₁₀ NO _x
Paraparaumu	Vehicles, Domestic	CO, PM ₁₀ NO _x

The primary intention of the screening surveys is to assess the air quality in locations where it suspected to be degraded by pollutants. If any problem areas are identified by the screening surveys it may be necessary to follow up with longer-term monitoring.

4. Communications

The results and implications of ambient air quality monitoring will be reported on an annual basis or as various issues arise, such as breaches of the air quality guidelines. The results and conclusions from the various projects and associated air quality studies will be reported as they become available.

The results will be disseminated through technical reports from the Resource Investigations Department, reports and presentations to Managers and Councillors of the Regional Council, media releases and reports to local authorities, central government agencies, interested parties and members of the public. It is also anticipated that the monitoring results and additional educational material will be available through the Regional Council's website and that of the National Air Quality Database administered by the Ministry for the Environment.

5. Recommendation

That the report be received and its contents noted.

Report prepared by:

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