This is a true and correct copy of the Regional Plan: Air for Otago, incorporating Plan Changes 1 and 2, that was approved by the resolution of the Otago Regional Council on Wednesday, 10 December 2008.

The Common Seal of the Otago Regional Council was hereunto affixed pursuant to the resolution of the Council passed on 10 December 2008, in the presence of:

Stephen Cairns
Chairperson

Graeme Martin
Chief Executive

Key Event	Date Notified	Date Decision Released	Date Operative
Regional Plan: Air	28 February 1998	30 June 2001	1 January 2003
Plan Change 1 (Fire Service Training)	17 December 2005	29 March 2006	10 April 2006
Plan Change 2 (National Environmental Standards)	14 April 2007	12 December 2007	1 January 2009

Regional Plan:
Air for Otago

Otago Regional Council
Updated to 1 January 2009

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Chairperson's Foreword

Clean, clear air is a resource that is unseen and taken for granted until it is lost. As soon as the air is not fresh and clear we all get concerned. Concerns about loss of air quality range across visual, property, odour and health effects, and even extend to climate.

Here in Otago the air quality is usually better than in many other parts of the world, but we do have areas where, at times, the quality of air is degraded. This Regional Plan: Air sets out the objectives, policies and rules the Otago Regional Council will use for keeping our air clean, and improving the quality of air where it has been, or is at risk of being, degraded.

This Regional Plan: Air ushers in a new era for air quality management in Otago and sets out clear directions for activities that might affect air at a local or regional level. The Plan provides an integrated approach to air management issues, the aim of which is to reduce the adverse effects associated with activities that affect air quality. For that reason backyard burning has effectively been banned in urban areas of Dunedin City.

This revision incorporates changes made in response to the Government's 2004 National Environmental Standards for Air Quality (NESAQ), which set standards governing ambient (outdoor) air quality and new wood burners installed in urban areas.

While prepared by the Otago Regional Council, the Plan belongs to the region. It was developed following extensive consultation, carried out over a number of years with the community, Otago's city and district councils and industry.

Maintaining air quality is in everyone's interest and we must work together to retain and improve our air quality.

I thank all those groups and individuals who participated in developing this Plan. Your comments have been invaluable and the Council looks forward to working with the Otago community in implementing the Regional Plan: Air.

Stephen Cairns
1 January 2009

How to use the Regional Plan: Air for Otago

This Regional Plan: Air for Otago considers the use and management of Otago's air resource. The Plan provides objectives, policies, rules and other methods of implementation to address the use and management of the air resource. The rules of the Plan determine the status of any particular activity and determine whether a resource consent will be required before that activity can be carried out.

A resource consent is required for any activity which this Regional Plan: Air specifies as being a discretionary activity.

In some cases, the Plan specifies certain activities as being prohibited activities. These are activities which may not occur and for which no resource consent will be granted.

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Part I
Introduction

1.1 Purpose of this Plan

This Plan is to be known as the Regional Plan: Air for Otago. It has been prepared in order to promote the sustainable management of the air resource in Otago and thereby assist the Otago Regional Council to carry out its functions under the Resource Management Act.

1.2 The need for this Plan

The functions of the Otago Regional Council under the Resource Management Act 1991 include air quality management.

Section 65 of the Resource Management Act enables the Otago Regional Council to prepare a regional plan in respect of any function for which it is responsible. Section 65(3) states that regional councils shall consider the desirability of preparing a regional plan whenever the following circumstances arise or are likely to arise:

(h) any use of land or water that has actual or potential adverse effects on soil conservation or air quality or water quality;
(i) any other significant issue relating to any function of the regional council under this Act.

Consultation during the preparation of this Plan has highlighted the potential for some land uses to adversely affect air quality, and in particular to create problems of dust, odour and agrichemical spray drift. Degradation of ambient air quality has also been identified in the Regional Policy Statement for Otago as an issue of significance in the Otago region.

After consultation, and having regard to the purpose of the Resource Management Act, other methods available, and after having carried out an evaluation of the likely benefits and costs of the principal alternative means, the Otago Regional Council has decided that this Plan is the best method for:

- Establishing a long term and integrated strategy for efficiently managing Otago's air resource; and
- Maintaining and enhancing Otago's existing air quality as directed by the Regional Policy Statement for Otago.

1.3 Area covered by this Plan

This Plan applies to the whole of the Otago region, including Otago's coastal marine area which extends 12 nautical miles (22.2 kilometres) from mean high water springs. The Otago Region was constituted under the *"Local Government (Otago Region) Reorganisation Order 1989"* and is shown in Figure 1. The region comprises the districts of the:

- Dunedin City Council;
- Central Otago District Council;
- Clutha District Council;
- Queenstown-Lakes District Council; and
- Waitaki District Council (part only).

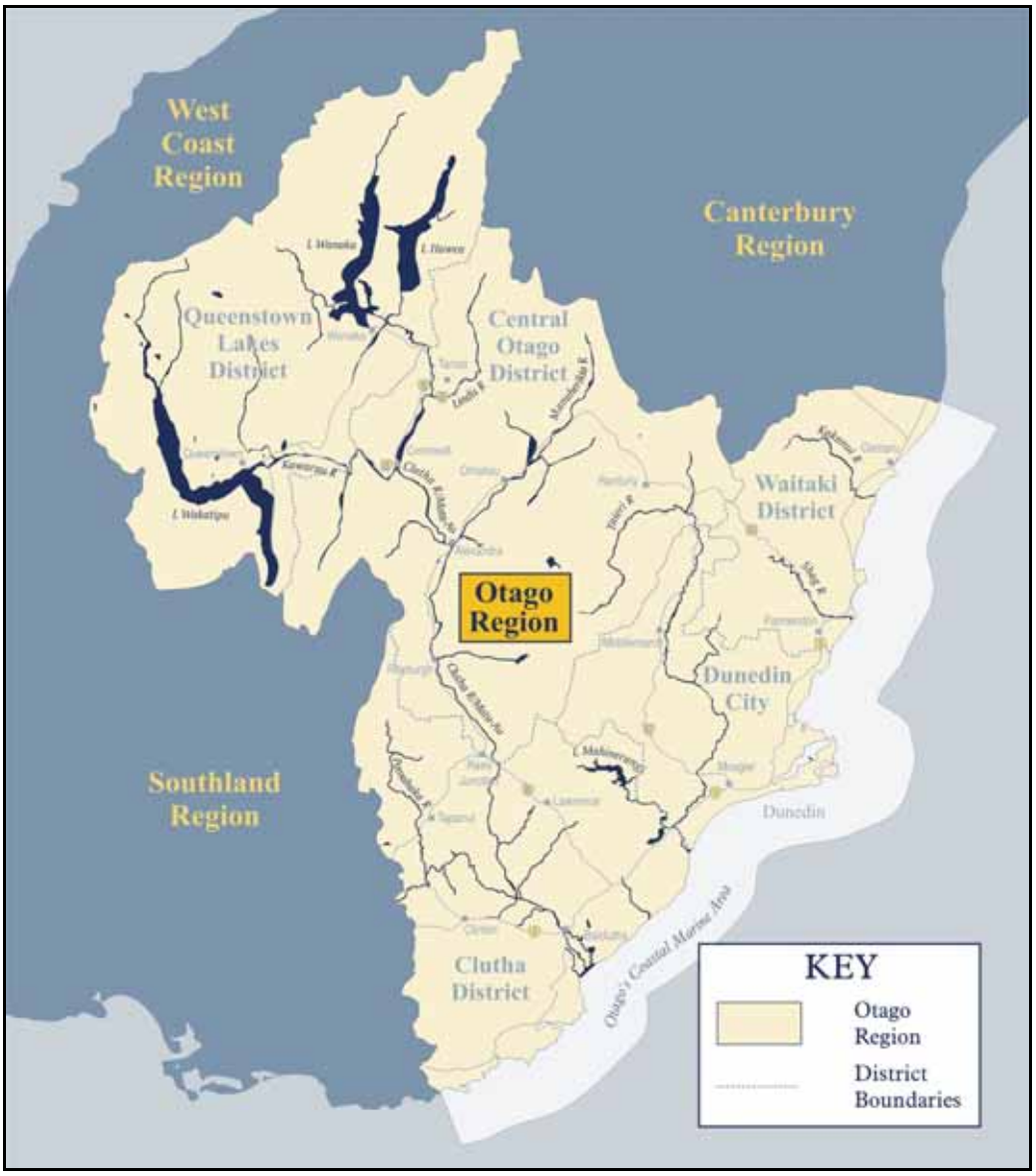


Figure 1: The Otago Region

1.4 Plan preparation process

This Plan has been prepared following a process in accordance with the requirements of the First Schedule to the Resource Management Act.

A discussion paper entitled *"Air Quality Discussion Paper"* was released in May 1996 and a total of 224 submissions were received.

This Plan was publicly notified on 28 February 1998. There were 261 submissions and 47 further submissions received. The decisions were released on 30 June 2001 and, after some appeals had been resolved, the Regional Plan: Air was made operative on 1 January 2003.

This Plan was changed by Plan Change 1, proposed on 17 December 2005 and made operative on 10 April 2006 following the receipt of no submissions. That introduced Rule 16.3.13.2 in place of Rule 16.3.13.1(7) and made several consequential changes.

This Plan was amended by Plan Change 2, proposed on 14 April 2007 and made operative on 1 January 2009 following the receipt of 840 submissions and 44 further

submissions. The amendments related to ambient air quality, and introduced new rules regarding discharges from domestic heating appliances.

1.5 Structure of this Plan

The structure of this Plan is based on the requirements for a regional plan as set out in Section 67(1) of the Resource Management Act. The Plan is divided into eight parts.

Part I (this part) outlines the purpose of the Plan, the area it covers and the plan preparation process. Part I also details the legislative framework for air quality management, how integrated management is to be achieved and outlines the perspective of Kai Tahu, Otago's manawhenua, to air.

Part II outlines the main air quality issues in Otago.

Part III outlines the approach adopted in this Plan for the management of air quality within the Otago region. Firstly, overall objectives for air quality management are defined. Secondly, policies for addressing the issues identified in Part II are stated. These policies set out the general direction that the Council will take, and establish criteria to guide the Council's decision making on resource consent applications.

Part IV sets out the rules which apply for the discharge of contaminants into air in Otago. It also specifies the type of information that will be required with any resource consent application. This part of the Plan is particularly important as it sets out situations where consents are required for the discharge of contaminants to air.

Part V outlines the methods other than rules which will be used to achieve the Plan's objectives.

Part VI states the environmental results anticipated from the implementation of the policies and methods (including rules) in this Plan.

Part VII sets out the methods the Otago Regional Council may use when effects of discharges into air cross district or regional boundaries.

Part VIII sets out the processes to be used for monitoring and reviewing this Plan.

Although this Plan is structured into discrete parts, these parts should not be viewed in isolation as the Plan needs to be read as a whole. This Plan uses a system of cross-referencing to provide linkage between parts, and issues, objectives, policies and methods. Within this system:

- Each of the issues is referenced through to the relevant objectives and policies within Part III of the Plan;
- Each of the objectives is referenced through to the relevant policies; and
- Each of the policies is referenced through to the relevant rules in Part IV, and other methods in Part V.

This cross-reference system is for information purposes, to aid understanding of the integrated nature of the Plan and to assist users to read the Plan as a whole by highlighting potential links between related provisions.

2 Legislative and policy framework

2.1 The Resource Management Act 1991

The Resource Management Act provides the statutory framework for managing air quality, for controlling the actual or potential effects of land use activities on the environment (including air) and for controlling discharges into air.

Section 30 of the Resource Management Act allocates regional councils the principal role for the management of air quality. Regional councils are the consent authorities for activities that would otherwise breach Section 15 of the Act. Section 15 restricts the discharge of contaminants into air, as follows:

"*15. Discharge of contaminants into environment-*

(1) No person may discharge any -

(a) Contaminant or water into water; or

(b) Contaminant onto or into land in circumstances which may result in that contaminant (or any other contaminant emanating as a result of natural processes from that contaminant) entering water; or

(c) Contaminant from any industrial or trade premises into air; or

(d) Contaminant from any industrial or trade premises onto or into land -

unless the discharge is expressly allowed by a rule in a regional plan and in any relevant proposed regional plan, a resource consent, or regulations.

(2) No person may discharge any contaminant into the air, or into or onto land, from -

(a) Any place; or

(b) Any other source, whether moveable or not, -

in a manner that contravenes a rule in a regional plan or proposed regional plan unless the discharge is expressly allowed by a resource consent, or regulations, or allowed by Section 20 (certain existing lawful activities allowed)."

Section 15(1) means that any discharge of a contaminant into air from any industrial or trade premises in Otago is allowed only if it is expressly authorised by a permitted activity rule in this Plan, a resource consent or by regulations. Under Section 15(2) the opposite presumption applies to discharges into air from any other source. That is, unless there is a relevant rule, discharges from sources other than industrial or trade premises can take place without a resource consent from the regional council.

Without this Plan, discharges of contaminants into air from industrial or trade premises, no matter how minor, require resource consents, while significant discharges from other sources do not.

A key function of this Plan is to allow minor discharges into air from industrial and trade premises which are unlikely to have any significant adverse effects, and to regulate other discharges which may have significant adverse effects.

Air quality can also be affected by the use of land and by discharges into air or to land from that use. Section 31 of the Act allocates a role to city and district councils in terms of controlling any actual or potential effects of land use on the environment (including

air). District plans may therefore contain provisions regulating land use to manage air quality. Such provisions must not be inconsistent with this Plan.

Under Section 43 of the Resource Management Act, the Government can issue national environmental standards. The Resource Management (National Environmental Standards Relating to Certain Air Pollutants, Dioxins, and Other Toxics) Regulations 2004 (NESAQ) applied nationally from 8 October 2004. The NESAQ have:

- Seven standards banning activities that discharge significant quantities of dioxins and other toxics into the air;
- Five standards for ambient (outdoor) air quality;
- A design standard for newly installed woodburners installed in buildings on properties less than 2 hectares in size; and
- A requirement for landfills over 1 million tonnes of refuse to collect greenhouse gas emissions.

Every regional, city and district council is required to enforce these standards.

Rules in this Plan and resource consents granted under this Plan cannot be more lenient than the requirements of the NESAQ, however in some circumstances they can impose more stringent standards, and may provide for matters not specified by the NESAQ. Existing resource consents to discharge contaminants to air prevail over the requirements of the NESAQ until a review of the consent (under Section 128(1)(ba) of the Resource Management Act) has been made to ensure consistency with the NESAQ.

2.2 Relationship to other resource management documents

This Plan only addresses the effects of discharges of contaminants into air. This means that any person discharging contaminants into air may also need to comply with or be consistent with:

- The Regional Policy Statement for Otago;
- Other regional plans prepared by the Otago Regional Council; and
- District plans prepared by the relevant city or district council. In Otago the relevant district council will be one of the following depending on the location of the activity: Dunedin City Council; Waitaki District Council; Central Otago District Council; Queenstown-Lakes District Council; or Clutha District Council.

In terms of the Otago Regional Council's own Regional Policy Statement and regional plans, the activity or operation will need to comply or be consistent with the provisions of the following documents:

- **Regional Policy Statement for Otago** (Operative 1998) - The Regional Policy Statement provides an overview of the resource management issues of Otago. It also provides policies and methods for achieving integrated management of the region's natural and physical resources. In the Regional Policy Statement air is recognised as a resource of regional significance. The objectives, policies and methods of the Regional Policy Statement have been taken into account in the development of this Plan.
- **Regional Plan: Waste for Otago** (Operative 1997) - This plan deals with solid waste management. It contains rules which require consents to be obtained for activities involving discharges of contaminants into air at contaminated sites, landfills (including farm landfills, clean-fill landfills, greenwaste landfills and offal pits) and composting and silage production.

- **Regional Plan: Coast for Otago** (Operative 2001) - This plan covers the coastal marine area of Otago which extends from the line of mean high water springs out to the 12 nautical mile limit. The plan contains rules which deal with the following: public access and occupation of space; structures; alteration of the foreshore and seabed; discharges; taking, use, damming or diverting water; noise; exotic plants and natural hazards. It does not control discharges of contaminants into air.
- **Regional Plan: Water for Otago** (Operative 2004) - This plan establishes a framework for the use, development and protection of Otago's rivers, lakes, aquifers and wetlands. It contains rules which require resource consents to be obtained for the: taking of water; damming or diversion of water; discharge of water into water; discharge of contaminants into water, or onto or into land in circumstances which may result in that contaminant entering water; use, erection, alteration, extension, removal or demolition of structures in the bed of any lake or river and the introduction of vegetation or deposition of any substance or drainage or reclamation in the bed of any lake or river.

2.3 Other legislation

Other legislation has implications for air quality, or activities which discharge contaminants into air. This legislation includes the following:

- Health Act 1956;
- Building Act 1991;
- Health and Safety in Employment Act 1992;
- Traffic Regulations 1976; and
- Hazardous Substances and New Organisms Act 1996.

It is the role of Otago's city and district councils to enforce the provisions of the Health Act and Building Act. The Department of Labour, the Land Transport Safety Authority and Ministry of Health have responsibilities under the Health and Safety in Employment Act, the Traffic Regulations and Health Act, respectively. The Environmental Risk Management Authority is responsible for implementing the Hazardous Substances and New Organisms Act.

3 Kai Tahu ki Otago: Air perspective

Section 8 of the Resource Management Act 1991 requires all people exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, to take into account the principles of the Treaty of Waitangi. The Treaty guarantee of rangatiratanga to Kai Tahu should be reflected in the provision of adequate and appropriate opportunities for participation in air quality planning, management and monitoring.

Attitudes to resource use need to be reconciled with the relationships between iwi and te taiao, mauri, wairua, tapu, mana and rangatiratanga. Central to an understanding of these concepts is a knowledge of the Maori holistic values and the cosmogenic origins that make Kai Tahu part of the physical environment - they belong in it, and it does not belong to them. As kaitiaki they have an inherited responsibility to protect and preserve mauri and to conserve taoka.

Kai Tahu recognise the Regional Plan: Air as an important complementary part of the hierarchy of planning for the Otago Regional Council. The Regional Plan: Air is consistent with the cultural inter-relationships between the domains of Ranginui and

Papatuanuku, and the interaction between the key demi-gods Tane Mahuta, Tangaroa and Tawhirimatea.

The Kai Tahu perspective is guided by their belief in the tradition of Papatuanuku, Ranginui, Tawhirimatea, Tane Mahuta, and Tangaroa. The inseparable nature of these values means they cannot be addressed in isolation. What impacts on one impacts on all, a holistic perspective that is beginning to be recognised in the resource management process.

Following the separation of Ranginui and Papatuanuku, Tawhirimatea was the only child who objected to Ranginui's treatment and fled with him to his new home in the sky. From there he controls the elements and occasionally vents his spite on the world below. The activities of Tawhirimatea can be benign or spiteful, and it is in the nature of Maori ethos to ensure that nothing is done to enrage Tawhirimatea.

Kai Tahu believe that good health is the positive state of physical, mental, spiritual and social well being. Kai Tahu is concerned with the effect air quality has upon people's health. The Council must recognise that adverse effects on the air resource have the potential to harm people's health and well being.

Kai Tahu consider that when managing the air resource it is important to take into account the principle of kaitiakitanga – the duty to ensure that the air resource in Otago is managed with care and respect, for the benefit of current and future generations, and the health of the environment. The duty of the Crown to protect the iwi interests is an important factor.

The Ngai Tahu Claims Settlement Act 1998 (NTCSA) contains statements, called statutory acknowledgements, by Te Runanga o Ngai Tahu, of the particular cultural, spiritual, historic and traditional association of Ngai Tahu with specific areas in the Otago region.

The statutory acknowledgements and the areas to which they relate are set out in the Schedules of the NTCSA.

The effect of the statutory acknowledgements is set out in Part 12 of the NTCSA.

Under Section 208 of the NTCSA, local authorities must have regard to the statutory acknowledgements in deciding whether Te Runanga o Ngai Tahu is an affected person whose written approval must be obtained for a non-notified resource consent application, or must be served with a notified application for a resource consent.

Section 211 of the NTCSA enables Ngai Tahu to cite these acknowledgements in submissions or in proceedings before consent authorities or the Environment Court. A statutory acknowledgement is not binding on the consent authority or Court, but may be taken into account.

This note is for the purpose of public information only and does not form part of the Plan. It is required by Section 220 of the Ngai Tahu Claims Settlement Act 1998.

Part II
Otago's Air Quality Issues

4 Introduction

This part of the Plan outlines the air quality issues in the Otago region. These issues have been identified through:

- Consultation during the development of the Regional Policy Statement for Otago;
- Evaluating issues raised in public comments on the Air Quality Discussion Paper; and
- Assessing the relevance of national and international air quality issues.

4.1 Kai Tahu ki Otago

4.1.1 Discharges into air may adversely affect:

(a) Waahi tapu;
(b) Waahi taoka;
(c) Mahika kai; and
(d) Marae.

Explanation

Kai Tahu ki Otago have a spiritual relationship with the air. Its creation is recognised by Kai Tahu tradition as the dawn of light. The air is an integral part of the environment which must be valued, used with respect, and passed on intact to the next generation.

Kaitiakitanga requires Kai Tahu to be actively engaged in the planning, consenting and monitoring of the air resource to ensure their holistic values are recognised. Because of the importance of the air resource to Kai Tahu, and in order to provide for kaitiakitanga, it is necessary to involve Kai Tahu in the management of the air resource.

When contaminants are discharged into air they may have an adverse effect on customary values and practices including waahi tapu, waahi taoka, mahika kai and marae. For example:

- Discharges into the air may adversely affect traditional sources of mahika kai thereby further reducing the ability to gather food;
- Discharges such as those from a crematorium can, if located in close proximity to waahi tapu or other taoka, be spiritually offensive; and
- Discharges into air can adversely affect health on a marae and can be culturally offensive.

Issues of particular concern, which stem from the Kai Tahu perspectives are:

- **Air quality in Otago**. To ensure the air resource is passed on intact to the next generation, Otago's air resource should be maintained and enhanced where it is degraded.
- **Discharges from industrial or trade premises** adversely affect local and ambient air quality and can affect papakaika and mahika kai.
- **Domestic discharges** are a concern because of their effect on mahika kai and other cultural uses.
- **Dust** can have an adverse effect on traditional Maori rock art and people's health.
- **Odour** may affect marae and waahi taoka.

- **Agrichemical spray drift** has the potential to cause adverse effects on people's health and non-target neighbouring areas. Of particular concern are site specific areas such as marae, waahi tapu, mahika kai, water and indigenous flora.
- **Vegetation burning** can have an adverse effect on waahi tapu, waahi taoka, mahika kai and marae.
- **Transport emissions** can have an adverse effect on public health, mahika kai, and on native flora and fauna used for natural medicines.

Other issues 4.2.1 to 4.10.1
Objectives 6.1.1, 6.1.2, 6.1.3
Policies 7.1.1, 8.2.3

4.2 Air quality in Otago

4.2.1 The discharge of contaminants into air can degrade ambient air quality.

Explanation
Ambient air quality is the general quality of the air that surrounds us and is a reflection of the cumulative impacts of discharges from human activities and natural processes.

There are many benefits of good ambient air quality, including:
- Avoiding costs in the health, recreation, built environment, commerce and natural environment areas;
- Enabling our quality of life to be maintained, and in particular those values relating to amenity and visibility; and
- Maintaining the perception of this country as a clean environment and thus enhancing its attractiveness to visitors.

In 1994, the Ministry for the Environment produced a document entitled *"Ambient Air Quality Guidelines"* (AAQG). The AAQG provides the minimum requirements that ambient air quality should meet in order to protect human health and the environment. These 1994 guidelines were updated in 2002. The updated AAQG contains new ambient air quality guideline values for both existing and newly listed contaminants, revised guidance on how they should be used to manage air quality under the Resource Management Act, and new guidance on assessing the potential impacts of air pollution on ecosystems.

In 2004 the NESAQ was gazetted, as discussed in section 2.1. The NESAQ provides baseline ambient air quality protection for all New Zealanders, the standards of which are based upon those given in the AAQG. Where pollutants are not covered by the NESAQ, those guidelines given in the AAQG still apply. The requirements of the NESAQ also override any less stringent requirements in regional plans.

The Otago Regional Council's ambient air quality monitoring programme, which commenced in 1997, has focused on measuring the levels of PM_{10} (particles smaller than ten microns), oxides of nitrogen, carbon monoxide and sulphur dioxide. A report produced by the Otago Regional Council in 2005 entitled *"Ambient Air Quality in Otago 1997 – 2004, Nitrogen Dioxide, Sulphur Dioxide and Carbon Monoxide"*, summarises the air quality monitoring results for these

pollutants, and concludes that they are not causing a significant problem in Otago's urban areas. However, the monitoring programme is on-going to enable the Council to identify trends and further increase its understanding of air quality, and the effects of discharges of contaminants to air.

The NESAQ requires the ambient concentration of PM_{10} in all parts of New Zealand to meet 50 $\mu g/m^3$ (24-hour mean) by 1 September 2013, with only one excedence of this standard allowed in a 12-month period. With regard to PM_{10}, a report produced by the Otago Regional Council in 2005 entitled *"Ambient Air Quality in Otago 1997 – 2004, Particulate Matter"* summarises air quality monitoring undertaken. Monitoring data has shown breaches of the NESAQ requirements for PM_{10} in a number of urban areas throughout the region, including Alexandra, Arrowtown, Cromwell, Dunedin, Milton, Mosgiel, Oamaru, and Palmerston.

The relative contributions of domestic, industrial, commercial and transport sources on air quality were investigated in 1999 and 2006 through an inventory of emissions for Otago's main urban areas. The results of the inventory show that during winter when measured PM_{10} concentrations have been high, emissions from domestic sources are the largest source of PM_{10}.

Outside of urban areas, ambient air quality in Otago is generally considered to be good.

Other issues 4.3.1 to 4.10.1
Objective 6.1.1
Policies 8.1.1, 8.1.2, 8.2.3, 8.2.4, 8.2.6, 8.2.8, 9.1.1, 9.1.2, 9.1.3, 9.1.4, 13.1.1, 14.1.1

4.3 Discharges from industrial or trade premises

4.3.1 Discharges into air from industrial or trade premises can adversely affect air quality.

Explanation
Discharges from industrial or trade premises may be point source (e.g., a chimney) or from an area source such as a storage yard. These discharges can adversely affect human health, amenity and heritage values and the physical and biological environments surrounding the discharges. The main factors giving rise to these effects include the presence of:

- Dust (area source discharges are addressed in Issue 4.5.1);
- Hazardous or toxic contaminants;
- Particulates; and
- Odour, which is a significant effect resulting from discharges from some industrial or trade premises and is addressed in Issue 4.6.1.

In terms of this Plan, discharges on industrial or trade premises do not include those from the engines of motor vehicles, trains or aircraft on these premises.

While most, if not all discharges of contaminants into air from industrial or trade premises will have some effect on air quality, the effects will vary, and therefore

the level of control necessary to avoid, remedy or mitigate adverse effects will vary. It is therefore important to establish a level of control that is appropriate to the actual or potential effects of the discharge, and one which is at a similar level to the controls established for non industrial or trade discharges which have similar effects on the environment.

Other issues 4.5.1, 4.6.1, 4.9.1
Objectives 6.1.1, 6.1.2, 6.1.3
Policies 8.1.1 to 8.2.6, 8.2.8, 9.1.1, 9.1.2, 10.1.1, 11.1.1

4.4 Domestic heating and burning of waste

4.4.1 Domestic heating using wood and fossil fuel produces emissions that have the potential to adversely affect human health and amenity values in Otago's urban areas.

Explanation
The burning of wood and fossil fuels produces smoke, water vapour, carbon dioxide, carbon monoxide, nitrogen oxides, hydrocarbons and other volatile organic compounds. Sulphur oxides (primarily sulphur dioxide and sulphur trioxide) are also discharged from the burning of fuels containing sulphur, such as coal. Monitoring of levels of nitrogen, carbon monoxide and sulphur dioxide in ambient air in urban areas of Otago has been undertaken, and is documented in the 2005 report "*Ambient Air Quality in Otago 1997 – 2004, Nitrogen Dioxide, Sulphur Dioxide and Carbon Monoxide"*. The report concludes that they are not causing a significant problem in Otago's urban areas.

In terms of the burning of wood and fossil fuels for domestic heating, the most significant effect of discharges in Otago is the accumulation of fine particles (smaller than 10 microns (PM_{10})) in the air that we breathe (ambient air). This is an issue because these particles can adversely affect human health as they enter the respiratory system and can cause loss of lung function, onset or aggravation of respiratory illness, and a loss of capacity to resist infection.

Monitoring of PM_{10} in ambient air in urban areas has been undertaken, and is documented in the 2005 report *"Ambient Air Quality in Otago 1997 – 2004, Particulate Matter"*. This monitoring has shown that PM_{10} concentrations have reached or exceeded levels where adverse health effects may occur in many of Otago's urban areas. Emissions inventories undertaken in 1999 and 2006 for Otago's urban areas indicate that the majority of this PM_{10} comes from domestic heating discharges. In 1999, many urban areas were surveyed and such discharges were found to contribute an average of 75% of winter PM_{10} emissions, with contributions for individual urban areas ranging from 52% to 92%. In 2006, an emissions inventory was undertaken for Dunedin, Mosgiel and Alexandra. The main source of PM_{10} emissions in all areas during the winter was domestic home heating, which accounted for 90% of total PM_{10} emissions in Dunedin and Mosgiel, and 99% of total PM_{10} emissions in Alexandra.

Discharges from domestic heating can also result in adverse effects on amenity values in terms of odour, nuisance and visibility.

The adverse effects of discharges from domestic heating are caused, or exacerbated by, inefficient heating appliances, incorrect use of appliances and poor quality fuels. For example, open fires discharge more PM_{10} than multifuel or woodburners, which in turn discharge more PM_{10} than pellet fires, gas heaters or electricity. Poor quality fuels, such as coal with a high sulphur content or wood with a high moisture content, will produce more adverse effects than low sulphur coal or dry wood, which in turn produce more adverse effects than wood pellets or gas.

Objectives 6.1.1, 6.1.2, 6.1.3
Policies 8.1.1, 8.1.2, 8.2.7, 8.2.8, 9.1.1, 9.1.3, 9.1.4

4.4.2 Burning waste outdoors can produce emissions which have adverse localised effects beyond the boundary of the property where the burning occurs.

Explanation
The Otago Regional Council receives a significant number of complaints about outdoor burning. These are typically associated with burning in drums or on the open ground in backyard situations. In the three years to 30 June 1999 these accounted for 23% of air pollution complaints with the majority being made within the Dunedin City area.

The main effects from the burning of waste on residential properties are adverse localised effects which occur mostly in areas which have a higher density of settlement. These effects include:

- The generation of smoke which can cause a nuisance to neighbours by soiling property and reducing visibility;
- The emission of odours which can reduce the pleasantness and general amenity value of an area;
- Exposure to high concentrations of various combustion products which may cause adverse health effects such as respiratory irritation, an issue which can be significant for people with asthma or other respiratory illness; and
- The potential for hazardous air contaminants to be discharged. These contaminants commonly result from the burning of materials such as plastics, chemically treated wood and fabrics.

Discharges from the outdoor burning of waste can also accumulate in the ambient air and increase contaminant concentrations (along with contaminants from other sources) to levels where adverse human health effects occur. An emissions inventory undertaken for Otago's urban areas in 1999 has shown that only a small proportion (less than 1%) of contaminants originate from the burning of waste on residential properties. Because of this, their cumulative effects are considered to be relatively insignificant. Instead, it is the adverse localised effects that occur from such burning, rather than its effects on ambient air quality, that are the significant concern.

Such effects can result from both open burning and incineration. Outside the main urban areas, a more dispersed population and good management practices can assist in mitigating any adverse effects.

Note that Otago's city and district councils may also implement bylaw controls on the burning of waste for the purpose of reducing fire risk.

Objectives 6.1.1, 6.1.2, 6.1.3
Policies 8.2.6, 8.2.7, 8.2.8

4.5 Dust from area sources

4.5.1 Dust emissions from area sources can be a nuisance.

Explanation
Area sources of dust are those where the dust is not emitted from a particular point such as a chimney. The main area sources of dust in the Otago region are:

- Land and soil disturbance associated with subdivision development, construction activities, land clearance and cultivation;
- Unsealed roads, driveways or yards;
- Gravel extraction and mining; and
- Natural sources such as dry river and lake beds.

The adverse environmental effects of dust from these sources are primarily associated with nuisance and can include unwanted deposition of dust on property, reduced visibility and diminished amenity values. Health impairment may also occur, particularly when small particles are present.

Once emitted, dust from area sources is difficult to control because the emissions are generally intermittent and difficult to contain. Managing the adverse effects of dust discharges is therefore best achieved through avoiding dust emissions by using appropriate land management practices. Thus, while this Plan advocates the use of appropriate land management practices to avoid dust emissions, and contains rules to control activities on industrial or trade premises that have the potential to result in significant dust emissions, it is envisaged that the two primary means by which such controls will be implemented will be via the district plans of Otago's city and district councils and by conditions on land use consents granted by city and district councils. Dust controls may also form part of industry codes of practice or other mechanisms which promote good management practices.

Dust emissions from point sources are commonly related to specific activities undertaken on domestic, industrial or trade premises. As such, the effects of point source discharges are addressed via other issues in this Plan.

Objectives 6.1.1, 6.1.2, 6.1.3
Policy 10.1.1

4.6 Odour

4.6.1 The discharge of odorous compounds can have significant adverse effects on amenity values and human health.

Explanation

Odour is a high profile air quality issue in the Otago region, accounting for 33% of air pollution complaints received by the Otago Regional Council in the year ending 31 December 1997. The main sources giving rise to these complaints are:

- Abattoirs, fellmongers and rendering plants;
- Solid waste disposal, e.g., landfills and transfer stations;
- Fish processing plants;
- Sewage and waste water treatment systems;
- Commercial food processing operations; and
- Farming activities such as dairy shed effluent treatment and disposal, silage making and intensive farming.

Over 80% of odour complaints relate to activities in the Dunedin and Mosgiel areas. This appears to be because of the concentration of industry in these areas and the intensive nature of development which often produces situations where incompatible land uses are located in close proximity to one another. Incompatible land uses can exacerbate the effects of odour discharges by permitting the establishment of activities that produce odorous discharges and odour-sensitive activities in the same area.

The main effects of odour are on amenity values and effects on human health. At its extreme, on-going exposure to an offensive odour can create tensions between the producers of the odour and people exposed to the odour.

Odour, possibly more than any other contaminant discharge, directly affects the amenity values of an area. These amenity values are often described in subjective terms by communities and this can make it difficult to identify the effects that odour may have on them.

Odour itself is also subjectively defined. People respond to smells differently. While one person may detect an odour associated with a contaminant at a low concentration, others may not be able to detect it until it is much stronger. Once detected, people make judgements on the pleasantness or otherwise of an odour based on their individual experience.

While there are a small number of odours that almost all people would agree are offensive, there are a wide range of responses within the population. For example, silage may be considered by some to have a 'sweet' or 'nice' odour, while others may consider the odour to be quite offensive.

It is this subjectivity which makes it both difficult to measure odour objectively and to assess its effects. This means that the management of odour is often contentious and difficult. Odour management should initially concentrate on avoiding the occurrence of odour problems through effective planning, good process design and control, and general site management. Where it is not possible

to avoid odour problems, a variety of management options exist and the most appropriate option, given the characteristics of the site and the odour, can be implemented to minimise the adverse effects. The Ministry for the Environment has produced a report entitled *"Odour Management Under the Resource Management Act"* (1995), which sets out considerations for regional, city and district councils for the management of odour.

Objectives 6.1.1, 6.1.2, 6.1.3
Policies 8.2.1, 8.2.3, 8.2.4, 8.2.5, 11.1.1

4.7 Agrichemical spray drift

4.7.1 The application of agrichemicals has the potential to cause adverse effects on non target areas or species as a result of spray drift.

Explanation
The use of agrichemicals to control plant pests, insect pests and fungal diseases is common throughout Otago. Such chemicals are used in horticulture, agriculture, arable farming, forestry and fruit production. Agrichemicals are also used in the management of public amenity areas and in residential gardens.

While problems associated with the application of agrichemicals are not widespread in Otago, there is the potential for adverse effects to occur as a result of sprays drifting onto non-target areas and onto neighbouring properties, thus creating conflict amongst neighbours. Changing land use patterns in some areas of Otago, due to the development of rural residential living and viticulture, may also increase the potential for such conflict to occur. Spray drift may have adverse effects on amenity values, natural resources, human health, economic well being and sensitive areas or places.

Areas or places can be sensitive for two main reasons. Firstly, the area or place may contain something that is particularly susceptible to damage from the agrichemicals being used. Secondly, the area or place might be sensitive because people consider agrichemical use to be inappropriate in that location.

The main factors influencing the occurrence of agrichemical spray drift are weather conditions, whether buffer zones exist between the intended spray area and non-target areas, the application method, and the frequency and duration over which agrichemicals are applied.

Many users of agrichemicals have recognised the need for better management of agrichemical application and control over the use of agrichemicals. In particular, the New Zealand Agrichemical Education Trust runs "Growsafe" courses to certify users of agrichemicals, and has produced the *"Code of Practice for the Management of Agrichemicals"* as a New Zealand Standard (NZS 8409:1999).

Objectives 6.1.2, 6.1.3
Policies 8.2.1, 8.2.2, 8.2.3, 8.2.4, 8.2.5, 8.2.8, 12.1.1

4.8 Vegetation burning on production land

4.8.1 Smoke generated by the burning of vegetative matter on production land can reduce visibility and cause adverse effects including nuisance.

Explanation
Land clearance and vegetation control by burning is a common practice on production land where activities such as horticulture, agriculture, arable farming, forestry and fruit production are undertaken. Where good burning practices are followed, any adverse effects are usually short lived, however when they are not followed, smoke may be discharged over a prolonged period of time. This can reduce visibility and cause adverse effects. It is of particular concern when the burning occurs in the vicinity of urban areas, lifestyle properties or areas where people participate in recreational activities such as on ski fields, and within national parks and reserves.

Discharges from the burning of vegetative matter in backyards can also have adverse effects but, as these effects are different, they are dealt with in Issue 4.4.2 in the Plan.

The burning of vegetative matter may also have effects on land and water resources. These effects will be addressed in other regional plans. The fire risk associated with land clearance is controlled by the Forest and Rural Fires Act 1977. This act is primarily administered by Otago's city and district councils, however the Commissioner for Crown Lands and the Department of Conservation administer the act in relation to Crown land.

Objectives 6.1.1, 6.1.2, 6.1.3
Policy 8.2.8, 13.1.1

4.9 Transport emissions

4.9.1 Emissions from transport sources have the potential to adversely affect human health and amenity values.

Explanation
Within Otago, emissions from motor vehicles such as cars, buses and trucks are the most dominant form of air pollution from transport sources. Emissions from ships and aircraft, however, can have intermittent and localised effects in and around Port Chalmers, the Port of Dunedin and Dunedin and Queenstown airports. It is impractical to manage the emissions from ships and aircraft on a regional basis because they only visit the Otago region for short periods and cause very localised effects. Integrated management of these emissions on a national and international basis is more effective, and as such they are not controlled by this Plan.

In 1996 there were 68,748 motor vehicles recorded as being available for private use in Otago, with 62 % (or 43,014) of these in Dunedin City (Statistics New Zealand, 1996 Census).

Motor vehicles discharge large quantities of contaminants into the air as exhaust fumes. These emissions include nitrogen oxides, carbon monoxide, carbon dioxide, unburned hydrocarbons, and volatile organic compounds such as benzene and formaldehyde. The nature and rate of emissions depends on: the type of fuel used; the efficiency of the engine or state-of-tune; whether or not emission treatment technologies are employed; driving style; the types of vehicles on the road; traffic levels and measures adopted to manage traffic flows.

Discharges from motor vehicles can:

- Have cumulative adverse effects on the global air resource since motor vehicle emissions are one of the main sources of "greenhouse" gases;
- Contribute to the creation of a brown haze or smog in urban areas which has the effect of reducing visibility and amenity values; and
- Contribute to high concentrations of contaminants in urban areas, particularly within "traffic corridors". In some circumstances the concentrations can reach levels where human health can be adversely affected.

Dunedin's central shopping area is the area most susceptible to adverse effects arising from motor vehicle emissions. This is because it has the highest levels of traffic congestion in Otago combined with a complex topography of poorly ventilated street canyons (tall buildings), a proximity to heavily trafficked roads (such as the state highways) and adverse meteorological conditions, such as the evening temperature inversion in the winter.

Objective 6.1.1, 6.1.2, 6.1.3
Policy 14.1.1

4.10 Global issues

4.10.1 The discharge of contaminants into air in Otago may have global effects.

Explanation
Air movement is not constrained by physical boundaries. The discharge of contaminants into air in Otago can therefore have effects on global air quality. Similarly global air quality can have regional effects.

Global issues of most significance for Otago are:

- The depletion of the ozone layer by substances such as chlorofluorocarbons (typically used in refrigeration), halons (used in fire fighting equipment) and methyl bromide (a fumigant); and
- Climate change through the emission of 'greenhouse gases' such as carbon dioxide, methane and water vapour from activities such as the burning of fossil fuels, motor vehicle emissions and methane gas from agricultural production.

Depletion of the ozone layer increases the levels of ultra violet radiation. This radiation is potentially harmful to human health and living tissue. It can lead to an increased incidence of skin cancer and eye damage, and may also affect plant growth and animal health.

Greenhouse gases insulate the earth and maintain global temperatures at constant levels. These gases have increased in concentration over the last 130 years. While there is still uncertainty about the consequences that increased concentrations may have, it is expected that sea level will rise and weather patterns will be modified.

The New Zealand Government is a signatory to international agreements including the Kyoto Protocol, the Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer. The government has primary responsibility for developing and implementing national responses to global air quality issues.

In the Regional Policy Statement for Otago, the Council adopted policies to support initiatives aimed at avoiding, remedying and mitigating the production and discharge of greenhouse gases and ozone depleting substances.

While global effects are the primary responsibility of central government, the policies, methods and rules in this Plan will assist in achieving national objectives, through controlling the discharge of contaminants into air.

Objectives 6.1.1, 6.1.3
Policy 15.1.1

Part III
Air Quality Management: Objectives and Policies

5.1 Management framework

This part of the Plan outlines the framework for managing air quality and discharges of contaminants into air. This framework is based on the following:

- Establishing objectives for air quality in the region; and
- Determining the most effective policies for addressing each of the issues identified in Part II.

6.1 Objectives

6.1.1 To maintain ambient air quality in parts of Otago that have high air quality and enhance ambient air quality in places where it has been degraded.

Explanation

This objective seeks to maintain ambient air quality where it is high rather than let it degrade, and to enhance air quality where it has been degraded to the point that the air resource is not being sustainably managed.

Principal reasons for adopting

This objective will ensure management of the region's air resource is consistent with Objective 7.4.1 of the Regional Policy Statement for Otago. The objective also reflects the community's desire for high ambient air quality throughout the region at all times.

This objective is implemented by all of the policies in this Plan.

6.1.2 To avoid adverse localised effects of contaminant discharges into air on:

(a) Human health;
(b) Cultural, heritage and amenity values;
(c) Ecosystems and the plants and animals within them; and
(d) The life-supporting capacity of air.

Explanation

This objective recognises that many air management issues relate to the localised effects of discharges, such as the effects of odour and smoke as opposed to effects on the region's ambient air quality. It seeks to ensure that the localised effects of the contaminants discharged into air do not have adverse effects on human health, cultural, heritage and amenity values, and the life supporting capacity of air.

Principal reasons for adopting

This objective is adopted to ensure that discharges do not have localised adverse effects on the environment.

This objective is implemented by all the policies in this Plan

6.1.3 To allow for the sustainable use of Otago's air resource.

Explanation
The primary function of the Plan is to provide for the sustainable use and protection of the region's air resource. This objective recognises that people have traditionally made extensive use of the air resource and will continue to do so in the future.

Principal reasons for adopting
This objective is adopted to ensure continued access to Otago's air resource for a range of existing and new uses, recognising the need to provide for the social, economic and cultural well being of Otago's people and communities.

This objective is implemented by all of the policies in this Plan

7.1 Policy for Kai Tahu ki Otago

7.1.1 To recognise and provide for the relationship Kai Tahu have with the air resource through procedures that enable Kai Tahu to participate in management of the air resource.

Explanation
Within Otago, Kai Tahu have cultural and spiritual values that can be adversely affected by the discharge of contaminants into air. In order to recognise Kai Tahu's relationship with the air resource and the potential for cultural and spiritual values to be adversely affected, it is essential to ensure that Kai Tahu participate in the management of the resource.

Principal reasons for adopting
Part II of the Resource Management Act recognises the special importance of iwi values. In order for the Council to achieve its responsibilities under the Act, it is necessary to ensure that iwi are involved in the management of Otago's air resource. This relationship is also recognised and provided for by Policy 7.5.1 of the Regional Policy Statement for Otago.

Rules 16.3.1.7, 16.3.2.6, 16.3.3.2, 16.3.4.3, 16.3.5.9, 16.3.6.3, 16.3.7.3, 16.3.8.2, 16.3.9.4, 16.3.10.3, 16.3.11.2, 16.3.14.1, 16.3.15.2 to 16.3.15.5

8.1 Policies for ambient air quality

8.1.1 To have regard to the Otago Goal Levels identified in Schedule 1 and comply with the Resource Management (National Environmental Standards Relating to Certain Air Pollutants, Dioxins and Other Toxics) Regulations 2004 in managing the region's ambient air resource.

Explanation
Otago Goal Levels are the levels of contaminants in air that are aimed for in parts of Otago where air quality may be degraded, particularly urban areas. The aim is to ensure as much of Otago as possible has ambient contaminant concentrations below these levels. The levels should not, however, be regarded as a limit up to which it is acceptable to allow pollution to reach in those areas with good air

quality where contaminant concentrations are currently well below these levels. Concentrations exceeding these levels are considered to be in the "alert" category as defined by the Ministry for the Environment in *Environmental Performance Indicators: Proposals for Air, Freshwater and Land* (1997). These are warning levels set at between 66 and 100% of the guideline values that can lead to the AAQG or NESAQ being exceeded if trends are not curbed.

Should monitoring results indicate that contaminant concentrations are approaching or exceed Otago Goal Levels, the Council will undertake research to identify the sources of contaminants and determine whether emissions and concentrations are likely to increase over time. The results of such research will then be used to develop and implement an appropriate management response in consultation with the community.

The Otago Goal Levels are concerned with the cumulative impacts of discharges into air from human activities and natural processes. Because of this it is generally inappropriate to apply them directly to set emission limits or determine consent monitoring requirements for individual discharges. They can, however, be used as a factor in determining the duration of a consent and assessing cumulative effects.

The NESAQ is mandatory and provides for a specific range of prohibitions and restrictions on discharges from certain activities, and where practicable, these have been incorporated within the policy and rule framework of this Plan.

These regulations include prohibitions (with some exceptions) on the granting of resource consents for certain activities; lighting of fires and burning of waste at landfill; burning of tyres, bitumen, coated wire and oil; the operation of incinerators at school or healthcare institutions unless resource consent has been granted for the discharge; and the operation of high-temperature hazardous waste incinerators.

The NESAQ also sets ambient air quality standards for five contaminants; regulates aspects of granting or declining resource consents to discharge PM_{10}, carbon monoxide, oxides of nitrogen, volatile organic compounds and sulphur dioxide; and sets specific standards for woodburners and for the control of greenhouse gas emissions at landfills.

Principal reasons for adopting

The Resource Management Act requires an effects-based approach to managing the air resource. Such an approach requires guidelines against which to measure the cumulative effects of activities. This enables problem areas to be targeted and the effectiveness of management strategies to be monitored.

Because Otago's community has identified the maintenance and enhancement of air quality as the key management objective, Otago Goal Levels have been adopted which set higher standards than those contained in the AAQG and the NESAQ.

The incorporation, where practicable, of the NESAQ into this Plan's objectives, policies and rules enables an integrated approach to management of air quality by identifying in one regulatory document, all relevant restrictions and prohibitions on discharges to air.

Other policies 8.1.2, 8.2.3, 8.2.4, 8.2.6, 8.2.8, 9.1.1, 9.1.2, 9.1.3, 9.1.4, 13.1.1, 14.1.1
Rules 16.3.1.7, 16.3.2.6, 16.3.3.2, 16.3.4.3, 16.3.5.9, 16.3.6.3, 16.3.7.3, 16.3.8.2, 16.3.9.4, 16.3.10.3, 16.3.11.2, 16.3.14.1, 16.3.15.2 to 16.3.15.5

8.1.2 To manage ambient air quality by airsheds and air zones.

Explanation
The Otago region comprises a number of areas specified as separate airsheds by the Minister for the Environment through notice in the New Zealand Gazette, as well as an airshed comprising the balance of the region.

Twenty-two Otago airsheds have been gazetted, representing Otago's main urban areas. The 23rd airshed comprises the balance of the Otago region. In accordance with the definition of airsheds in the NESAQ, the balance of the region is an airshed by default. The maps of the airsheds are given in Schedule 2. The Otago Regional Council monitors air quality in each of these airsheds where it is likely that the ambient air quality standards set by the NESAQ will be breached.

For simplicity of management, the twenty-two airsheds have been categorised into three Air Zones, as follows:

- **Air Zone 1:** including Alexandra, Arrowtown, Clyde and Cromwell airsheds.
- **Air Zone 2:** including Balclutha, Dunedin, Green Island, Hawea, Kingston, Milton, Mosgiel, Naseby, Oamaru, Palmerston, Port Chalmers, Queenstown, Ranfurly, Roxburgh, Waikouaiti and Wanaka airsheds.
- **Air Zone 3:** the whole of Otago, excluding the areas that are zoned 1 or 2.

The Clyde airshed is identified as a sub-zone within Air Zone 1 until 1 April 2009, pending further monitoring and an analysis of how discharges to air within the Clyde airshed affect the Alexandra airshed.

Principal reasons for adopting

This policy is adopted to enable appropriate local responses to comply with regulations 15, and 17 to 21 of the NESAQ.

Other policies 8.1.1, 8.2.1, 8.2.3, 8.2.4, 8.2.6, 9.1.1 to 9.1.4
Rules 16.3.1.1 to 16.3.1.7, 16.3.2.1 to 16.3.2.6, 16.3.4.1 to 16.3.4.3, 16.3.5.1 to 16.3.5.3, 16.3.5.9, 16.3.14.1, 16.3.15.1 to 16.3.15.5

8.2 General policies for managing discharges of contaminants into the air

8.2.1 To allow discharges of contaminants into air from industrial or trade premises that have minor or no adverse effects without the need for a resource consent.

Explanation
Section 15(1) of the Resource Management Act 1991 allows discharges of contaminants into air from industrial or trade premises only when the discharge is expressly authorised by a permitted activity rule, a resource consent or by regulations. This policy establishes a framework which allows discharges into air from industrial or trade premises, without consent when the Council is satisfied that there will be no adverse effects or that any adverse effects will be minor in nature.

Principal reasons for adopting
This policy avoids unnecessary regulation of discharges from industrial or trade premises that are unlikely to result in any significant adverse effects on the environment.

Rules 16.3.1.2 to 16.3.1.6, 16.3.2.2, 16.3.2.3, 16.3.2.5, 16.3.4.1, 16.3.4.2, 16.3.5.1 to 16.3.5.8, 16.3.6.1, 16.3.6.2, 16.3.7.1, 16.3.9.2, 16.3.10.1, 16.3.10.2, 16.3.11.1, 16.3.13.1, 16.3.13.2
Methods 17.5.2.1, 17.5.2.2

8.2.2 Priority will be given to avoiding adverse effects from hazardous air contaminants identified in Schedule 3 when considering the effects of any discharge of contaminants into air.

Explanation
The contaminants listed in Schedule 3 have been identified by the Ministry for the Environment in the *Ambient Air Quality Guidelines* (1994) as either being known or suspected to cause acute human health effects or adverse effects on the environment. While the Ministry did not identify threshold concentrations at which these effects occur, it advocated a precautionary approach to minimise their emissions.

Accordingly when assessing applications to discharge hazardous air contaminants, the Otago Regional Council will expect applicants to demonstrate that measures have been taken to avoid the occurrence of adverse effects. Such measures could include but are not limited to:

- Employing processes that do not discharge hazardous contaminants;
- Modifying processes so as to reduce the mass of hazardous contaminants discharged;
- Installing emission control equipment; or
- Using site planning mechanisms and other land use management techniques to reduce the potential for off-site effects.

Principal reasons for adopting
This policy recognises that discharges of hazardous air contaminants can have adverse effects on human health and the environment. The policy states that the Otago Regional Council's priority is the avoidance of such adverse effects.

Other policies 8.2.3, 8.2.4, 8.2.5
Rules 16.3.1.7, 16.3.2.6, 16.3.3.2, 16.3.4.3, 16.3.5.9, 16.3.6.3, 16.3.7.3, 16.3.8.2, 16.3.9.4, 16.3.10.3, 16.3.11.2, 16.3.14.1
Methods 17.5.2.1, 17.5.2.2

8.2.3 In the consideration of any application to discharge contaminants into air, Council will have:

(a) Particular regard to avoiding adverse effects including cumulative effects on:
- **(i) Values of significance to Kai Tahu;**
- **(ii) The health and functioning of ecosystems, plants and animals;**
- **(iii) Cultural, heritage and amenity values;**
- **(iv) Human health; and**
- **(v) Ambient air quality of any airshed; and**

(b) Regard to any existing discharge from the site, into air, and its effects.

Explanation
This policy sets out those matters which will be given consideration in the resource consent process. It is not intended to limit those matters that the Council must consider in terms of Section 104 of the Resource Management Act.

When considering applications for consents to discharge contaminants into air, particular regard must be had to avoiding adverse effects (including cumulative effects) on values identified in (a). Where adverse effects are considered to be unavoidable, a resource consent may be declined or, if granted, be subject to conditions requiring the adverse effects to be remedied or mitigated.

Cumulative effects may arise over time as a consequence of the grouping of discharges. Their consideration will include having regard to the Otago Goal Levels identified in Schedule 1.

Item (i) explicitly provides for consideration of the effects of discharges on values of significance to Kai Tahu and complements Policy 7.1.1.

Items (ii) to (iv) will ensure consideration of the localised and ambient effects of discharges on the environment.

In assessing whether the proposed discharge is likely to increase significantly the concentration of PM_{10} in the airshed, the Council will have regard to:
- The characteristics of the PM_{10} discharge, including how much PM_{10} is to be discharged, and the frequency, rate and manner of the discharge;
- The nature of the receiving environment, including local climatic and geographic conditions and any surrounding environmental conditions that may affect the frequency, duration, intensity and degree of environmental effects;

- To what extent the proposed PM_{10} discharge contributes to the airshed breaching, or being at risk of breaching, the applicable curved or straight line path or the ambient air quality standard; and
- Whether any offset of PM_{10} is proposed, and the extent to which the offset mitigates the proposed discharge.

Part (b) is included to ensure that the past and present standard of the discharge of contaminants at that site forms part of the consideration of the consent authority, where an application is made to continue the discharge.

Principal reasons for adopting
This policy provides guidance on the effects that should be given consideration when making decisions on applications for resource consent.

Other policies 8.2.2, 8.2.4, 8.2.5
Rules 16.3.1.7, 16.3.2.6, 16.3.3.2, 16.3.4.3, 16.3.5.9, 16.3.6.3, 16.3.7.3, 16.3.8.2, 16.3.9.4, 16.3.10.3, 16.3.11.2, 16.3.14.1, 16.3.15.2 to 16.3.15.5
Methods 17.5.2.1, 17.5.2.2

8.2.4 The duration of any permit issued to discharge contaminants into air will be determined having regard to:
(a) The mass and nature of the discharge;
(b) The nature and sensitivity of the receiving environment; and
(c) Any existing discharge from the site, into air, and its effects.

Explanation
Permits to discharge contaminants may be granted for a duration of up to 35 years under the Resource Management Act, depending on the nature of the discharge and the receiving environment. Where the discharge has the potential for more than minor adverse effects, the duration of the permit may be set at less than the maximum term allowable.

While other policies in the Plan provide the primary means for assessing the effects of discharges, this policy identifies additional matters to be considered in relation to determining the duration of permits.

All assessments to establish the appropriate duration of a permit will be undertaken on a case by case basis having regard to the mass and nature of the discharge and the nature and sensitivity of the receiving environment. Council will take into consideration any existing discharge at the site and its effects. Council will set consent durations on an equitable basis to attain the environmental objectives of this Plan.

Principal reasons for adopting
This policy is adopted to give guidance in determining the appropriate duration of any consent to discharge contaminants into air.

The policy recognises that the maintenance and enhancement of existing ambient air quality within parts of Otago cannot be achieved if all permits are issued for the maximum duration of 35 years allowed under the Resource Management Act. It encourages new and existing dischargers to take measures to ensure that the

effects of their discharges are no more than minor in order to obtain permits for a longer duration. The guidance provided by the policy will also ensure that consent durations are applied on an equitable basis depending on the mass and nature of the discharge, the nature and sensitivity of the receiving environment, and the standard of discharges into air at that site.

Other policies 8.2.2, 8.2.3, 8.2.5
Rules 16.3.1.7, 16.3.2.6, 16.3.3.2, 16.3.4.3, 16.3.5.9, 16.3.6.3, 16.3.7.3, 16.3.8.2, 16.3.9.4, 16.3.10.3, 16.3.11.2, 16.3.14.1, 16.3.15.2 to 16.3.15.5

8.2.5 To require, as appropriate, that provision be made for review of the conditions of any resource consent to discharge contaminants into air.

Explanation
Resource consents to discharge contaminants into air are issued with the expectation that there will not be any significant adverse effects on air quality. There are occasions, however, when consented discharges may have unforeseen adverse effects on air quality that are considered noxious, dangerous, offensive or objectionable. This may be because the production process or emissions control equipment is not performing as expected. In these circumstances, a review of the resource consent conditions may become necessary before the end of the consent term. Reviews of this nature are provided for by Section 128(1)(a)(i) of the Resource Management Act. To enable this review, a condition will be included as appropriate, on any resource consent to discharge contaminants into air.

Principal reasons for adopting
This policy is adopted to inform the public that there is legislative provision to review the conditions of resource consents during their term to address any unforeseen adverse effects on air quality resulting from the exercise of the resource consent. Where such a resource consent has been issued for a long term, it may be unacceptable to wait for the end of its term to deal with any problems that have arisen.

Other policies 8.2.2, 8.2.3, 8.2.4
Rules 16.3.1.7, 16.3.2.6, 16.3.3.2, 16.3.4.3, 16.3.5.9, 16.3.6.3, 16.3.7.3, 16.3.8.2, 16.3.9.4, 16.3.10.3, 16.3.11.2, 16.3.14.1, 16.3.15.2 to 16.3.15.5

8.2.6 To control the effects from outdoor burning by:
- **(a) Enabling burning to occur providing it does not have significant adverse effects beyond the boundary of the property where burning occurs;**
- **(b) Restricting the type of materials that may be burnt, and controlling the means of burning, to minimise the discharge of hazardous air contaminants identified in Schedule 3; and**
- **(c) Applying separation distances for outdoor burning of waste in Air Zones 1 and 2, taking into account the potential for burning to occur in close proximity to neighbours, the likely frequency of burning and the likely volumes of waste involved.**

Explanation
This policy introduces three restrictions on outdoor burning. These are applied to both burning in or on the open ground, and incineration of waste and other materials, on residential and non-residential properties.

Part (a) indicates the Otago Regional Council's view that people undertaking outdoor burning need to adopt practices to avoid significant adverse effects beyond the boundary of the property where burning is being undertaken.

Part (b) restricts the type of materials that may be burnt by outdoor burning without a consent to waste paper, cardboard, vegetative matter and untreated wood. This is given effect to by rules ensuring that outdoor burning which has the potential to result in the discharge of hazardous air contaminants identified in Schedule 3 be carried out only in a consented incinerator, and is carefully assessed on a case-by-case basis with appropriate controls being applied. Open burning of "specified materials" as listed in Rule 16.3.3.1 is prohibited.

Part (c) recognises that proximity to a fire largely determines whether or not a discharge will have significant adverse localised effects. It recognises that because Air Zones 1 and 2 have higher population densities, the effects of the burning of waste in these areas are more significant than elsewhere in Otago. This is supported by the high number of complaints received by the Council concerning outdoor burning in these areas. Separation distances between the source of the discharge and property boundaries are needed which are related to the likelihood and significance of impacts on neighbours.

Principal reasons for adopting
This policy is adopted to avoid or mitigate the adverse effects that outdoor burning can have on people and the environment.

Restrictions on materials that may be burnt out-of-doors are adopted to reduce the potential effects of PM_{10} and the hazardous air contaminants identified in Schedule 3. The contaminants identified in Schedule 3 have been identified by the Ministry for the Environment as either being known or suspected to cause acute human health effects or significant adverse effects on the environment. Open burning of specified materials not in a consented incinerator is likely to be inefficient and thus result in the discharge of such hazardous contaminants.

Separation distances are adopted in order to avoid adverse localised effects on neighbours. Such adverse effects result from the soiling of property, the discharge of odours and smoke, reduced visibility and reductions in the pleasantness or amenity of an area, arising from outdoor burning on the open ground or in an inefficient incinerator.

Other policy 8.1.2
Rules 16.3.2.1 to 16.3.2.6, 16.3.3.1, 16.3.3.2,
Methods 17.4.1.1, 17.4.2.1 to 17.4.2.3

8.2.7 To promote voluntary actions to assist in avoiding adverse effects from the discharge of contaminants into air from:
(a) The outdoor burning of waste; and
(b) Domestic heating using domestic heating appliances.

Explanation
Advocacy and publicity by the Otago Regional Council can raise public awareness of the adverse effects that can arise from the incineration and open burning of waste, and the use of solid fuels for domestic heating. Such awareness can result in resource users taking voluntary actions to reduce the adverse effects of discharges. The advocacy and publicity initiatives forwarded in this policy are intended to support the regulatory methods for managing the effects of these discharges. These regulatory methods are outlined in Policies 8.2.6 (burning of waste) and 9.1.1 (domestic heating) of the Plan.

Principal reasons for adopting
This policy recognises the use of advocacy and public awareness as important methods for informing the public about the adverse effects associated with discharges of contaminants into air from the burning of waste and domestic heating.

Methods 7.6.17 and 7.6.18 of the Regional Policy Statement for Otago identify the use of education and public information campaigns as means of improving community awareness and understanding of air issues, and the adverse effects associated with discharges of contaminants into air. While non-regulatory approaches alone are not effective in avoiding or mitigating the adverse effects of discharges from the incineration and open burning of waste and domestic heating, they are an important tool in improving awareness of the associated issues and regulatory methods being used.

Other policies 8.2.1, 8.2.6, 8.2.8, 9.1.4
Methods 17.4.1.1, 17.4.2.1 to 17.4.2.3

8.2.8 To avoid discharges to air being noxious, dangerous, offensive or objectionable on the surrounding local environment.

Explanation
Irrespective of any other control on discharges, a condition will be placed on all relevant permitted activities to prevent, where necessary, any noxious, dangerous, offensive or objectionable effects at or beyond property boundaries. The identification of these effects is discussed in section 16.2.8.

Principal reasons for adopting
This policy is adopted to prevent noxious, dangerous, offensive or objectionable discharges to air.

This policy is implemented by all of the permitted activity rules in this Plan

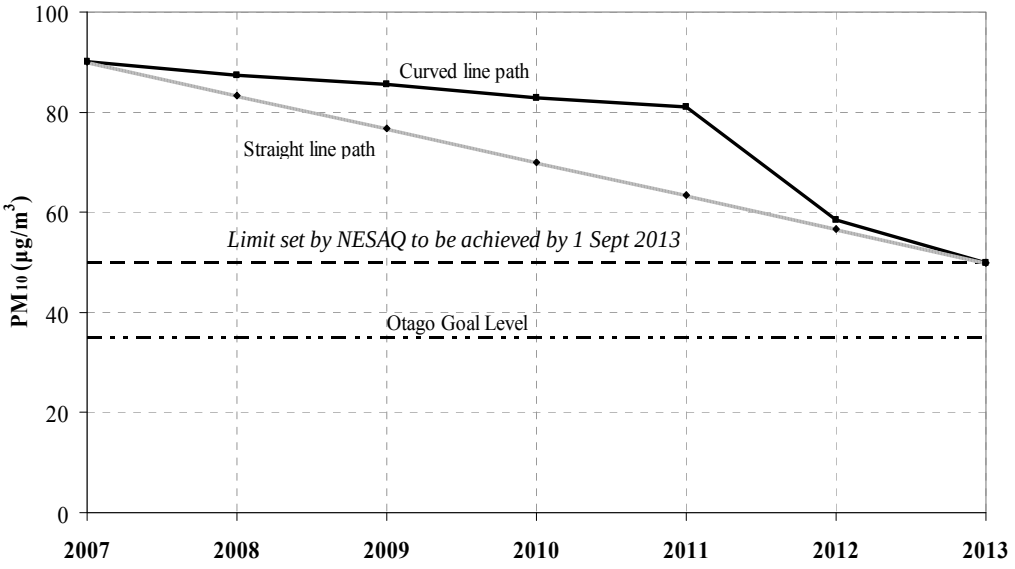
9.1 Policies for reducing discharges of PM_{10}

9.1.1 To reduce discharges of PM_{10} to comply with the ambient air quality standard for PM_{10} by 1 September 2013, in Air Zone 1 by following curved line paths to compliance, and in specified airsheds in Air Zone 2 by following straight line paths to compliance.

Explanation
By 1 September 2013, the NESAQ requires the concentration of PM_{10} in any airshed to meet an ambient air quality standard of 50 $\mu g/m^3$ (24-hour mean) with only one excedence allowed in a 12-month period.

For airsheds where the concentration of PM_{10} in ambient air exceeds the standard, regulation 17 (including 17A – 17D) of the NESAQ allows a regional council to select either a "straight line path" or a "curved line path" to achieve compliance by 1 September 2013. A straight line path means that a consistent reduction in PM_{10} discharges occurs from 1 September 2005, whereas a curved line path allows time for measures to be implemented that will achieve a reduction in PM_{10} discharges. Examples of both straight and curved line paths to compliance are shown in Figure 2.

Figure 2: Examples of Straight and Curved Line Paths to Compliance by 1 September 2013



Note: This graph is for illustrative purposes only and does not represent a path to compliance for any airshed within Otago.

A curved line path to compliance is intended to achieve the reduction of PM_{10} in airsheds in Air Zone 1, as given in Table 2. The start-point values apply from 14 April 2007 and reflect the typical level of wintertime PM_{10} observed in that airshed. As domestic heating appliances contribute significantly to PM_{10} concentrations in airsheds, Rules 16.3.1.1, 16.3.1.2, 16.3.1.5 and 16.3.1.6 are intended to ensure an ongoing reduction in PM_{10}. From 2007 until 2011, a small decrease is anticipated annually as low or no emission heating options gradually

replace existing solid fuel heating, and applications for resource consents are considered with respect to compliance with the curved line paths. More stringent requirements for domestic heating (which contributes approximately 99% of PM_{10} in Air Zone 1) are required to ensure compliance with the ambient air quality standard for PM_{10} by 2013. A timeframe of 1 January 2012 is proposed to allow time for those in Air Zone 1 to replace any domestic heating appliances that have high PM_{10} emissions, and thereby assist in meeting the ambient air quality standard for PM_{10} by 2013. The rapid decrease in PM_{10} shown by the curved line path is expected to occur between 2011 and the 1 September 2013 deadline, as stricter requirements for discharges from domestic heating appliances come into force.

Table 2: Data representing curved line paths towards achievement of the ambient air quality standard for PM_{10} in Air Zone 1

Date	Maximum Level of Particulate Matter (μg/m^3)						
	2007: From 14 April	2008	2009	2010	2011	2012	2013: By 1 September
Alexandra	131	129	127	125	123	68	50
Arrowtown	130	128	126	124	122	68	50
Clyde	66	66	65	65	64	54	50
Cromwell	97	96	95	93	93	60	50

A straight line path to compliance is intended to achieve the reduction of PM_{10} in specified airsheds in Air Zone 2. The start-point values given in Table 3 apply from 8 December 2005 and reflect the typical level of wintertime PM_{10} observed in that airshed. Rules 16.3.1.1 and 16.3.1.3 to 16.3.1.6 will ensure a steady reduction in PM_{10} discharges as low or no emission heating options gradually replace existing solid fuel heating, and applications for resource consents are considered with respect to compliance with the straight line path.

Table 3: Start points for the straight line path to achievement of the ambient air quality standard for PM_{10} in Air Zone 2

Date	Maximum Level of Particulate Matter (μg/m^3)						
	2007: From 14 April	2008	2009	2010	2011	2012	2013: By 1 September
Balclutha	54	53	53	52	51	51	50
Central Dunedin	57	56	55	54	52	51	50
Green Island	76	72	67	63	59	54	50
Milton	57	56	55	54	52	51	50
Mosgiel	83	78	72	67	61	56	50
North Dunedin	51	51	51	51	50	50	50
Oamaru	86	80	74	68	62	56	50
Palmerston	86	80	74	68	62	56	50
Port Chalmers	51	51	51	51	50	50	50

Date	Maximum Level of Particulate Matter (μg/m^3)						
	2007: From 14 April	2008	2009	2010	2011	2012	2013: By 1 September
South Dunedin	69	66	63	60	56	53	50
Waikouaiti	54	53	53	52	51	51	50

Note: Only those airsheds within Air Zone 2 where monitoring has shown breaches of the ambient air quality standard for PM_{10} have straight line paths to achieve compliance with the NESAQ.

The other Air Zone 2 airsheds and the Air Zone 3 airshed do not breach the ambient air quality standards for PM_{10} and therefore do not require a path to compliance.

Principal reasons for adopting

This policy is adopted to meet the requirement of regulation 17B(2)(a) of the NESAQ, for a plan to contain curved line paths that show how the ambient air quality standard for PM_{10} for airsheds in Air Zone 1 will be achieved by 1 September 2013. The curved path better recognises the likely path to compliance for these airsheds.

The policy also specifies the start points of the straight line paths for the specified airsheds within Air Zone 2 that currently breach the ambient air quality standard for PM_{10}, and identifies in one regulatory document the straight line path information needed to interpret the NESAQ and rules within this Plan for considering resource consent applications under section 16.3.15. For these airsheds, the straight line paths reflect the most likely path to compliance with the ambient air quality standard for PM_{10} by 1 September 2013.

Other policies 8.1.1, 8.1.2, 8.2.6, 8.2.7, 9.1.2, 9.1.3, 9.1.4
Rules 16.3.1.1 to 16.3.1.7, 16.3.2.1 to 16.3.2.6, 16.3.4.1 to 16.3.4.3, 16.3.5.1 to 16.3.5.3, 16.3.5.9, 16.3.14.1, 16.3.15.1 to 16.3.15.5
Methods 17.2.4.1, 17.3.1.1, 17.4.1.1, 17.4.2.1 to 17.4.2.3, 17.5.1.1, 17.5.1.2, 17.5.2.1, 17.5.2.2, 17.5.3.2, 17.5.4.1

9.1.2 To enable the use of offsets for the discharge of PM_{10} when:

(a) All practicable mechanisms to prevent or minimise the effects of the discharge have been applied;

(b) The offset is applied to a source in the airshed where the direct effects of the discharge may be experienced;

(c) The offset takes effect within 1 year after the grant of the resource consent; and

(d) The offset is effective for the duration of the consent.

Explanation
Regulation 17C of the NESAQ enables the use of offsets in particular circumstances and is silent on their use in other circumstances.

The Otago Regional Council expects an applicant to demonstrate that measures have been taken to prevent or minimise the effects of any PM_{10} discharge. Where these measures are demonstrated, and a risk remains of a breach of the applicable curved or straight line path, or ambient air quality standard, then at Council's discretion, consideration will be given to the use of offsets within the airshed.

The size of the offset will be determined by:

- The characteristics of the PM_{10} discharge, including how much PM_{10} is to be discharged, and the frequency, rate and manner of the discharge;
- To what extent the proposed PM_{10} discharge contributes to the airshed breaching, or being at risk of breaching, the applicable curved or straight line path or the ambient air quality standard; and
- Whether a full or partial reduction in PM_{10} is required under Rule 16.3.15.3.

In exercising its discretion to enable the use of offsets, Council will give consideration to the interaction between the offset discharge and the proposed discharge.

Any reduction in discharges of PM_{10} by offsetting must take effect within one year after the grant of the resource consent and be effective for the duration of the consent.

Principal reasons for adopting
This policy recognises that the discharge of PM_{10} from certain activities is possible, even when the best technology is applied. It enables industries to operate using appropriate technology, and allows mitigation of the adverse effects of any residual PM_{10} discharges in the vicinity by providing for the use of offsets in certain circumstances

Other policies 8.1.1, 8.1.2, 8.2.2 to 8.2.5, 9.1.1
Rules 16.3.1.7, 16.3.2.6, 16.3.3.2, 16.3.4.3, 16.3.5.9, 16.3.6.3, 16.3.7.3, 16.3.11.2, 16.3.14.1, 16.3.15.2 to 16.3.15.5

9.1.3 To reduce PM_{10} emissions from domestic heating appliances:

(a) In Air Zone 3, by requiring all new domestic heating appliances on properties less than 2 hectares in size to meet stringent emission and thermal efficiency standards, with an exemption for cookers; and

(b) In Air Zones 1 and 2, by requiring all new domestic heating appliances to meet stringent emission and thermal efficiency standards, with the most stringent standards to be applied to Air Zone 1; and

(c) In Air Zone 1, by prohibiting domestic heating appliances that do not meet stringent emission and thermal efficiency standards; and

(d) By providing in some circumstances for discharges from domestic heating appliances that do not meet the permitted emission and thermal efficiency standards in recognised heritage buildings and commercial

premises, having regard to cultural, heritage, amenity and economic values; and

(e) By encouraging and promoting the use of clean heating technologies.

Explanation

The main source of PM_{10} emissions in all areas during winter is derived from the heating of buildings, especially dwellings, using solid fuel. Human health and safety needs to be assured through allowing for adequate heating of buildings without causing unacceptable levels of PM_{10} contamination in ambient air.

Requiring the installation of domestic heating appliances with low PM_{10} emissions will be the principal means for ensuring PM_{10} concentrations in ambient air follow the curved line paths depicted in Policy 9.1.1, and ensuring that ambient air quality in the rest of Otago remains high. Promotion of clean heat technologies, such as well designed domestic heating appliances and fuels that are subject to strict quality control, will further reduce PM_{10} discharges.

On properties less than 2 hectares in size, the NESAQ requires an emission standard for woodburners of less than 1.5 g/kg of dry wood burnt, and a thermal efficiency standard of not less than 65%. This standard applies unless rules in this Plan are more stringent.

Both the emission and thermal efficiency standards set by the NESAQ for woodburners are applied to all other domestic heating appliances located on properties of less than 2 hectares in size, unless they are located in Air Zone 1 or 2, as this ensures all domestic heating appliances are treated equitably. In Air Zones 1and 2 the emission and thermal efficiency standards apply regardless of property size. In Air Zone 3 an exemption is made for cookers as ambient air quality is generally high and it is important for these smaller communities or isolated smaller properties to be able to be self-sufficient for heating and cooking as it may take longer to restore power in the event of a break to supply.

A more stringent emission standard applies in Air Zone 1 due to the high number of excedences of the PM_{10} ambient air quality standard. All newly installed domestic heating appliances must meet this standard, and those existing domestic heating appliances that do not have sufficiently low PM_{10} emissions will be prohibited from 2012.

Within Air Zones 1 and 2, and for under 2 hectare properties in Air Zone 3, discharges from any other domestic heating appliance installed from 14 April 2007, including any appliance that is untested or has been modified after being tested, must generally be prohibited if the Plan's objectives are to be met. The cumulative environmental effects in an air zone are likely to be significant if such appliances were able to be operated under authorisation such as a resource consent.

Provision in some circumstances is made for domestic heating appliances in recognised heritage buildings and in commercial premises to avoid adverse localised effects of this prohibition on cultural, heritage, amenity and economic values.

Principal reasons for adopting
This policy is adopted to assist in ensuring public health impacts of PM_{10} air pollution are minimised while allowing for the heating of buildings by means that are environmentally acceptable and sustainable. A stringent approach, including prohibition, is necessary for domestic heating which is the largest source of PM_{10} emissions in built up areas. Recognised heritage buildings must be provided for in certain circumstances, and allowing applications for resource consent for discharges from commercial premises provides an opportunity for businesses to consider a range of alternatives and make choices taking into account cultural, heritage, amenity and economic factors, while allowing the Council to consider environmental effects and offsets where required.

Other policies 8.1.1, 8.1.2, 8.2.6, 8.2.7, 9.1.1, 9.1.2, 9.1.4
Rules 16.3.1.1 to 16.3.1.7, 16.3.15.1 to 16.3.15.5
Methods 17.2.4.1, 17.3.1.1, 17.4.1.1, 17.4.2.1 to 17.4.2.3, 17.5.1.1, 17.5.1.2, 17.5.2.1, 17.5.2.2, 17.5.3.2, 17.5.4.1

9.1.4 To promote clean heating in new residential areas where discharges are likely to have an adverse impact on air quality in Air Zones 1 or 2, or degrade high quality ambient air.

Explanation
Discharges from domestic heating appliances in new residential areas may adversely affect air quality. When such developments are situated near airsheds in Air Zones 1 or 2, the discharge could adversely affect air quality in those airsheds, causing a breach of the ambient air quality standard for PM_{10}. Discharges from such developments could also adversely affect air quality in their own local area. There is a greater likelihood of this occurring in areas with similar geographical and climatic conditions to those airsheds in Air Zone 1.

While this Plan sets region-wide policies and rules for controlling the discharge of contaminants into air from domestic heating appliances, city and district councils are encouraged to set more stringent standards, using land use planning mechanisms, to further improve ambient air quality. Such mechanisms include conditions on consents and covenants specifying what types of domestic heating appliances can be installed in a building. The Otago Regional Council will encourage and support the use of such mechanisms through written submissions on plan changes and consents, commenting on urban growth strategies and liaising with developers.

Principal Reasons for Adopting
This policy is adopted to assist in ensuring public health impacts of PM_{10} from domestic heating appliances are minimised and areas of high ambient air quality are not degraded by promoting clean heating in areas of new residential development, and to meet the $NESPM_{10}$.

Other policies 8.2.7
Methods 17.2.1.1, 17.2.1.2, 17.2.4.1, 17.3.1.1, 17.4.1.1, 17.4.2.1 to 17.4.2.3, 17.5.1.1, 17.5.1.2, 17.5.2.2, 17.5.3.2, 17.5.4.1

10.1 Policy for dust from area sources

10.1.1 The Otago Regional Council will encourage:

(a) People undertaking land use activities to adopt management practices to avoid, remedy or mitigate any adverse effects of dust beyond the boundary of the property; and

(b) City and district councils to use land use planning mechanisms and other land management techniques to manage land use activities which have the potential to result in dust beyond the boundary of the property.

Explanation

Part (a) of this policy indicates the Otago Regional Council's view that people undertaking land use activities need to adopt management practices to avoid, remedy or mitigate any adverse effects beyond the property where these activities are being undertaken.

Part (b) indicates the Otago Regional Council's view that city and district councils should consider using land use planning and other mechanisms as a means of managing land use activities which have the potential to generate dust.

Principal reasons for adopting

This policy recognises that there are management practices available to people undertaking land use activities, and land use mechanisms available to city and district councils, which can assist in avoiding, remedying or mitigating the adverse effects of dust.

Methods 17.2.1.1, 17.2.1.2, 17.2.3.1, 17.4.1.1, 17.5.1.1, 17.5.1.2, 17.5.2.1, 17.5.2.2

11.1 Policy for odour

11.1.1 To avoid or mitigate any adverse effects on human health or amenity values resulting from the discharge of offensive or objectionable odour through the use of:

(a) Good management practices (including the use of codes of practice) and process technology that has an inherently low odour potential to ensure the amount of odorous contaminants generated by a process or activity is minimised;

(b) Appropriate control technologies to reduce the emission of odorous contaminants;

(c) Site planning mechanisms and other land use management techniques to reduce the potential for adverse off site effects; and

(d) Tools and techniques that provide an objective assessment of odour, such as olfactometry, odour dose response assessments and community surveys.

Explanation

It is not always practicable or necessary to avoid all detectable odours, some of which may have only minor adverse effects. As a consequence, this policy concentrates on avoiding or mitigating the discharge of odours which are

"offensive" or "objectionable" and which have the greatest potential to result in adverse effects on the well being and health of people.

The general methods identified represent the best practicable options for managing the adverse effects of odours. Options (a) and (b) are the responsibility of producers, whereas (c) refers to site management and land use planning techniques that can be implemented by both producers and city and district councils to reduce the potential for adverse off-site effects to occur. Part (c) indicates the Otago Regional Council's view that odour producers should, wherever practicable, take measures to ensure no adverse effects of their activities occur beyond their property boundaries. Measures may include buffer zones, or controls on the location of the odour-generating components of the development. City and district councils can also manage land uses so as to avoid the potential for incompatible land uses to develop within an area. The techniques listed in (d) indicate the type of measurement tools that the Regional Council considers appropriate in order to undertake odour assessments. The preferred technique will vary on a case-by-case basis and will be established in conjunction with producers.

The odour control technologies referred to in (b) include, but are not limited to, technologies which involve gas collection and control, absorption, biofiltration, incineration and odour modification. Some examples of these technologies are set out in Appendix 3 of the Ministry for the Environment publication *Odour Management Under the Resource Management Act* (1995).

Principal reasons for adopting

This policy provides guidance on how to avoid or mitigate offensive or objectionable odours. It also recognises the subjective nature of odour problems and the need for any management approach to be flexible while at the same time focusing on those discharges which are most likely to be "offensive" or "objectionable".

Rules 16.3.1.2 to 16.3.1.7, 16.3.2.1 to 16.3.2.6, 16.3.3.2, 16.3.4.1 to 16.3.4.3, 16.3.5.1 to 16.3.5.9, 16.3.7.1 to 16.3.7.3, 16.3.8.1, 16.3.8.2, 16.3.11.1, 16.3.11.2, 16.3.13.1, 16.3.13.2, 16.3.14.1
Methods 17.2.1.1, 17.2.1.2, 17.5.1.1, 17.5.2.1, 17.5.2.2

12.1 Policy for agrichemical spray drift

12.1.1 The Otago Regional Council will:

(a) Require the applicators of agrichemicals to undertake spraying in a manner that avoids:

(i) Spray drift beyond the target area or boundary of the property being sprayed; and

(ii) Adverse effects on human health and safety, ecosystems, sensitive areas or places, amenity values and other non-target areas or species; and

(b) Encourage city and district councils to use land use planning mechanisms and other land management techniques to mitigate adverse effects from agrichemical spray drift.

Explanation
Part (a) of this policy indicates the Otago Regional Council's view that it is not adequate to merely remedy or mitigate adverse effects, and that people applying agrichemicals need to take proactive measures to avoid adverse effects beyond the target area or boundary of the property.

In order to address the effects of spray drift, it is important that best practice is adopted to avoid the drift itself occurring. Best practice is the subject of the *Code of Practice for the Management of Agrichemicals* (NZS 8409:1999), developed by the New Zealand Agrichemical Education Trust. The code details management practices that can be adopted to lower the risk of drift hazard and reduce the potential for adverse effects to occur. Schedule 4 of this Plan contains a summary of these practices, and the Otago Regional Council encourages those applying agrichemicals to follow them, to ensure that users are adopting best practice.

The avoidance of adverse effects shall be achieved primarily through adopting management practices which produce the lowest risk of drift hazard. Should this fail to avoid spray drift, this policy provides guidance to people applying agrichemicals about the range of values, areas or places which are sensitive to the effects of agrichemical sprays and which people applying agrichemicals should avoid affecting.

Sensitive areas or places shall include but not be limited to:
- Residential dwellings and associated private property;
- Educational facilities;
- Places of public assembly;
- Public amenity areas including parks, reserves, gardens, sports grounds, beaches, and thoroughfares;
- Public roads;
- Domestic or community water supply catchments and intakes;
- Water bodies and wetlands, and associated riparian vegetation;
- Areas of significant indigenous vegetation and significant habitats of indigenous fauna; and
- Commercially important or sensitive plants, crops or farming systems (eg, organic farms).

This list however is not exhaustive, as sensitive areas may change over time and there may be other areas, places or features that are particularly sensitive to the effects of agrichemical spray at the local level.

Part (b) indicates the Otago Regional Council view that city and district councils should consider using land use planning and other mechanisms as a means of addressing the adverse effects of agrichemical drift following discharge into air. Some options are outlined in Method 17.2.1.2.

Principal reasons for adopting
This policy recognises that where the use of agrichemicals is necessary, applying good management practices will reduce the risk of spray drift and the potential for adverse effects to occur. It also recognises that there are mechanisms available to city and district councils which can assist in mitigating the adverse effects of spray drift and achieving integrated management.

Rules 16.3.9.1 to 16.3.9.4, 16.3.14.1
Methods 17.2.1.1, 17.2.1.2, 17.3.1.1,17.5.1.1, 17.5.1.2, 17.5.2.1, 17.5.2.2

13.1 Policy for the burning of vegetative matter on production land

13.1.1 To encourage people undertaking vegetation burning to adopt good management practices, including those set out in Schedule 5 to avoid or mitigate adverse effects.

Explanation
The discharge of smoke from the burning of vegetation can cause adverse effects including nuisance, amenity and visibility effects. In order to avoid or mitigate these effects, it is important that good burning practices are adopted. These practices are outlined in Schedule 5. Where good practices do not mitigate such effects, the Council will encourage the use of alternative means to dispose of or clear unwanted vegetation.

Principal reasons for adopting
Policy 7.5.2 of the Regional Policy Statement for Otago requires adverse effects on human health, the environment, visual impacts and odour to be avoided, remedied or mitigated. This policy aims to avoid or mitigate the adverse effects of discharges into air from the burning of vegetation on production land.

Method 17.2.1.1, 17.2.1.2, 17.5.1.2

14.1 Policy for motor vehicle emissions

14.1.1 The Otago Regional Council will:

(a) Advocate and support the development of a nationally co-ordinated programme for the management of motor vehicle emissions which:
  (i) Develops national vehicle emission testing standards;
  (ii) Encourages the use of transport fuels which minimise the emissions of contaminants into air;
  (iii) Promotes the use of improved vehicle technology to reduce emissions; and
  (iv) Promotes the use of fuel efficient and well maintained vehicles;

(b) Encourage city and district councils to use land use planning and traffic management mechanisms to avoid the occurrence of localised air quality problems associated with emissions from motor vehicles;

(c) Include appropriate provisions in the Regional Land Transport Strategy and Passenger Transport Plan for Otago aimed at avoiding, remedying or mitigating the adverse environmental effects of the discharge of contaminants into air from motor vehicles; and

(d) Promote understanding of the effects of motor vehicle emissions on the region's air resource.

Explanation
Part (a) of the policy indicates the Otago Regional Council's view that while emissions from motor vehicle sources have the potential to be a major source of pollution in Otago, a national approach towards controlling vehicle emissions using technical means is essential in order to achieve an equitable and co-ordinated approach throughout all regions in New Zealand. In this context "technical means" refer principally to on-vehicle techniques, which aim to improve the emission performance capability of motor vehicles.

At the time of writing this Plan, several national initiatives were being developed. These include:

- A Vehicle Fleet Emissions Control Strategy being developed by the Ministry of Transport. This strategy will recommend the most cost-effective means of managing vehicle emissions;
- A Ministry for the Environment co-ordinated programme to develop a core set of national environmental indicators for transport; and
- Monitoring of the effects of transport emissions by the Ministry of Transport and Ministry for the Environment.

Part (b) recognises that local land use planning and traffic management mechanisms can reduce the concentration of emission producing activity and therefore avoid localised problems. Such mechanisms can supplement and complement the technical means referred to in part (a) of the policy.

Parts (c) and (d) recognise that the Regional Council can assist in co-ordinating local initiatives and monitoring, researching, and disseminating information about air quality.

Principal reasons for adopting
This policy is adopted to reflect the Regional Council's view that it is more appropriate for any regulations or minimum standards for discharges into air from mobile sources, such as motor vehicles, to be developed at a national level. It also recognises that local initiatives can supplement and complement national initiatives.

This approach is consistent with the Regional Policy Statement for Otago, in particular, the policies in the Air and Built Environment chapters.

Methods 17.2.1.1, 17.2.1.2, 17.2.3.1, 17.3.1.1, 17.5.3.1

15.1 Policy for global issues

15.1.1 To support and promote, as appropriate, central government initiatives to control and minimise emissions of greenhouse gases and ozone layer depleting substances.

Explanation
Central government has the primary role for developing and implementing policy for discharges to air of global significance. The Regional Council will support and

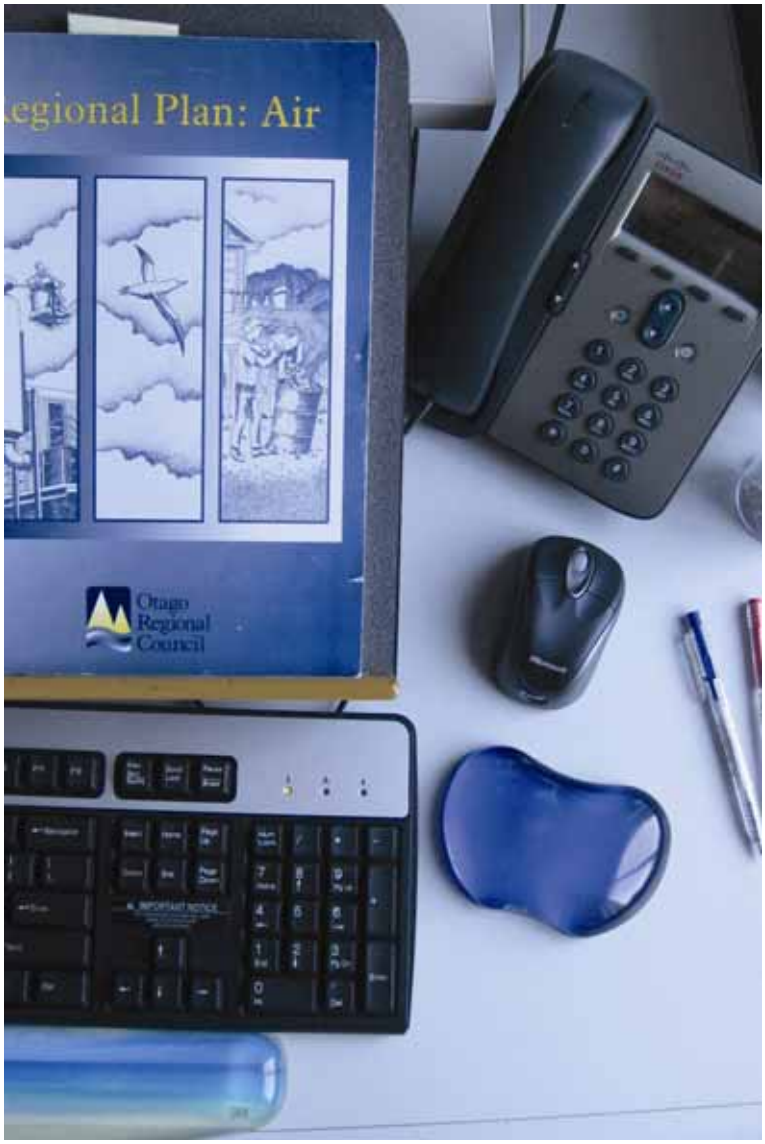
implement national policies or agreements when such initiatives are appropriate in the Otago context.

Principal reasons for adopting

This policy indicates the Regional Council's commitment to support national initiatives to control and minimise emissions of greenhouse gases and ozone depleting substances.

Method 17.5.3.1

Part IV
Rules



16.1 Introduction

This part of the Plan contains the following:

- A users' guide, which provides an overview of the rules and some explanatory notes for interpreting the rules;
- The Plan rules, which determine whether a particular activity is allowed without the need for consent, is regulated, or is prohibited in the Otago region;
- The principal reasons for adopting the rules; and
- A description of the type of information that will be required with any resource consent application.

16.2 Users' guide

16.2.1 Introduction

This users' guide provides:

- A discussion of the relationship between this Plan and the Regional Plan: Waste for Otago, and between this Plan and the Resource Management (Marine Pollution) Regulations;
- A brief explanation of how to determine a particular activity's status, that is, whether it is allowed, regulated, or prohibited under this Plan;
- A summary index of the rules;
- Explanations of the circumstances in which the Council may consider processing applications for block discharge permits and regional discharge permits for activities involving discharges of contaminants into air; and
- A guide to interpreting the terms *"noxious"*, *"dangerous"*, *"offensive"* and *"objectionable"*, which are used in many of the rules.

16.2.2 Relationship to Regional Plan: Waste

The rules contained within this Plan **do not apply** to the discharge of contaminants into air associated with the following, which are controlled by the Regional Plan: Waste for Otago:

- Contaminated sites;
- Facilities for the treatment or disposal of hazardous wastes;
- New or operating landfills;
- Closed landfills;
- Offal pits on production land, intensive farms and industrial and trade premises;
- Farm landfills;
- Composting and silage production; and
- Greenwaste landfills.

16.2.3 Relationship to Resource Management (Marine Pollution) Regulations 1998

Except in the case of rules for the three activities listed in the next paragraph, the rules contained within this Plan **do not apply** to the discharge of contaminants into air associated with the normal operation of ships within Otago's coastal marine area.

Normal operation activities are specified in Schedule 4 of the Resource Management (Marine Pollution) Regulations 1998. This Plan contains rules applying to discharges from the following three activities:

- Abrasive blasting;
- Spray painting; and
- Conveying of bulk materials.

16.2.4 Relationship to NESAQ

The NESAQ was gazetted in September 2004, and its requirements override any less stringent requirements in regional plans. Plan Change 2 to this Plan resulted in changes to matters relating to the discharge of PM_{10}, making it consistent with the NESAQ requirements for PM_{10}. The NESAQ also sets standards for levels of carbon monoxide, nitrogen dioxide, sulphur dioxide and ozone, to protect ambient air quality. These matters must be taken into consideration for any application for resource consent to discharge contaminants to air.

The NESAQ prohibits the discharge of dioxins and other toxics to air, and contains requirements with regard to landfill gas. Landfill discharges are currently addressed by the Regional Plan: Waste for Otago, therefore the NESAQ requirements for landfill discharges do not affect the implementation of this Plan.

16.2.5 Key steps to determine status

The key steps to determine whether a discharge of contaminants into air is allowed without the need for consent or requires a resource consent are as follows:

- Decide whether or not the activity is to be undertaken on an industrial or trade premises. The definition of "Industrial or trade premises" is contained in the Glossary;
- Determine how the activity is affected by the rules. It is important to consider all activities that may be undertaken on a site. For example, discharges associated with both agrichemical application and intensive farming may occur on one site;
- If an activity is controlled by a particular rule but cannot meet **the conditions of that rule** it will be a **discretionary activity** under Rule 16.3.14.1 unless otherwise stated;
- If the activity is at an industrial or trade premises and is not considered by the rules in sections 16.3.3 to 16.3.13, it will be a discretionary activity under Rule 16.3.14.1; and
- If the activity is not at an industrial or trade premises, and is **not covered** by rules in sections 16.3.1 to 16.3.13, it can be undertaken without a resource consent.

16.2.6 Summary index to rules

Each of the rules in the Plan specifies whether a particular activity is **permitted**, **discretionary** or **prohibited**.

If an activity is:

- Permitted, no resource consent is required, provided all the conditions stated in the rule are met.
- Discretionary, a resource consent is required, and the Otago Regional Council has retained its discretion as to whether it will grant a consent or not. In considering any application for a discretionary activity, the Council will be guided by the policies contained in this Plan, the Regional Policy Statement for Otago, and the requirements of the Resource Management Act. Conditions may be included on any resource consent granted.
- Prohibited, the activity is expressly prohibited by this Plan. These are activities which may not occur within Otago and for which no resource consent will be granted.

The Resource Management Act definitions of these terms are contained in the Glossary.

The resource consents required by the rules in this Plan are called "discharge permits".

The activities covered by the rules in this Plan are set out in Table 5.

Please note that Table 5 is intended to provide only a summary of the rules. To determine the exact status of an activity, it is necessary to refer to the rules directly.

In some circumstances, consents or approvals may also need to be obtained from a city or district council. The relevant authority should be consulted.

The NESAQ sets standards for levels of carbon monoxide, nitrogen dioxide, PM_{10}, sulphur dioxide and ozone discharged to air, to protect ambient air quality. The NESAQ must be taken into consideration for any application for resource consent to discharge these contaminants to air.

Table 5: Index to rules

Note: Section 16.3.15 (Discharges of PM_{10}) may also apply to any discretionary activity under Rules 16.3.1 to 16.3.14.

Rule number	Page	Activity status	Description of rule
Discharges from domestic heating appliances (section 16.3.1)			
16.3.1.1	54	Prohibited	Discharges from domestic heating appliances that do not meet permitted activity Rules 16.3.1.2 to 16.3.1.6 or discretionary activity Rule 16.3.1.7.
16.3.1.2	54	Permitted	Discharges from domestic heating appliances in Air Zone 1

Rule number	Page	Activity status	Description of rule
16.3.1.3	55	Permitted	Discharges from domestic heating appliances in Air Zone 2
16.3.1.4	55	Permitted	Discharges from cookers in Air Zone 3
16.3.1.5	55	Permitted	Discharges from domestic heating appliances other than cookers in Air Zone 3
16.3.1.6	56	Permitted	Discharges from any domestic heating appliances installed in a recognised heritage building
16.3.1.7	56	Discretionary	Discharges from any domestic heating appliances installed in a recognised heritage building or a building on commercial premises
Outdoor burning (section 16.3.2)			
16.3.2.1	57	Permitted	Discharges from outdoor burning on residential properties in Air Zone 1 or 2
16.3.2.2	57	Permitted	Discharges from outdoor burning on non-residential properties, including production land, in Air Zone 1 or 2
16.3.2.3	58	Permitted	Discharges from outdoor burning on properties which are not production land, in Air Zone 3
16.3.2.4	58	Permitted	Discharges from outdoor burning on production land in Air Zone 3
16.3.2.5	58	Permitted	Discharges from outdoor burning of any campfire or celebratory fire, or for the cooking of food
16.3.2.6	58	Discretionary	Other discharges from outdoor burning
Burning or incineration of specified materials (section 16.3.3)			
16.3.3.1	60	Prohibited	Burning or incineration of specified materials
16.3.3.2	60	Discretionary	Discharges from the burning or incineration of materials specified in Rule 16.3.3.1
Products of combustion from fuel burning equipment (section 16.3.4)			
16.3.4.1	61	Permitted	Discharges from fuel burning equipment in Air Zone 1 or 2
16.3.4.2	61	Permitted	Discharges from fuel burning equipment in Air Zone 3
16.3.4.3	62	Discretionary	Other discharges of the products of combustion from fuel burning equipment
Discharges from industrial or trade processes (section 16.3.5)			
16.3.5.1	63	Permitted	Discharges from the processing of plant or animal matter
16.3.5.2	63	Permitted	Discharges from sorting, crushing, screening, conveying and storage of powdered or bulk products
16.3.5.3	64	Permitted	Discharges from mineral extraction and processing
16.3.5.4	64	Permitted	Discharges from chemical processing, manufacturing and industrial or trade processes which discharge hazardous air contaminants
16.3.5.5	65	Permitted	Discharges from metal processing and foundries

Rule number	Page	Activity status	Description of rule
16.3.5.6	65	Permitted	Discharges from surface coating (including spray painting) and di-isocyanate use
16.3.5.7	66	Permitted	Discharges from petroleum and hydrocarbon processes
16.3.5.8	66	Permitted	Discharges from the processing of wood and wood products
16.3.5.9	67	Discretionary	Other discharges from industrial or trade processes
Abrasive blasting (section 16.3.6)			
16.3.6.1	67	Permitted	Discharges from wet or vacuum abrasive blasting
16.3.6.2	68	Permitted	Discharges from dry abrasive blasting
16.3.6.3	68	Discretionary	Other discharges from abrasive blasting
Waste management (section 16.3.7)			
16.3.7.1	69	Permitted	Discharges from the storage, transfer, treatment and disposal of liquid-borne municipal, industrial or trade waste
16.3.7.2	69	Permitted	Discharges from farm waste management
16.3.7.3	70	Discretionary	Other discharges from waste management
Intensive farming (section 16.3.8)			
16.3.8.1	71	Permitted	Discharges from intensive farming
16.3.8.2	71	Discretionary	Other discharges from intensive farming
Agrichemical application (section 16.3.9)			
16.3.9.1	72	Permitted	Discharges from agrichemical application on residential properties
16.3.9.2	72	Permitted	Discharges from agrichemical application on production land and industrial or trade premises
16.3.9.3	72	Permitted	Discharges from agrichemical application in public amenity areas and places of public assembly
16.3.9.4	73	Discretionary	Other discharges from agrichemical application
Water vapour, heat and energy (section 16.3.10)			
16.3.10.1	74	Permitted	Discharges of steam or water vapour
16.3.10.2	75	Permitted	Discharges of energy, including heat
16.3.10.3	75	Discretionary	Other discharges of water vapour, heat or energy
Ventilation or vapour displacement (section 16.3.11)			
16.3.11.1	76	Permitted	Discharges for the purpose of ventilation or vapour displacement
16.3.11.2	76	Discretionary	Other discharges from ventilation or vapour displacement

Rule number	Page	Activity status	Description of rule
Nuclear power generation or nuclear weapon manufacturing (section 16.3.12)			
16.3.12.1	76	Prohibited	Discharges from nuclear power generation or nuclear weapon manufacturing
General permitted activities (section 16.3.13)			
16.3.13.1	77	Permitted	Discharges from miscellaneous activities
16.3.13.2	77	Permitted	Discharges from burning by NZ Fire Service
Other discretionary activities (section 16.3.14)			
16.3.14.1	78	Discretionary	Discretionary activities (general rule); applies when a discharge from an industrial or trade premises is not provided for in the rules in sections 16.3.1 to 16.3.13
Discharges of PM_{10} (section 16.3.15)			
16.3.15.1	78	Prohibited	Discharges of PM_{10}, which are not permitted activities or authorised by a resource consent
16.3.15.2	79	Discretionary	Discharges of PM_{10}, before 1 September 2013, where the ambient air quality standard for PM_{10} is already breached
16.3.15.3	79	Discretionary	Discharges of PM_{10}, before 1 September 2013, if a consent cannot be granted under Rule 16.3.15.2, and the applicant proposes offsets
16.3.15.4	80	Discretionary	Discharges of PM_{10} before 1 September 2013, where the ambient air quality standard for PM_{10} is not breached
16.3.15.5	80	Discretionary	Discharges of PM_{10} after 31 August 2013, which are not permitted activities

16.2.7 Block discharge permits

In some cases, such as large factories, there may be a multitude of discharge points from different types of activities and sources. In these instances the Otago Regional Council will consider processing one consent for the entire site, provided that all the actual or potential discharge points are clearly identified in the resource consent application. In such circumstances different consent conditions may be applied to different activities on the site.

16.2.8 Regional discharge permits

Some activities which result in discharges into air are mobile in nature (e.g., abrasive blasting and asphalt manufacture). For these types of activities, the Council will consider granting regional discharge permits which will allow an operator to work throughout the region, subject to appropriate conditions.

This approach is intended to give those resource users undertaking processes which are mobile and which discharge contaminants into air, the freedom to conduct their activities relatively unhindered, but within the bounds of their discharge permit.

16.2.9 Noxious, dangerous, offensive and objectionable effects

Several rules in this Plan use the terms "*noxious*", "*dangerous*", "*offensive*", and "*objectionable*". These terms are also included in Section 17 of the Resource Management Act 1991. They are not, however, defined in the Act and this means that they bear their natural and ordinary meaning as applied by common English usage.

The terms are not defined in the Glossary to this Plan because of the need to take account of case law precedent as it develops, i.e., the Plan cannot override interpretations decided by the judiciary.

The following notes are intended to provide some guidance for interpreting these terms. It should be noted however, that they are not objective measures and that what may be considered noxious, dangerous, offensive or objectionable will depend on the circumstances relevant to each case.

Noxious, dangerous - The Concise Oxford Dictionary defines "*noxious*" as "*harmful*, *unwholesome*". At the time of writing this Plan, the term "*noxious*" did not appear to have been defined or considered in case law relating to the Resource Management Act 1991. Noxious effects may include significant adverse effects on the environment (e.g., on plant and animal life) although the effects may not be dangerous to humans.

"*Dangerous*" is defined as "*involving or causing danger*". Dangerous discharges include those that are likely to cause adverse physical health effects, such as discharges containing toxic levels of chemicals.

Offensive, objectionable - "*Offensive*" is defined as *"… giving or meant or likely to give offensive… disgusting, foul smelling, nauseous, repulsive…*". "*Objectionable*" is defined as *"open to objection, unpleasant, offensive"*. Case law has established that what may be offensive or objectionable under the Resource Management Act 1991 cannot be defined or prescribed except in the most general of terms. Each case will depend upon its own circumstances. Key considerations include:

(i) The location of an activity and sensitivity of the receiving environment - What may be considered offensive or objectionable in an urban area, may not necessarily be considered offensive or objectionable in a rural area. The converse may also be true;

(ii) Reasonableness - Whether or not an activity is likely to be considered offensive or objectionable by an ordinary person who is representative of the community and neither hypersensitive nor insensitive, deciding whether the activity is disgusting, nauseous, repulsive or otherwise objectionable. Representative community surveys can also be used in some instances; and

(iii) Existing uses - It is important to consider what lawfully established activities exist in an area, that is, if a new activity requires a permit, the cumulative effects of both the existing and proposed discharges of contaminants into air should be considered.

Within Otago the effects of offensive or objectionable odours are often commented on by individuals. While each investigation of a complaint concerning offensive or objectionable odour will depend on the specific circumstances of the

discharge, the general investigative approach adopted by Council officers will be to take into account the FIDOL factors.

The FIDOL factors were identified by the Ministry for the Environment in a report entitled *"Odour Management Under the Resource Management Act"* (1995) as the main factors which influence the significance of adverse odour effects. The FIDOL factors are:

- **Frequency** of the odour occurrence;
- **Intensity** of the odour;
- **Duration** of exposure to the odour;
- **Offensiveness** of the odour; and
- **Location** of the discharge.

Such assessments are likely to be based initially on observations made by Council officers. Information may also be gained from the discharger, independent consultants, other observers and people living or working in the area. Techniques such as odour diaries and community surveys, olfactometry measurements, or electronic measuring devices, may also be used.

16.3 Rules

Note: The rules in this Plan apply to any discharge from any industrial or trade premises which would not have required any licence or authorisation under the Clean Air Act 1972 and which has, under Section 418 of the Resource Management Act 1991, been exempt from Section 15(1)(c) of the Act.

16.3.1 Discharges from domestic heating appliances

Note:

1. Discharges from all domestic heating appliances (which include open fires) in buildings (domestic and non-domestic), are permitted providing they meet the relevant requirements of Rules 16.3.1.2 to 16.3.1.6. If the discharge is from a recognised heritage building or from a building on commercial premises, and that discharge does not meet permitted activity conditions, consent may be applied for under Rule 16.3.1.7. If these rules are unable to be met, the discharge is prohibited by Rule 16.3.1.1.
2. Unless a rule sets more stringent requirements, all woodburners in buildings on properties less than 2 hectares in size must also meet the requirements set by the NESAQ, which is incorporated in Rules 16.3.1.2 to 16.3.1.6.
3. Domestic heating appliances (excluding open fires) installed in the former Schedule 1.2 areas between 28 February 1998 and 14 April 2007 were required to meet a particulate emission rate of 4 g/kg or less, or have a resource consent.
4. Discharges from domestic heating appliances that are outside of buildings are addressed by the Rules under section 16.3.2 of this Plan (Outdoor Burning).
5. Particulate emission rates and thermal efficiency are to be determined using the testing procedures described in Method 17.5.4.1. The rates are achievable by many domestic heating appliances currently on the market.

16.3.1.1 Discharges from domestic heating appliances – prohibited activity

Except as provided for by Rules 16.3.1.2 to 16.3.1.7, the discharge of contaminants into air from any domestic heating appliance in any building is a ***prohibited activity***, for which no consent will be granted.

16.3.1.2 Discharges from domestic heating appliances in Air Zone 1 – permitted activity

The discharge of contaminants into air from any domestic heating appliance in any building in Air Zone 1:

(1) If the domestic heating appliance was lawfully installed and meets a particulate emission rate of 0.7 g/kg or less of fuel burnt and has a thermal efficiency of not less than 65%;

is a ***permitted activity***, providing:

(a) Any discharge of smoke, odour, particulate matter or gas is not noxious, dangerous, offensive or objectionable at or beyond the boundary of the property; or

(2) If the domestic heating appliance was lawfully installed before 14 April 2007 in Air Zone 1 (Alexandra, Arrowtown or Cromwell), or was lawfully installed before 1 April 2009 in Air Zone 1 (Clyde), and meets a particulate emission rate of less than 1.5 g/kg of fuel burnt;

is a ***permitted activity***, providing:

(a) Any woodburner installed after 1 September 2005 in a building on a property with an allotment size of less than 2 hectares also has a thermal efficiency of not less than 65%; or
(b) Any discharge of smoke, odour, particulate matter or gas is not noxious, dangerous, offensive or objectionable at or beyond the boundary of the property; or

(3) If the domestic heating appliance was lawfully installed before 14 April 2007 in Air Zone 1, and has a particulate emission rate of greater than or equal to 1.5 g/kg of fuel burnt;

is a ***permitted activity***, until 1 January 2012, providing:

(a) Any woodburner installed after 1 September 2005 in a building on a property with an allotment size of less than 2 hectares meets a discharge of less than 1.5 g/kg of dry wood burnt and has a thermal efficiency of not less than 65%; and
(b) Any discharge of smoke, odour, particulate matter or gas is not noxious, dangerous, offensive or objectionable at or beyond the boundary of the property.

16.3.1.3 Discharges from domestic heating appliances in Air Zone 2 – permitted activity

The discharge of contaminants into air from any domestic heating appliance in any building in Air Zone 2:

(1) If the domestic heating appliance was lawfully installed after 14 April 2007 and meets a particulate emission rate of less than 1.5 g/kg of fuel burnt and has a thermal efficiency of not less than 65%;

is a ***permitted activity***, providing:

(a) Any discharge of smoke, odour, particulate matter or gas is not noxious, dangerous, offensive or objectionable at or beyond the boundary of the property; or

(2) If the domestic heating appliance was lawfully installed before 14 April 2007;

is a ***permitted activity***, providing:

(a) Any woodburner installed after 1 September 2005 in a building on a property with an allotment size of less than 2 hectares meets a discharge of less than 1.5 g/kg of dry wood burnt and has a thermal efficiency of not less than 65%; and

(b) Any discharge of smoke, odour, particulate matter or gas is not noxious, dangerous, offensive or objectionable at or beyond the boundary of the property.

16.3.1.4 Discharges from cookers in Air Zone 3 – permitted activity

The discharge of contaminants into air from any cooker, lawfully installed in any building in Air Zone 3;

is a ***permitted activity***, providing:

(a) Any discharge of smoke, odour, particulate matter or gas is not noxious, dangerous, offensive or objectionable at or beyond the boundary of the property.

16.3.1.5 Discharges from domestic heating appliances other than cookers in Air Zone 3 – permitted activity

Except as provided for by Rule 16.3.1.4, the discharge of contaminants into air from any domestic heating appliance in any building in Air Zone 3;

is a ***permitted activity***, providing:

(a) Any woodburner installed after 1 September 2005, or any other domestic heating appliance installed after 14 April 2007, in a building on a property with an allotment size of less than 2 hectares, meets a discharge of less than 1.5 g/kg of fuel burnt and has a thermal efficiency of not less than 65%; and

(b) Any discharge of smoke, odour, particulate matter or gas is not noxious, dangerous, offensive or objectionable at or beyond the boundary of the property.

16.3.1.6 Discharges from any domestic heating appliance installed in a recognised heritage building – permitted activity

The discharge of contaminants into air from any domestic heating appliance lawfully installed in any recognised heritage building:

is a ***permitted activity***, providing:

(a) The domestic heating appliance contributes to the significance of the recognised heritage building; and
(b) Any woodburner installed after 1 September 2005 in a building on a property with an allotment size of less than 2 hectares meets a particulate emission rate of less than 1.5 g/kg of dry wood burnt and has a thermal efficiency of not less than 65%; and
(c) Any discharge of smoke, odour or particulate matter is not noxious, dangerous, offensive or objectionable at or beyond the boundary of the property.

16.3.1.7 Discharges from any domestic heating appliance installed in a recognised heritage building or a building on commercial premises – discretionary activity

Except as provided for by Rules 16.3.1.2 to 16.3.1.6, the discharge of contaminants into air from any domestic heating appliance lawfully installed in:
(1) Any recognised heritage building; or
(2) Any building on commercial premises;

is a ***discretionary activity***, providing:

(a) Any woodburner installed after 1 September 2005 in a building on a property with an allotment size of less than 2 hectares meets a particulate emission rate of less than 1.5 g/kg of dry wood burnt and has a thermal efficiency of not less than 65%.

Principal reasons for adopting:

Rules 16.3.1.1 to 16.3.1.7 are adopted to allow solid fuel heating of buildings, while managing the adverse effects that discharges from domestic heating appliances can have on ambient air quality, and subsequently on human health, in particular areas. The most stringent rules apply in Air Zone 1, where the most breaches of the ambient air quality standard occur. The least stringent rules apply to properties over 2 hectares in size in Air Zone 3, where ambient air quality is generally very good. Some flexibility is provided in this domestic heating rule framework to provide for cookers in Air Zone 3, recognised heritage buildings and commercial premises.

The boundary effects condition in all of the above permitted activity rules is adopted to ensure that discharges do not have significant adverse effects on the surrounding local environment and, in particular, on neighbours.

16.3.2 Outdoor burning

Note:
1. City and district councils in implementing the Forests and Rural Fires Act 1977 may also have bylaws controlling outdoor burning of materials for fire safety purposes.
2. The Health Act 1956 also has some control on nuisance effects from the discharge of contaminants into air.
3. These rules do not permit the use of fire accelerants such as waste petroleum products or tyres. The burning of such materials is prohibited by Rule 16.3.3.1 and incineration of such materials may be allowed only if a consent is obtained.
4. Where the separation distances specified in the rules cannot be achieved or other conditions of the rules are not met, consents are required to be obtained from the Otago Regional Council.

16.3.2.1 Discharges from outdoor burning on residential properties in Air Zone 1 or 2 - permitted activity

Except as provided for by Rule 16.3.2.5, the discharge of contaminants into air from outdoor burning on any residential property in Air Zone 1 or 2;

is a ***permitted activity***, providing:

(1) Only paper, cardboard, vegetative matter or untreated wood is burnt; and
(2) The material is from the property where the burning occurs; and
(3) The material is dry at the time of burning; and
(4) The burning does not occur within 50 metres of the closest part of the boundary of the property; and
(5) Any discharge of smoke, odour or particulate matter is not offensive or objectionable at or beyond the boundary of the property.

16.3.2.2 Discharges from outdoor burning on non-residential properties, including production land, in Air Zone 1 or 2 - permitted activity

Except as provided for by Rule 16.3.2.5, the discharge of contaminants into air from outdoor burning on any non-residential property, including production land in Air Zone 1 or 2;

is a ***permitted activity***, providing:

(a) Only paper, cardboard, vegetative matter or untreated wood is burnt; and
(b) The material is from the property where the burning occurs; and
(c) The material is dry at the time of burning; and
(d) The burning does not occur within 100 metres of any dwelling on any other property; and
(e) Any discharge of smoke, odour or particulate matter is not offensive or objectionable at or beyond the boundary of the property.

16.3.2.3 Discharges from outdoor burning on properties which are not production land, in Air Zone 3 - permitted activity

Except as provided for by Rule 16.3.2.5, the discharge of contaminants into air from outdoor burning on any property which is not production land, in Air Zone 3;

is a ***permitted activity***, providing:

(a) Only paper, cardboard, vegetative matter or untreated wood is burnt; and
(b) The material is from the property where the burning occurs; and
(c) The material is dry at the time of burning; and
(d) Any discharge of smoke, odour or particulate matter is not offensive or objectionable at or beyond the boundary of the property.

16.3.2.4 Discharges from outdoor burning on production land in Air Zone 3 - permitted activity

Except as provided for by Rule 16.3.2.5, the discharge of contaminants into air from outdoor burning on any property which is production land, in Air Zone 3;

is a ***permitted activity***, providing:

(a) No material specified in Rule 16.3.3.1 is burnt; and
(b) Any discharge of smoke, odour or particulate matter from burning waste is not offensive or objectionable at or beyond the boundary of the property.

16.3.2.5 Discharges from outdoor burning of any campfire or celebratory fire, or for the cooking of food - permitted activity

The discharge of contaminants into air from outdoor burning of any campfire or celebratory fire, or outdoor burning for the cooking of food by any barbecue, hangi, umu or similar means;

is a ***permitted activity***, providing:

(a) No material specified in Rule 16.3.3.1 is burnt; and
(b) The material is dry at the time of burning; and
(c) Any discharge of smoke, odour or particulate matter is not offensive or objectionable at or beyond the boundary of the property.

16.3.2.6 Other discharges from outdoor burning – discretionary activity

Except as provided for by Rules 16.3.2.1 to 16.3.2.5, or prohibited by Rule 16.3.3.1, the discharge of contaminants into air from outdoor burning is a ***discretionary activity***.

Principal reasons for adopting

Rules 16.3.2.1 to **16.3.2.6** set up a regime that allows outdoor burning, provided that the burning is undertaken in an appropriate location, with only clean-burning material generated on the property, and does not result in adverse localised effects at or beyond the boundary of the property. The first two rules target areas with a high density of development, because proximity to a fire is a significant determinant as to whether the discharge will have adverse effects on neighbours and the environment.

Rule 16.3.2.1 applies to outdoor burning on residential properties in Air Zone 1 or 2. In order to assist in managing the effects of such burning in these areas with relatively high population densities, the rule requires burning to be undertaken more than 50 metres from the boundary of the property.

Rule 16.3.2.2 applies to outdoor burning on non-residential properties such as, but not limited to, educational facilities, industrial or trade premises, parks, reserves and production land located in Air Zone 1 or 2. The rule recognises that outdoor burning on non-residential properties in areas with relatively high population densities is likely to have more significant adverse localised effects than such burning on residential properties, as greater volumes of material are likely to be involved. In order to assist in mitigating these effects, the rule requires burning to be undertaken more than 100 metres from the boundary of the property.

Rule 16.3.2.3 applies to outdoor burning on all properties, other than production land, such as, but not limited to, residential properties, educational facilities, industrial or trade premises, parks and reserves, Air Zone 3. It adopts a similar level of control to that applying in Air Zones 1 and 2, except that a separation distance is not required in recognition of the often lower density of development in these areas, and the lower incidence of complaints received from them. Furthermore, if the Plan did not permit this activity on industrial or trade premises, it would require a resource consent under Section 15(1) of the Resource Management Act.

Rule 16.3.2.4 applies to outdoor burning on all production land properties, in Air Zone 3. The level of control reflects the fact that such properties are normally of larger size, and few if any complaints are received from burning waste on production land. Note that Rule 16.3.3.1 does not prohibit the burning of animal carcasses on this production land.

Rule 16.3.2.5 applies to minor or infrequent outdoor burning on any Otago property, for the purposes of backyard cooking of food, such as in any barbecue, hangi or umu, or for a campfire or a celebratory fire, such as for Guy Fawkes or New Year's Eve. Conditions relating to separation distances or that the material burnt be generated on the property are not required, in recognition of the small scale or infrequent occurrence of these activities.

Where a discharge into air from outdoor burning does not comply with any of Rules 16.3.2.1 to 16.3.2.5 (whichever is applicable), and is not prohibited by Rule 16.3.3.1, it becomes a discretionary activity in terms of **Rule 16.3.2.6** and a consent is required to be obtained. This allows any adverse effect to be assessed.

16.3.3 Burning or incineration of specified materials

Note:
1. City and district councils in implementing the Forests and Rural Fires Act 1977 may also have bylaws controlling outdoor burning of materials for fire safety purposes.
2. The Health Act 1956 also has some control on nuisance effects from the discharge of contaminants into air.

16.3.3.1 Burning or incineration of specified materials - prohibited activity

Except as provided for by Rules 16.3.3.2 and 16.3.13.2, the discharge of contaminants into air from the burning or incineration of any of the following materials:

(a) Chlorinated organic chemicals including, but not limited to, dioxins, furans, polychlorinated biphenyls (PCB);
(b) Contaminated material from contaminated sites and buildings;
(c) Food waste;
(d) Materials containing heavy metals;
(e) Material associated with the recovery of metal from coated or covered cables;
(f) Motor vehicles and vehicle parts;
(g) Materials containing mineral fibres including but not limited to asbestos;
(h) Paint and other surface coatings;
(i) Pathological materials excluding animal carcasses on production land;
(j) Agrichemicals and agrichemical waste;
(k) All plastic, including, but not limited to, polyvinylchloride (PVC), polystyrene, nylon, styrofoam, but not including polyethylene;
(l) Tyres and other rubber;
(m) Timber treated with copper, chrome and arsenic (CCA) or organochlorine preservatives;
(n) Waste oil or other waste petroleum products; or
(o) Sewage sludge and associated solids, or solids derived from liquid-borne municipal, industrial or trade waste; or
(p) Asphalt surfaces (seal burning);

is a ***prohibited activity***, for which no consent will be granted.

16.3.3.2 Discharges from the burning or incineration of materials specified in Rule 16.3.3.1 - discretionary activity

The discharge of contaminants into air from the burning or incineration of:

(1) Any material specified in Rule 16.3.3.1, in an incinerator or crematorium; or
(2) Waste oil, in a frost pot, or fuel burning equipment;

is a ***discretionary activity***.

Principal reasons for adopting

Rules 16.3.3.1 and 16.3.3.2 recognise that the burning of the materials specified in Rule 16.3.3.1 can result in the discharge of hazardous air contaminants (identified in Schedule 3), in addition to effects such as smoke and odour which are common to the burning of all waste. Contaminants of this nature have been identified by the Ministry for the

Environment as being known, or suspected, to cause significant adverse effects on human health and the environment.

Rule 16.3.3.1 recognises that when the materials specified are burnt on the open ground or by uncontrolled means it is not possible to take any measures to manage the discharge of hazardous air contaminants. Because of this, adverse effects can be avoided only through prohibiting this type of burning.

Rule 16.3.3.2 recognises that, in some circumstances, the materials specified in Rule 16.3.3.1 are best disposed of by incineration. There is, however, considerable variation in the technical specifications of incinerators and some are more suited to burning the specified materials than others. Because of this and the fact that the burning of these materials may have significant adverse effects, the management of these effects needs to be considered on a case-by-case basis through a resource consent process. For example, it may be appropriate to incinerate waste oil in fuel burning equipment such as boilers and kilns, but the effects need to be assessed through a consent process.

16.3.4 Products of combustion from fuel burning equipment

16.3.4.1 Discharges from fuel burning equipment in Air Zone 1 or 2 - permitted activity

The discharge into air of products of combustion arising from fuel burning equipment from single activities or a combination of activities located on one site (excluding domestic heating appliances subject to Rules 16.3.1.1 to 16.3.1.6) in Air Zone 1 or 2 which:

(1) Does not exceed a heat generation capacity of 1MW; or
(2) Does not exceed a heat generation capacity of 5MW and burns only gas, oil or bio-oils (excluding waste oil) with a sulphur content of less than 1%;

is a ***permitted activity***, providing:

(a) In the case of equipment installed after 28 February 1998, any chimney complies with Schedule 6 ("Determination of Chimney Heights"); and
(b) No material specified in Rule 16.3.3.1 is burnt; and
(c) Any discharge of smoke, odour, particulate matter or gases is not noxious, dangerous, offensive or objectionable at or beyond the boundary of the property.

16.3.4.2 Discharges from fuel burning equipment in Air Zone 3 - permitted activity

The discharge into air of products of combustion arising from fuel burning equipment (excluding domestic heating appliances subject to Rules 16.3.1.1 to 16.3.1.6) located on a site in Air Zone 3 which does not exceed a heat generation capacity of 5MW (from single activities or a combination of activities located on one site);

is a ***permitted activity***, providing:

(a) In the case of equipment installed after 28 February 1998, any chimney complies with Schedule 6 ("Determination of Chimney Heights"); and
(b) No material specified in Rule 16.3.3.1 is burnt; and
(c) Any discharge of smoke, odour, particulate matter or gases is not noxious, dangerous, offensive or objectionable at or beyond the boundary of the property.

16.3.4.3 Other discharges of the products of combustion from fuel burning equipment – discretionary activity

Except as provided for by Rule 16.3.4.1 or 16.3.4.2, the discharge into air of products of combustion from fuel burning equipment is a ***discretionary activity*.**

Principal reasons for adopting

Rule 16.3.4.1 permits minor discharges into air from fuel burning equipment in Air Zone 1 or 2. It recognises that allowing larger scale discharges without consent in these areas is inappropriate given that ambient air quality in Air Zone 1 or 2 is more degraded than elsewhere in Otago (Air Zone 3).

The rule also makes a distinction between fuel types due to the difference in potential effects. Gas fuels, light oils and bio-oils are easy to burn cleanly. Combustion of other fuels such as coal, wood or high sulphur oils can result in a greater discharge of some contaminants. For example, coal boilers typically discharge between 4 and 8 kg of particulate per tonne of fuel, and some can discharge up to 30 kg per tonne depending on the type of equipment and the ash content of the coal. As a comparison, a light fuel oil-fired boiler produces less than 0.3 kg per tonne, while particulate emissions from gas combustion are negligible.

Oils with a sulphur content of greater than 1%, and some coals, have the potential to discharge significant quantities of sulphur dioxide to the atmosphere. Fuel oils with a high sulphur content also tend to have a correspondingly high potential to produce particulate discharges. This is because the sulphur content is related to ash content and factors such as viscosity which affects atomisation of the fuel in a burner, thereby making it more difficult to burn cleanly.

Given these factors, it is not appropriate to treat all fuels in the same way. Fuels other than gas, light oil or bio-oils must be treated in a precautionary manner.

Rule 16.3.4.2 recognises that in Air Zone 3, discharges from fuel burning equipment will have less effect. This is because there is a lower density of combustion discharges.

Where a discharge into air from fuel burning equipment does not comply with either Rules 16.3.4.1 or 16.3.4.2 (whichever is applicable), and is not prohibited by Rule 16.3.3.1, it becomes a discretionary activity in terms of Rule 16.3.4.3 and a consent is required to be obtained. Note that Rule 16.3.3.2 allows waste oil to be incinerated in fuel burning equipment as a discretionary activity. This allows any adverse effect to be assessed.

16.3.5 Discharges from industrial or trade processes

Note:
1. Industrial or trade processes may also be subject to city or district council bylaws or district plan rules.
2. Rules 16.3.5.2 and 16.3.5.6 apply to discharges from activities on ships.
3. Discharges from fuel burning equipment used in the following processes are dealt with by Rules in 16.3.4, and are not covered by the following rules.

16.3.5.1 Discharges from the processing of plant or animal matter - permitted activity

The discharge of contaminants into air from:

(1) Deep fat frying, oil frying, roasting, drying, boiling, baking or smoking of plant or animal matter where the total raw material capacity is less than 250 kg/hr; or
(2) Food preparation or cooking activities associated with restaurants, and other similar premises including takeaway bars, and the making of bread and cheese; or
(3) The drying of milk or milk products where the total raw material capacity is less than 250 kg/hr; or
(4) Wine making, brewing and other fermentation processes for production of food or beverages; or
(5) The slaughter or skinning of animals; or
(6) The drying of grain where the total raw material capacity on site is less than 1000 kg/hr for activities located in Air Zone 1 or 2 and less than 5000 kg/hr for activities located in Air Zone 3;

is a ***permitted activity***, providing:

(a) In the case of equipment installed after 28 February 1998, any chimney complies with Schedule 6 ("Determination of Chimney Heights"); and
(b) Any discharge of odour, or particulate matter, including fat and oils, is not offensive or objectionable at or beyond the boundary of the property.

16.3.5.2 Discharges from the sorting, crushing, screening, conveying and storage of powdered or bulk products - permitted activity

The discharge of contaminants into air from the sorting, crushing, screening, storage and conveying (including loading and unloading) of fertilisers, grains, berries, coal, coke, wood chips, sawdust, wood shavings, bark, sand, aggregates, and other powdered and bulk products whether in dry or liquid form, where:

(1) The total capacity of outside storage of bulk materials is less than 1,000 m^3 if located on a site in Air Zone 1 or 2; and
(2) The crushing and screening of bulk materials is at a rate less than 100 tonnes an hour;

is a ***permitted activity***, providing any discharge of odour, or particulate matter is not offensive or objectionable at or beyond the boundary of the property.

16.3.5.3 Discharges from mineral extraction and processing - permitted activity

The discharge of contaminants into air from:

(1) The extraction of minerals from the surface or from an open pit at a rate less than 20,000 cubic metres per month and 100,000 cubic metres per year; or
(2) The crushing and screening of minerals at a rate less than 200 tonnes an hour; or
(3) The drying or heating of minerals from single activities or a combination of activities on one site with equipment that has a heat generation capacity of less than 500 kW; or
(4) The making of refractory, bricks or ceramic products at a rate less than 200 kg/hr of products;

is a ***permitted activity***, providing:

(a) The mineral extraction, crushing and screening activities are located in Air Zone 3; and
(b) In the case of equipment installed after 28 February 1998, any chimney complies with Schedule 6 ("Determination of Chimney Heights"); and
(c) Any discharge of smoke, odour or particulate matter is not noxious, dangerous, offensive or objectionable at or beyond the boundary of the property.

16.3.5.4 Discharges from chemical processing, manufacturing and industrial or trade processes which discharge hazardous air contaminants - permitted activity

The discharge of contaminants into air from single activities or a combination of activities located on one site involving:

(1) Processes used for water treatment by chlorine or ozone, where less than 10 kg/hr of chlorine or chlorinated chemicals are used; or
(2) Chemical manufacturing or processing where the discharge of sulphur dioxide or nitrogen dioxide is less than 5 kg/hr; or
(3) Processes that discharge less than 0.01 kg/hr of Category A, B1 and B2 carcinogens as identified in Schedule 3; or
(4) Processes that discharge less than 0.01 kg/hr of heavy metals; or
(5) Processes that discharge less than 1 kg/hr of hazardous air contaminants identified in Schedule 3, excluding heavy metals and Category A, B1 and B2 carcinogens as identified in Schedule 3;

is a ***permitted activity***, providing:

(a) In the case of equipment installed after 28 February 1998, any chimney complies with Schedule 6 ("Determination of Chimney Heights"); and
(b) Any discharge of odour, particulate matter or gases is not noxious, dangerous, offensive or objectionable at or beyond the boundary of the property.

16.3.5.5 Discharges from metal processing and foundries - permitted activity

The discharge of contaminants into air in connection with the melting of lead, aluminium, iron, copper, brass or bronze on a site where the aggregated melting capacity is less than 250 kg/hr;

is a ***permitted activity***, providing:

(a) In the case of equipment installed after 28 February 1998, any chimney complies with Schedule 6 ("Determination of Chimney Heights"); and
(b) Any discharge of odour, particulate matter, gases or fumes is not noxious, dangerous, offensive or objectionable at or beyond the boundary of the property.

16.3.5.6 Discharges from surface coating (including spray painting) and di-isocyanate use - permitted activity

The discharge of contaminants into air from:

(1) Permanent surface coating facilities including single activities or a combination of activities located on one site involving:
    (i) The application of coating materials not containing di-isocyanates (including paint, paint solvents, varnish, lacquer, dyes, metal oxide coatings, adhesive coatings, elastomer coatings, stains and polishes) where less than 2 tonnes per month and 20 tonnes per year of coating is used, and less than 20 litres per week of organic solvents are used; or
    (ii) The application of di-isocyanate coating materials or the manufacture of polyurethane foams, where less than 1 kg/hr of di-isocyanate is used; or
    (iii) The stoving, curing, baking or drying of coating materials (including paint, paint solvents, varnish, lacquer, dyes, metal oxide coatings, adhesive coatings, elastomer coatings, stains and polishes) by heat, with equipment that has a heat generation capacity of less than 500 kW; or
(2) The surface coating (including spray painting) of roads, buildings, bridges and other structures, by mobile equipment;

is a ***permitted activity***, providing:

(a) In the case of equipment installed after 28 February 1998, any chimney complies with Schedule 6 ("Determination of Chimney Heights"); and
(b) Any overspray or discharge of odour or particulate matter is not noxious, dangerous, offensive or objectionable at or beyond the boundary of the property; and
(c) Any overspray or discharge of odour or particulate matter in a public amenity area is not noxious, dangerous, offensive or objectionable at or beyond 20 metres from the discharge.

16.3.5.7 Discharges from petroleum and hydrocarbon processes - permitted activity

The discharge of contaminants into air from:

(1) The handling and purification by distillation of dry cleaning substances at retail outlets; or
(2) The handling and storage of hydrocarbons at service stations, bulk terminals and other facilities concerned with marketing and delivery of fuels and lubricants; or
(3) Processes not listed above that involve the handling and processing of hydrocarbons where the discharge from single activities or a combination of activities located on one site is less than 1 kg/hr of hazardous air contaminants, excluding Category A, B1 and B2 carcinogens as identified in Schedule 3; or
(4) Processes not listed above that involve the handling and processing of hydrocarbons where the discharge from single activities or a combination of activities located on one site is less than 0.01 kg/hr of Category A, B1 and B2 carcinogens as identified in Schedule 3;

is a ***permitted activity***, providing:

(a) In the case of equipment installed after 28 February 1998, any chimney complies with Schedule 6 ("Determination of Chimney Heights"); and
(b) Any discharge of odour or gases is not noxious, dangerous, offensive or objectionable at or beyond the boundary of the property.

16.3.5.8 Discharges from the processing of wood and wood products - permitted activity

The discharge of contaminants into air from:

(1) The drying of timber in a kiln at a rate less than 2000 cubic metres per month and 20,000 cubic metres of timber per year from single activities or a combination of activities located on one site; or
(2) Timber sawing, milling, joining and moulding, where the timber is processed at a rate less than 2000 cubic metres per month and 20,000 cubic metres per year, from single activities or a combination of activities located on one site;

is a ***permitted activity***, providing:

(a) In the case of equipment installed after 28 February 1998, any chimney complies with Schedule 6 ("Determination of Chimney Heights"); and
(b) Any discharge of smoke, odour or particulate matter is not noxious, dangerous, offensive or objectionable at or beyond the boundary of the property.

16.3.5.9 Other discharges from industrial or trade processes – discretionary activity

Except as provided for by Rules 16.3.5.1 to 16.3.5.8 and 16.3.6.1, 16.3.6.2, 16.3.7.1, 16.3.9.2, 16.3.10.1, 16.3.10.2, 16.3.11.1, 16.3.13.1 and 16.3.13.2, or prohibited by Rule 16.3.3.1, the discharge of contaminants into air from industrial or trade processes is a ***discretionary activity***.

Principal reasons for adopting

Discharges of contaminants into air from industrial or trade premises can only occur if expressly allowed by a rule in a regional plan and proposed regional plan, a resource consent or by regulations (Section 15(1) of the Resource Management Act).

The activities permitted by **Rules 16.3.5.1,** to **16.3.5.8** involve small scale discharges and, provided the conditions of the rules are met, these activities will have no more than minor adverse effects on the environment.

Where a discharge into air from industrial or trade processes does not comply with any of Rules 16.3.5.1 to 16.3.5.8 (whichever is applicable), and is not prohibited by Rule 16.3.3.1, it becomes a discretionary activity in terms of **Rule 16.3.5.9** and a consent is required to be obtained. This allows any adverse effect to be assessed.

16.3.6 Abrasive blasting

Note:

1. City and district councils may have controls in relation to abrasive blasting activities, particularly in terms of noise.
2. Rules in this section apply to discharges from abrasive blasting on ships.

16.3.6.1 Discharges from wet or vacuum abrasive blasting - permitted activity

The discharge of dust or contaminants into air from wet or vacuum abrasive blasting, whether mobile or in permanent facilities;

is a ***permitted activity***, providing:

(a) Any unused abrasive media or waste material is kept covered or stored so that it cannot be blown around by wind; and
(b) Waste material is removed from temporary sites at the completion of the project; and
(c) Any overspray or discharge of odour or particulate matter is not noxious, dangerous, offensive or objectionable beyond the boundary of the property; and
(d) Any overspray, or discharge of odour or particulate matter in a public amenity area, is not noxious, dangerous, offensive or objectionable beyond 20 metres from the discharge.

16.3.6.2 Discharges from dry abrasive blasting - permitted activity

The discharge of dust or contaminants into air from dry abrasive blasting, whether mobile or in permanent facilities;

is a ***permitted activity***, providing:

(a) Any unused abrasive media or waste material is kept covered or stored so that it cannot be blown around by wind; and
(b) Waste material is removed from temporary sites at the completion of the project; and
(c) In the case of permanent facilities all items are blasted within a building or enclosure (shroud, screen or cover) from which the only discharge into air is from an exhaust system fitted with emission controls designed to achieve an emission less than 125 mg/Nm^3 of dust at 0^oC and 101.3 kPa on a dry gas basis; and
(d) In the case of mobile operations all items are blasted within a building or enclosure (shroud, screen or cover); and
(e) Any overspray or discharge of odour or particulate matter is not noxious, dangerous, offensive or objectionable beyond the boundary of the property; and
(f) Any overspray or discharge of odour or particulate matter in a public amenity area, is not noxious, dangerous, offensive or objectionable beyond 20 metres from the discharge.

16.3.6.3 Other discharges from abrasive blasting – discretionary activity

Except as provided for by Rule 16.3.6.1 or 16.3.6.2, the discharge of contaminants into air from abrasive blasting is a ***discretionary activity***.

Principal reasons for adopting
Rules 16.3.6.1 and 16.3.6.2 have been adopted to avoid abrasive blasting giving rise to off-site nuisance effects.

The rules do not contain conditions limiting the blasting media which may be used or the material which may be blasted. While certain contaminants may give rise to adverse health effects such effects are usually limited to within the site and therefore addressed under the Health and Safety in Employment Act 1992. Furthermore, any off-site health effects that may occur are likely to become evident well after the activity has given rise to nuisance effects, and thus at a time when the operation would already be undergoing review (in order to meet the permitted activity standards) or consents were being applied for. Off-site health effects are one matter which the Council will consider when processing such an application.

The rules do not address the effects of discharges from abrasive blasting into water or onto land where material may enter water. These effects are addressed in the Regional Plan: Water for Otago.

Rule 16.3.6.1 is adopted to permit wet or vacuum abrasive blasting as these processes are unlikely to have any significant adverse environmental effects on the environment. Use of wet abrasive blasting confines the contaminants to the water stream and minimises aerial dispersion. Vacuum blasting also minimises aerial dispersion as the vacuum

method enables greater control of waste material. Notwithstanding this, the Council has adopted a level of control through the stated conditions which enables control to be exercised in circumstances where this is warranted.

Rule 16.3.6.2 is adopted to permit the discharge of contaminants into air from dry abrasive blasting. The conditions required for compliance with this rule are more restrictive than those required for wet or vacuum blasting under Rule 16.3.6.1. This is because dry abrasive blasting results in much greater concentrations of dust which tend to drift further. It also recognises the Council's preference for wet or vacuum blasting to be used as an alternative to dry abrasive blasting.

Where a discharge into air from abrasive blasting does not comply with either Rules 16.3.6.1 or 16.3.6.2 (whichever is applicable) it becomes a discretionary activity in terms of Rule 16.3.6.3 and a consent is required to be obtained. This allows any adverse effect to be assessed.

16.3.7 Waste management

16.3.7.1 Discharges from the storage, transfer, treatment and disposal of liquid-borne municipal, industrial or trade waste - permitted activity

The discharge of contaminants into air from the storage, transfer, treatment or disposal (including land application of treated effluent and sludge, but excluding the burning of sludge and associated solids) of liquid-borne municipal, industrial or trade waste, where the influent liquid waste does not exceed a BOD_5 of 850 kg per day;

is a ***permitted activity***, providing:

(a) Ponds constructed after 1 January 2002 are located at least 150 metres from the closest part of the boundary of the property; and
(b) Land application does not occur within:
    (i) 150 metres from any residential dwelling on a neighbouring property or from a building used for employment purposes on a neighbouring property; and
    (ii) 20 metres from a formed public road; and
    (iii) 150 metres from any public amenity area or place of public assembly, excluding formed public roads, and
(c) **Any discharge** of odour, particulate matter, droplets or gases is not noxious, dangerous, offensive or objectionable at or beyond the boundary of the property.

16.3.7.2 Discharges from farm waste management - permitted activity

The discharge of contaminants into air from farm waste management involving:

(1) The storage, transfer and disposal of animal bedding, manure and other biological material from intensive farming; or
(2) The treatment, storage and disposal via land application of liquid animal effluent and sludge;

is a ***permitted activity***, providing:

(a) Ponds constructed after 30 June 2001 and outdoor stockpiles of waste animal bedding, manure and other biological material are located at least 150 metres from the closest part of the boundary of the property; and
(b) Land application does not occur within:
    (i) 150 metres from any residential dwelling on a neighbouring property or from a building used for employment purposes on a neighbouring property; and
    (ii) 20 metres from a formed public road; and
    (iii) 150 metres from any public amenity area or any place of public assembly, excluding formed public roads; and
(c) The volume of liquid waste involved does not exceed a BOD_5 of 700 kg per day; and
(d) Any discharge of odour, particulate matter, droplets or gases is not noxious, dangerous, offensive or objectionable at or beyond the boundary of the property.

16.3.7.3 Other discharges from waste management – discretionary activity

Except as provided for by Rule 16.3.7.1 or 16.3.7.2, the discharge of contaminants into air from waste management is a ***discretionary activity***.

Principal reasons for adopting

Rules 16.3.7.1 and 16.3.7.2 recognise that the Regional Plan: Water for Otago is the main mechanism by which the Council controls the operation of liquid effluent management processes, and that if the processes are operating efficiently there should be no significant adverse effects on air quality. Should odours occur, they would represent a failure of the treatment processes which would be primarily addressed via enforcement of the Regional Plan: Water rules or conditions of a discharge permit.

Rule 16.3.7.1 recognises Section 418 of the Resource Management Act which requires any industrial or trade premises used for the storage, transfer, treatment, or disposal of waste materials or other waste management purposes which commenced after the 1st day of October 1991, to have a resource consent to discharge contaminants into air unless that discharge is provided for by a rule in a regional plan. This rule is included to enable activities which have no more than minor adverse effects to be undertaken without the need for consents.

Rule 16.3.7.2 recognises that on-farm waste management processes can result in the emission of odours. This rule introduces separation distances between new ponds or land application areas and residential dwellings, public roads or places of assembly, with a view to avoiding adverse effects of odour beyond the boundary of the property where the waste management is undertaken.

Where a discharge into air from waste management does not comply with either Rules 16.3.7.1 or 16.3.7.2 (whichever is applicable) it becomes a discretionary activity in terms of Rule 16.3.7.3 and a consent is required to be obtained. This allows any adverse effect to be assessed.

16.3.8 Intensive farming

Note:
1. Property owners/managers should consult with their local city or district council and assess whether the applicable district plan contains any controls on location, noise levels or any other activities which may affect the operation. Land use consents may be required from city and district councils.

16.3.8.1 Discharges from intensive farming - permitted activity

The discharge of contaminants into air from ventilation associated with intensive farming;

is a ***permitted activity***, providing:

(a) No more than 2000 pigs or 100,000 poultry are kept at any one time; and
(b) Any discharge of odour or particulate matter is not offensive or objectionable at or beyond the boundary of the property.

16.3.8.2 Other discharges from intensive farming – discretionary activity

Except as provided for by Rule 16.3.8.1, the discharge of contaminants into air from intensive farming is a ***discretionary activity***.

Principal reason for adopting
Rule 16.3.8.1 has been adopted to allow small scale discharges without consent, provided there is no noxious, dangerous, offensive or objectionable odour or dust at or beyond the boundary of the property. The Council has however retained control over large scale pig and poultry farming operations because they can have more than minor adverse effects on the environment, particularly in terms of particulate matter and odour.

Where a discharge into air from intensive farming does not comply with Rule 16.3.8.1, it becomes a discretionary activity in terms of **Rule 16.3.8.2** and a consent is required to be obtained. This allows any adverse effect to be assessed.

16.3.9 Agrichemical application

Note:
1. District plans may have land use rules relating to agrichemical application and should be referred to in connection with these permitted activity rules.
2. In carrying out any agrichemical application in terms of the following rules, the practices recommended in Section 5 of the *Code of Practice for the Management of Agrichemicals* (NZS 8409:1999; New Zealand Agrichemical Education Trust, August 1999), or in Schedule 4 of this Plan which is based on that code, should be used, noting that to do so does not negate the requirement to meet rule conditions.
3. Signage on public roads (Rule 16.3.9.3) needs to meet the requirements of the appropriate road controlling authority (city or district councils in the case of local roads and Transit New Zealand in the case of state highways).

16.3.9.1 Discharges from agrichemical application on residential properties - permitted activity

The discharge of any agrichemical into air arising from the application of any agrichemical using hand held appliances:

(1) For domestic purposes within a residential property; or
(2) On the residential portion of any other property; or
(3) On road frontages of residential properties where the spray is applied by the residents of the adjoining residential property;

is a ***permitted activity***, providing:

(a) The agrichemical and any associated additive are authorised for use in New Zealand and are used in accordance with the authorisation; and
(b) The discharge is carried out in accordance with the manufacturer's directions; and
(c) The discharge does not exceed the quantity, concentration or rate required for the intended purpose; and
(d) The application does not result in any ambient concentrations of contaminants at or beyond the boundary of the property that have noxious or dangerous effects.

16.3.9.2 Discharges from agrichemical application on production land and industrial or trade premises - permitted activity

The discharge of any agrichemical into air using aerial or ground based application methods:

(1) On production land; or
(2) On roadsides adjoining production land when applied by the adjacent landowner or his/her employee; or
(3) On industrial or trade premises;

is a ***permitted activity***, providing:

(a) The agrichemical and any associated additive are authorised for use in New Zealand and are used in accordance with the authorisation; and
(b) The discharge is carried out in accordance with the manufacturer's directions; and
(c) The discharge does not exceed the quantity, concentration or rate required for the intended purpose; and
(d) The application does not result in any ambient concentrations of contaminants at or beyond the boundary of the property that have noxious or dangerous effects.

16.3.9.3 Discharges from agrichemical application in public amenity areas and places of public assembly - permitted activity

Except as provided for in Rules 16.3.9.1 and 16.3.9.2, the discharge of agrichemicals in public amenity areas or in places of public assembly using aerial or ground based application methods;

is a ***permitted activity***, providing:

(a) The agrichemical and any associated additive are authorised for use in New Zealand and are used in accordance with the authorisation; and
(b) The discharge is carried out in accordance with the manufacturer's directions; and
(c) The discharge does not exceed the quantity, concentration or rate required for the intended purpose; and
(d) The application does not result in any ambient concentrations of contaminants at or beyond the boundary of the property that have noxious or dangerous effects; and
(e) Every person applying agrichemicals after 1 March 1999 using:
    (i) Hand-held appliances with a maximum capacity of up to 15 litres shall hold a current Standard Growsafe Certificate; and
    (ii) Ground-based application methods including hand-held appliances with a maximum capacity in excess of 15 litres shall hold a current Growsafe Registered Chemical Applicators Certificate; and
(f) The application is undertaken in accordance with Section 5 of the Code of Practice for the Management of Agrichemicals (NZS 8409:1999; New Zealand Agrichemical Education Trust, August 1999); and
(g) Signs advising that spraying is in progress are placed at all points where the public commonly have entry when application occurs in parks, reserves, gardens and sports grounds, but not alongside public roads or railways; and
(h) Where signs are required under Condition (g), adequate signage is maintained in place to ensure the public do not enter the affected land until the re-entry period for that particular chemical has expired; and
(i) Where application occurs alongside public roads and railways, vehicles associated with the spraying shall display prominent signs advising that spraying is in progress.

16.3.9.4 Other discharges from agrichemical application – discretionary activity

Except as provided for by Rules 16.3.9.1 to 16.3.9.3, the discharge of contaminants into air from agrichemical application is a ***discretionary activity***.

Principal reasons for adopting

Rules 16.3.9.1, 16.3.9.2 and 16.3.9.3 have been adopted to enable discharges from agrichemical spraying to occur without the need for consent, provided that any off-site and non-target effects are no more than minor. This will avoid or mitigate the adverse effects of agrichemicals on human health and safety, sensitive areas or places, and non-target areas or species. The three rules distinguish between the application of agrichemicals on the basis of land use.

The rules do not address the effects of agrichemical application into water or onto land where the agrichemicals may enter water. These effects are addressed in the Regional Plan: Water for Otago. Agrichemical application in the coastal marine area is controlled by the Regional Plan: Coast for Otago.

Pilots are required by the Civil Aviation Act to hold an agrichemical rating certificate if they are applying agrichemicals from planes or helicopters. Pilots are also subject to enforcement action from Civil Aviation. Thus, while there is a greater potential for spray

drift to occur from aerial application if good management practices are not followed, no additional controls are contained in this Plan because aerial applicators are already required to undergo additional training. There is no need to duplicate the provisions available in other institutional arrangements by including the same requirement in rules in this Plan.

Rule 16.3.9.1 restricts the application of agrichemicals on residential properties unless it is undertaken in a manner specified by the manufacturer of the agrichemicals. This rule recognises that the application of agrichemicals on residential properties typically involves only small quantities of agrichemicals using hand held application methods which are generally operated at ground level and at low pressures. Given these circumstances the adverse effects of agrichemical application are generally insignificant, thus the Council has adopted a level of control which enables it to apply performance standards to avoid the misuse of agrichemicals and to avoid the occurrence of adverse effects such as damage to the vegetation on adjoining properties.

Rule 16.3.9.2 permits the application of agrichemicals on production land, on roadsides adjoining production land when applied by the adjacent landowner or his/her employee and on industrial or trade premises. This is because there are greater quantities of agrichemicals applied on production land and the application methods commonly used are more likely to result in spray drift. The rule also allows landowners to control plant pests on road frontages adjoining their properties.

Rule 16.3.9.3 permits the application of agrichemicals in public amenity areas and places of public assembly subject to compliance with the stated conditions. The conditions are more restrictive than those for Rules 16.3.9.1 and 16.3.9.2 recognising that public interest in these areas is higher than in those areas where access is either restricted or not provided.

Where a discharge into air from agrichemical application does not comply with any of Rules 16.3.9.1 to 16.3.9.3 (whichever is applicable), it becomes a discretionary activity in terms of **Rule 16.3.9.4** and a consent is required to be obtained. This allows any adverse effect to be assessed.

16.3.10 Water vapour, heat and energy

16.3.10.1 Discharges of steam or water vapour - permitted activity

Except as provided for by the Rules in section 16.3.1 to 16.3.9, the discharge of condensed water vapour, including steam, into air;

is a ***permitted activity***, providing:

(a) Any plume does not impair visibility on any road or in any aircraft flight path; and
(b) There is no drift of a noxious, dangerous, offensive or objectionable plume beyond the boundary of the property; and
(c) There is no venting of steam or water directly above footpaths or onto or over other properties.

16.3.10.2 Discharges of energy, including heat - permitted activity

Except as provided for by the Rules in section 16.3.1 to 16.3.9, the discharge into air of:

(1) Air heated above ambient temperature, including but not limited to heated air from heat exchangers, and air used for the purpose of cooling plant and equipment; or

(2) Energy from sources of electromagnetic radiation, including radio and television transmitters and other telecommunications facilities, cell phones, and generators;

(3) Heat generated by transmission lines and ancillary equipment;

is a ***permitted activity***.

Note:

1. The siting of radio and telephone transmitters and other telecommunication facilities is controlled by city and district councils.
2. The control of ionising radiation (including x-rays and gamma rays) is administered by the National Radiation Laboratory under the Radiation Protection Act. Non-ionising radiation is mainly associated with the broadcasting and communication industries and there is a New Zealand Standard available for the control of such radiation.

16.3.10.3 Other discharges of water vapour, heat or energy – discretionary activity

Except as provided for by Rule 16.3.10.1 or 16.3.10.2, the discharge of contaminants into air of water vapour, heat or energy is a ***discretionary activity***.

Principal reasons for adopting

Rule 16.3.10.1 provides performance standards to ensure that the discharge of steam or water vapour does not cause a traffic hazard, does not adversely affect amenity values and does not deposit on surfaces where it may freeze, thereby creating a potential risk to public safety. Discharges of steam do not produce any other adverse effects on the environment and it is unnecessary to require any regulation of discharge quality.

Rule 16.3.10.2 provides certainty to users and contributes to administrative efficiency for managing activities that either have no adverse effects on air quality or where any adverse effects will be minor.

Part (1) provides for discharges of heat where no combustion has occurred. The effects of such discharges on a local scale are minimal since heat disperses rapidly in the air.

Part (2) provides for the release of energy from radio and television and the like. These sources generate relatively low radiation, which have only minor effects on air quality. Furthermore as such sources are found throughout the country, the discharge of energy from such appliances and equipment is considered to be more appropriately addressed at the national level. Permitting these activities avoids the duplication of other requirements and controls relating to electromagnetic radiation. Part (3) recognises that some electrical 'process loss' (in the form of heat) can occur, but its effects are no more than minor.

Where a discharge into air of water vapour, heat or energy does not comply with either Rules 16.3.10.1 or 16.3.10.2 (whichever is applicable), it becomes a discretionary activity in terms of **Rule 16.3.10.3** and a consent is required to be obtained. This allows any adverse effect to be assessed.

16.3.11 Ventilation or vapour displacement

16.3.11.1 Discharges for the purpose of ventilation or vapour displacement - permitted activity

The discharge of contaminants into air from:

(1) Ventilation from indoor working spaces, unless otherwise covered in this Plan; or
(2) Fume cupboards; or
(3) Tanks used for the storage of liquids, excluding the storage of hydrocarbons as permitted by Rule 16.3.5.7 on any industrial or trade premises; or
(4) The venting of gas pipelines, pumps, compressors, tanks or associated equipment when released for the purposes of refilling, servicing or repair, on any industrial or trade premises;

is a ***permitted activity***, providing any discharge of odour or particulate matter is not noxious, dangerous, offensive or objectionable beyond the boundary of the property.

16.3.11.2 Other discharges from ventilation or vapour displacement – discretionary activity

Except as provided for by Rule 16.3.11.1, the discharge of contaminants into air from ventilation or vapour displacement is a ***discretionary activity***.

Principal reason for adopting

Rule 16.3.11.1 provides for the discharge of contaminants into air associated with ventilation. Most ventilation generates only negligible or minor adverse effects on the environment provided certain conditions are met. The conditions of this rule are concerned with addressing the potential effects of the discharge beyond the boundary. On-site effects are generally managed under other legislation, such as the Health and Safety in Employment Act 1992.

Where a discharge into air from ventilation or vapour displacement does not comply with Rule 16.3.11.1, it becomes a discretionary activity in terms of **Rule 16.3.11.2** and a consent is required to be obtained. This allows any adverse effect to be assessed.

16.3.12 Nuclear power generation or nuclear weapon manufacturing

16.3.12.1 Discharges from nuclear power generation or nuclear weapon manufacturing - prohibited activity

The discharge of contaminants into air from nuclear power generation or nuclear weapon manufacturing is a ***prohibited activity***, for which no consent will be granted.

Principal reason for adopting
Rule 16.3.12.1 is adopted to provide for Policy 12.5.1 of the Regional Policy Statement for Otago. The rule prohibits all discharges from nuclear power generation plants or nuclear weapon manufacturing, some of which may have otherwise been permitted by this Plan.

16.3.13 General permitted activities

16.3.13.1 Discharges from miscellaneous activities - permitted activity

The discharge of contaminants into air from:
(1) Vehicle engine maintenance and servicing; or
(2) Building and construction activities, including road construction and maintenance, but excluding the remediation of asphalt surfaces (seal burning); or
(3) Any outdoor general engineering activity; or
(4) Using a smoke tracer to test underground drains or sewers; or
(5) Fertiliser application; or
(6) The engine exhaust of any motor vehicle, train or aircraft on an industrial or trade premises; or
(7) Any smokeless heater frost-fighting device not using waste oil;

is a ***permitted activity***, providing any discharge of smoke, odour, particulate matter or gas is not noxious, dangerous, offensive or objectionable at or beyond the boundary of the property.

16.3.13.2 Discharges from burning by New Zealand Fire Service - permitted activity

The discharge of contaminants into air from the burning of any material for training activities or fire safety research or educational purposes, carried out by the New Zealand Fire Service, even though material specified in Rule 16.3.3.1 may be present in structures or vehicles burnt;

is a ***permitted activity***, providing:
(a) The Fire Service carries out no more than a total of three fires burning a structure or vehicle, per calendar year, within each territorial authority district; and
(b) The New Zealand Fire Service ensures every occupier of land within 500 metres of any structure or vehicle to be burnt, and the road-controlling authority for any road within 500 metres of that structure or vehicle, is notified at least two days prior to the burning; and
(c) No material specified in Rule 16.3.3.1 is added to any structure or vehicle to be burnt; and
(d) There is no asbestos present in any material to be burnt.

Principal reasons for adopting
Rule 16.3.13.1 and 16.3.13.2 recognise that some activities involve only small scale or infrequent discharges and, provided the conditions of the rules are met, those activities will have no more than minor adverse effects on the environment.

16.3.14 Other discretionary activities

16.3.14.1 Discretionary activities (general rule)

The discharge of contaminants into air from any process or activity on an industrial or trade premises:

(1) Excluding any discharge associated with the following activities regulated by the Regional Plan: Waste:
   (i) A contaminated site;
   (ii) A facility for the treatment or disposal of hazardous wastes;
   (iii) A new or operating landfill;
   (iv) A closed landfill;
   (v) An offal pit on production land, intensive farm, or industrial or trade premises;
   (vi) A farm landfill;
   (vii) Composting or silage production; or
   (viii) A greenwaste landfill; and
(2) Which is not expressly provided for by the rules of this Plan; and
(3) Which is not a prohibited activity under Rule 16.3.1.1, 16.3.3.1 or 16.3.12.1;

is a ***discretionary activity***.

Principal reasons for adopting

Some discharges into air are provided for as permitted activities in this Plan, if the effects on the environment are no more than minor. The rules for permitted activities contain conditions to ensure there will be no significant adverse effects. If, however, the activity does not comply with the conditions in the rule for permitted activities, a resource consent will be required because of the potential for significant adverse effects on the environment.

16.3.15 Discharges of PM_{10}

This section may also apply to any discretionary activity under Rules 16.3.1 to 16.3.14, as follows:

(1) Before 1 September 2013

- Rules 16.3.15.1 to 16.3.15.3 may apply if the relevant airshed already breaches the ambient air quality standard for PM_{10}, and the discharge is likely to increase significantly the concentration of PM_{10} in the airshed;
- Rules 16.3.15.1 and 16.3.15.4 may apply if the relevant airshed does not breach the ambient air quality standard for PM_{10}.

(2) After 31 August 2013

- Rules 16.3.15.1 and 16.3.15 5 may apply.

16.3.15.1 Discharges of PM_{10} – prohibited activity

Except as provided for by the permitted activity rules in this Plan, the discretionary activity rules under sections 16.3.1 to 16.3.14 where applicable, and Rules 16.3.15.2 to 16.3.15.5 where applicable, the discharge of PM_{10} to air is a ***prohibited activity,*** for which no consent will be granted.

16.3.15.2 Discharges of PM_{10} in an airshed before 1 September 2013, where the ambient air quality standard for PM_{10} is already breached – discretionary activity

Except as provided for by the permitted activity rules in this Plan or prohibited by Rules 16.3.1.1, 16.3.3.1, 16.3.12.1 and 16.3.15.1, the discharge of PM_{10} to air in an airshed before 1 September 2013, where:

(1) The concentration of PM_{10} in the airshed already breaches its ambient air quality standard; and

(2) The discharge to be permitted by the resource consent is likely to increase significantly the concentration of PM_{10} in an airshed;

is a ***discretionary activity***, providing the discharge to be permitted by the resource consent is not likely to cause, at any time, the concentration of PM_{10} in an airshed to be above the straight line path or the curved line path for that airshed.

16.3.15.3 Discharges of PM_{10} in an airshed before 1 September 2013, if a resource consent application cannot be granted under Rule 16.3.15.2, and the applicant proposes offsets – discretionary activity

Except as provided for by the permitted activity rules in this Plan or prohibited by Rules 16.3.1.1, 16.3.3.1, 16.3.12.1 and 16.3.15.1, the discharge of PM_{10} to air in an airshed before 1 September 2013, if a resource consent application cannot be granted under Rule 16.3.15.2, and:

(1) If the concentration of PM_{10} in the airshed, at the time the application is decided, is on or below the straight line path or the curved line path;

is a ***discretionary activity***, providing:

(a) The applicant reduces the amount of PM_{10} discharged from another source into the same airshed where the direct effects of the discharge may be experienced; and

(b) The reduction in discharges will be equal to or greater than the concentration of PM_{10} in the airshed above the straight line path or the curved line path caused by the discharge permitted by the resource consent; and

(c) The reduction in discharges of PM_{10} will:

(i) Take effect within 1 year after the grant of the resource consent; and

(ii) Be effective for the duration of the resource consent; or

(2) If the application has been made in circumstances to which Section 124 of the Resource Management Act 1991 applies, and the concentration of PM_{10} in the airshed, at the time the application is decided, is above the straight line path or the curved line path;

is a ***discretionary activity***, providing:

(a) The applicant reduces the amount of PM_{10} discharged from another source into the same airshed where the direct effects of the discharge may be experienced; and

(b) The reduction in discharges will be equal to or greater than the amount of the discharge permitted by the resource consent; and
(c) The reduction in discharges of PM_{10} will:
  (i) Take effect within 1 year after the grant of the resource consent; and
  (ii) Be effective for the duration of the resource consent.

16.3.15.4 Discharges of PM_{10} in an airshed before 1 September 2013, where the ambient air quality standard for PM_{10} is not breached – discretionary activity

Except as provided for by the permitted activity rules in this Plan or prohibited by Rules 16.3.1.1, 16.3.3.1, 16.3.12.1 and 16.3.15.1, the discharge of PM_{10} to air in an airshed before 1 September 2013, where the concentration of PM_{10} in the airshed does not breach its ambient air quality standard;

is a ***discretionary activity***, providing the discharge to be permitted by the resource consent is not likely, at any time, to cause an airshed to exceed the ambient air quality standard for PM_{10}.

16.3.15.5 Discharges of PM_{10} after 31 August 2013 – discretionary activity

Except as provided for by the permitted activity rules in this Plan or prohibited by Rules 16.3.1.1, 16.3.3.1, 16.3.12.1 and 16.3.15.1, the discharge of PM_{10} to air in an airshed after 31 August 2013;

is a ***discretionary activity***, providing:

(a) The concentration of PM_{10} in the airshed does not breach its ambient air quality standard; or
(b) The granting of the resource consent is not likely, at any time, to cause the concentration of PM_{10} in an airshed to breach its ambient air quality standard.

Principal reasons for adopting

Rules 16.3.15.1 to 16.3.15.5 are adopted to meet the requirements of regulations 17 to 19 of the NESAQ; to assist in ensuring public health impacts of PM_{10} air pollution are minimised; and to assist in achieving the curved or straight line paths to compliances in Air Zone 1 and specified airsheds in Air Zone 2, or the ambient air quality standard for PM_{10}, and ultimately the Otago Goal Level for PM_{10}.

The rule framework meets the requirements of the NESAQ for curved line paths, enables the use of offsets to mitigate the effects of a PM_{10} discharge in some circumstances, and prohibits the grant of resource consent in specific situations as required by the NESAQ. In exercising its discretion to enable the use of offsets at any time, the Council will give consideration to the interaction between the offset discharge and the proposed discharge.

16.4 Information requirements

16.4.1 Introduction

The Resource Management Act requires applications for resource consents to be made in accordance with Section 88. The Act further requires that, where an assessment of the effects of the proposed activity are required, this assessment be prepared in accordance with the Fourth Schedule of Act.

In general, applications for resource consent for activities affecting Otago's air resource will be required to demonstrate that:

(a) The effects of the proposed activity comply with the relevant objectives, policies and rules of this Plan;
(b) Information has been included, in accordance with the Fourth Schedule of the Resource Management Act, to enable the consent authority to make an assessment of the effects of the proposed activity; and
(c) Where practicable, consultation has occurred with parties likely to be affected by the proposed activity.

Without limiting the requirements of Section 88 of the Resource Management Act, or of the Fourth Schedule to the Act, any application for any activity which this Plan specifies as being a discretionary activity will be required to supply information as specified in this part of the Plan:

Pursuant to Section 88(2) of the Act, no application shall be made for an activity that this Plan specifies as a prohibited activity once the time for making or lodging submissions or appeals against the proposed rule has expired and;

(a) No such appeals or submissions have been lodged; or
(b) All such submissions or appeals have been withdrawn or dismissed.

Applications for resource consents shall be made on the prescribed forms available from the Otago Regional Council.

16.4.2 General information requirements

The following information must be supplied with all resource consent applications:

1. The name of the applicant, and the name of the owner or occupier if different from that of the applicant.

2. The address of the applicant, owner or occupier.

3. A description of the proposed activity and its purpose.

4. The location of the proposed activity together with a site plan, legal description, construction plan (if applicable), and relevant map references.

5. A description of the consultation undertaken in relation to the application, and the outcomes of that consultation.

6. An assessment of the:

- Mass;
- Composition and concentrations of contaminants; and
- Frequency, rate and manner of the discharge, including the maximum ground level concentrations of significant contaminants in the discharge.

7. An assessment of any actual or potential effects that the activity may have on the environment, and the ways in which any adverse effects may be mitigated. This assessment shall be in such detail as corresponds with the scale and significance of the actual or potential effects that the activity may have on the environment, and shall be prepared in accordance with the Fourth Schedule of the Act.

   In particular, the assessment of environmental effects shall focus on:
   (a) Any adverse effects on:
      - Human health and safety;
      - Amenity values;
      - Resources or values of significance to Kai Tahu;
      - Surface water or groundwater;
      - Soil, plants, animals and ecosystems; and
   (b) Any cumulative effects that may arise over time or in combination with other discharges; and
   (c) Any effects of low probability or high potential impact; and
   (d) When an application is made to continue a discharge of contaminants at a site, the assessment of effects will also include information on the standard of the past or present discharge, and its effects; and
   (e) Whether there is PM_{10} within the proposed discharge; and
   (f) Whether any offset proposed will provide adequate mitigation for the effect of the PM_{10} to be discharged; and
   (g) Any other adverse effects on ambient air quality in any airshed.

8. An assessment of:
   - Local meteorology;
   - Geographical features; and
   - Surrounding environmental conditions that may affect the frequency, duration, intensity and degree of environmental effects.

9. Any alternative methods of treating the discharge, or alternative locations which have been considered.

10. A description of the measures to be undertaken to help prevent or reduce any actual or potential effects.

11. Information on how equipment controlling the discharge will be operated and maintained and what contingency plans are in place in the event of equipment failure.

12. An assessment of whether any other resource consent is required from any other consent authority to undertake the proposed activity and whether any such consent has been applied for, or obtained.

13. Any proposed monitoring provisions.

14. Any additional information that may be required in relation to the application as specified in 16.4.3.

15. How the discharge to air will meet the requirements of the NESAQ.

16.4.3 Provision of further information

Pursuant to Section 92 of the Resource Management Act, a consent authority may, at any reasonable time before the hearing of a resource consent application, by written notice to an applicant for a resource consent, require the applicant to provide further information relating to the application. Due to the variable nature and site specific aspects of activities that discharge into air within Otago, it may be difficult to define all of the required information until closer investigation of a specific application has been conducted. The applicant may be required to supply further information, pursuant to Section 92, in cases where additional information is necessary to enable the Otago Regional Council to better understand the nature of the activity in respect of the application for which a resource consent is made, the effect it will have on the environment, or the ways in which any adverse effects may be mitigated.

16.4.4 Further information - modelling requirements

Applicants should consult the Otago Regional Council in the early stages of preparing an application to determine whether dispersion modelling is required. Modelling may be required for significant discharges.

Where modelling is required, the applicant will be required to model the ground level concentrations of any contaminant present, or likely to be present, in significant quantities in the discharge in accordance with any relevant standards or guidelines. Also, the following information will be submitted with a resource consent application:

(a) A discussion of the model and how particular algorithms or settings were used;

(b) The source emission data used in the modelling procedure;

(c) A description of the contaminants in the discharge;

(d) A description of the meteorological data input to the model;

(e) A site description including building and local terrain;

(f) Tables and graphical presentations of the predicted maximum ground level concentrations for each contaminant at regular and appropriate intervals from the discharge points;

(g) A comparison of the predicted maximum ground level concentrations with the appropriate guideline or design levels;

(h) A discussion of the results and conclusions with respect to both minor and significant adverse effects on the environment; and

(i) A justification for any deviations from best practice modelling procedures.

Part V
Methods Other Than Rules

17.1 Introduction

This part of the Plan outlines methods other than rules which will be used by the Otago Regional Council to aid in implementing the objectives and policies of this Plan.

17.2 Liaison with city and district councils

17.2.1 Land use planning

17.2.1.1 The Otago Regional Council will seek the inclusion of appropriate land use policy, rules and methods within district plans as necessary to further the objectives and policies contained in this Plan.

17.2.1.2 The Otago Regional Council will encourage Otago's city and district councils to control the adverse effects on air quality from land use activities and in particular those involving dust, agrichemical application or potentially odorous discharges through district plans, land use consents or education and information by:

(1) Achieving physical separation of incompatible land uses through buffer zones or shelter belts;
(2) Recognising existing use rights and reverse sensitivity; and
(3) Encouraging people undertaking land use activities to manage the effects of their activities through following codes of practice or environmental management systems where appropriate.

Principal reasons for adopting

Method 17.2.1.1 is adopted to promote integrated management of the effects of land use activities on air quality between the Otago Regional Council and Otago's city and district councils.

Method 17.2.1.2 recognises the importance of land use planning provisions in the management of adverse effects on air quality arising from land use activities involving agrichemical application, dust emissions or potentially odorous discharges. It indicates the Otago Regional Council's intention to support and promote the role that city and district councils can play, within their functions, to control any actual or potential effects on air quality arising from the use, development or protection of land. Furthermore the method recognises that such functions are not restricted to regulatory mechanisms and that there are a variety of non-regulatory approaches which can be used to raise public awareness of these issues.

The term "reverse sensitivity" generally refers to the development of a sensitive activity in an area where it may be adversely affected by activities that are lawfully pre-existing. The new, sensitive development then raises an expectation that those existing activities should be constrained for the benefit of the new one. Case law has established that reverse sensitivity can be recognised by land use planning mechanisms within district plans that regulate or control certain land uses because of their sensitivity to discharges of contaminants from other land uses.

17.2.2 Joint hearings

17.2.2.1 To provide for joint hearings where consents are required from both the Otago Regional Council and Otago's city and district councils.

Principal reasons for adopting

Method 17.2.2.1 is adopted because joint hearings over discharge permit applications to the Otago Regional Council and land use consents to territorial authorities provide for integrated management. Continued liaison and consultation will be needed to ensure the most efficient and effective management of the air resource of Otago.

17.2.3 Transportation planning

17.2.3.1 The Otago Regional Council will encourage city and district councils to adopt traffic management practices to manage the effects of motor vehicle emissions and the operation of the roading network on air quality.

Principal reasons for adopting

Method 17.2.3.1 recognises that city and district councils have responsibilities outside of land use planning, which are effective in managing the adverse effects of motor vehicle emissions and the operation of the roading network. The Otago Regional Council will encourage city and district councils to adopt management practices which stem from these responsibilities where such measures would help to achieve the objectives and policies of this Plan.

17.2.4 Domestic heating appliances

17.2.4.1 Otago Regional Council will liaise with Otago's city and district councils to develop mechanisms to enable Rules 16.3.1.2 to 16.3.1.6 concerning the installation of domestic heating appliances to be integrated with the city and district council's own building and land use consent processes.

Principal reasons for adopting

Method 17.2.4.1 is adopted to integrate the Resource Management Act and Building Act requirements for installing domestic heating appliances. Integration ensures that regional council and territorial authority requirements are considered at the same time. This process will reduce the time required for applicants to obtain approval and will ensure that the requirements of the Otago Regional Council and Otago's city and district councils are fully considered before new heating appliances are installed.

17.3 Liaison with other organisations

17.3.1 Liaison with government organisations

17.3.1.1 The Otago Regional Council will liaise with government organisations that control activities which discharge contaminants into air.

Principal reasons for adopting

Method 17.3.1.1 recognises that government organisations have responsibilities for managing adverse effects of discharges into air. For example, the Ministry of Health has responsibilities for adverse effects on the health of people, and the Ministry of Agriculture has responsibilities for agrichemical spray drift. In order to achieve integrated management it is important that there is liaison between the Otago Regional Council and other agencies with responsibilities for managing the effects of discharges into air.

17.4 Environmental education and promotion

17.4.1 Community understanding of air quality

17.4.1.1 The Otago Regional Council will use environmental education to help the community and industry understand the types of effects that can occur as a result of discharges of contaminants into air and the overall effects of such discharges on ambient air quality.

Principal reasons for adopting

Method 17.4.1.1 is adopted to ensure that the adverse effects associated with discharges of contaminants into air are well understood by both the community and industry. It recognises that awareness about effects can lead to people adopting practices which can bring about changes in the quality of the air resource, and that environmental education can be an effective alternative to enforcement as a means of changing people's behaviour.

17.4.2 Domestic and outdoor burning discharges

17.4.2.1 To encourage and support the use of practices which assist in reducing the adverse effects associated with discharges from domestic heating appliances. Such practices include, but are not limited to:

(a) Following manufacturers' instructions and good burning practices for the type of fuel and the appliance being used;
(b) Avoiding the burning of waste or materials that are likely to result in hazardous air contaminants in domestic heating appliances;
(c) Burning wood only when it is dry;
(d) Burning other fuels such as good quality coal, wood pellets, gas or oil;
(e) Replacing existing domestic heating appliances that do not comply with the particulate emission rates set in the permitted activity rules for discharges from domestic heating appliances;
(f) Finding an alternative to the use of any domestic heating appliance during conditions that are likely to result in high PM_{10}

concentrations, unless electricity or gas or oil supply has failed; and

(g) Installing domestic heating appliances that are efficient, minimise operator control and are designed to produce low particulate emissions both in laboratory testing and real life situations.

Education and promotion programmes will be among the methods the Council will employ to ensure good practices are followed.

17.4.2.2 To use education and promotion to encourage practices which assist in reducing the adverse effects associated with outdoor burning. Such practices include, but are not limited to:

(a) Ensuring that the burning method being used is appropriate to the type of material being burnt;
(b) Adopting good burning practices to reduce the volume of smoke discharged;
(c) Utilising alternative methods of disposal wherever practicable; and
(d) Promoting voluntary codes of practice for the supply, sale and use of solid fuel.

17.4.2.3 To support and promote the management of new areas of housing to avoid adverse effects of discharges to air from solid fuel heating and outdoor burning.

Principal reasons for adopting

Method 17.4.2.1 is adopted to raise community and industry awareness of practices that can be implemented to reduce the effects that discharges from domestic heating can have on both ambient air quality and the surrounding local environment.

Method 17.4.2.2 is adopted to raise community awareness of practices that can reduce the effects of discharges from outdoor burning on the surrounding local environment.

Method 17.4.2.3 is adopted to assist in avoiding adverse effects on local air quality or on any airshed. In some new subdivision developments in Otago, developers have set additional limits on discharges to air from solid fuel heating in order to ensure good quality air and high amenity values. Such voluntarily measures are supported as they contribute towards achieving higher quality ambient air.

17.5 Advocacy and information transfer

17.5.1 Methods to avoid, remedy or mitigate adverse effects

17.5.1.1 To provide information and advice on appropriate methods of avoiding, remedying or mitigating any adverse effects of discharges of contaminants into air.

17.5.1.2 To provide information and advice, as appropriate, to roading and earthworks contractors, roading authorities, pastoral farmers, horticulturists and other persons whose activities may generate dust or smoke, on ways of avoiding or minimising the discharge of dust or smoke to air.

Principal reasons for adopting

Methods 17.5.1.1 and 17.5.1.2 recognise that the provision of information and advice provides a further means of avoiding or mitigating adverse effects of discharges of contaminants into air, particularly when used in conjunction with regional rules.

Many of the problems associated with dust from area sources occur as a consequence of land management practices that leave soils exposed to wind. Similarly, problems associated with vegetation burning often relate to when and how burning is carried out. The Council considers that the adoption of sustainable land management practices is a key method in avoiding or mitigating adverse effects from dust and smoke and this method is directed at providing information and advice to assist in this process.

17.5.2 Codes of practice and self-regulation

17.5.2.1 Encourage and assist the development and use of industry codes of practice and environmental management systems that seek to achieve or implement the objectives or policies in this Plan.

17.5.2.2 Liaise with industry and other relevant organisations to ensure they have sufficient information and understanding of this Plan to develop appropriate means of self-regulation.

Principal reasons for adopting

Methods 17.5.2.1 and 17.5.2.2 cover a range of actions the Otago Regional Council will undertake to enable and support industrial groups and individuals to develop and implement voluntary actions that demonstrate the best practice in relation to that activity or effect.

Method 17.5.2.1 recognises that adherence to codes of practice, environmental management systems and other voluntary actions can be particularly effective in controlling the effects of small scale activities that produce minor adverse effects. For example, Schedule 4 of this Plan, which is based on the *Code of Practice for the Management of Agrichemicals* (NZS 8409:1999), recommends practices which may assist in achieving agrichemical discharge rule conditions. Where

adverse effects do occur, the Otago Regional Council has a number of regulatory actions it can follow.

Method 17.5.2.2 recognises that the Otago Regional Council can assist in providing information to industries so that they can develop voluntary actions which are consistent with the objectives and policies contained within this Plan.

17.5.3 Central government initiatives

17.5.3.1 Advocate the need for more comprehensive nation-wide initiatives to reduce the:

(a) Discharge of contaminants into air from motor vehicles; and

(b) Release of greenhouse gases and ozone layer depleting substances into the atmosphere.

17.5.3.2 Support national programmes that provide funds for the implementation of clean heating within areas of highest need, especially Otago's Air Zone 1.

Principal reasons for adopting

Methods 17.5.3.1 and 17.5.3.2 recognise that there is a role for the Otago Regional Council to continue advocating for continuing attention to these issues at a national level.

17.5.4 Testing procedures for domestic heating appliances

17.5.4.1 In determining whether a given model of a domestic heating appliance meets the particulate emission rates and thermal efficiency standards set in the permitted activity rules for discharges from domestic heating appliances, the Council will require evidence that an appliance has been tested according to the relevant testing procedures specified below:

(i) AS/NZS 4013:1999, *Domestic solid fuel burning appliances – Method for determination of flue gas emissions;*

(ii) AS/NZS 4012:1999, *Domestic solid fuel burning appliances – Method for determination of power output and efficiency;*

(iii) AS/NZS 5078:2007, *Domestic solid fuel burning appliances – Pellet heaters – Method for determination of power output and efficiency;*

(iv) AS/NZS 4886:2007, *Domestic solid fuel burning appliances – Pellet heaters –Determination of flue gas emissions;*

A domestic heating appliance will be considered to meet the emission standard for a particular fuel or mix of fuels, only when the particulate emissions meet the rates set in the permitted activity rules for discharges from domestic heating appliances when tested with each of those fuels, or a specified mixture of fuels. If the emission standard is exceeded when using a particular fuel or mix, the appliance is not approved under the permitted activity rules for discharges from domestic heating appliances for use with that fuel or mix of fuels.

The Council is supportive in principle of innovation and new technologies for achieving cleaner discharges from solid fuel heating, and will initiate a change to this Plan when any new testing procedure for domestic heating appliances, suitable for use in the Otago region, is recognised by the Ministry for the Environment and is provided for by the NESAQ.

The Otago Regional Council will hold a publicly-available list of those domestic heating appliance models that meet the emission standards set in the permitted activity rules for discharges from domestic heating appliances.

Principal reasons for adopting

Method 17.5.4.1 is adopted to set the procedures used to determine compliance with permitted activity rules for discharges from domestic heating appliances.

Part VI

Anticipated Environmental Results

18.1 Introduction

This part of the Plan outlines the environmental results anticipated from the implementation of the policies and methods (including rules) in this Plan.

18.2 Anticipated environmental results

18.2.1 There are no significant increases in the ambient levels of contaminants identified in Schedule 1.

18.2.2 Levels of contaminants in Otago's ambient air do not exceed the standards in the NESAQ, and where possible the Otago Goal Levels identified in Schedule 1.

18.2.3 Ambient air quality improves.

18.2.4 Measurable improvements occur in the levels of PM_{10} measured in Air Zones 1 and 2, particularly during the months of May to August.

18.2.5 Less waste is disposed of by combustion (in particular that waste which discharges hazardous air contaminants when burnt).

18.2.6 There is increased adoption of emission control technology and production processes that produce lower mass emissions and discharge low levels of hazardous air contaminants.

18.2.7 There is increased public awareness of the effects of contaminant discharges on localised and ambient air quality.

Part VII
Cross-Boundary Issues

19.1 Introduction

An activity which discharges into Otago's air resource can create adverse effects beyond the immediate vicinity of the activity. Due to the mobile nature of the air resource the effects of a discharge into air may occur across district and regional boundaries.

It is important that the cross-boundary issues are identified, agreed to and are dealt with in an efficient and effective manner in order that any adverse effects of discharges are avoided, remedied or mitigated.

Where the adverse effects of an activity occur in an area under the management of another agency, administrative processes are required to ensure that the cross-boundary nature of the effect is considered, and where necessary taken into account by the agency responsible for the management of that resource. Establishing processes between local authorities in order to deal with those cross-boundary issues is required.

19.2 Methods

In order to deal with cross-boundary issues as they arise, the Otago Regional Council will use the following methods:

19.2.1 To liaise with adjacent regional councils over issues of concern related to the management of the air resource.

19.2.2 To promote and encourage the development of protocols with Otago's city and district councils and adjacent regional councils for resolving cross-boundary issues.

19.2.3 To consult with all agencies having responsibilities for the sustainable management of aspects of Otago's environment.

19.2.4 To promote and encourage joint working groups, joint council committees and other joint approaches between appropriate city and district councils and the Regional Council to consider cross-boundary issues.

19.2.5 To combine with appropriate city and district councils and regional councils in jointly processing resource consent applications that cross administrative boundaries.

19.2.6 To consider transferring functions to city and district councils under Section 33 of the Resource Management Act where it is more efficient, effective and appropriate to manage the air resource.

Explanation and principal reasons for adopting

Processes to resolve cross-boundary issues will be based on consultation and communication between Otago's city and district councils, adjacent regional councils and central government. Various approaches employing joint groups, committees or other means can be used to facilitate the consideration and decision-making between different authorities over issues that cross their boundaries.

Part VIII
Monitoring and Review

20.1 Introduction

This part of the Plan outlines the procedures to be used to:

- Monitor the effectiveness of the Plan as a means of achieving its objectives and policies; and
- Review the matters contained within this Plan.

In terms of this Plan, Section 35(2) of the Act places a duty on the Otago Regional Council to monitor:

- The state of the regional environment to the extent that is necessary to carry out the Council's air management functions (baseline monitoring or environmental monitoring);
- The suitability and effectiveness of this Plan and the exercise of any functions, powers or duties delegated or transferred by the Otago Regional Council (process monitoring); and
- The exercise of resource consents for discharges to air (compliance monitoring).

NESAQ Regulation 15 requires the Otago Regional Council to monitor ambient air quality in airsheds where it is likely that the standard for any contaminant will be breached, and Schedule 2 to the NESAQ outlines the method for such monitoring.

Section 67(1)(i) of the Act requires the Otago Regional Council to include within this Plan, the procedures to be used to review the matters contained within it, and to monitor the effectiveness of the Plan as a means of achieving its objectives and policies.

20.2 Elements to be monitored

Monitoring of the suitability and effectiveness of the objectives and policies within this Plan will be carried out in conjunction with monitoring of the Regional Policy Statement for Otago, other regional plans and the NESAQ. It will also be subject to the provisions of the Council's own Annual Plan and Long Term Council Community Plan (LTCCP).

In considering the elements requiring monitoring, the Otago Regional Council will have particular regard to the anticipated environmental results as stated within this Plan and will monitor the following:

1. The number and nature of discharges within Otago.
2. The type and mass of contaminants discharged into air and the effects of those contaminants on the receiving environment.
3. The effects of discharges on ambient air quality, and in particular the levels and effects of the following principal indicators:
   - PM_{10};
   - Sulphur dioxide;
   - Carbon monoxide; and
   - Nitrogen dioxide.
4. Existing ambient air quality in areas most likely to be affected by air pollution activities, to assess whether the air quality remains within the Ambient Air Quality Guidelines contained in Schedule 1, and meets the standards set by the NESAQ, including paths to compliance with the ambient air quality standard for PM_{10}.
5. The quality of significant discharges to air from industrial or trade premises and other significant discharges will be monitored, as will the air quality near to the discharges.

20.3 Monitoring techniques

In monitoring the elements detailed in Section 20.2, the following techniques may be used:

1. Analysis of feed back and compliments and complaints received.
2. Maintenance of a regional ambient air quality monitoring programme, and expansion as necessary.
3. Recording and analysis of unauthorised discharges to air.
4. Development of an emissions inventory to identify the source, scale and distribution of discharges of contaminants into air.
5. Requiring self monitoring of consents, where necessary, and the provision of the collected information to the Otago Regional Council.
6. Compliance audit monitoring to ensure the conditions on resource consents are being adhered to.
7. Maintaining a database of air discharge permits issued.
8. Records of the number of consent applications made for each activity regulated by the Plan.
9. Commission research, as necessary, to provide additional information on the region's air resource.
10. Where appropriate, develop and implement joint initiatives with local authorities, government departments and other agencies to monitor key aspects of Otago's air resource.
11. Make available data held by the Otago Regional Council and seek the transfer of information between agencies and local authorities about Otago's air resource.
12. Consultation with key stakeholders and affected parties.

20.4 Plan review

The Resource Management Act requires that this Plan be reviewed no later than 10 years from the date upon which it becomes operative.

In the interim, the Council may determine to review part of, or the entire Plan, in response to:

1. Information from monitoring which indicates the need for a review or change;
2. The identification of any significant new air quality issues in the region;
3. Changes in national policy including new or amended laws, regulations, national policy statements or any other actions taken which require a national response;
4. Changes made to the Regional Policy Statement for Otago and to other regional plans by the Otago Regional Council; or
5. Requests for a plan change or review made by any person in accordance with Part II of the First Schedule of the Resource Management Act.

Schedules

Schedule 1 Regional Ambient Air Quality Guidelines

Indicator	Otago Goal Levels*	MfE Levels†	Averaging Times**	Preferred Techniques for Measurement***
Particulates (PM_{10})	35 μg/m^3	50 μg/m^3 20 μg/m^3	24 hours annual	US 40 CFR Part 50, Appendix J
Sulphur dioxide	330 μg/m^3 230 μg/m^3 380 μg/m^3 80 μg/m^3	500 μg/m^3 350 μg/m^3 †† 570 μg/m^3 †† 125 μg/m^3 50 μg/m^3	10 minutes 1 hour 1 hour 24 hours annual	AS 3580.4.1 - 1990
Carbon monoxide	20 mg/m^3 6 mg/m^3	30 mg/m^3 10 mg/m^3	1 hour 8 hours	AS3580.7.1 − 1992
Ozone		150 μg/m^3 100 μg/m^3	1 hour 8 hours	AS 3580.6.1 - 1990
Nitrogen dioxide	130 μg/m^3 60 μg/m^3	200 μg/m^3 100 μg/m^3	1 hour 24 hours	AS 3580.5.1 - 1993
Lead		0.2 μg/m^3	3 months	AS 2800 - 1985
Fluoride - Special land use		 1.8 μg/m^3 1.5 μg/m^3 0.8 μg/m^3 0.4 μg/m^3 0.25 μg/m^3	 12 hours 24 hours 7 days 30 days 90 days	 AS 3580.13.1-1993 AS 3580.13.2-1991
- General land use		3.7 μg/m^3 2.9 μg/m^3 1.7 μg/m^3 0.84 μg/m^3 0.5 μg/m^3	12 hours 24 hours 7 days 30 days 90 days	AS 3580.13.1-1993 AS 3580.13.2-1991
- Conservation area		0.1 μg/m^3	90 days	
Hydrogen sulphide		7 μg/m^3	1-hour	AS3580.4.1 – 1990, coupled with a hydrogen sulphide to sulphur dioxide converter

μg/m^3 = micrograms per cubic metre
mg/m^3 = milligrams per cubic metre
AS = Australian Standard

* Levels do not always equate to 66% of alert levels as a consequence of rounding.

** Averaging times are the times over which the average level of indicator should not exceed the levels given in the guidelines.

*** Other international standard methods may be used as appropriate.

† MfE (2002) updated values, except for Fluoride, where the 1994 values are still valid.

†† Refer to permissible excess in NESAQ ambient air quality standards (below).

The **Otago Goal Levels** equate to 66% of the level set by the Ministry for the Environment in its publication "*Ambient Air Quality Guidelines"* (1994 and 2002).

The 66% level has been adopted to reflect the "alert" levels being advocated in the Ministry for the Environment's Environmental Performance Indicators Programme (*Environmental Performance Indicators: Proposals for Air, Fresh Water and Land, 1997*). Concentrations above these levels can be of concern and can lead to the AAQG, and therefore the NESAQ, being exceeded if trends are not curbed. The levels were chosen because it is generally considered that air quality in Otago is high, except for PM_{10} in some areas, and that it could not be maintained or enhanced (Objective 6.1.1) if the guideline levels were adopted on their own.

The **Ministry for the Environment Levels** are those specified in the Ministry for the Environment's AAQG and are defined as the levels adequate to protect the health of the general population, although the levels set for fluoride are set to protect plants and animals which have lower tolerances than humans. The level set for hydrogen sulphide is set to avoid the occurrence of odour problems. Contaminant concentrations above the Ministry for the Environment levels are considered in the "action" category as defined by the Ministry for the Environment publication *Environmental Performance Indicators: Proposals for Air, Fresh Water and Land (1997).* These levels are considered unacceptable by national and international standards and public health or other effects are likely. Concentrations which exceed these levels must be urgently reduced.

These Schedule 1 guidelines are designed to protect the ambient air quality in any area of Otago. Any monitoring to test compliance with the guidelines should be undertaken so the measurements are representative of the area of concern. In this respect it is important that siting of the monitoring station follows the requirements of the specific methods listed in the table. The guidelines are not to be used as design concentrations for dispersion modelling of individual point sources.

The NESAQ (NESAQ Schedule 1) ambient air quality standards are statutory standards and are mandatory nationally. They are listed below:

NESAQ ambient air quality standards

Contaminant	Threshold Concentration	Permissible Excess	Monitoring Method
Carbon monoxide	10 mg/m^3 expressed as a running 8-hour mean	One 8-hour period in a 12-month period	AS 3580.7.1:1992
Nitrogen dioxide	200 $\mu g/m^3$ expressed as a 1-hour mean	9-hours in a 12-month period	AS 3580.5.1:1993
Ozone	150 $\mu g/m^3$ expressed as a 24-hour mean	Not to be exceeded at any time	AS 3580.6.1:1990
PM_{10}	50 $\mu g/m^3$ expressed as a 24-hour mean	One 24-hour period in a 12-month period	AS/NZS 3580.9.6:2003 US Code of Federal Regulations, Title 40 – Protection of Environment, Vol 2 Pt 50, Appendix J
Sulphur dioxide	350 $\mu g/m^3$ expressed as a 1-hour mean 570 $\mu g/m^3$ expressed as a 1-hour mean	9-hours in a 12-month period Not to be exceeded at any time	AS 3580.4.1:1990

In the above table,

1-hour mean -

(a) means a mean calculated every hour on the hour for the preceding hour; and

(b) in relation to a contaminant at a particular location for a particular hour, means the mean of not more than 10-minute means, collected not less than once every 10 seconds, for the contaminant at that location during that hour

24-hour mean -

(a) means a mean calculated every 24 hours at midnight for the preceding 24 hours; and

(b) in relation to a contaminant at a particular location for a particular 24-hour period, means--

(i) the mean level at which the contaminant is recorded in the air, by continuous sampling of the air at that location, throughout that 24-hour period; or

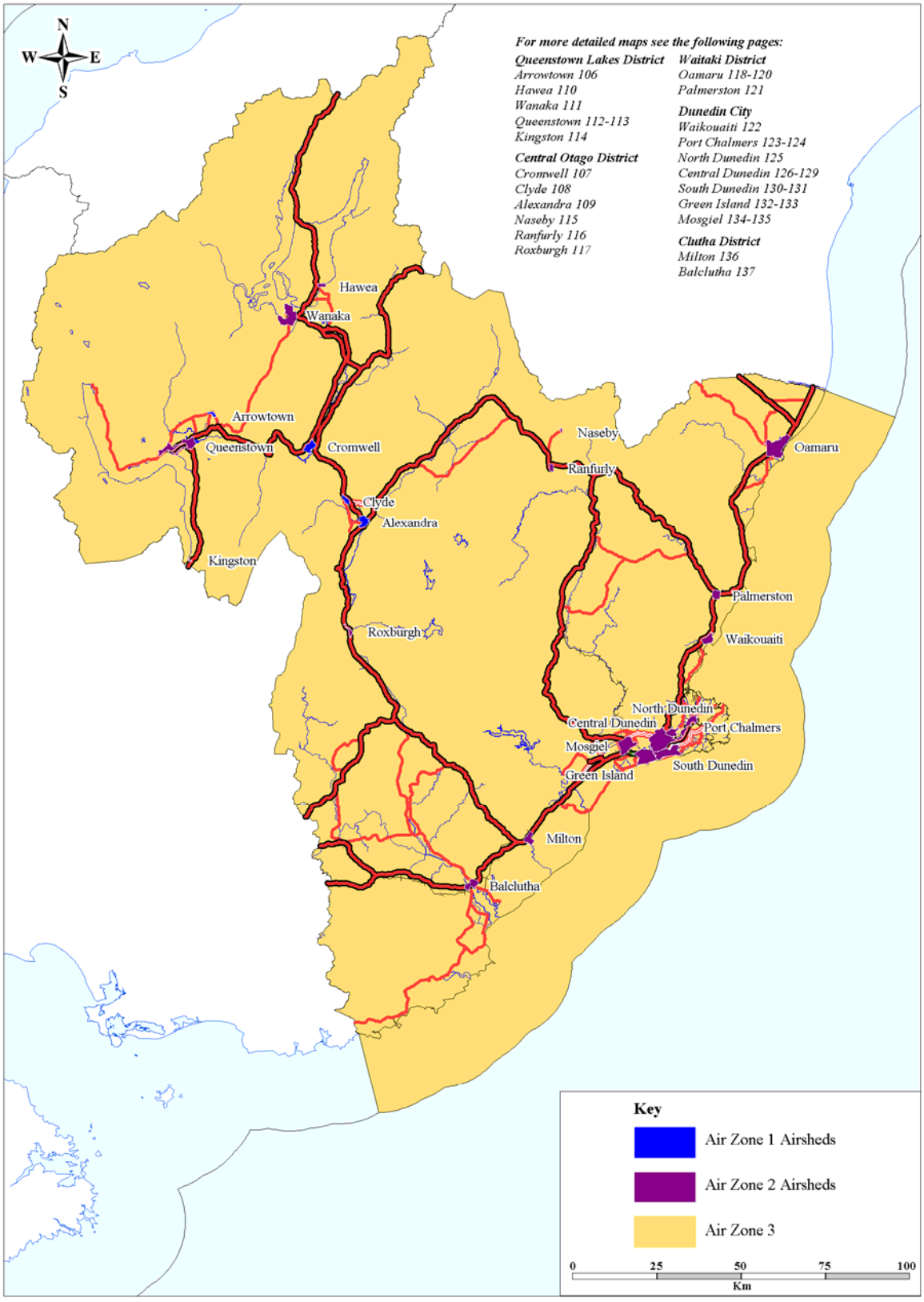
(ii) the mean of the 1-hour means for that contaminant at that location for the preceding 24 hours

running 8-hour mean -

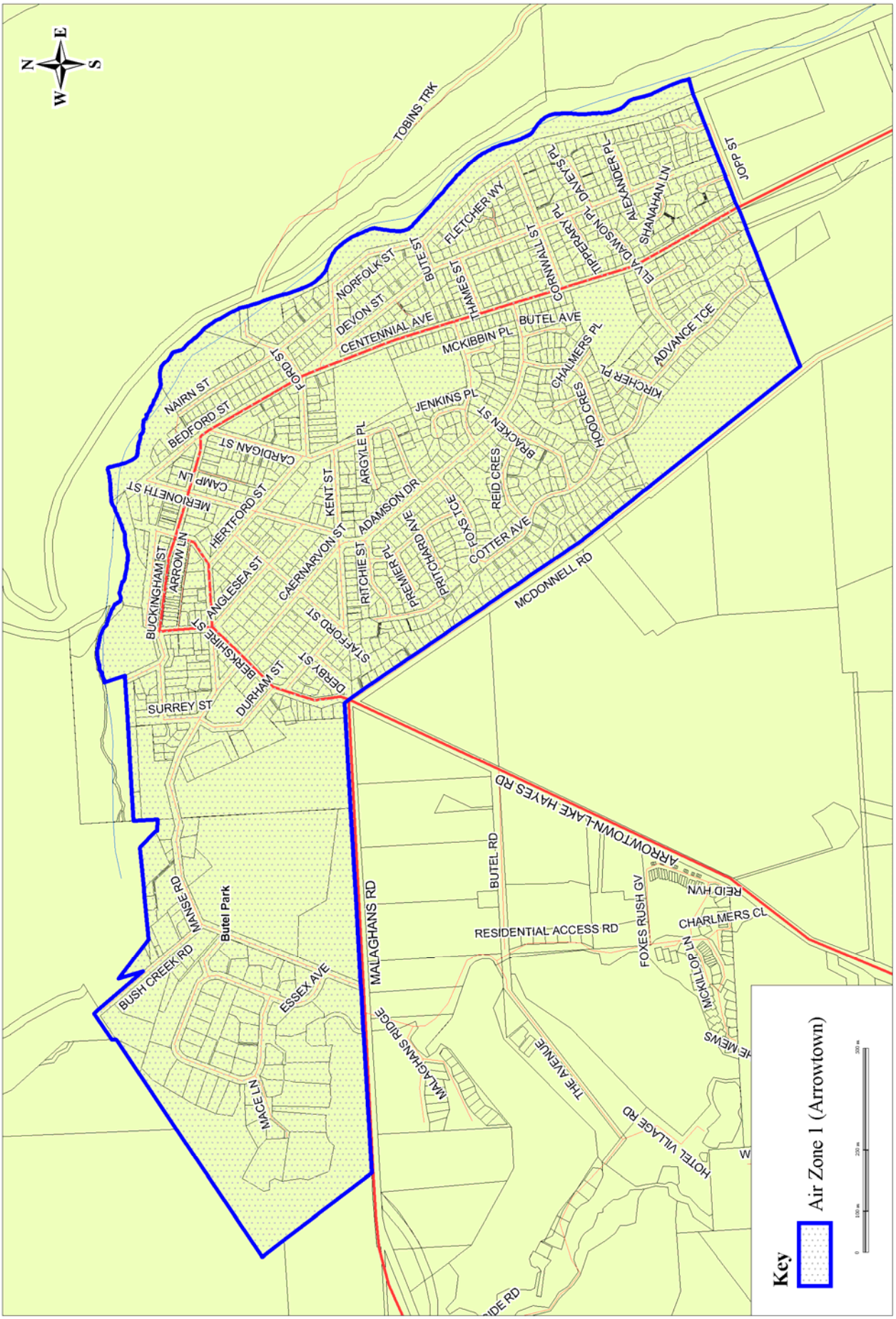
(a) means a mean calculated every hour on the hour for that hour and the preceding 7 hours to give 1 running 8-hour mean per hour; and

(b) in relation to a contaminant at a particular location for a particular hour, means the mean of the 1-hour means for that contaminant at that location for that hour and the preceding 7 hours.

Schedule 2 Maps Showing Air Zone Boundaries



Overview of Air Zones


N
E
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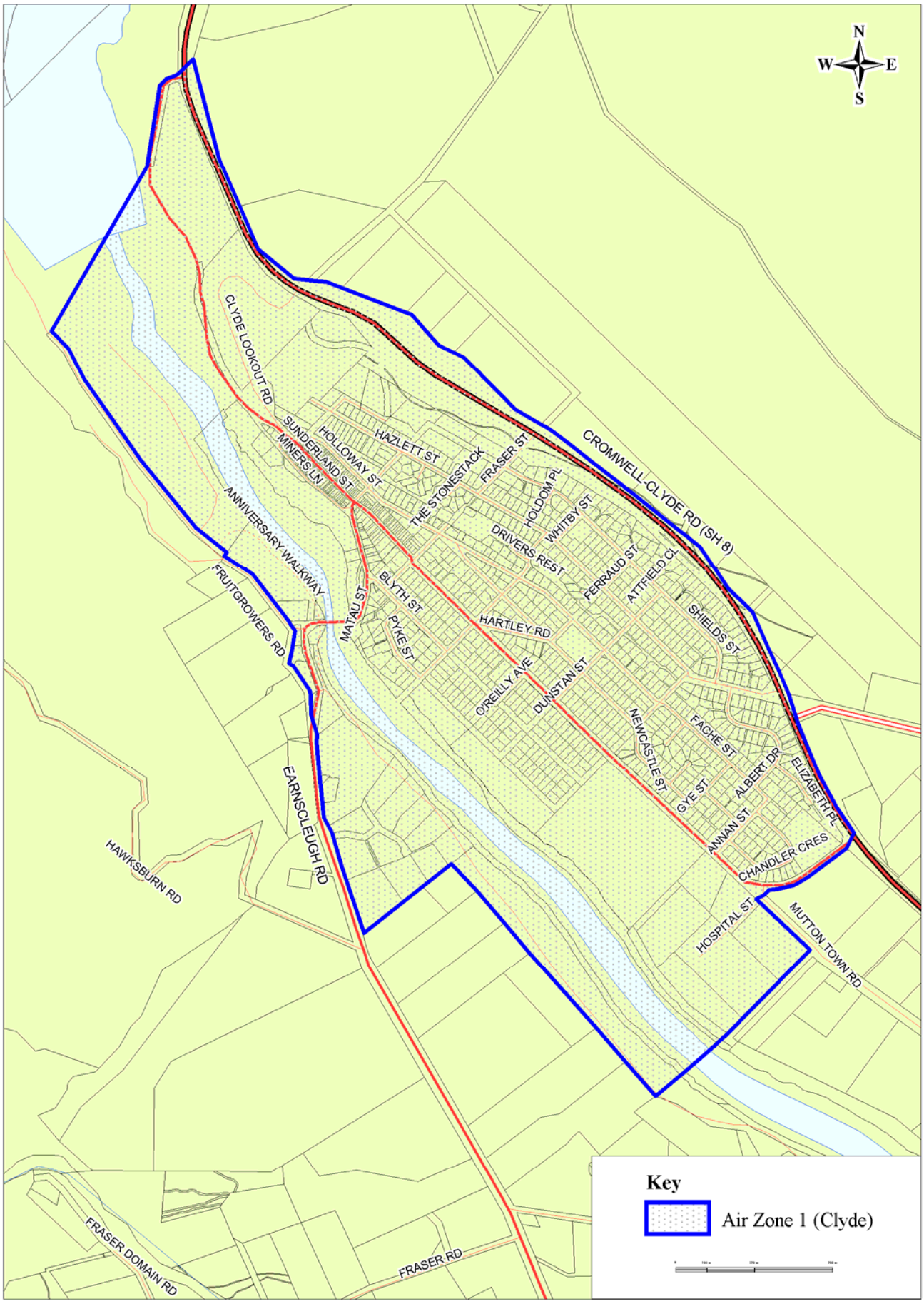
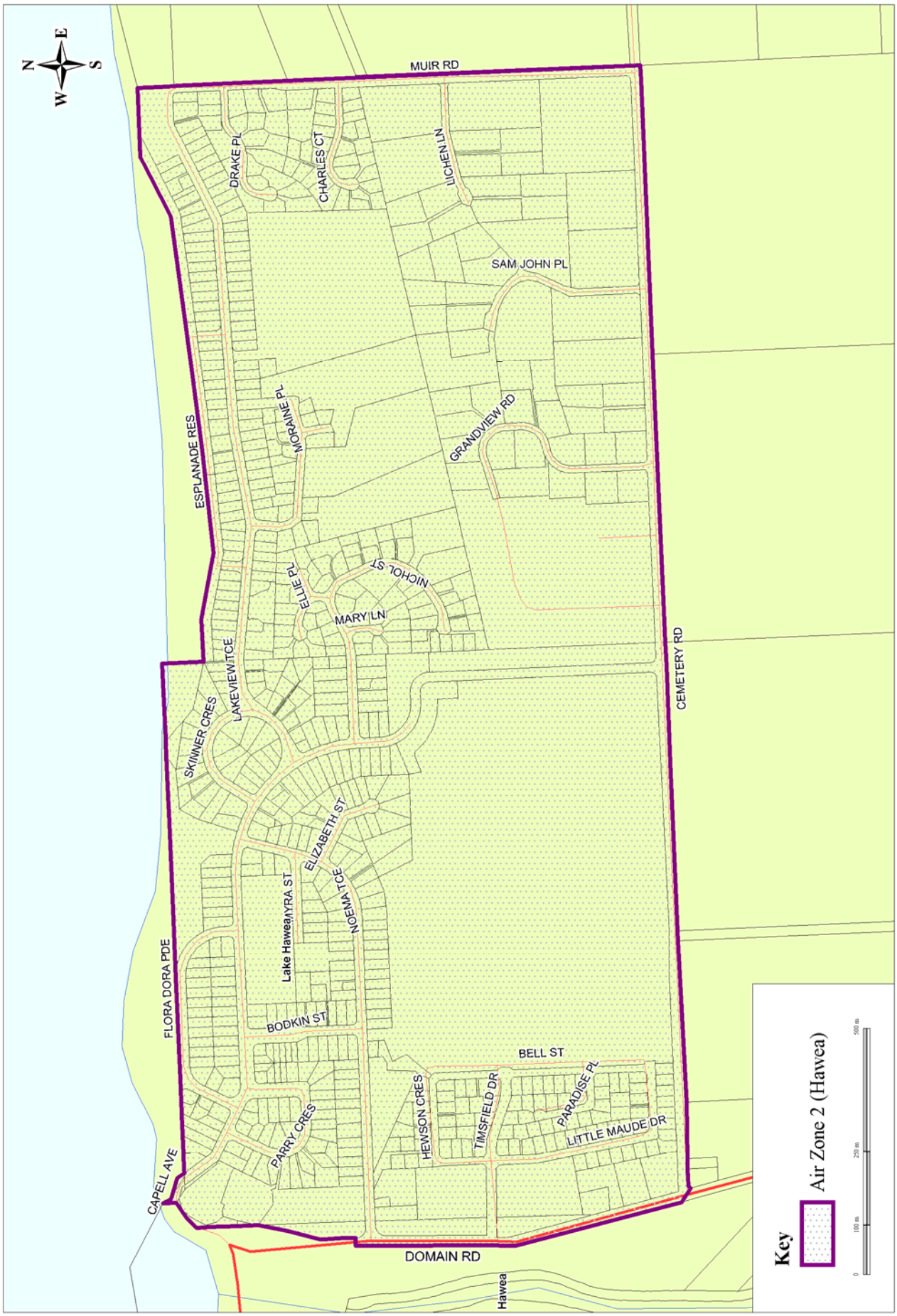
TOBINS TRK
JOPP ST
ALEXANDER PL
SHANAHAN LN
ELVA DAWSON PL
TIPPERARY PL
DAVEYS PL
FLETCHER WY
CORNWALL ST
THAMES ST
BUTE ST
NORFOLK ST
DEVON ST
CENTENNIAL AVE
BUTEL AVE
MCKIBBIN PL
ADVANCE TCE
KIRCHER PL
CHALMERS PL
HOOD CRES
BRACKEN ST
JENKINS PL
REID CRES
COTTER AVE
FOX ST
PRITCHARD AVE
PREMIER PL
RITCHIE ST
ADAMSON DR
ARGYLE PL
KENT ST
CAERNARVON ST
STAFFORD ST
DERBY ST
DURHAM ST
SURREY ST
BERKSHIRE ST
ANGLESEA ST
ARROW LN
BUCKINGHAM ST
HERTFORD ST
CAMP LN
CARDIGAN ST
MERIONETH ST
BEDFORD ST
NAIRN ST
ORD ST
MCDONNELL RD
LAKE HAYES RD
ARROWTOWN
REID HVN
CHARLMERS CL
FOXES RUSH GV
MCKILLOP LN
HE MEWS
RESIDENTIAL ACCESS RD
BUTEL RD
MALAGHANS RD
MALAGHANS RIDGE
THE AVENUE
HOTEL VILLAGE RD
IDE RD
MACE LN
ESSEX AVE
BUSH CREEK RD
MANSE RD
Butel Park
Key
Air Zone 1 (Arrowtown)
Air Zone 1 (Arrowtown)

Air Zone 1 (Cromwell)



Air Zone 1 (Clyde)

Air Zone 1 (Alexandra)


N
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S
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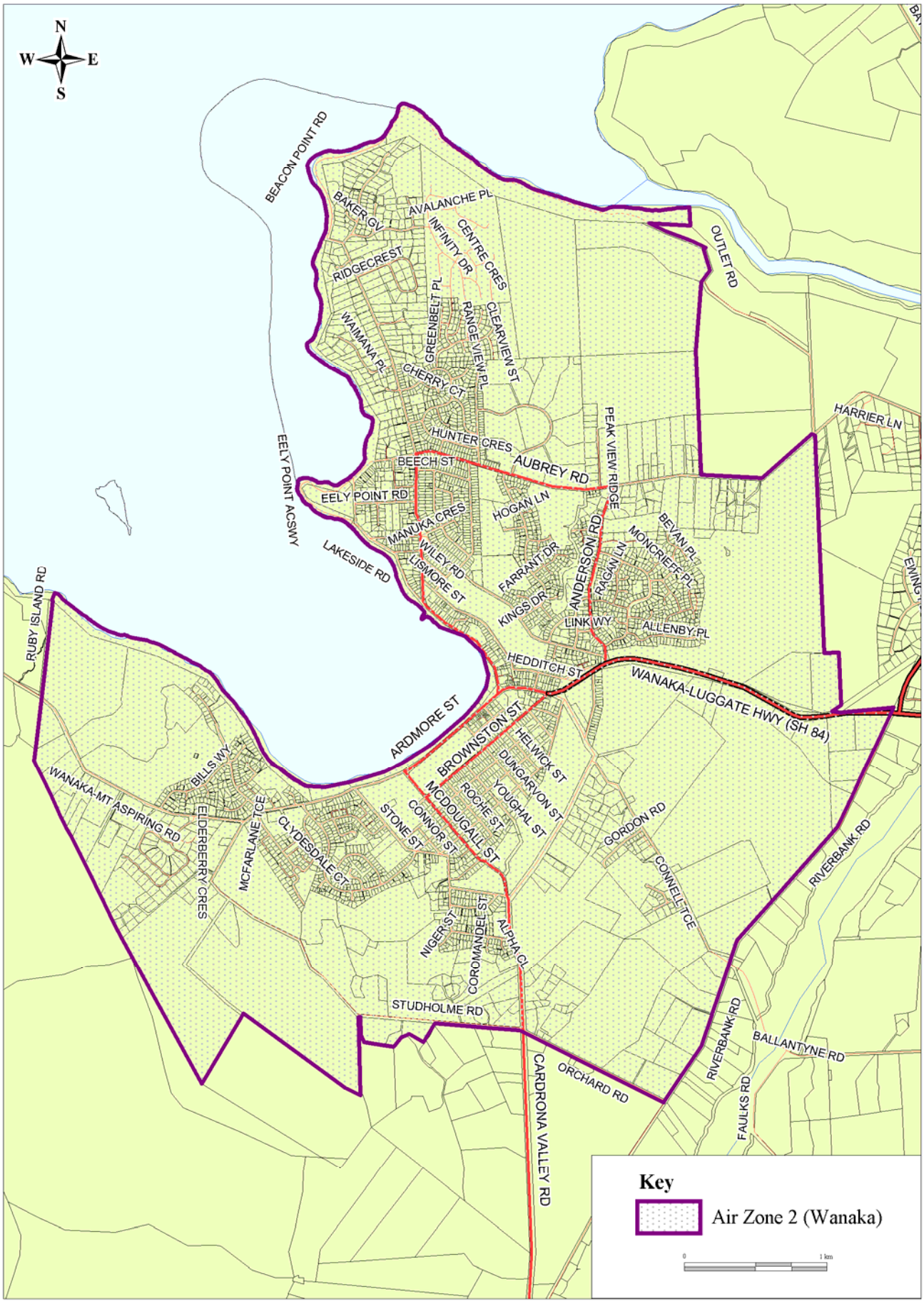
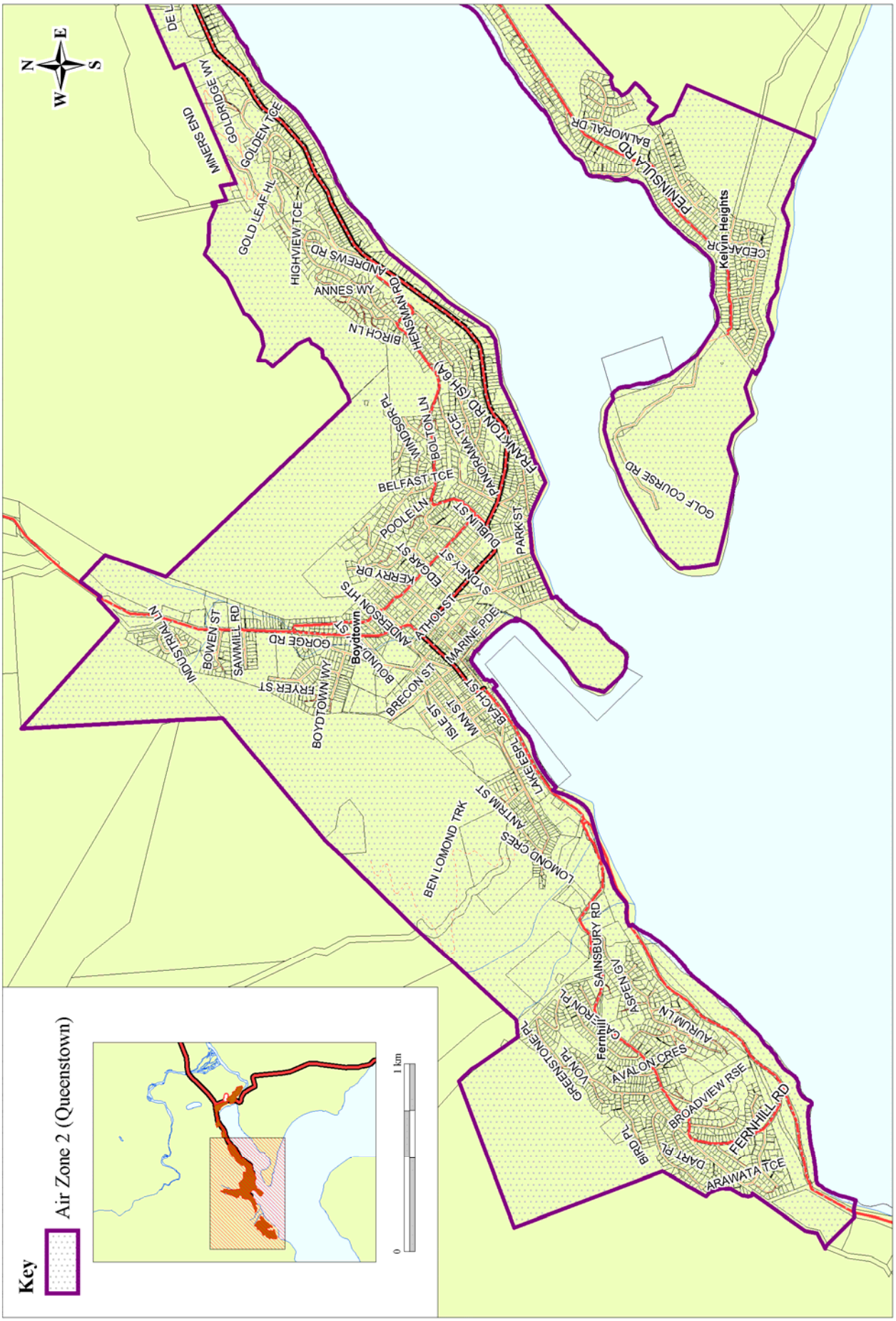
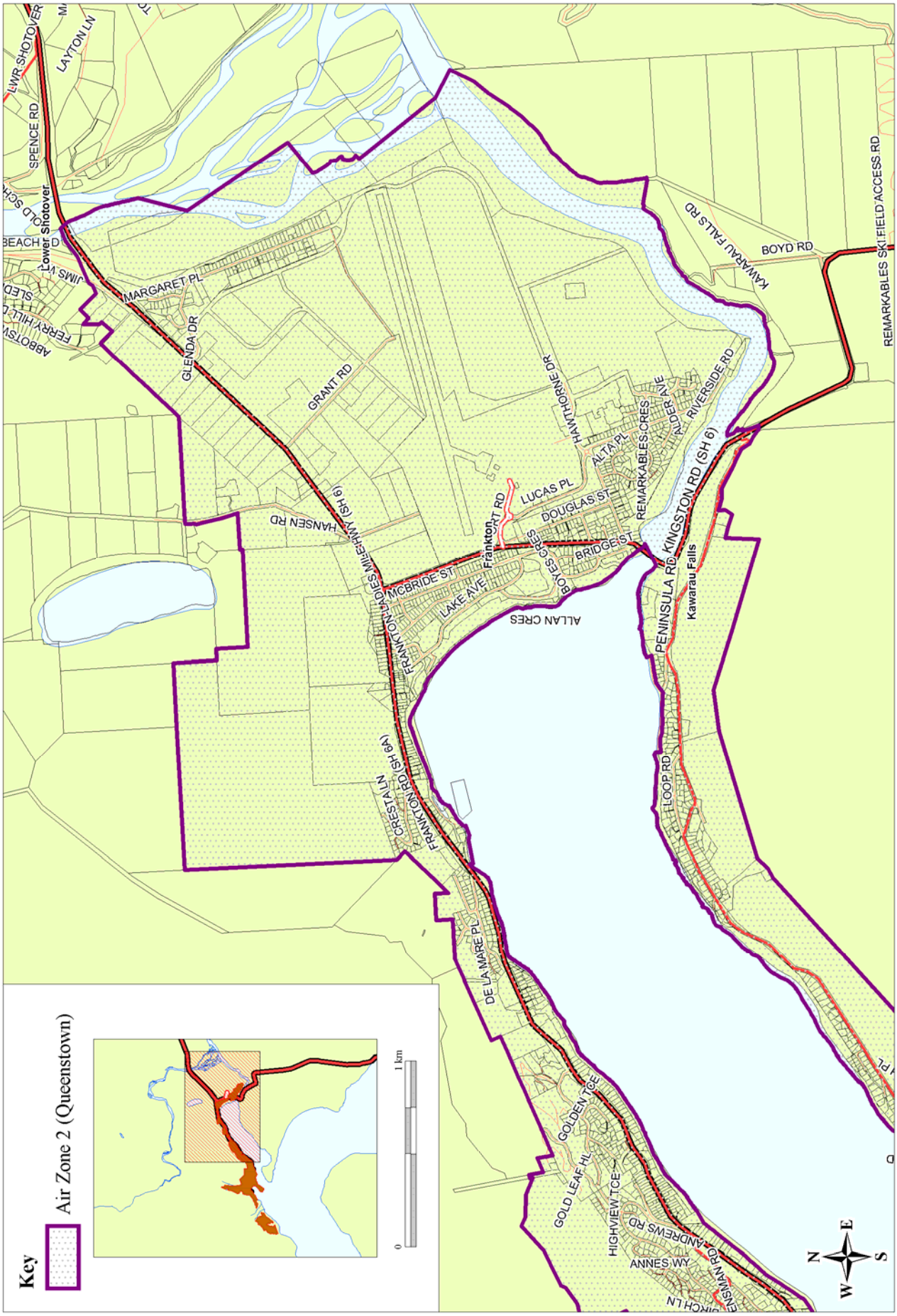
MUIR RD
DRAKE PL
CHARLES CT
LICHEN LN
SAM JOHN PL
GRANDVIEW RD
MORAINE PL
ESPLANADE RES
NICHOL ST
ELLIE PL
MARY LN
LAKEVIEW TCE
SKINNER CRES
CEMETERY RD
ELIZABETH ST
NOEMA TCE
Lake Hawea
AYRA ST
FLORA DORA PDE
BODKIN ST
BELL ST
HEWSON CRES
TIMSFIELD DR
PARADISE PL
LITTLE MAUDE DR
PARRY CRES
CAPELL AVE
DOMAIN RD
Hawea
Key
Air Zone 2 (Hawea)
Air Zone 2 (Hawea)



Air Zone 2 (Wanaka)


Air Zone 2 (Queenstown)
Map 1 of 2
Key
Air Zone 2 (Queenstown)
1 km
0
N
E
S
W
Kelvin Heights
GOLF COURSE RD
PENINSULA RD
BALMORAL DR
CEDAR DR
GOLDRIDGE WY
GOLDEN TCE
GOLD LEAF HL
HIGHVIEW TCE
ANDREWS RD
ANNES WY
BIRCH LN
HENSMAN RD
FRANKTON RD (SH 6A)
PANORAMA TCE
BOLTON LN
WINDSOR PL
BELFAST TCE
POOLE LN
DUBLIN ST
PARK ST
STUDLEY ST
EDGAR ST
KERRY DR
ANDERSON HTS
ATHOL ST
MARINE PDE
BEACH ST
MAIN ST
ISLE ST
BRECON ST
BOUNDARY ST
Boydtown
GORGE RD
FRYER ST
BOYDTOWN WY
INDUSTRIAL LN
BOWEN ST
SAWMILL RD
LAKE ESPL
ANTRIM ST
LOMOND CRES
BEN LOMOND TRK
SAINSBURY RD
ASPEN GV
Fernhill
AURUM LN
AVALON CRES
GREENSTONE PL
BROADVIEW RSE
FERNHILL RD
DART PL
BIRD PL
ARAWATA TCE


Map 2 of 2
Air Zone 2 (Queenstown)
Key
Air Zone 2 (Queenstown)
1 km
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N
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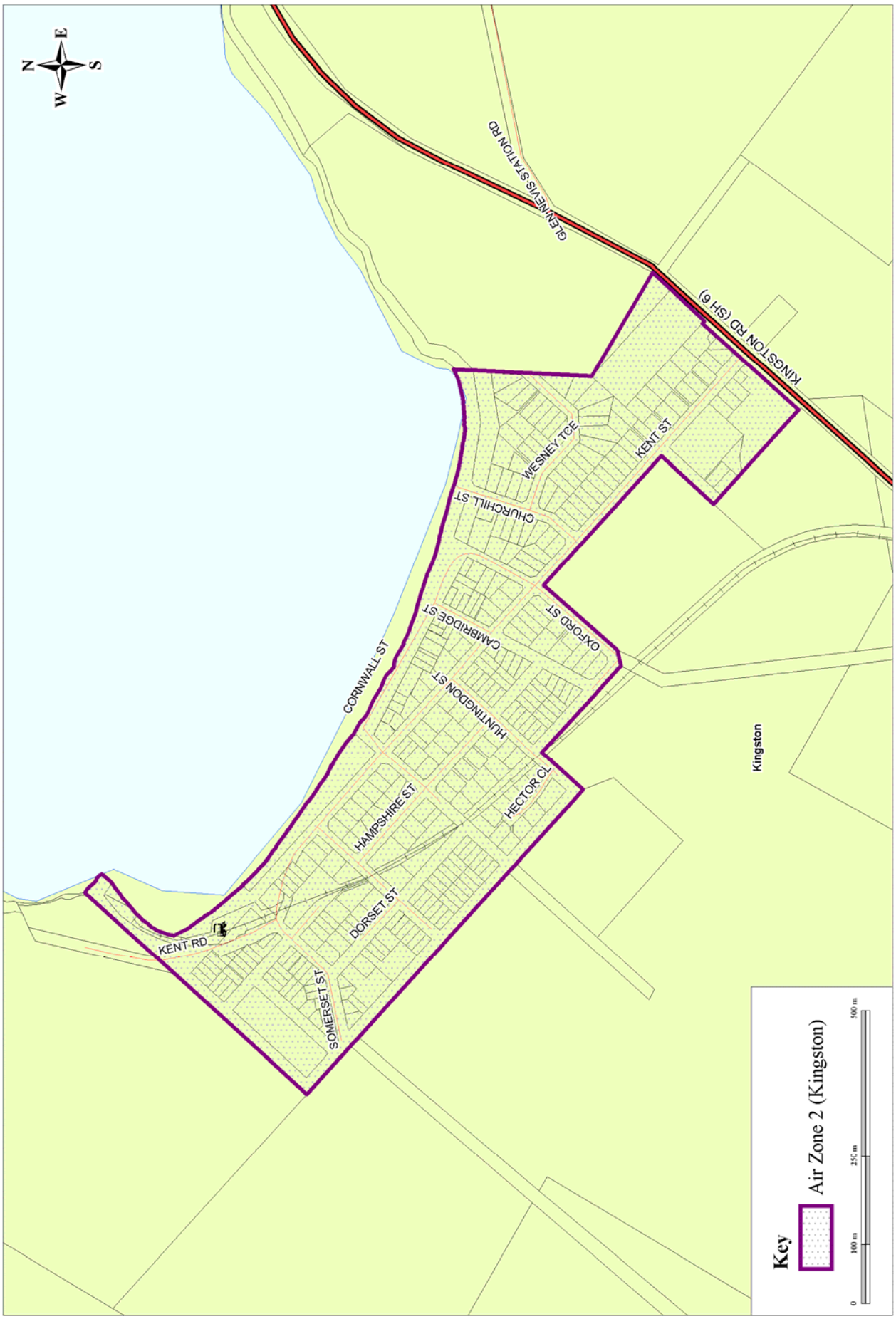
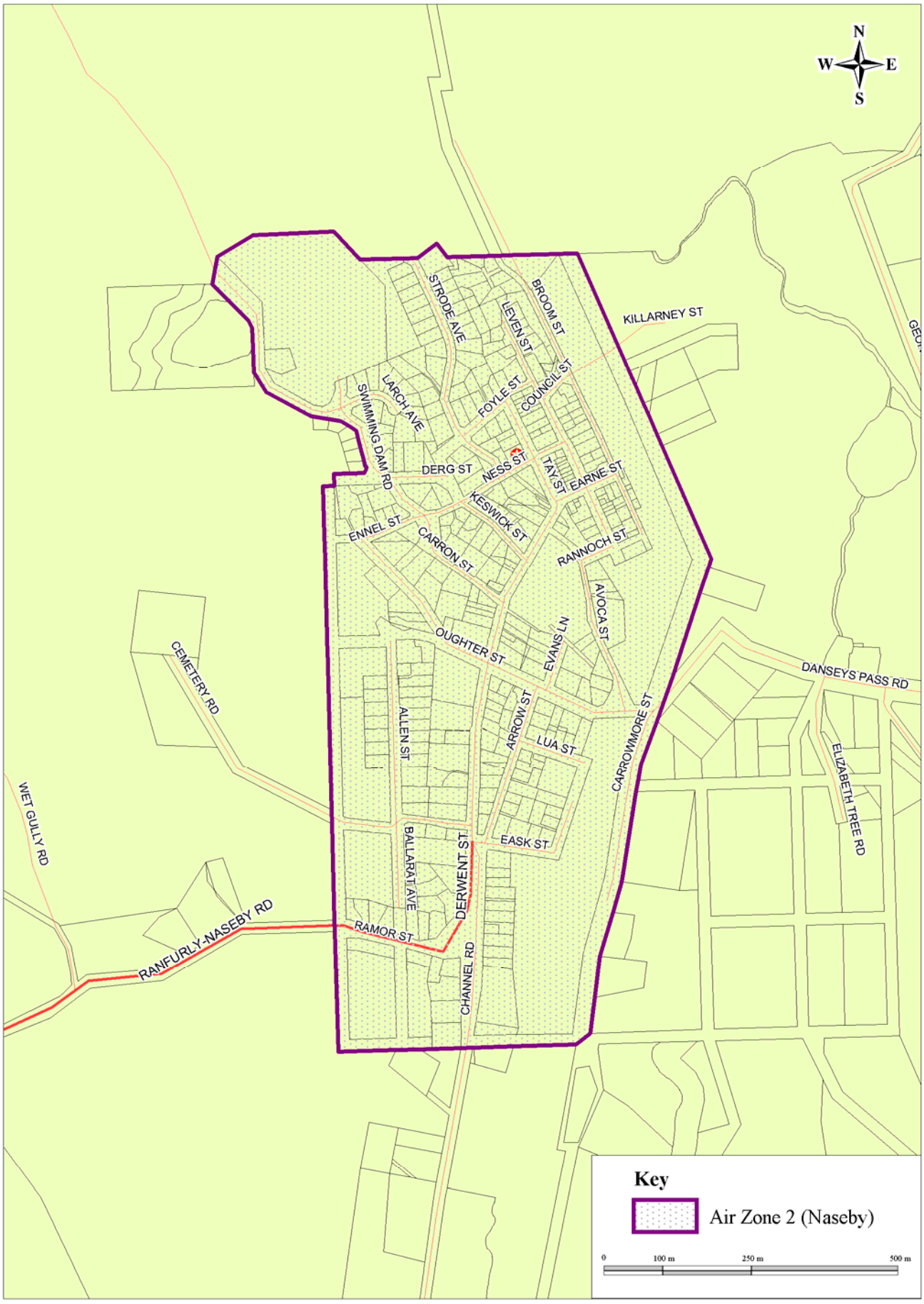
LWR SHOTOVER
LAYTON LN
SPENCE RD
OLD SCH
BEACH D
Lower Shotover
JIMS WAY
FERRY HILL
ABBOTSW
MARGARET PL
GLENDA DR
GRANT RD
HANSEN RD
SH 6
MILESTONE DR
FRANKTON RD
MCBRIDE ST
LAKE AVE
Frankton
CRESTA LN
FRANKTON RD (SH 6A)
DE LA MARE PL
GOLDEN TCE
GOLD LEAF HL
HIGHVIEW TCE
ANDREWS RD
ANNES WY
ENSMAN RD
SIRCH LN
ALLAN CRES
BOYLE CRES
LUCAS PL
PORT RD
BRIDGE ST
DOUGLAS ST
HAWTHORNE DR
ALTA PL
REMARKABLES CRES
ALDER AVE
RIVERSIDE RD
KINGSTON RD (SH 6)
Kawarau Falls
PENINSULA RD
FLOOP RD
KAWARAU FALLS RD
BOYD RD
REMARKABLES SKIFIELD ACCESS RD

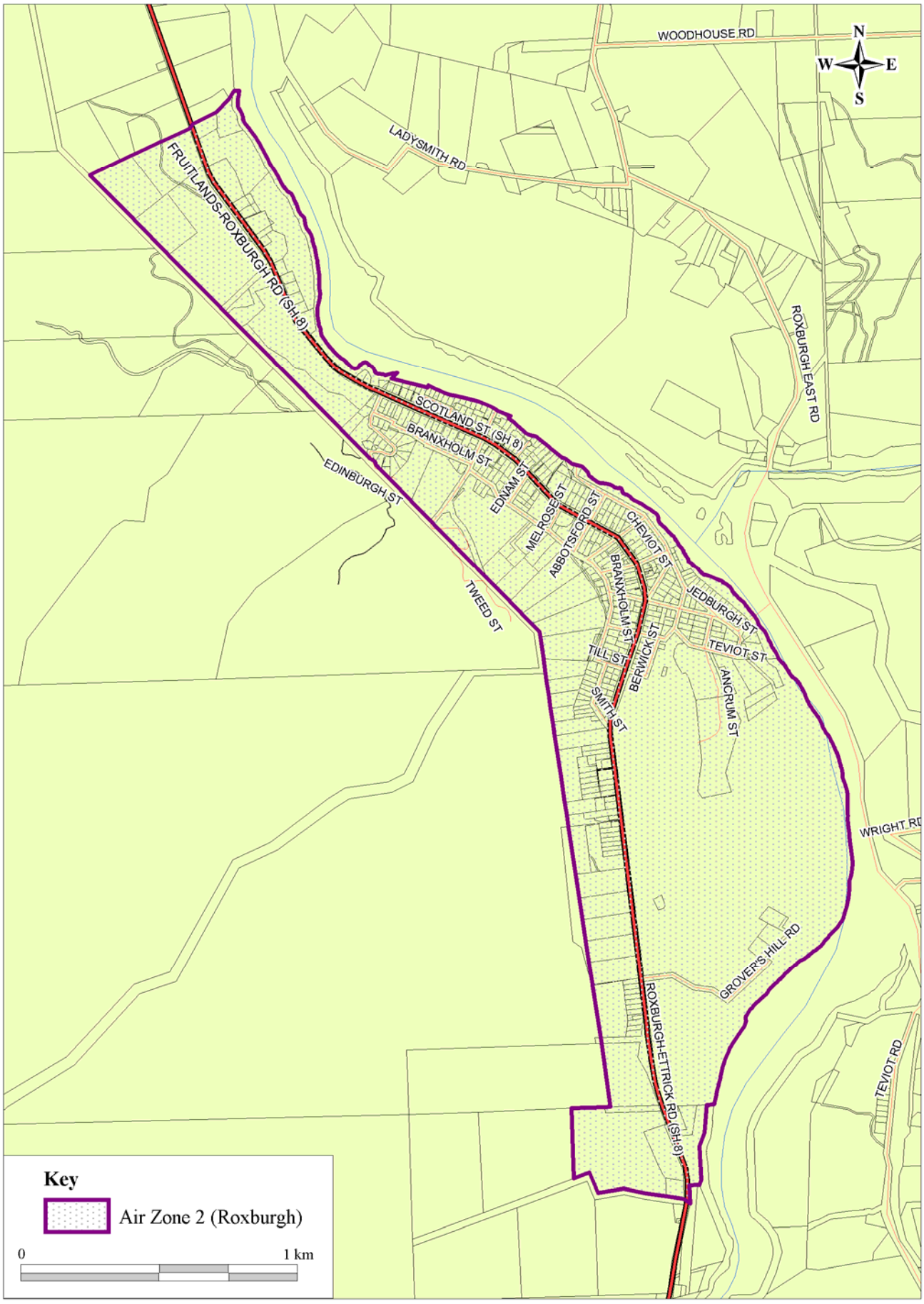


Air Zone 2 (Kingston)

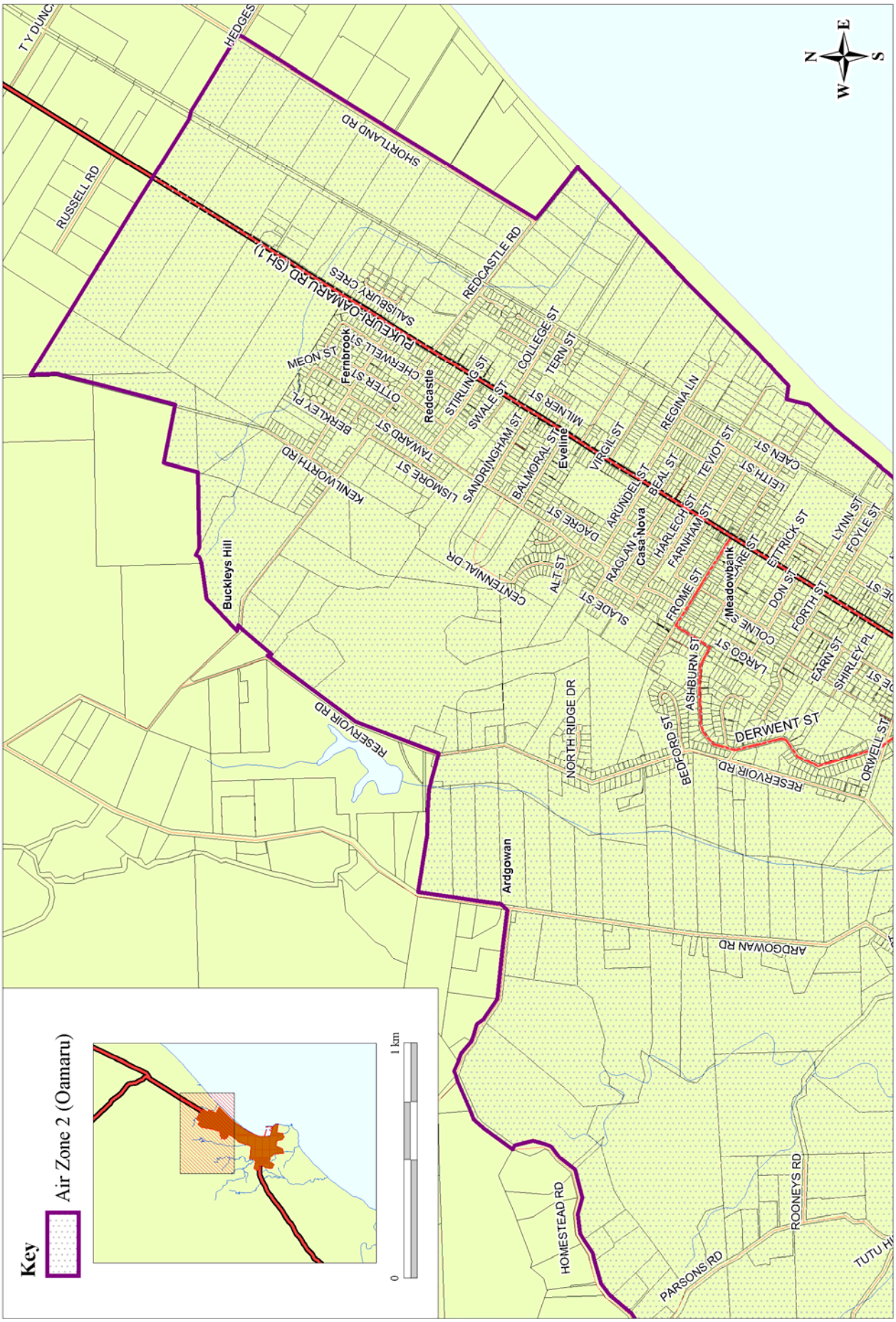


Air Zone 2 (Naseby)

Air Zone 2 (Ranfurly)



Air Zone 2 (Roxburgh)


Map 1 of 3
Air Zone 2 (Oamaru)
Key
Air Zone 2 (Oamaru)
1 km
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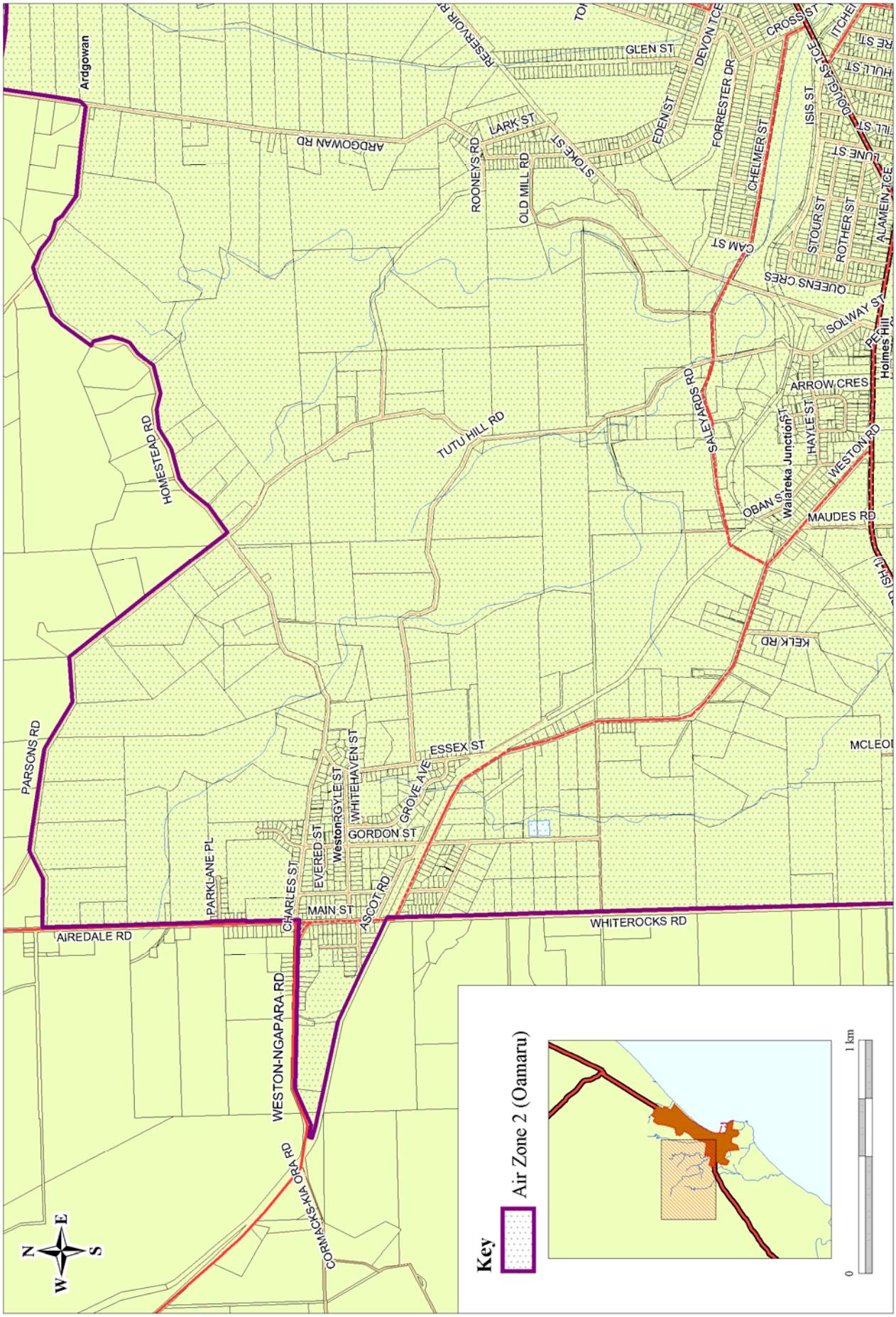
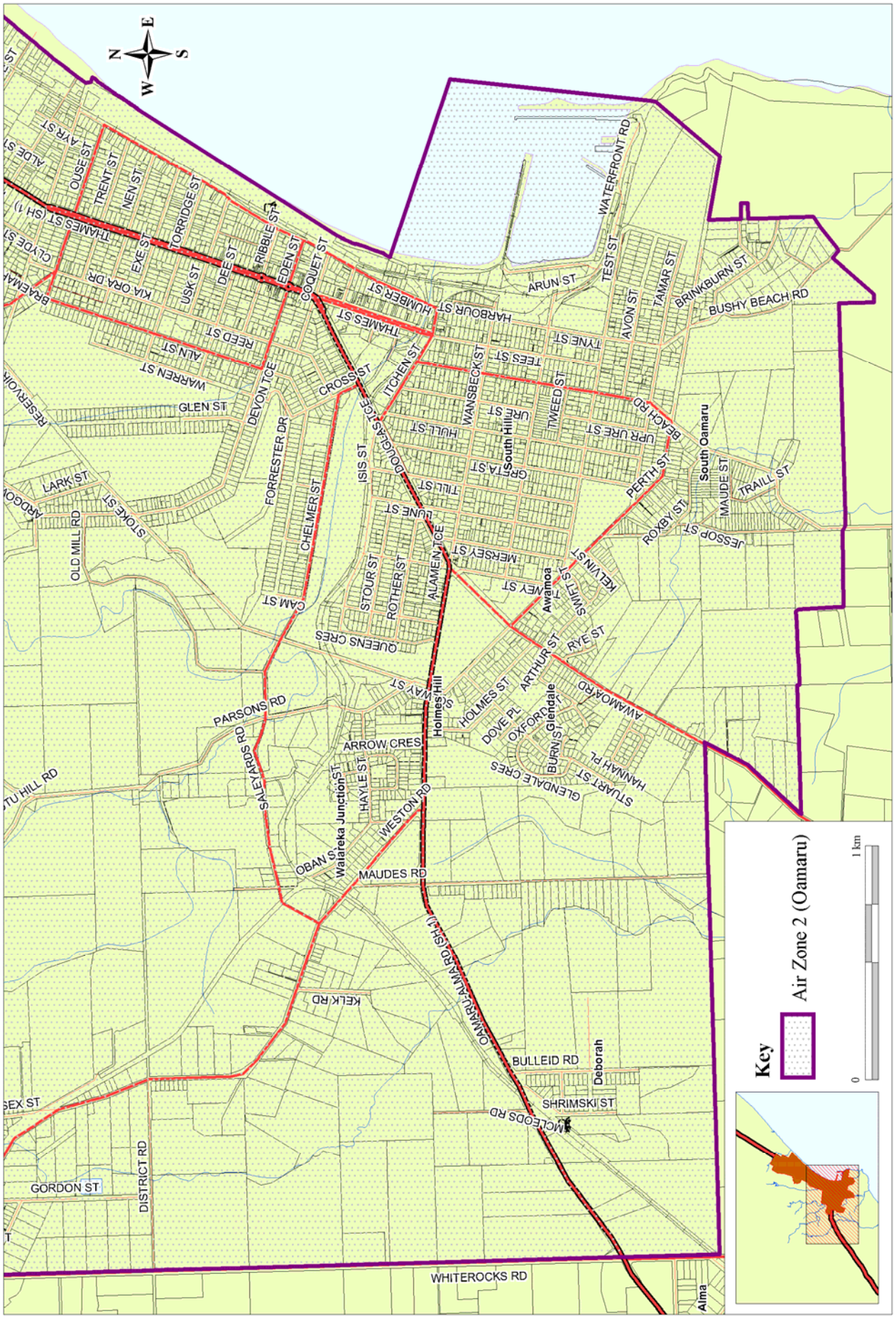
E
S
W
RUSSELL RD
SHORTLAND RD
REDCASTLE RD
PUKEURI-OAMARU RD (SH 1)
SAUSBURY CRES
CHERWELL ST
MEON ST
Fernbrook
OTTER ST
BERKLEY PL
Redcastle
STIRLING ST
SWALE ST
COLLEGE ST
TERN ST
MILNER ST
Eveline
SANDRINGHAM ST
BALMORAL ST
VIRGIL ST
REGINA LN
CAEN ST
LEITH ST
TEVIOT ST
BEAL ST
ARUNDEL ST
HARLECH ST
FARNHAM ST
ETTRICK ST
LYNN ST
FOYLE ST
DON ST
FORTH ST
EARN ST
SHIRLEY PL
ORWELL ST
KENILWORTH RD
TAWARD ST
LISMORE ST
DACRE ST
ALT ST
CENTENNIAL DR
Buckleys Hill
RAGLAN
Casa Nova
SLADE ST
FROME ST
Meadowbank
COLNE ST
LARGO ST
ASHBURN ST
BEDFORD ST
DERWENT ST
RESERVOIR RD
NORTH RIDGE DR
Ardgowan
ARDGOWAN RD
HOMESTEAD RD
ROONEYS RD
PARSONS RD
TUTU



Air Zone 2 (Oamaru) ***Map 2 of 3***


Air Zone 2 (Oamaru)
Map 3 of 3
Key
Air Zone 2 (Oamaru)
1 km
0
N
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S
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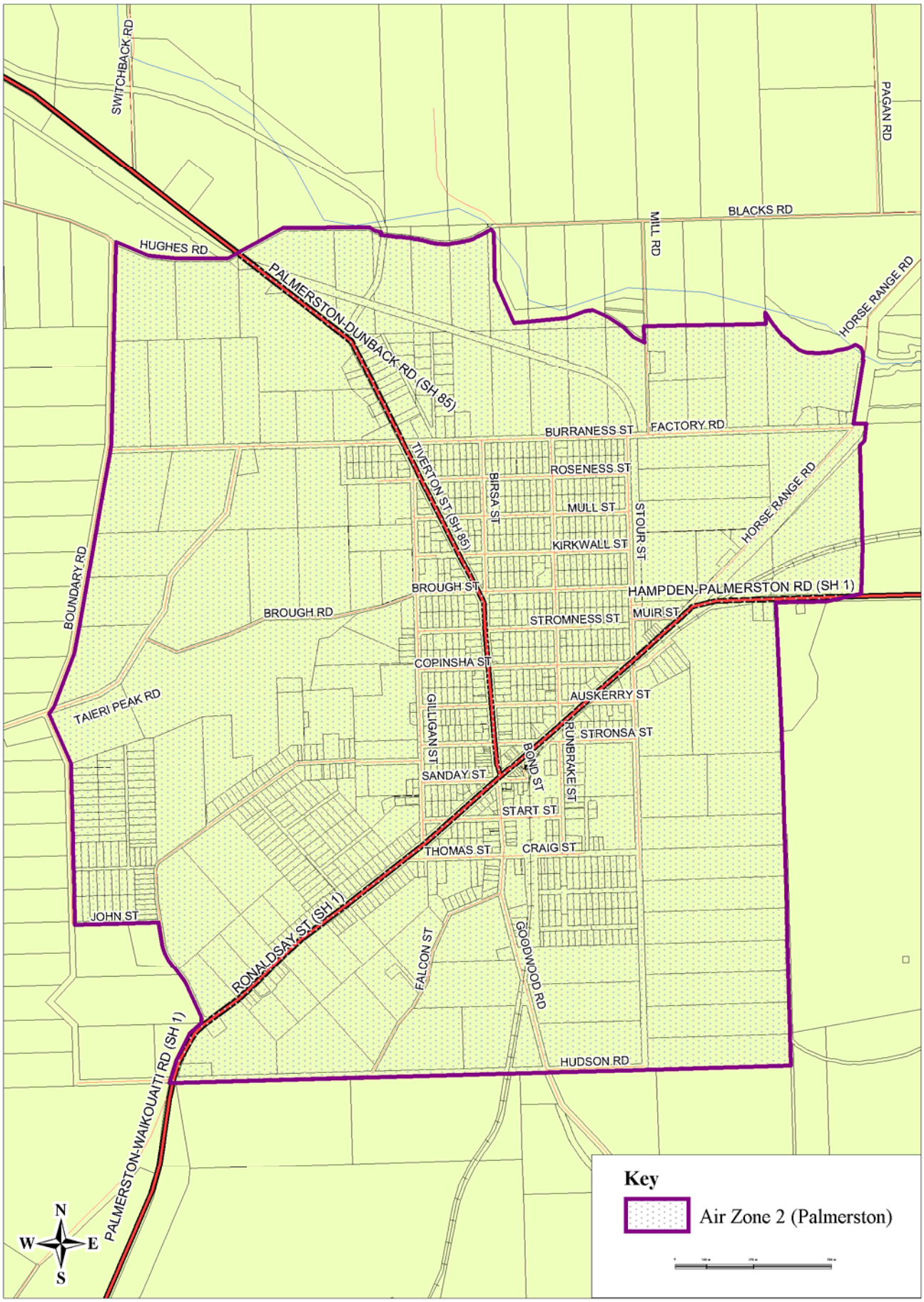
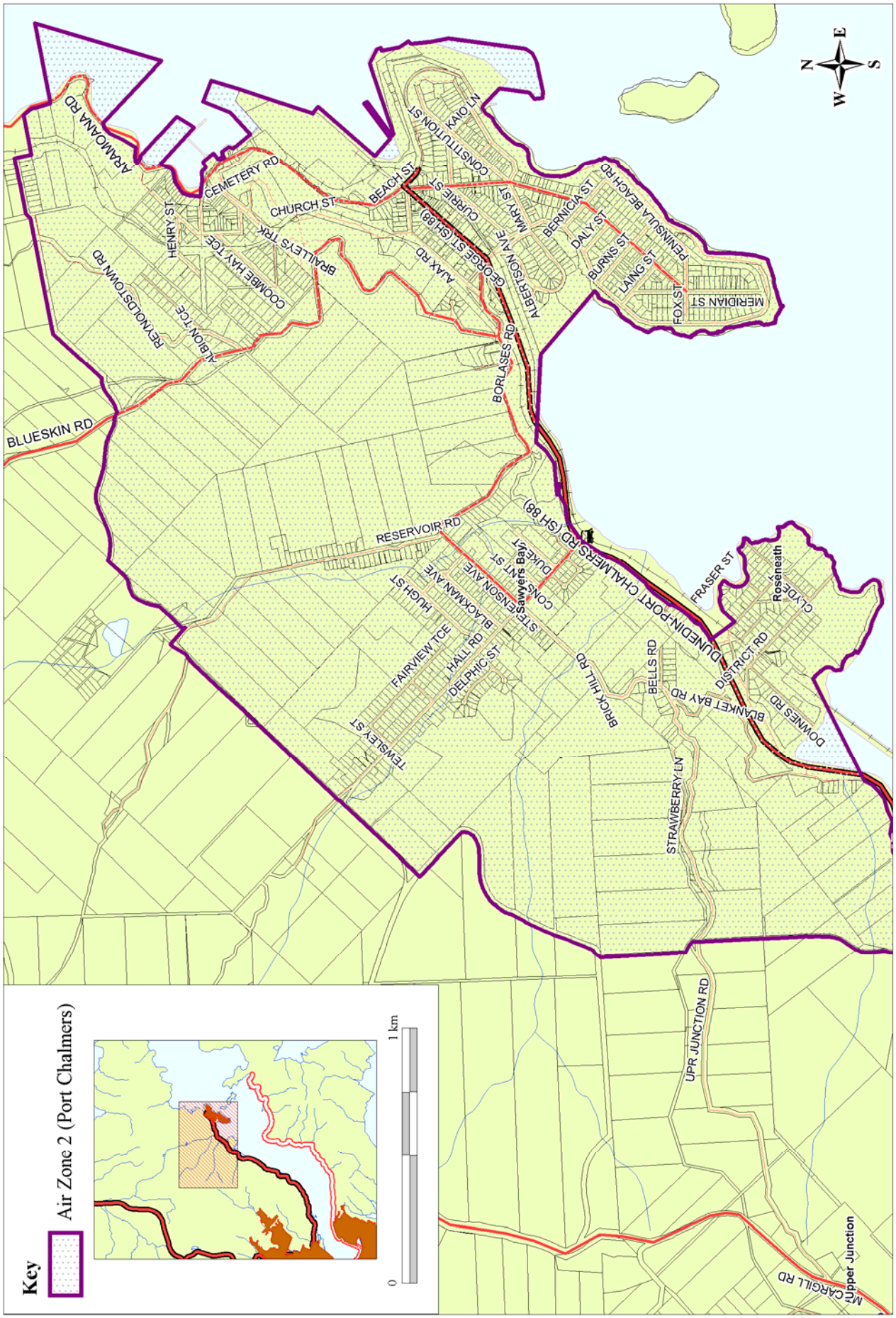
THAMES ST (SH 1)
AVR ST
OUSE ST
TRENT ST
NEN ST
TORRIDGE ST
EXE ST
USK ST
DEE ST
RIBBLE ST
EDEN ST
COQUET ST
HUMBER ST
HARBOUR ST
ARUN ST
TEST ST
WATERFRONT RD
AVON ST
TAMAR ST
BRINKBURN ST
BUSHY BEACH RD
TYNE ST
TEES ST
WANSBECK ST
TWEED ST
BEACH RD
UPR URE ST
URE ST
HULL ST
TILL ST
GRETA ST
South Hillend
South Oamaru
PERTH ST
MAUDE ST
TRAILL ST
ROXBY ST
JESSOP ST
KELVIN ST
SWIFT ST
Awamoa
MERSEY ST
TUNE ST
ALAMEIN TCE
ROTHER ST
STOUR ST
QUEENS CRES
CAM ST
CHELMER ST
FORRESTER DR
DEVON TCE
CROSS ST
ITCHEN ST
DOUGLAS TCE
ISIS ST
WARREN ST
REED ST
ALN ST
KIA ORA DR
GLEN ST
LARK ST
STOKE ST
OLD MILL RD
RYE ST
ARTHUR ST
HOLMES ST
DOVE PL
OXFORD
Glendale
BURNS ST
GLENDALE CRES
STUART ST
HANNAH PL
AWAMOA RD
Holmes Hill
WAY ST
ARROW CRES
HAYLE ST
Waiareka Junction
WESTON RD
OBAN ST
PARSONS RD
SALEYARDS RD
MAUDES RD
KELK RD
OAMARU-ALMA RD (SH 1)
BULLEID RD
Deborah
SHRIMSKI ST
MCLEODS RD
DISTRICT RD
GORDON ST
WHITEROCKS RD
Alma

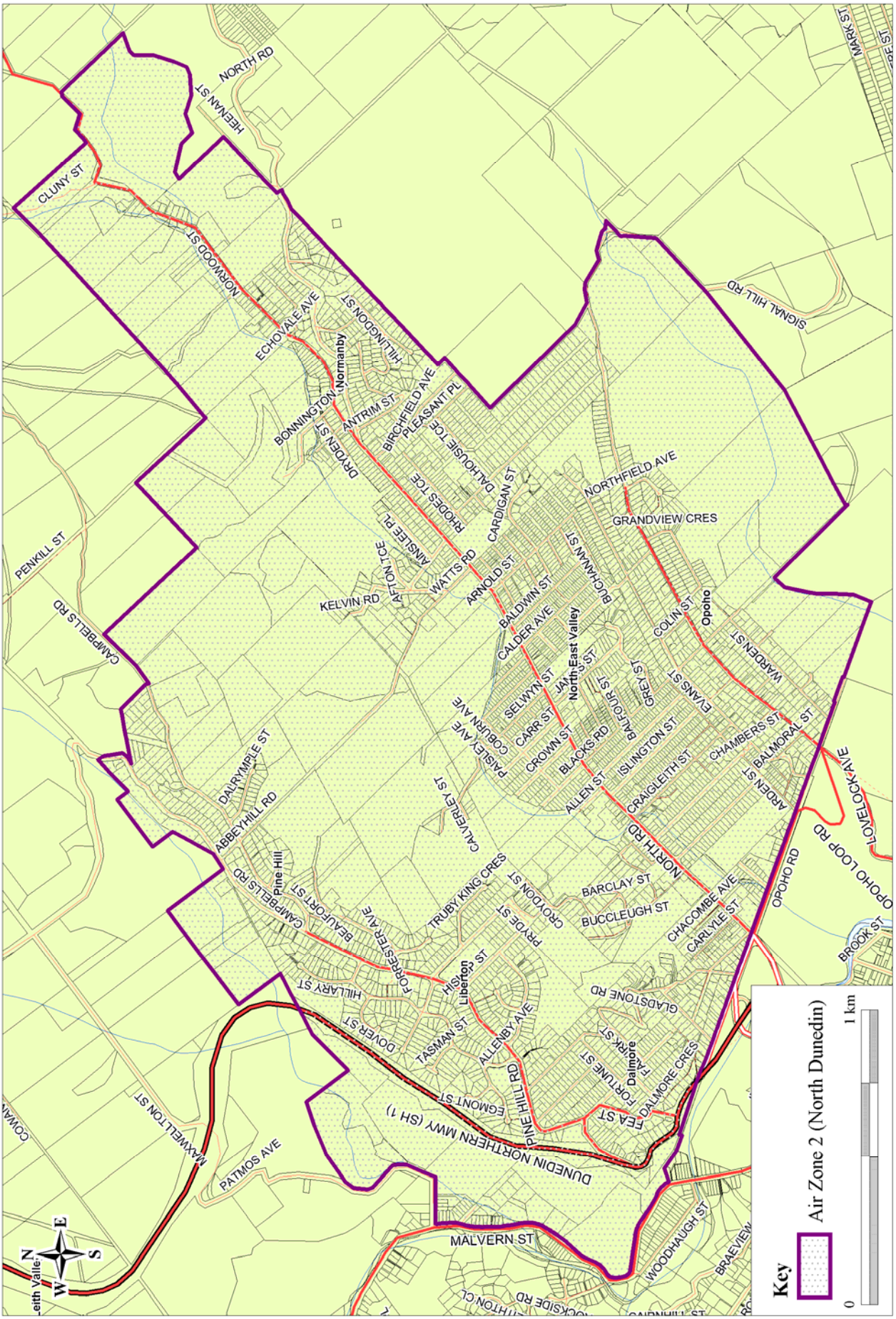


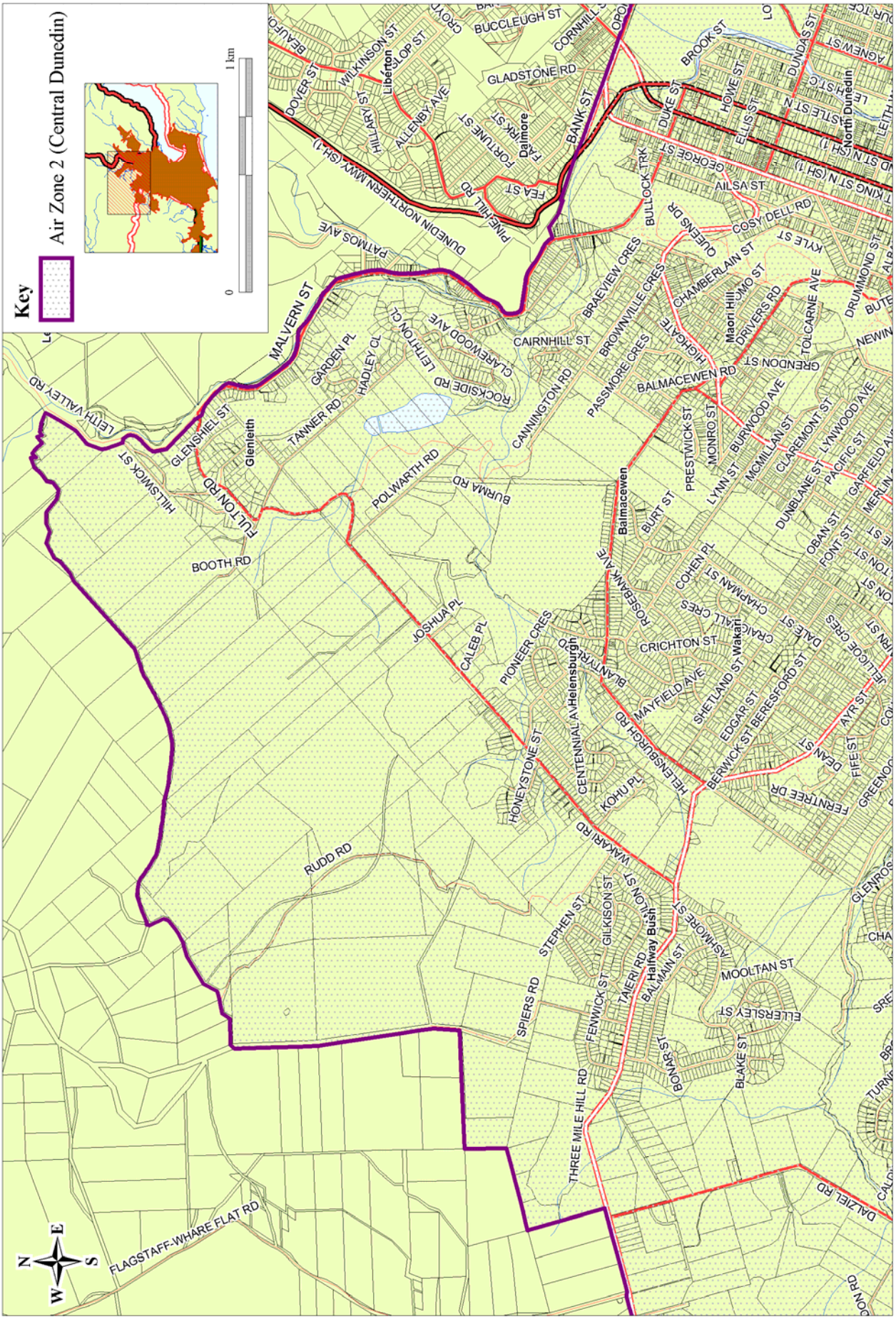
Air Zone 2 (Palmerston)

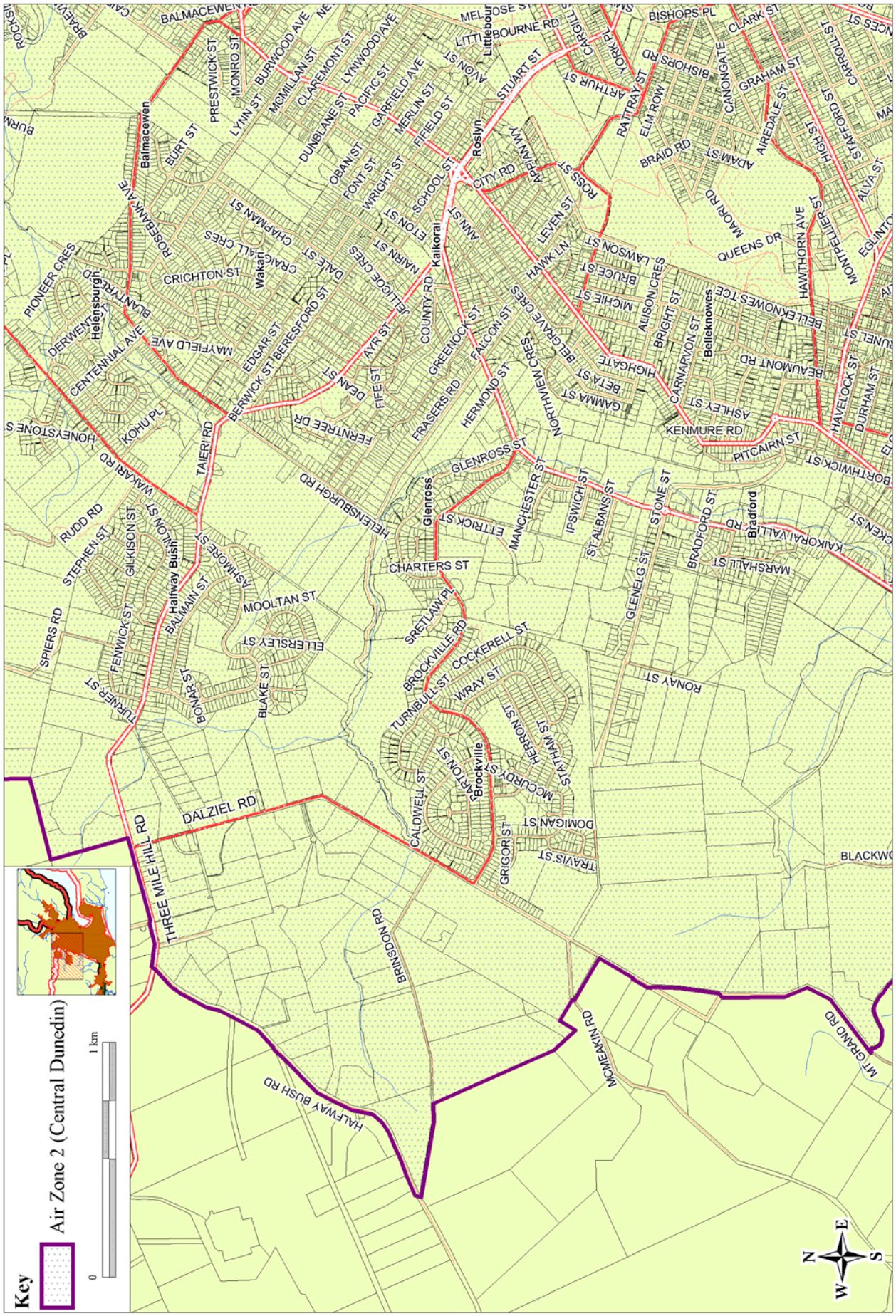
Air Zone 2 (Waikouaiti)

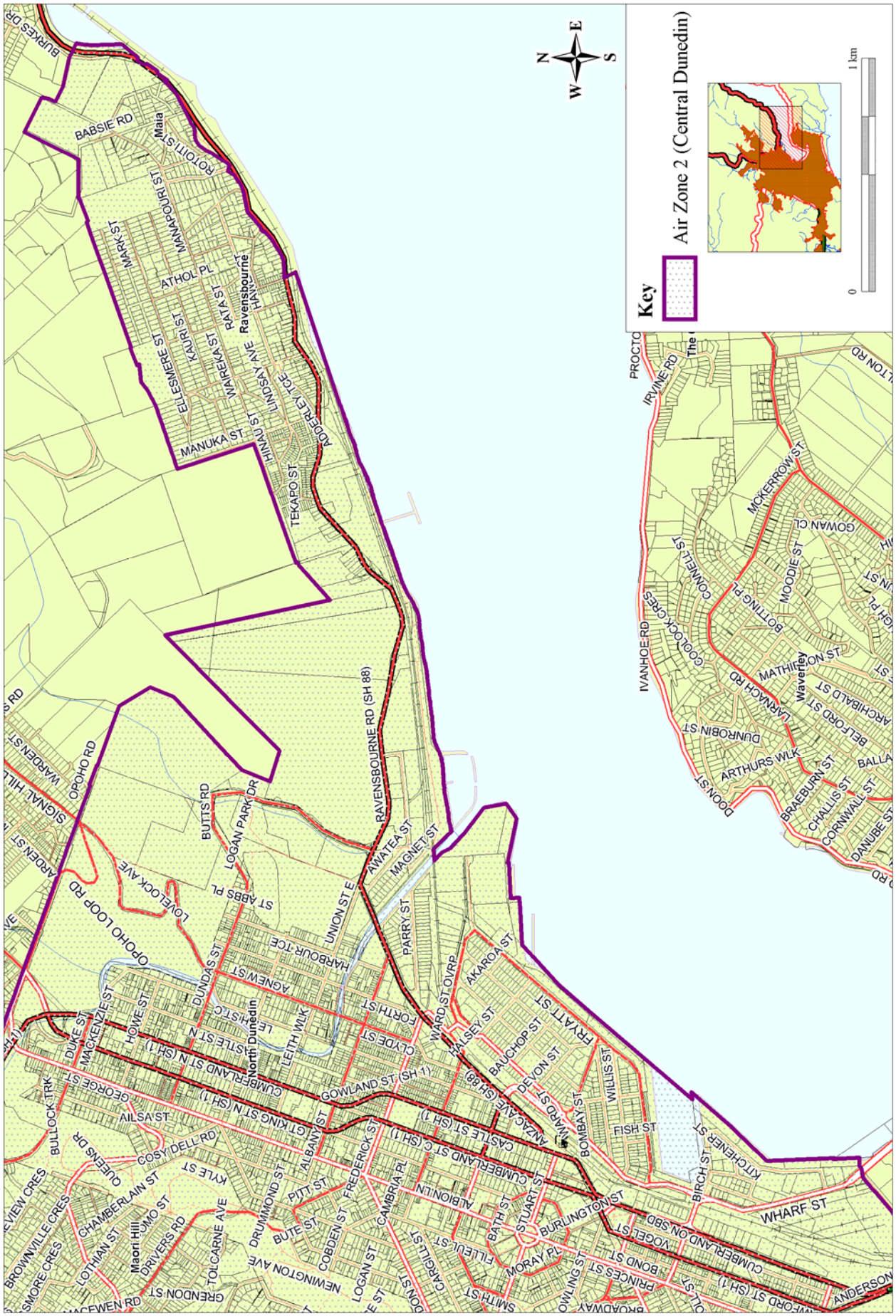

Map 1 of 2
Air Zone 2 (Port Chalmers)
N
E
S
W
ARAMOANA RD
CEMETERY RD
CHURCH ST
BEACH ST
CONSTITUTION ST
KAIO LN
CURRIE ST
HENRY ST
BRALLEYS TRK
COOMBE HAY TCE
REYNOLDSTOWN RD
ALBION TCE
BLUESKIN RD
AJAX RD
GEORGE ST (SH 88)
MARY ST
ALBERT TOWN AVE
BERNICIA ST
DALY ST
BURNS ST
LAING ST
PENINSULA BEACH RD
FOX ST
MERIDIAN ST
BORLASES RD
RESERVOIR RD
DUKE ST
CONS ST
Sawyers Bay
STEVENSON AVE
BLACKMAN AVE
HUGH ST
FAIRVIEW TCE
HALL RD
DELPHIC ST
TEWSLEY ST
DUNEDIN-PORT CHALMERS RD (SH 88)
FRASER ST
Roseneath
GLYDE
DISTRICT RD
BLANKET BAY RD
BELLS RD
BROCK HILL RD
DOWNES RD
STRAWBERRY LN
UPR JUNCTION RD
Mt CARGILL RD
Upper Junction
Key
Air Zone 2 (Port Chalmers)
1 km
0

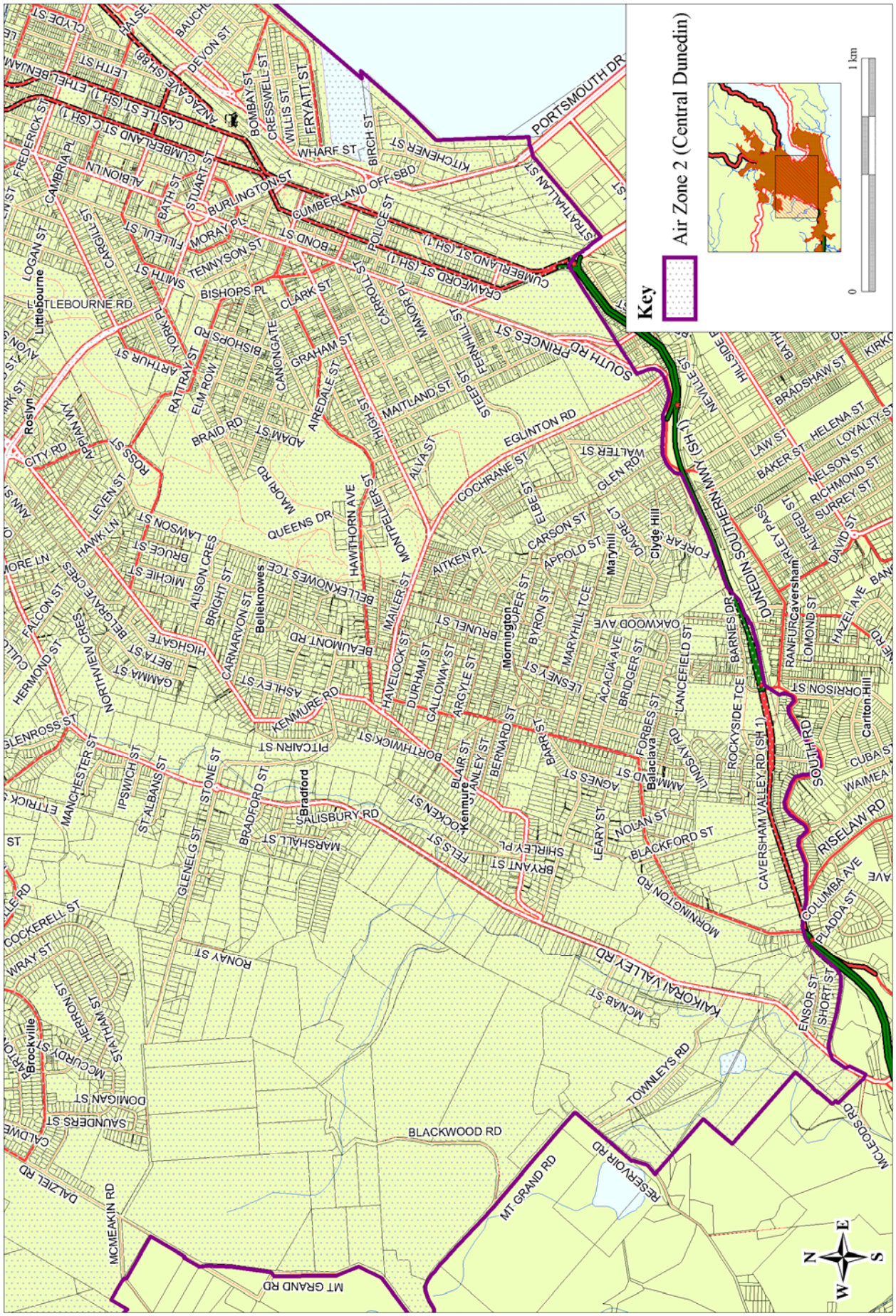
Air Zone 2 (Port Chalmers) *Map 2 of 2*

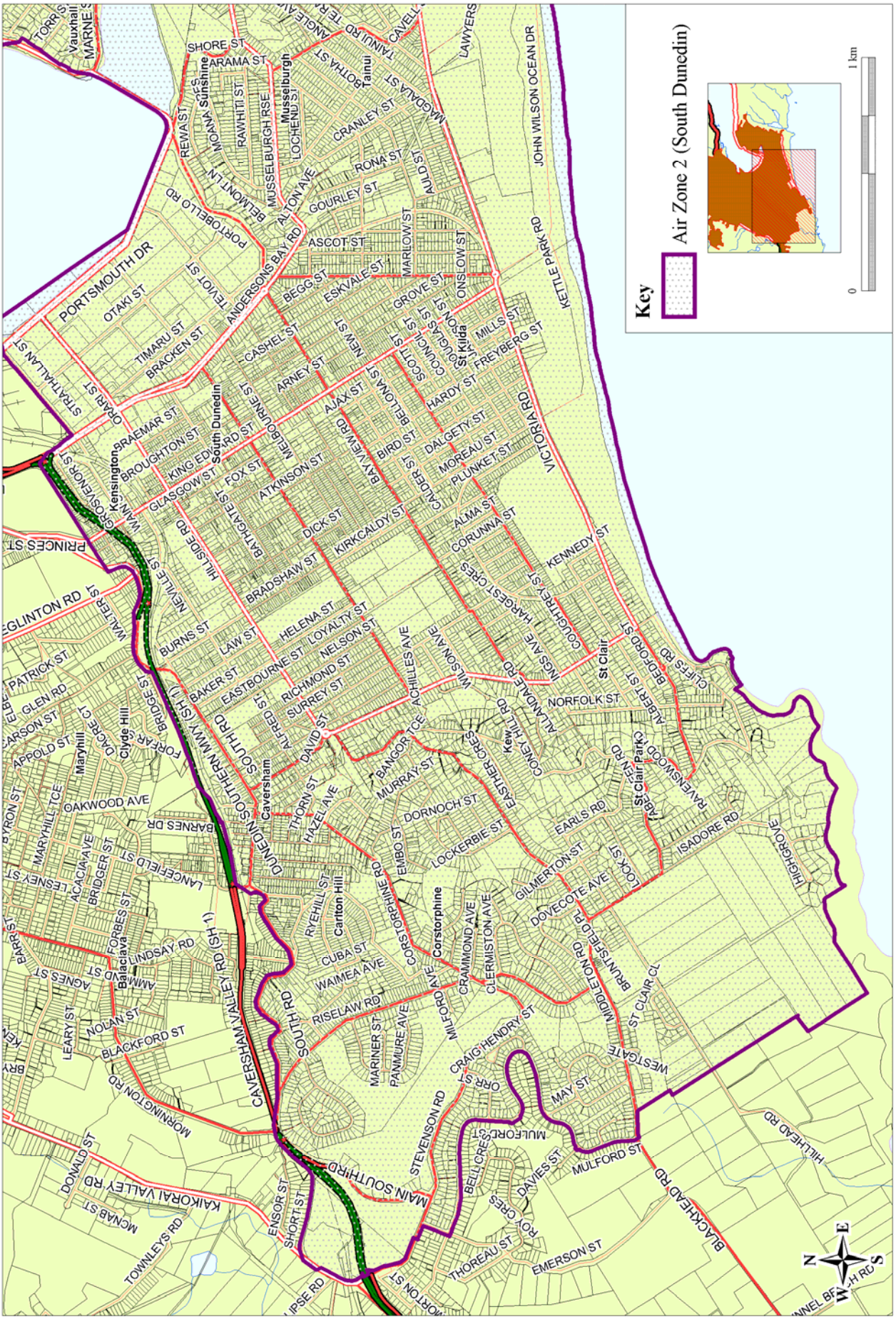

Air Zone 2 (North Dunedin)
Key
Air Zone 2 (North Dunedin)
0
1 km
N
S
E
W
NORTH RD
HEENAN ST
CLUNY ST
NORWOOD ST
ECHOVALE AVE
HILLINGDON ST
Normanby
BONNINGTON
ANTRIM ST
BIRCHFIELD AVE
PLEASANT PL
DRYDEN ST
DALHOUSIE TCE
RHODES TCE
CARDIGAN ST
NORTHFIELD AVE
GRANDVIEW CRES
SIGNAL HILL RD
MARK ST
PENKILL ST
CAMPBELLS RD
KELVIN RD
ANSLEE PL
AFTON TCE
WATTS RD
ARNOLD ST
BALDWIN ST
CALDER AVE
BUCHANAN ST
North East Valley
JAMES ST
COLIN ST
Opoho
MARDEN ST
EVANS ST
SELWYN ST
CARR ST
CROWN ST
BLACKS RD
ALLEN ST
GREY ST
BALFOUR ST
ISLINGTON ST
CRAIGLEITH ST
CHAMBERS ST
BALMORAL ST
ARDEN ST
LOVELOCK AVE
OPOHO LOOP RD
OPOHO RD
BROOK ST
COBURN AVE
PAISLEY AVE
CALVERLEY ST
DALRYMPLE ST
ABBEYHILL RD
NORTH RD
CHACOMBE AVE
CARLYLE ST
BARCLAY ST
BUCCLEUGH ST
CROYDON ST
PRYDE ST
TRUBY KING CRES
CAMPBELLS RD
Pine Hill
BEAUFORT ST
FORRESTER AVE
HILLARY ST
DOVER ST
Liberton
HIGHGATE
TASMAN ST
ALLENBY AVE
GLADSTONE RD
Dalmore
FORTUNE ST
FEA ST
DALMORE CRES
EGMONT ST
DUNEDIN NORTHERN MWY (SH 1)
PINE HILL RD
MAXWELLTON ST
PATMOS AVE
MALVERN ST
WOODHAUGH ST
BRAEVIEW
COWAN
Leith Valley

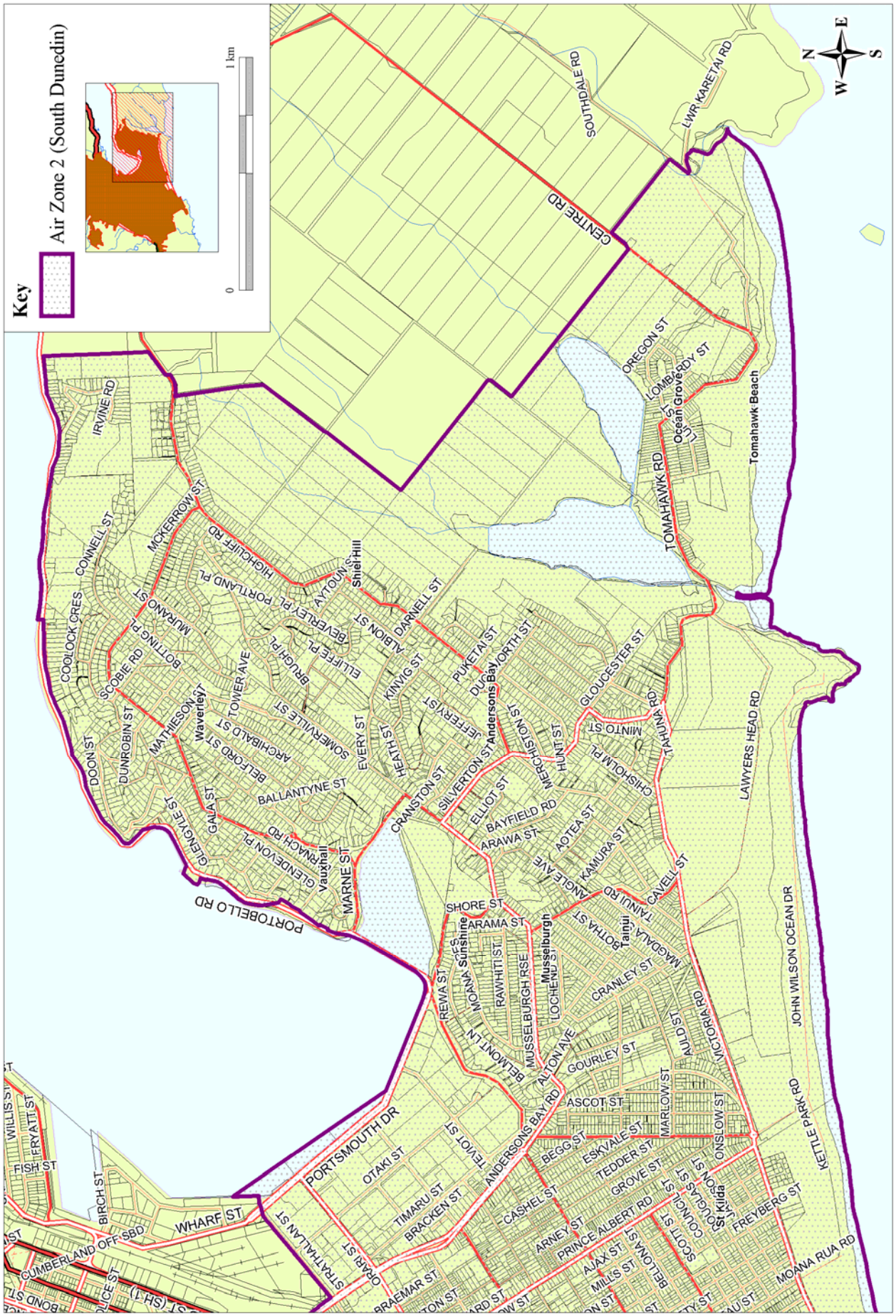

Key
Air Zone 2 (Central Dunedin)
0
1 km
Air Zone 2 (Central Dunedin)
Map 1 of 4
MALVERN ST
GLADSTONE RD
BUCCLEUGH ST
BANK ST
DUKE ST
BROOK ST
HOWE ST
ELLIS ST
DUNDAS ST
GEORGE ST
KING ST N (SH 1)
North Dunedin
DUNEDIN NORTHERN MWY (SH 1)
PINEHILL RD
FEA ST
Dalmore
FORTUNE ST
ALLENBY AVE
HILLARY ST
Liberton
SLOPE ST
WILKINSON ST
DOVER ST
BEAUFORT ST
CROYDON ST
CORNHILL ST
PATMOS AVE
BULLOCK TRK
QUEENS DR
COSY DELL RD
AILSA ST
KYLE ST
DRUMMOND ST
BUTE
NEWINGTON
BRAEVIEW CRES
BROWNVILLE CRES
PASSMORE CRES
CHAMBERLAIN ST
HIGHGATE
Maori Hill
JMO ST
DRIVERS RD
TOLCARNE AVE
GRENDON ST
BALMACEWEN RD
CAIRNHILL ST
CANNINGTON RD
ROCKSIDE RD
CLAREWOOD AVE
LEITHTON CL
HADLEY CL
GARDEN PL
TANNER RD
Glenleith
GLENSHIEL ST
LEITH VALLEY RD
HILLSWICK ST
TULLOCH RD
BOOTH RD
POLWARTH RD
BURMA RD
Balmacewen
BURT ST
PRESTWICK ST
MONRO ST
LYNN ST
BURWOOD AVE
MCMILLAN ST
CLAREMONT ST
LYNWOOD AVE
DUNBLANE ST
PACIFIC ST
GARFIELD AVE
MERLIN
OBAN ST
FONT ST
ROSEBANK AVE
COHEN PL
CHAPMAN ST
CRAIGIEHALL CRES
DALE ST
DALKEITH CRES
CRICHTON ST
Wakari
SHETLAND ST
EDGAR ST
BERWICK ST
BERESFORD ST
AYR ST
FIFE ST
DEAN ST
FERNTREE DR
GREENOCK
JOSHUA PL
CALEB PL
PIONEER CRES
BLANTYRE RD
Helensburgh
MAYFIELD AVE
HELENSBURGH RD
CENTENNIAL AV
HONEYSTONE ST
KOHU PL
WAKARI RD
RUDD RD
STEPHEN ST
GILKISON ST
WILLISTON ST
ASHMORE ST
Halfway Bush
TAIERI RD
BALMAIN ST
FENWICK ST
SPIERS RD
MOOLTAN ST
ELLERSLEY ST
BONAR ST
BLAKE ST
THREE MILE HILL RD
DALZIEL RD
FLAGSTAFF-WHARE FLAT RD
GLENROSA
CHA
SRE
BRO
TURN
CALD
DOG RD
N
E
S
W


Map 2 of 4
Air Zone 2 (Central Dunedin)
Key
Air Zone 2 (Central Dunedin)
0
1 km
N
E
S
W
BALMACEWEN RD
Balmacewen
BURT ST
PRESTWICK ST
MONRO ST
LYNN ST
BURWOOD AVE
MCMILLAN ST
CLAREMONT ST
LYNWOOD AVE
DUNBLANE ST
PACIFIC ST
GARFIELD AVE
MERLIN ST
FIFIELD ST
OBAN ST
FONT ST
WRIGHT ST
SCHOOL ST
Roslyn
CITY RD
STUART ST
LITTLEBOURNE RD
Littlebourne
ARTHUR ST
RATTRAY ST
ELM ROW
BISHOPS PL
BISHOPS RD
CANONGATE
CLARK ST
GRAHAM ST
AIREDALE ST
STAFFORD ST
HIGH ST
ADAM ST
BRAID RD
MAORI RD
QUEENS DR
HAWTHORN AVE
MONTPELLIER ST
ALVA ST
ROSS ST
LEVEN ST
HAWK LN
LAWSON ST
BRUCE ST
MICHIE ST
ALISON CRES
BRIGHT ST
Belleknowes
BELLEKNOWES TCE
BEAUMONT RD
HAVELOCK ST
DURHAM ST
BORTHWICK ST
ASHLEY ST
KENMURE RD
PITCAIRN ST
CARNARVON ST
HIGHGATE
BETA ST
GAMMA ST
BELGRAVE CRES
NORTHVIEW CRES
HERMOND ST
FALCON ST
GREENOCK ST
COUNTY RD
Kaikorai
ANN ST
NAIRN ST
FIFE ST
AYR ST
DEAN ST
FRASERS RD
FERNTREE DR
BERWICK ST
BERESFORD ST
EDGAR ST
DALE ST
CRAIGIEBURN AVE
CHAPMAN ST
Wakari
CRICHTON ST
ROSEBANK AVE
PIONEER CRES
DERWENTSBURGH RD
Helensburgh
BLANTYRE RD
CENTENNIAL AVE
MAYFIELD AVE
HONEYSTONE ST
KOHU PL
WAKARI RD
TAIERI RD
HELENSBURGH RD
GLENROSS ST
Glenross
ETTRICK ST
MANCHESTER ST
IPSWICH ST
ST ALBANS ST
STONE ST
GLENELG ST
BRADFORD ST
Bradford
KAIKORAI VALLEY RD
MARSHALL ST
CHARTERS ST
SRETLAW PL
BROCKVILLE RD
COCKERELL ST
WRAY ST
TURNBULL ST
RONAY ST
Brockville
HERRON ST
MCCURDY ST
CALDWELL ST
DOMIGAN ST
TRAVIS ST
GRIGOR ST
RUDD RD
STEPHEN ST
GILKISON ST
WILTON ST
Halfway Bush
BALMAIN ST
ASHMORE ST
MOOLTAN ST
ELLERSLEY ST
SPIERS RD
FENWICK ST
TURNER ST
BONAR ST
BLAKE ST
DALZIEL RD
THREE MILE HILL RD
BRINSDON RD
HALFWAY BUSH RD
MCMEAKIN RD
MT GRAND RD
BLACKWO


Key
Air Zone 2 (Central Dunedin)
1 km
0
N
E
S
W
Map 3 of 4
Air Zone 2 (Central Dunedin)
BABSIE RD
ROTOITI ST
MANAPOURI ST
MARK ST
ATHOL PL
ELLESMERE ST
KAURI ST
WAIREKA ST
RATA ST
Ravensbourne
HANNAH ST
LINDSAY AVE
ADDERLEY TCE
MANUKA ST
TEKAPO ST
HINAU ST
RAVENSBOURNE RD (SH 88)
OPOHO RD
OPOHO LOOP RD
LOVELOCK AVE
BUTTS RD
LOGAN PARK DR
ST ABBS PL
AWATEA ST
MAGNET ST
UNION ST E
HARBOUR TCE
PARRY ST
AGNEW ST
DUNDAS ST
LEITH WLK
FORTH ST
CLYDE ST
WARD ST OVBR
AKAROA ST
HALSEY ST
FRYATT ST
BAUCHOP ST
DEVON ST
WILLIS ST
BOMBAY ST
FISH ST
KITCHENER ST
BIRCH ST
WHARF ST
CUMBERLAND ST (SH 1)
GOWLAND ST (SH 1)
CASTLE ST (SH 1)
GT KING ST N (SH 1)
CUMBERLAND ST N (SH 1)
CASTLE ST N
MACKENZIE ST
HOWE ST
DUKE ST
North Dunedin
GEORGE ST
AILSA ST
COSY DELL RD
BULLOCK TRK
QUEENS DR
KYLE ST
CHAMBERLAIN ST
LOTHIAN ST
Maori Hill
DRIVERS RD
TOLCARNE AVE
GRENDON ST
MACEWEN RD
BROWNVILLE CRES
SMORE CRES
VIEW CRES
NEWINGTON AVE
DRUMMOND ST
ALBANY ST
FREDERICK ST
PITT ST
BUTE ST
COBDEN ST
LOGAN ST
CAMBRIA PL
ALBION LN
CARGILL ST
FULLER ST
SMITH ST
BATH ST
STUART ST
BURLINGTON ST
MORAY PL
BOND ST
PRINCES ST
OWLING ST
BROADWAY
VOGEL ST
CUMBERLAND ST (SH 1)
ANDERSON
IRVINE RD
PROCTO
The
IVANHOE RD
COOLOCK CRES
CONNELL ST
MCKERROW ST
GOWAN CL
MOODIE ST
BOTTING PL
MATHIESON ST
Waverley
LARNACH RD
DUNROBIN ST
ARTHURS WLK
DOON ST
BRAEBURN ST
BALLA
CHALLIS ST
CORNWALL ST
DANUBE ST
ARCHIBALD ST
BELFORD ST

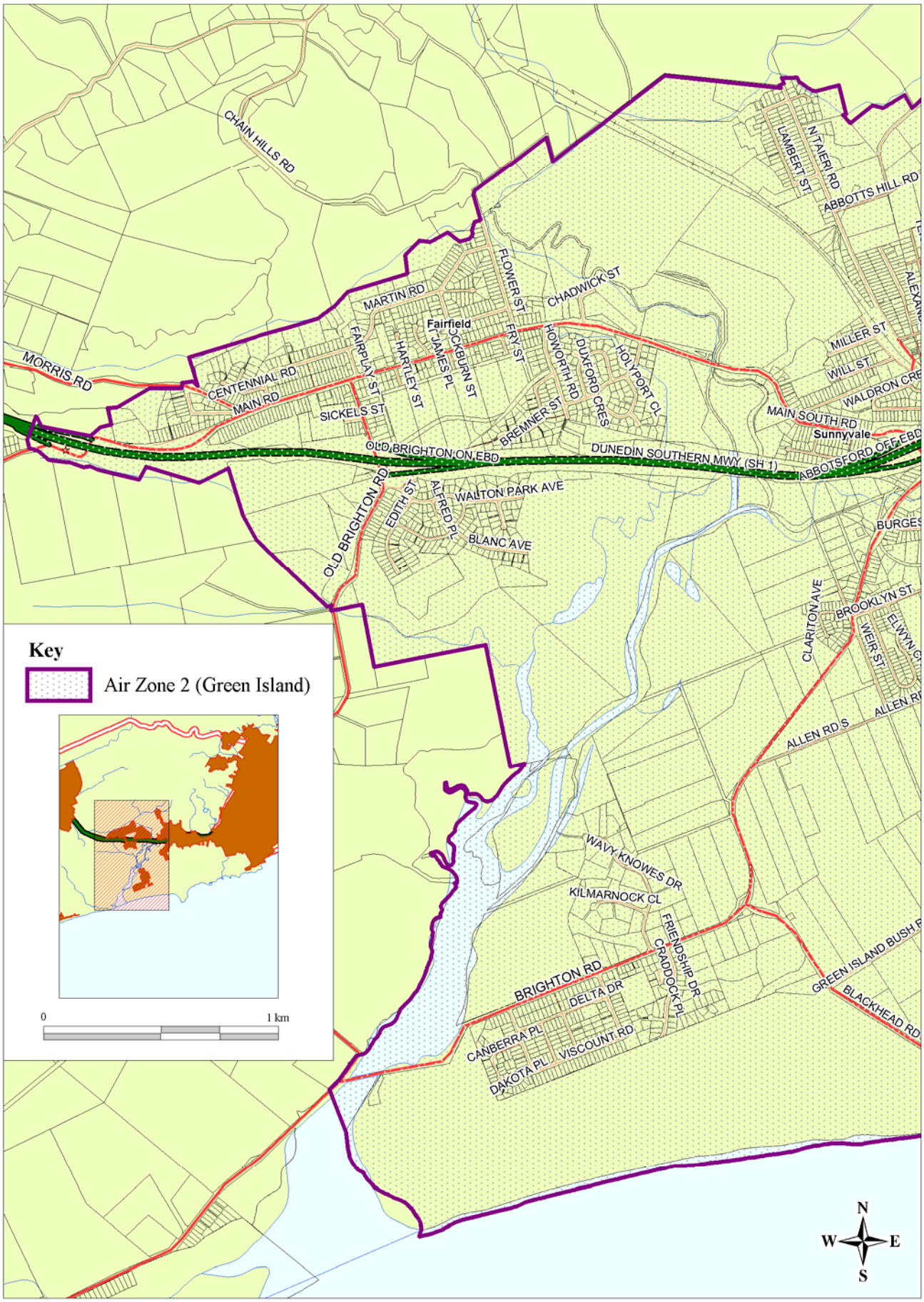

Key
Air Zone 2 (Central Dunedin)
1 km
0
Map 4 of 4
Air Zone 2 (Central Dunedin)
PORTSMOUTH DR
WHARF ST
BIRCH ST
KITCHENER ST
CUMBERLAND OFF-SBD
CUMBERLAND ST (SH 1)
CRAWFORD ST (SH 1)
STRATHALLAN ST
POLICE ST
BOND ST
BURLINGTON ST
STUART ST
BATH ST
MORAY PL
TENNYSON ST
CLARK ST
BISHOPS PL
BISHOPS RD
CANONGATE
GRAHAM ST
CARROLL ST
MANOR PL
PRINCES ST
SOUTH RD
STEEL PL
FERNHILL ST
MAITLAND ST
EGLINTON RD
ADAM ST
BRAID RD
ELM ROW
RATTRAY ST
ARTHUR ST
YORK PL
LITTLEBOURNE RD
Littlebourne
SMITH ST
CARGILL ST
FULLER ST
LOGAN ST
CAMBRIA PL
ALBION LN
FREDERICK ST
CASTLE ST (SH 1)
ANZAC AVE (SH 88)
LEITH ST
DEVON ST
BOMBAY ST
CRESWELL ST
WILLIS ST
FRYATT ST
HALSE
BAUCHOP
CLYDE ST
Roslyn
ROSS ST
CITY RD
LEVEN ST
HAWK LN
LAWSON ST
BRUCE ST
MICHIE ST
FALCON ST
HERMOND ST
BELGRAVE CRES
NORTHVIEW CRES
GLENROSS ST
ETTRICK ST
MANCHESTER ST
IPSWICH ST
ST ALBANS ST
GLENELG ST
STONE ST
BRADFORD ST
Bradford
MARSHALL ST
SALISBURY RD
PITCAIRN ST
KENMURE RD
ASHLEY ST
BEAUMONT RD
BELLEKNOWES TCE
Belleknowes
ALISON CRES
BRIGHT ST
CARNARVON ST
HIGHGATE
BETA ST
GAMMA ST
QUEENS DR
MAORI RD
HAWTHORN AVE
MONTPELLIER ST
HIGH ST
AIREDALE ST
ALVA ST
MAILER ST
AITKEN PL
COCHRANE ST
ELBE ST
CARSON ST
APPOLD ST
GLEN RD
WALTER ST
Marynhill
Clyde Hill
FORFAR ST
DUNEDIN SOUTHERN MWY (SH 1)
NEVILLE ST
HILLSIDE
BRADSHAW ST
LAW ST
BAKER ST
HELENA ST
LOYALTY ST
NELSON ST
RICHMOND ST
SURREY ST
DAVID ST
ALFRED ST
PARK ST
RANFURCaversham
LOMOND ST
HAZEL AVE
HARRISON ST
Carlton Hill
CUBA ST
WAIMEA AVE
SOUTH RD
RISELAW RD
COLUMBA AVE
PLADDA ST
CAVERSHAM VALLEY RD (SH 1)
ROCKYSIDE TCE
BARNES DR
LANCEFIELD ST
BRIDGER ST
ACACIA AVE
OAKWOOD AVE
MARYHILL TCE
FENSEY ST
BYRON ST
Mornington
UPPER ST
BRUNEL ST
DURHAM ST
GALLOWAY ST
ARGYLE ST
HAVELOCK ST
BORTHWICK ST
BERNARD ST
BARRY ST
FORBES ST
Balaclava
AGNES ST
ANDERSON ST
LEARY ST
NOLAN ST
BLACKFORD ST
MORNINGTON RD
BRYANT ST
SHIRLEY PL
FELS ST
ROCKEN ST
Kenmure
BLAIR ST
ANLEY ST
KAIKORAI VALLEY RD
MCNAB ST
ENSOR ST
SHORT ST
TOWNLEYS RD
MCLEODS RD
RESERVOIR RD
MT GRAND RD
BLACKWOOD RD
MCMEAKIN RD
DALZIEL RD
CALDWELL
SAUNDERS ST
DOMIGAN ST
MCCURDY ST
HERRON ST
STATHAM ST
Brockville
COCKERELL ST
WRAY ST
RONAY ST
E
N
S
W


Key
Air Zone 2 (South Dunedin)
1 km
0
Map 1 of 2
Air Zone 2 (South Dunedin)
PORTSMOUTH DR
ANDERSONS BAY RD
KETTLE PARK RD
JOHN WILSON OCEAN DR
VICTORIA RD
SOUTH RD
MAIN SOUTH RD
CAVERSHAM VALLEY RD (SH 1)
BLACKHEAD RD
HILLHEAD RD
MULFORD ST
STEVENSON RD
KAIKORAI VALLEY RD
TOWNLEYS RD
EGLINTON RD
PRINCES ST
ST CLAIR
ST KILDA
KENSINGTON
CARISBROOK
CARLTON HILL
CAVERSHAM
BALACLAVA
MARYHILL
CLYDE HILL
SOUTH DUNEDIN
CORSTORPHINE
KEW
ST CLAIR PARK
HIGHGROVE
WAVERLEY
MAORI HILL
MAYFIELD
BELLEVUE
SHORE ST
ARAMA ST
REWA ST
MOANA SUNSHINE
RAWHITI ST
MUSSELBURGH RSE
MUSSELBURGH
LOCHEND ST
TAINUI RD
TAINUI
SOUTHA ST
MASDALA ST
CRANLEY ST
RONA ST
AULD ST
ALTON AVE
GOURLEY ST
ASCOT ST
MARLOW ST
ONSLOW ST
ESKVALE ST
BEGG ST
GROVE ST
MILLS ST
FREYBERG ST
HARDY ST
DALGETY ST
MOREAU ST
PLUNKET ST
ALMA ST
CORUNNA ST
KENNEDY ST
NORFOLK ST
BEDFORD ST
CLIFFS RD
ISADORE RD
EARLS RD
LOCK ST
GILMERTON ST
DOVECOTE AVE
BRUNSFIELD RD
MIDDLETON RD
ST CLAIR CL
WESTGATE
MAY ST
CRAIGHENDRY ST
MULFORD CRES
DAVIES ST
ROY CRES
BELL CRES
ORR ST
THOREAU ST
EMERSON ST
MILFORD AVE
CRAMOND AVE
CLERMISTON AVE
CORSTORPHINE RD
EMBO ST
DORNOCH ST
LOCKERBIE ST
MURRAY ST
BANGOR TCE
ACHILLES AVE
ALTAMONT RD
CONSETT RD
FAIRFIELD RD
HARGEST CRES
COUGHTRIE ST
NGS AVE
WILSON AVE
DAVID ST
THORN ST
HAZEL AVE
RYEHILL ST
CUBA ST
WAIMEA AVE
RISELAW RD
MARINER ST
PANMURE AVE
LOCHEND
CAVERSHAM
FRED ST
RICHMOND ST
SURREY ST
EASTBOURNE ST
NELSON ST
LOYALTY ST
HELENA ST
BURNS ST
LAW ST
BAKER ST
BRADSHAW ST
DICK ST
KIRKCALDY ST
BATHGATE ST
HILLSIDE RD
NEVILLE ST
WALTER PEAK ST
PATRICK ST
GLEN RD
CARSON ST
APPOLD ST
OAKWOOD AVE
BARNES DR
LANCEFIELD ST
LESNEY ST
ACACIA AVE
BRIDGER ST
FORBES ST
AGNES ST
AMMON ST
NOLAN ST
LEARY ST
BLACKFORD ST
MORNINGTON RD
DONALD ST
MCNAB ST
ENSOR ST
SHORT ST
IPSE RD
LINDSAY RD
FORFAR BRIDGE ST
CAVE CT
MARYHILL TCE
BYRON ST
BARRS ST
KENSINGTON
BRAEMAR ST
BROUGHTON ST
KING EDWARD ST
GLASGOW ST
FOX ST
ATKINSON ST
BELLEVUE RD
AJAX ST
ARNEY ST
CASHEL ST
NEW ST
SCOTIA ST
COUGLAS ST
COUNCIL ST
SOUTH DUNEDIN
ORARI ST
STRATHALLAN ST
TEVIOT ST
OTAKI ST
TIMARU ST
BRACKEN ST
PORT OBELLO RD
BELMONT LN
MOANA LN
GROSVENOR ST
MAIN ST
PRINCES ST
N
E
S
W

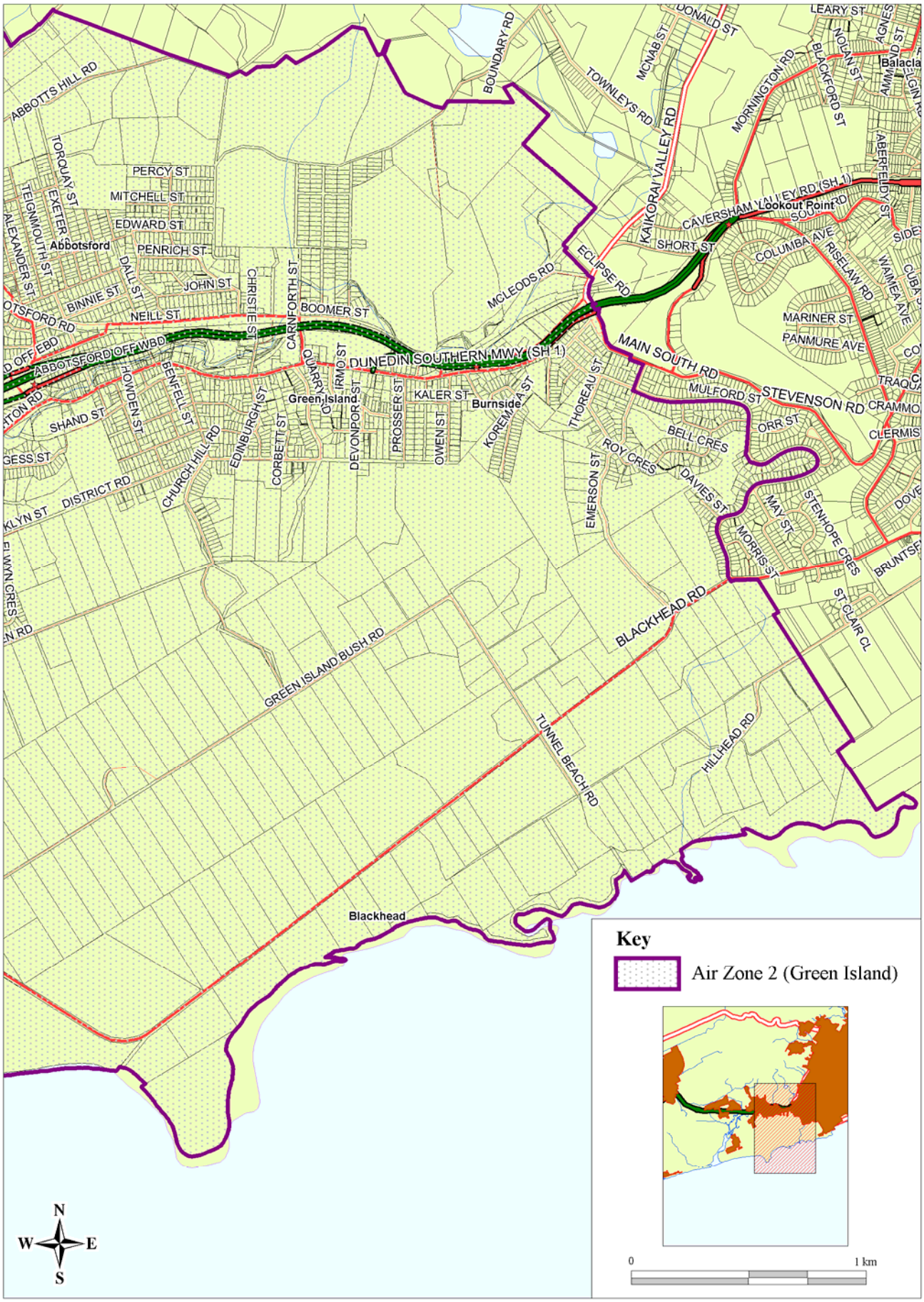


Map 2 of 2

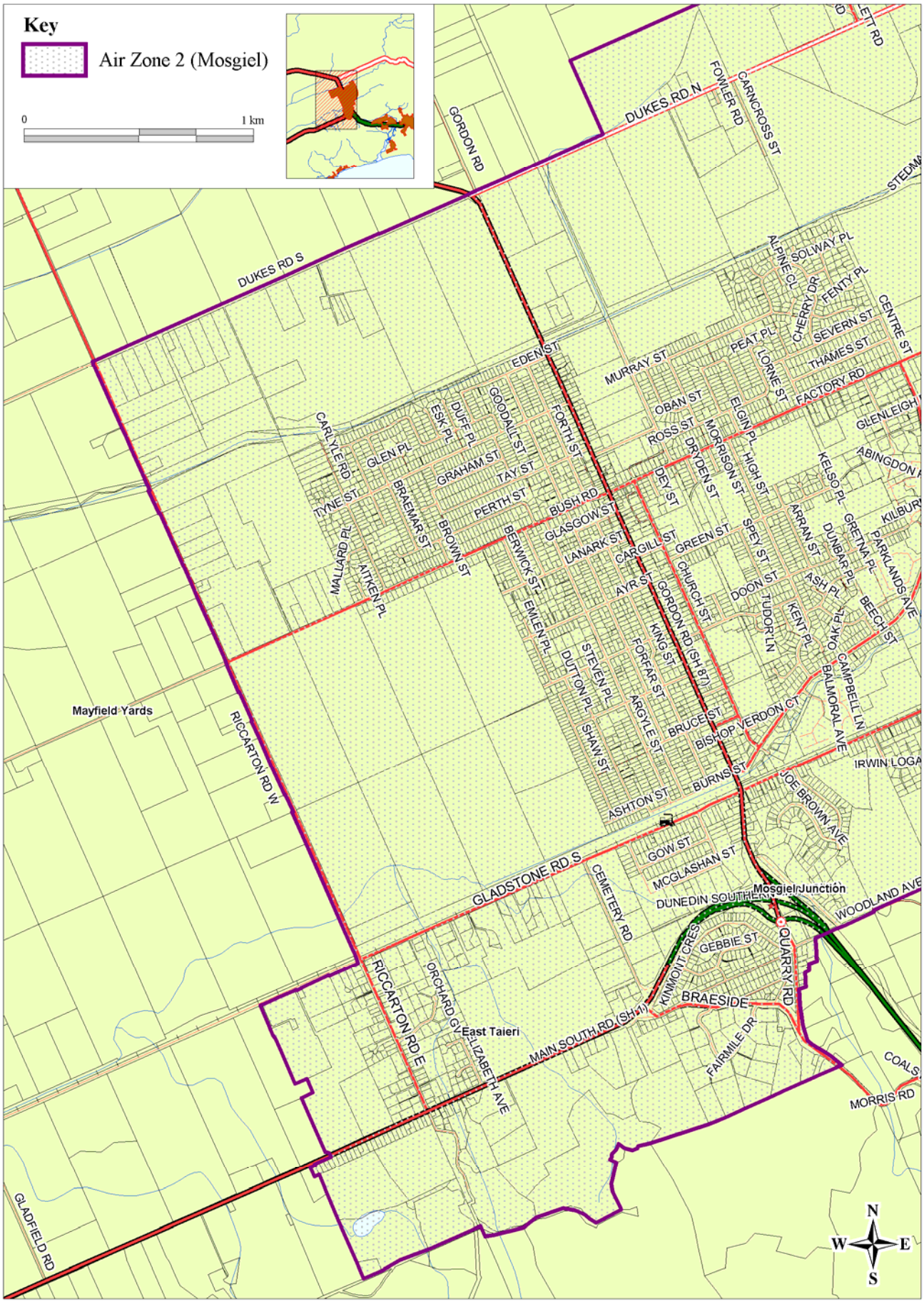
Air Zone 2 (South Dunedin)



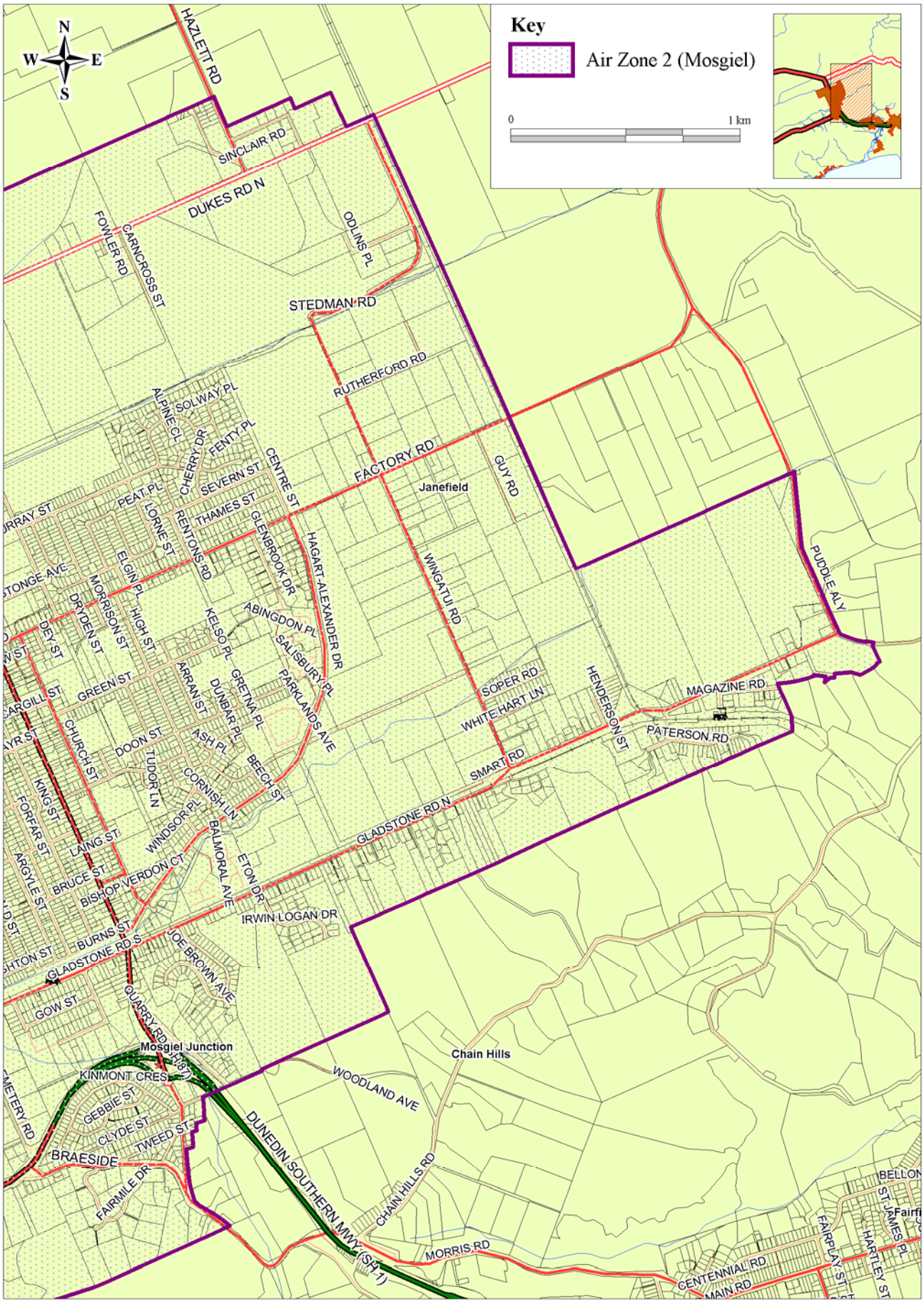
Air Zone 2 (Green Island) *Map 1 of 2*



Air Zone 2 (Green Island) *Map 2 of 2*

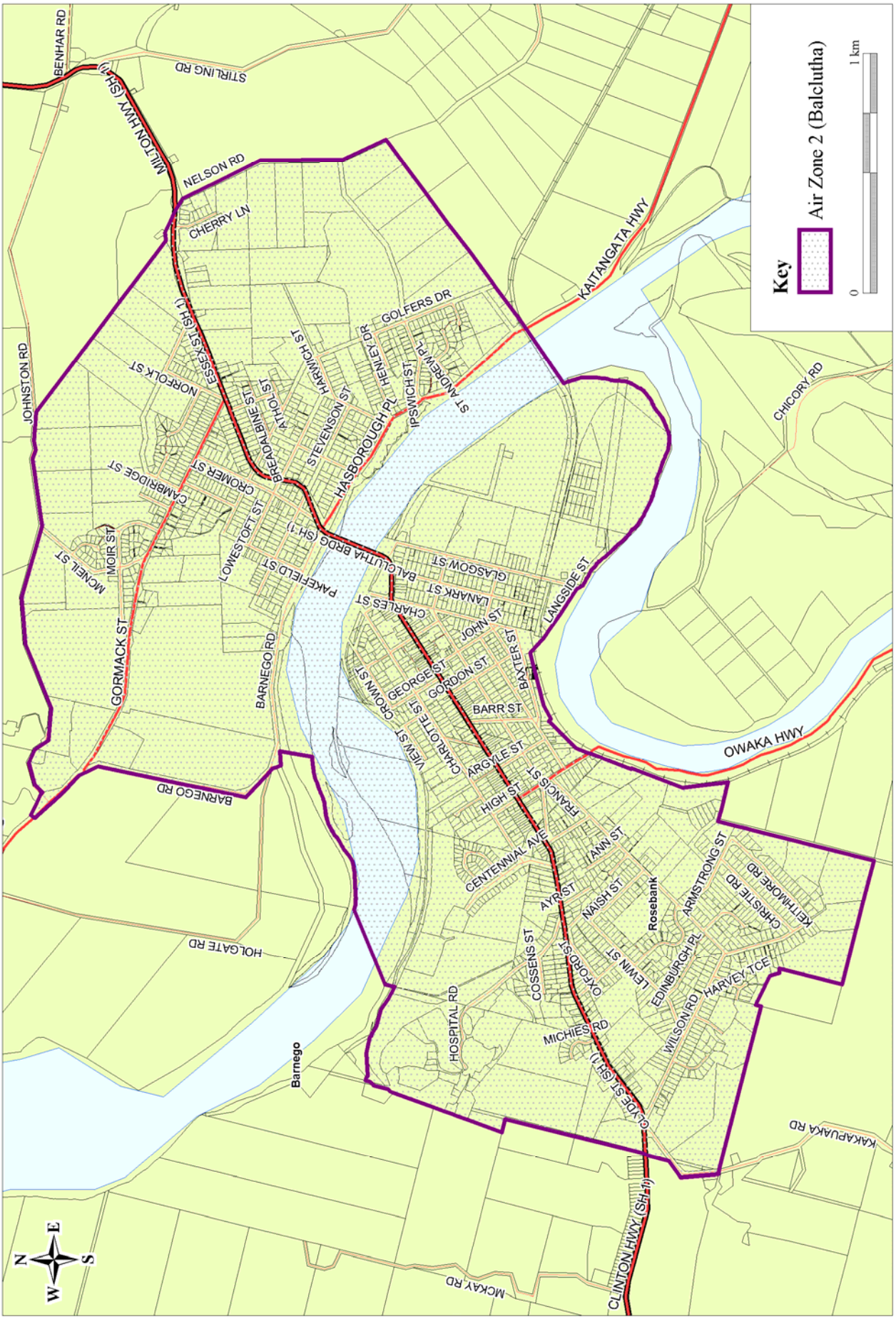


Air Zone 2 (Mosgiel) *Map 1 of 2*



Air Zone 2 (Mosgiel) *Map 2 of 2*

Air Zone 2 (Milton)



Air Zone 2 (Balclutha)

Schedule 3 Hazardous Air Contaminants

The Otago Regional Council is particularly concerned about the effects of hazardous air contaminants on human health and the environment. As such, particular regard is to be given to avoiding the adverse effects of these contaminants when preparing or making decisions on resource consent applications in terms of Policy 8.2.2 of this Plan.

The table below lists the hazardous air contaminants described by the Ministry for the Environment in their publication *Ambient Air Quality Guidelines* (1994) as either being known or suspected to cause:

- Acute human health effects, cancer or teratogenic effects, or serious or irreversible effects, reproductive dysfunction, neurological disorders, heritable genetic mutations, or other chronic health effects; or
- Significant adverse effects on the environment due to their toxicity, persistence in the environment, tendency to bioaccumulate, or any combination of these.

The table also indicates those contaminants which the United States Environmental Protection Authority (1992) identify in their *Integrated Risk Information System* (IRIS) database either being a confirmed or suspected carcinogen. The classification system is described in the notes which follow the table.

Number	Contaminant	Carcinogenic Category
75-07-0	Acetaldehyde	B2
60-35-5	Acetamide	
75-05-8	Acetonitrile	
98-86-2	Acetophenone	D
53-96-3	2-Acetylaminofluorene	
107-02-8	Acrolein	C
79-06-1	Acrylamide	B2
79-10-7	Acrylic acid	
107-13-1	Acrylonitrile	B1
107-05-1	Allyl chloride	
92-67-1	4-Aminobiphenyl	
62-53-3	Aniline	B2
90-04-0	o-Anisidine	
1332-21-4	Asbestos	A
71-43-2	Benzene	A
92-87-5	Benzidine	A
98-07-7	Benzotrichloride	B2
100-44-7	Benzyl chloride	B2
92-52-4	Biphenyl	D
117-81-7	Bis(2-ethylhexyl)phthalate (DEHP)	B2
542-88-1	Bis(chloromethyl) ether	A
75-25-2	Bromoform	B2
106-99-0	1,3-Butadiene	B2
156-62-7	Calcium cyanamide	
105-60-2	Caprolactam	

Number	Contaminant	Carcinogenic Category
133-06-2	Captan	
63-25-2	Carbaryl	
75-15-0	Carbon disulfide	
56-23-5	Carbon tetrachloride	B2
463-58-1	Carbonyl sulfide	
120-80-9	Catechol	
133-90-4	Chloramben	
57-74-9	Chlordane	B2
7782-50-5	Chlorine	
79-11-8	Chloroacetic acid	
532-27-4	2-Chloroacetophenone	
108-90-7	Chlorobenzene	D
510-15-6	Chlorobenzilate	
67-66-3	Chloroform	B2
107-30-2	Chloromethyl methyl ether	A
126-99-8	Chloroprene	
1319-77-3	Cresol / cresylic acid (mixed isomers)	C
95-48-7	o-Cresol	C
108-39-4	m-Cresol	C
106-44-5	p-Cresol	C
98-82-8	Cumene	
	2,4-D (2,4-Dichlorophenoxyacetic acid) (including salts and esters)	
72-55-9	DDE (1,1-dichloro-2,2-bis (p-	B2

SCHEDULE 3

Number	Contaminant	Carcinogenic Category
	chlorophenyl) ethylene)	
334-88-3	Diazomethane	
132-64-9	Dibenzofuran	D
96-12-8	1,2-Dibromo-3-chloropropane	
84-74-2	Dibutyl phthalate	D
106-46-7	1,4-Dichlorobenzene	
91-94-1	3,3[1]-Dichlorobenzidine	B2
111-44-4	Dichlorethyl ether (bis[2-chloroethyl]ether)	B2
542-75-6	1,3-Dichloropropene	
62-73-7	Dichlorvos	B2
111-42-2	Diethanolamine	
64-67-5	Diethyl sulfate	
119-90-5	3,3[1]-Dimethoxybenzidine	
60-11-7	4-Dimethylaminoazobenzene	
121-69-7	N,N-Dimethylaniline	
119-93-7	3,3[1]-Dimethylbenzidine	
79-44-7	Dimethylcarbomoyl chloride	
68-12-2	N,N-Dimethylformamide	
57-14-7	1,1-Dimethylhydrazine	
131-11-3	Dimethyl phthalate	D
77-78-1	Dimethyl sulfate 4,6-Dinitro-o-cresol (including salts)	B2
51-28-5	2,4-Dinitrophenol	
121-14-2	2,4-Dinitrotoluene	B2
123-91-1	1,4-Dioxane (1,4-Diethyleneoxide)	B2
122-66-7	1,2-Diphenylhydrazine	B2
106-89-8	Epichlorohydrin (1-Chloro-2,3-epoxypropane)	B2
106-88-7	1,2-Epoxybutane	
140-88-5	Ethyl acrylate	
100-41-4	Ethylbenzene	D
51-79-6	Ethyl carbamate (Urethane)	
75-00-3	Ethyl chloride (Chloroethane)	
106-93-4	Ethylene dibromide (Dibromoethane)	B2
107-06-2	Ethylene dichloride (1,2-Dichloroethane)	B2
107-21-1	Ethylene glycol	
151-56-4	Ethyleneimine (Aziridine)	
75-21-8	Ethylene oxide	
96-45-7	Ethylene thiourea	
75-34-3	Ethylidene dichloride (1,1	C

Number	Contaminant	Carcinogenic Category
	Dichloroethane)	
50-00-0	Formaldehyde	B1
76-44-8	Heptachlor	B2
118-74-1	Hexachlorobenzene	B2
87-68-3	Hexachlorobutadiene 1,2,3,4,5,6-Hexachlorocyclohexane (all stereo isomers, including lindane)	C
77-47-4	Hexachlorocyclopentadiene	D
67-72-1	Hexachloroethane	
822-06-0	Hexamethylene di-isocyanate	
680-31-9	Hexamethylphosphoramide	
110-54-3	Hexane	
302-01-2	Hydrazine	B2
7647-01-0	Hydrochloric acid (Hydrogen chloride [gas only])	
7664-39-3	Hydrogen fluoride (Hydrofluoric acid)	
123-31-9	Hydroquinone	
78-59-1	Isophorone	C
108-31-6	Maleic anhydride	
67-56-1	Methanol	
72-43-5	Methoxychlor	D
74-83-9	Methyl bromide (Bromomethane)	D
74-87-3	Methyl chloride (Chloromethane)	
71-55-6	Methyl chloroform (1,1,1-Trichloroethane)	D
78-93-3	Methyl ethyl ketone (2-Butanone)	D
60-34-4	Methylhydrazine	
74-88-4	Methyl iodide (Iodomethane)	
108-10-1	Methyl isobutyl ketone (Hexone)	
624-83-9	Methyl isocyanate	
80-62-6	Methyl methacrylate	
1634-04-4	Methyl tert-butyl ether	
101-14-4	4,4[1]-Methylenebis (2-chloroaniline)	
75-09-2	Methylene chloride (Dichloromethane)	
101-68-8	4,4[1]-Methylenediphenyl diisocyanate (MDI)	
101-77-9	4,4[1]-Methylenedianiline	
91-20-3	Naphthalene	D
98-95-3	Nitrobenzene	D

Number	Contaminant	Carcinogenic Category
92-93-5	4-Nitrobiphenyl	
100-02-7	4-Nitrophenol	
79-46-9	2-Nitropropane	
684-93-5	N-Nitroso-N-methylurea	
62-75-9	N-Nitrosodimethylamine	B2
59-89-2	N-Nitrosomorpholine	
56-38-2	Parathion	C
82-68-8	Pentachloronitrobenzene (Quintobenzene)	
87-86-5	Pentachlorophenol	B2
108-95-2	Phenol	D
106-50-3	p-Phenylenediamine	
75-44-5	Phosgene	
7803-51-2	Phosphine	D
7723-14-0	Phosphorus	D
85-44-9	Phthalic anhydride	
1336-36-3	Polychlorinated biphenyls (Aroclors)	B2
1120-71-4	1,3-Propane sultone	
57-57-8	beta-Propiolactone	
123-38-6	Propionaldehyde	
114-26-1	Propoxur (Baygon)	
78-87-5	Propylene dichloride (1,2-Dichloropropane)	
75-56-9	Propylene oxide	B2
75-55-8	1,2-Propylenimine (2-Methylaziridine)	
91-22-5	Quinoline	
106-51-4	Quinone (p-Benzoquinone)	
100-42-5	Styrene	
96-09-3	Styrene oxide	

Number	Contaminant	Carcinogenic Category
1746-01-6	2,3,7,8-Tetrachlorodibenzo-p-dioxin	
79-34-5	1,1,2,2-Tetrachloroethane	
127-18-4	Tetrachloroethylene (Perchloroethylene)	
7550-45-0	Titanium tetrachloride	
108-88-3	Toluene	D
95-80-7	Toluene-2,4-diamine	
584-84-9	2,4-Toluene di-isocyanate	
95-53-4	o-Toluidine	
8001-35-2	Toxaphene (chlorinated camphene)	B2
120-82-1	1,2,4-Trichlorobenzene	D
79-00-5	1,1,2-Trichloroethane	C
79-01-6	Trichloroethylene	
95-95-4	2,4,5-Trichlorophenol	
88-06-2	2,4,6-Triclorophenol	B2
121-44-8	Triethylamine	
1582-09-8	Trifluralin	C
540-84-1	2,2,4-Trimethylpentane	
108-05-4	Vinyl acetate	
593-60-2	Vinyl bromide	
75-01-4	Vinyl chloride	
75-35-4	Vinylidene chloride (1,1-Dichloroethylene)	C
1330-20-7	Xylene (mixed isomers)	D
95-47-6	o-Xylene	
108-38-3	m-Xylene	
106-42-3	p-Xylene	

Number	Contaminant	Carcinogenic Category
	Antimony Compounds	
	Arsenic Compounds (inorganic including arsine)	A
	Beryllium Compounds	B2
	Cadmium Compounds	B1
	Chromium Compounds	A
	Cobalt Compounds	
	Coke Oven Emissions	A
	Cyanide Compounds[1]	
	Glycol ethers[2]	
	Lead Compounds	B2

Number	Contaminant	Carcinogenic Category
	Manganese Compounds	D
	Mercury Compounds	D
	Fine mineral fibres[3]	
	Nickel Compounds	A
	Polycyclic Organic Matter[4]	
	Radionuclides (including radon)[5]	A
	Selenium Compounds	B2

GENERAL NOTES:

1. The numbers referred to are the Chemical Abstracts Service Number. This service provides a source of additional information on the substance.
2. The classification system used by the United States Environmental Protection Agency in terms of confirmed or suspected carcinogens is as follows:

Carcinogenic Category	Explanation
A	Human carcinogen. Sufficient evidence to support causal association between contaminant and cancer.
B	Probable human carcinogen.
B1	Limited evidence for carcinogenity in humans.
B2	Sufficient evidence in animals but lacking adequate data on humans.
C	Possible human carcinogen. Limited evidence of carcinogenity in animals and an absence of data on humans.
D	Not classified. Evidence for carcinogenity in animals is inadequate.

TECHNICAL NOTES:

For all listings above which contain the word "Compounds" and for glycol ethers, the following applies: unless otherwise specified, these listings are defined as including any unique chemical substance that contains the named chemical (ie, antimony, arsenic, etc) as part of that chemical's infrastructure.

[1] X'CN where X' = H' or any other group where a formal dissociation may occur. For example, KCN or $Ca(CN)_2$.

[2] $R\text{-}(OCH_2CH_2)_n\text{-}OR'$ where:
n = 1, 2 or 3
R = alkyl C7 or less, or phenyl, or alkyl-substituted phenyl
R' = H, or alkyl C7 or less, or ester, sulphate, phosphate, nitrate or sulphonate.

[3] Includes mineral fibre emissions from facilities manufacturing or processing glass, rock, or slag fibres (or other mineral derived fibres) of an average diameter of 1 micrometer or less.

[4] Includes substituted and/or unsubstituted polycyclic aromatic hydrocarbons and aromatic heterocyclic compounds, with two or more fused rings, at least one of which is benzenoid (ie, containing six carbon atoms and is aromatic) in structure. Polycyclic Organic Matter is a mixture of organic compounds containing one or more of these polycyclic aromatic chemicals. Polycyclic Organic Matter is generally formed or emitted during thermal processes including:
(1) Incomplete combustion;
(2) Pyrolysis;
(3) The volatilisation, distillation or processing of fossil fuels or bitumens; or
(4) The distillation or thermal processing of non-fossil fuels.

[5] A type of atom which spontaneously undergoes radioactive decay.

Schedule 4 Good Management Practices for Agrichemical Application

This schedule is based on the information contained in the New Zealand Standard 8409:1999: *Code of Practice for the Management of Agrichemicals*, August 1999, developed by the New Zealand Agrichemical Education Trust. It has been included in the Plan in a simple and convenient form for general public information and education purposes. The information contained in this Schedule also provides general guidance on the best practice for avoiding or minimising adverse effects on the environment from agrichemical application. This information may be useful for those carrying out discharges of agrichemicals into air under rules in 16.3.9, but it does not negate the conditions in any such rule.

This information caters for a wide range of purposes for spraying. Some, not all, will be applicable depending on the purpose and scale of spraying.

For further, more detailed information reference should be made to the Code of Practice itself. This document can be obtained from Standards New Zealand (Private Bag 2439, Wellington, Ph (04) 498 5990 or Fax (04) 498 5990), e-mail: snz@standards.co.nz, website: www.standards.co.nz, or can be viewed at the Otago Regional Council's Dunedin Office.

To achieve the Plan's objectives, any person discharging agrichemical sprays is requested to observe the following, in conjunction with the accompanying chart. All such persons should:

(a) Not spray upwind of the sensitive areas (listed in the explanation to Policy 12.1.1), unless adequate buffer distances are observed, or additional techniques for avoiding spray drift are used.

(b) Not spray when wind direction is unpredictable or when there are high winds, or very low or no wind conditions. Some wind may assist in correct targeting of spray.

(c) Not spray during inversion conditions.

(d) Make use of appropriate and effective buffer zones and/or shelter belts to minimise the risk of spray drifting to non-target areas.

(e) Have particular regard to the selection of nozzle size and pressure from the spray unit, in order to minimise the risk of spray drift. *(Use equipment generating a droplet size of at least 50 microns in diameter and preferably greater than 250 microns.)*

(f) In the case of ground application methods, apply spray at a height preferably less than 0.5 metres above, but no greater than 1.5 metres above the target.

(g) In the case of aerial application methods, be a person who holds a Growsafe Pilots' Agrichemical Rating Certificate of Qualification.

(h) Comply with the manufacturer's instructions, as stated on the container label or in information sheets.

(i) Preferably use spray formulations of low volatility and toxicity.

(j) Dispose of surplus spray solution and spray containers according to the *Code of Practice for the Management of Agrichemicals*, 1999 and the recommendations of the manufacturer or supplier, as stated in the directions on the product container label.

(k) Keep specific records of the type of each spray and any additive applied, the pest species targeted, the volume of spray, the volume of product, concentrations used, the time, date and locality, identification of any sensitive area (see (a) above), the meeting of any notification requirements, and equipment calibration details, as well as a specific inventory of the types and volumes of any chemicals in storage.

(l) Use only those agrichemicals currently authorised for use in New Zealand.

(m) Also take into account the information provided on the following chart to minimise the risk of drift hazard:

		Conditions that cause potential hazard from spray drift to be:	
	Factor	**High**	**Low**
Site factors	Sensitive area	Close (less than 100 m away)	More than 1 km distant
	Buffer Zone	None	Yes (>100 m)
	Shelter Belts	No shelter	Live shelter >3 m high and 1 m thick
	Wind Direction	Unpredictable	Predictable, and away from sensitive areas
	Wind Speed	Zero / very low (less than 1 m/s) or greater than 6 m/s	Steady (1 - 3 m/s)
	Humidity	Low (delta T > 8^{o}C)	High (delta T < 4^{o}C)
	Atmospheric stability	Inversion layer present	No inversion layer present
Technique factors	Particle (droplet size)	Less than 50 microns diameter	Greater than 250 microns diameter
	Maximum height of release	Greater than 1.5 m above the target	Less than 0.5 m above the target
Material factors	Volatility	High (vapour pressure > 10 mPa)	Low (vapour pressure < 0.1 mPa)
	Toxicity	Substance is classed as a 'Poison' in terms of Section 2 of the Toxic Substances Act 1979	No substance used is classed as a 'Poison' in terms of Section 2 of the Toxic Substances Act 1979

Schedule 5 Good Management Practices to Prevent or Minimise the Discharge of Smoke from Burning Vegetation

General burning practices

- Except in the case of tree stumps or standing dead vegetation or crop stubble, vegetation that is to be burned (such as trimmings, pruning, or fellings cut from active growth) should, as a general guide, be allowed to dry for at least four weeks in summer or six weeks in winter, prior to burning.

- Where practicable, the place of burning should be located as far away from roads and state highways as possible and burning should take place when wind will dissipate smoke away from roads and state highways.

- When starting to burn, the direction and strength of wind should be such that smoke is carried away from the areas most likely to be adversely affected.

- In cases of vegetation previously treated by spray with any agrichemical, any manufacturer's instructions, as on the label of any container in respect of the burning of treated vegetation, must be observed.

- Prior to burning, assess whether the vegetation is sufficiently dry to burn, without unnecessarily exacerbating any risk of an uncontrolled fire.

- Vegetation should be stacked loosely rather than compacted to aid drying and the circulation of air for efficient burning.

- For piles of vegetation, a small fire, started with the driest material first, with further material continually fed on to it once it is blazing, is preferable to burning all of the material at the same time in one large pile.

- Once started, a fire should not be left unattended.

These general practices do not apply to high country vegetation burning.

High country vegetation burning

- No fire should be lit if weather conditions indicate that the presence or discharge of smoke or ash is likely to be prolonged.

- Seek advice from a meteorological service prior to burning, on the expected weather conditions, including wind speed and direction.

- Burning should be carried out only when winds will carry smoke and ash away from any operational ski field or other areas of high public use.

- The Cardrona, Treble Cone and Waiorau ski fields should be notified at least 24 hours prior to burning in the Wanaka Basin.

Notes:

1. The Transitional Regional Plan may require application for a land use consent to burn vegetation in the high country.
2. The burning of vegetation may be subject to the provisions of the Forest and Rural Fires Act and a fire permit may be required from:
   - The Department of Conservation (when burning occurs within the one kilometre fire safety margin of most land administered by the Department);
   - A rural fire authority eg, a city or district council or forestry company.
3. Vegetation burning on Crown land requires consent under the Crown Pastoral Lands Act 1998 from the Commissioner of Crown lands.
4. A resource consent may be required from the relevant city or district council depending on district plan provisions.

Schedule 6 Setting Chimney Heights for Industrial or Trade Processes

For Rules 16.3.4.1, 16.3.4.2, 16.3.5.1, 16.3.5.3, 16.3.5.4, 16.3.5.5, 16.3.5.6, 16.3.5.7 and 16.3.5.8, the height of the chimney shall be either:

(i) For any discharge of contaminants other than sulphur dioxide or oxides of nitrogen (and where the activity complies with Rules 16.3.5.1, 16.3.5.3, 16.3.5.4, 16.3.5.5, 16.3.5.6, 16.3.5.7 and 16.3.5.8), the minimum chimney height shall be the higher of either 8.5 metres above the surrounding ground level or 3 metres above the highest substantial part of any building within 50 metres of the chimney; or

(ii) For any discharge where the release of either sulphur dioxide or nitrogen oxides (expressed as nitrogen dioxide) is less than 0.5 kg/hr, the minimum chimney height shall be the higher of either 8.5 metres above surrounding ground level or three metres above the highest substantial part of any building within 50 metres of the chimney; or

(iii) For any discharge where the release of either sulphur dioxide or nitrogen oxides (expressed as nitrogen dioxide) equals or exceeds 0.5 kg/hr but is less than or equal to 10 kg/hr the height of the chimney shall be determined in accordance with the table below, but be a minimum of three metres above the highest substantial part of the building to which the chimney may be attached or any adjacent building.

SO_2 or NO_x (expressed as NO_2) Emission (kg/hr)	**Chimney Height (metres)**
0.5	8.5
1.0	9.0
1.5	9.5
2.0	10.0
2.5	11.5
3.0	12.0
4.0	13.0
5.0	15.5
6.0	16.5
7.0	17.5
8.0	18.0
9.0	19.0
10.0	20.0

Schedule 7 Standard Dispersion Modelling Procedure

Acceptable Models

Where dispersion modelling is required under this Plan as noted in the information requirements in Part IV, it should be undertaken by an experienced organisation or individual. The preferred models are those developed and used for regulatory purposes by reputable authorities, such as the United States Environmental Protection Authority (USEPA) or State of Victoria's Environmental Protection Agency.

AUSPLUME is the most commonly used model but it has limitations and others may be more suitable for certain situations, such as with complex terrain or the release of gases that are heavier than air.

Examples of other suitable models are:

CTDMPLUS/CTSCREEN	- principally for complex terrain
AUSPUFF (when available)	- large range of applications
SCREEN	- simple first approximations
ISC	- similar to AUSPLUME
DISPMOD	- for complex coastal situations
AUSTOX	- for accidental releases and heavy gases

These models are used to simulate the ground level concentrations of any contaminant present in significant quantities at receptors located at regular and appropriate distances from the discharge point. All significant emissions from the site should be accounted for in the modelling procedures.

If USEPA regulatory models are used (eg, SCREEN, ISC), then it is recommended that the USEPA protocols for using these models be followed.

Input Data

The source and input data should include information on all the particular model's input requirements and default settings. There should also be a description of site related data, including:

- The location and dimensions of buildings likely to affect dispersion (usually those located within 10xL from the discharge points, where L is the lesser of the height or width of the building);
- Other nearby sources of similar contaminants or background concentrations;
- Details of topographic features which might affect the movement or dispersion of the discharges, including coastal features; and
- The location of any particularly sensitive receptors.

Meteorological Data

The minimum meteorological data requirements for most models include:

- Wind velocity;
- Wind direction;
- Turbulence conditions (stability);
- Mixing height; and
- Temperature.

Unfortunately, it is often difficult to obtain real meteorological data from a local site, particularly

information on turbulence and mixing height. A standard "theoretical" meteorological data set is therefore acceptable for the initial assessment of effects. This should cover the full range of conditions that could conceivably occur at the site so the model produces a conservative (high) estimate of the worst case downwind concentration.

In most situations it will be sufficient to use the theoretical or 'screening' meteorology, particularly if it can be clearly demonstrated that the screening approach is conservative (giving high predictions). However, if predicted concentrations exceed the design concentrations then it will be necessary to use real meteorological data for a more precise assessment to determine if this is still the case. Similarly, real meteorological data should be considered if predictions are close to the maximum acceptable concentrations (ie, within 20 percent) and if it cannot be clearly demonstrated that the screening approach was conservative.

Ideally this data should be obtained from a local meteorological station and include at least one year of information. The local data should include reliable information on turbulence and mixing height, along with wind and temperature information. Turbulence or atmospheric stability can be measured in a variety of ways and it is important that a suitably qualified organisation or individual is consulted to provide this. One of the simple ways of measuring stability is to use the "Turner" method where wind data and detailed cloud cover observations are used. The mixing height is often more difficult to obtain but it can also be estimated from basic measurements. Care should be taken in situations where the mixing height has a significant effect on dispersion, such as tall chimneys in unstable (highly convective) conditions. If the effect of mixing height is important, and it is a major source, then consideration should be given to obtaining more accurate mixing height information from temperature gradient measurements, radiation data, surface temperature data or using a Doppler acoustic sounder.

Interpretation

When using a dispersion model it is important that the correct interpretation is applied to the results. Predictions should be compared to appropriate design targets. To this end, it is not acceptable to use the regional ambient air quality guidelines (Schedule 1) as design concentrations. Such guidelines are designed for protection of air quality in areas where there is often a large number of similar sources. They cannot be used for setting emission limits or chimney heights of individual sources without some kind of modification.

In many situations it will be necessary to determine an appropriate design concentration for a particular situation in consultation with Council staff. However, the following provides a guide to what will be considered as acceptable model design concentrations for new sources in Otago:

- For a source located in a Schedule 2 area:
  (i) 75% of the Otago Goal Levels listed in Schedule 1; or
  (ii) The Workplace Exposure Standard (WES)* divided by 50, where appropriate, and used as a 1-hour average.
- For a source located in non-urban areas:
  (i) The Otago Goal Levels listed in Schedule 1; or
  (ii) The WES divided by 30, where appropriate, and used as a 1-hour average.

- For a source located in a pristine area, a suitable design concentration should be determined in consultation with Council staff.

* Workplace Exposure Standards (1994), Department of Labour, Wellington

- For carcinogens or those contaminants that primarily give rise to health effects from long term exposure, it may be necessary to follow a risk assessment approach where model results are used to estimate lifetime dose via inhalation, and to compare this with other dosage pathways and acceptable risk levels.

- For those contaminants that primarily produce odour effects, it is preferable to use an odour design concentration based on olfactometry and odour dose-response assessments, determined in consultation with Council staff.

- For dusts and other pollutants that primarily produce amenity affects, a suitable design concentration should be determined in consultation with Council staff.

In all the above cases the acceptable design concentration or guideline should be compared with the maximum prediction, the highest 99.9 percentile when real meteorological data is used for 1-hour average predictions (8^{th} highest prediction out of a whole year of hourly predictions) or the highest 99.5 percentile in the case of odour.

The correct averaging times should also be used when comparing predictions with design concentrations. Particular care should be taken when using predictions from screening meteorology, for those contaminants that have design concentrations with averaging times greater than one hour.

It should be remembered that the above are only guidelines. They do *not* represent strict standards. Deviation from these guidelines may be acceptable, but the onus is on the applicant to ensure that any deviations are based on sound science. Consequently applicants are advised to obtain appropriate specialist advice.

These guidelines also primarily apply to the assessment of new sources. Different criteria may be applied to the interpretation of modelling results for some existing sources.

Glossary

Terms marked with an asterisk * are terms defined by Section 2 of the Resource Management Act 1991.

AAQG Ambient Air Quality Guidelines.

Abrasive blasting The cleaning, smoothing, roughening, cutting or removing of part of the surface or any article by the use of a jet of sand, metal shot, grit or any other abrasive material propelled by a blast of compressed air or mechanically via a rotary wheel, impeller or other means.

Act The Resource Management Act 1991 and its amendments.

Adverse effect An unwanted or detrimental effect.

Aerial application The discharge of any agrichemical from any aircraft.

Agrichemical spray drift The airborne movement of aerosol or droplets containing agrichemicals onto non target areas.

Agrichemical Any substance that is used to eradicate, modify or control flora or fauna, including animal remedies, but excluding fertilisers.

Airshed Means -

(a) The region of a regional council excluding any area specified in a notice under paragraph (b):
(b) A part of the region of a regional council specified by the Minister by notice in the *Gazette* to a separate airshed.

Note: Boundaries of the Otago airsheds gazetted as per (b) above, are shown in Schedule 2.

Air Zone For simplicity of management, Otago's airsheds have been categorised into three Air Zones, as follows:

- Air Zone 1: including Alexandra, Arrowtown, Clyde and Cromwell airsheds.
- Air Zone 2: including Balclutha, Dunedin, Green Island, Hawea, Kingston, Milton, Mosgiel, Naseby, Oamaru, Palmerston, Port Chalmers, Queenstown, Ranfurly, Roxburgh, Waikouaiti and Wanaka airsheds.
- Air Zone 3: the whole of Otago, excluding the areas that are zoned 1 or 2.

The Clyde airshed is identified as a sub-zone within Air Zone 1 until 1 April 2009, pending further monitoring and an analysis of how discharges to air within the Clyde airshed affect the Alexandra airshed.

Ambient air The air outside buildings and structures. It does not refer to indoor air, to air in the workplace, or to contaminated air as it is discharged from a source.

Ambient air quality standard for PM_{10}

Means -

(a) A threshold concentration of 50 $\mu g/m^3$ expressed as a 24-hour mean; and

(b) A permissible excess of one 24-hour period in a 12-month period.

Amenity values*

Means those natural or physical qualities and characteristics of an area that contribute to people's appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes.

Area source discharges

Involve diffuse (or non point source) discharges into air which may not be attributable to an individual activity.

Best practicable option*

In relation to a discharge of a contaminant or an emission of noise, means the best method for preventing or minimising the adverse effects on the environment having regard, among other things, to-

(a) The nature of the discharge or emission and the sensitivity of the receiving environment to adverse effects; and

(b) The financial implications, and the effects on the environment, of that option when compared with other options; and

(c) The current state of technical knowledge and the likelihood that the option can be successfully applied.

Bio-oil

Oil derived from animal or plant matter

BOD

Biochemical oxygen demand (BOD) is a measure of the oxygen consumed by the degradation of organic matter by organisms, and therefore a measure of organic pollution.

Boundary of the property

Means the legal perimeter of the property upon which any discharge into air is occurring.

Buffer zone

In relation to the use of agrichemicals and potentially odorous discharges, means the distance between the downwind edge of an area where the activity is undertaken, and sensitive land uses.

Coastal marine area*

Means the foreshore, seabed and coastal water, and the air space above the water -

(a) Of which the seaward boundary is the outer limits of the territorial sea:

(b) Of which the landward boundary is the line of mean high water springs, except that where that line crosses a river, the landward boundary at that point shall be whichever is the lesser of -

  (i) One kilometre upstream from the mouth of the river; or

  (ii) The point upstream that is calculated by multiplying the width of the river mouth by 5.

Commercial premises — Any premises used for tourist, hospitality or accommodation activities that displays, offers, provides, sells, or hires goods, equipment or services.

Conditions* — In relation to plans and resource consents, includes terms, standards, restrictions, and prohibitions.

Consent authority* — Means the Minister of Conservation, a regional council, a territorial authority, or a local authority that is both a regional council and a territorial authority, whose permission is required to carry out an activity for which a resource consent is required under the Resource Management Act 1991.

Consultation — The communication of a genuine invitation to give advice and a genuine consideration of that advice.

Contaminant* — Includes any substance (including gases, liquids, solids and micro-organisms) or energy (excluding noise) or heat, that either by itself or in combination with the same, similar, or other substances, energy or heat -

(a) When discharged into water, changes or is likely to change the physical, chemical or biological condition of water; or

(b) When discharged onto or into land or into air, changes or is likely to change the physical, chemical, or biological condition of the land or air onto or into which it is discharged.

Contravene* — Includes fail to comply with.

Cooker — Any domestic heating appliance which has an inbuilt oven and is used for cooking.

Curved line path — Means a curved line that –

(a) Starts on the y-axis of a graph at a point representing, as at 1 September 2005 or the date that the plan is publicly notified (whichever is later), the concentration of PM_{10} in the airshed; and

(b) Ends on the x-axis of the graph at a point representing as at 1 September 2013, the ambient air quality standard for PM_{10} in the airshed.

Discharge permit — Has the meaning set out in Section 87(e) (of the Resource Management Act 1991).

Discharge* — Includes emit, deposit and allow to escape.

Discretionary activity* — If an activity is described in the Resource Management Act 1991, regulations, or a plan or proposed plan as a discretionary activity, -

(a) A resource consent is required for the activity; and

(b) The consent authority may grant the resource consent with or without conditions or decline the resource

consent; and
(c) The activity must comply with the standards, terms or conditions, if any, specified in the plan or proposed plan.

District plan* Means an operative plan approved by a territorial authority under the First Schedule to the Resource Management Act; and includes all operative changes to such a plan (whether arising from a review or otherwise).

Domestic heating appliance A combustion appliance, with a heat generation capacity of up to 50 kW in which solid fuel is burnt for heating or cooking, and is primarily used in residential dwellings. It includes, but is not limited to, any open fire, woodburner, multifuel, pellet or coal burning heater, or cooker including coal range.

Dry With respect to vegetative matter, means neither damp nor so freshly cut that it does not burn cleanly.

Dry abrasive blasting Where an abrasive is incorporated into an air stream and directed at high velocity from a nozzle onto the work piece, or where the abrasive is mechanically thrown via a rotating wheel, impeller or other means.

Dust Means all solid particulate matter that is suspended in the air, or has settled after being airborne. By way of example "dust" may be derived from sand, cement, fertiliser, coal, soil, paint, ash, animal products or wood.

Ecosystem A dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.

Effect Section 3 of the Resource Management Act defines the term effect to include:
(a) Any positive or adverse effect; and
(b) Any temporary or permanent effect; and
(c) Any past, present, or future effect; and
(d) Any cumulative effect which arises over time or in combination with other effects -
(e) re regardless of the scale, intensity, duration or frequency of the effect, and also includes -
(f) Any potential effect of high probability; and
(g) Any potential effect of low probability which has a high potential impact.

Enforcement order* Means an order made under section 319 for any of the purposes set out in section 314; and includes an interim enforcement order made under section 320 of the Resource Management Act 1991.

Environment* Includes -
(a) Ecosystems and their constituent parts, including people and communities; and

(b) All natural and physical resources; and
(c) Amenity values; and
(d) The social, economic, aesthetic, and cultural conditions which affect the matters stated in paragraphs (a) to (c) of this definition or which are affected by those matters.

Fauna All the animal life of a given place.

Fertiliser Any substance other than animal waste which is in a state suitable for application to land or plants for the purpose of increasing the growth or productivity of beneficial plants.

Flora All the plant life of a given place.

Frost pot An appliance in which oil or diesel is commonly burnt, which is used to prevent frost damage in orchards.

Fuel burning equipment Any boiler, furnace, gas turbine, internal or external combustion engine (excluding motor vehicles, ships, trains and aircraft) that includes a chimney or exhaust and is used primarily for the production of energy, or other like processes.

General engineering activity Welding, soldering, brazing, arc air gouging, grinding, cutting, or activities of a similar nature.

Ground based application methods Any method of application where that part of the equipment from where the agrichemical is emitted is either on the ground or attached to equipment that is on the ground.

Hand held application methods Any method of application where the applicator holds that part of the equipment from which the agrichemical is emitted.

Hazardous air contaminant Means a contaminant identified in Schedule 3.

Heat generation capacity Refers to gross heat release from the fuel not steam production capacity or heat transfer capacity.

Incineration A process which completely reduces materials to ash through combustion in a purpose-built appliance.

Incinerator An appliance used primarily for the destruction of materials which reduces them to ash through combustion. Note, for the purposes of this Plan, this does not include a modified drum or garden incinerator.

Industrial or trade premises*

(a) Any premises used for any industrial or trade purposes; or
(b) Any premises used for the storage, transfer, treatment or disposal of waste materials or for other waste-management purposes, or used for composting organic materials; or
(c) Any other premises from which a contaminant is discharged in connection with any industrial or trade process -

but does not include any production land.

Industrial or trade process*

Includes every part of a process from the receipt of raw material to the dispatch or use in another process or disposal of any product or waste material, and any intervening storage of the raw material, partly processed matter, or product.

Industrial or trade wastes

Wastes from an industrial or trade process or premises.

Intensive Farming

Means any production of livestock which is carried out predominantly within buildings or fenced outdoor areas where the stocking density precludes the maintenance of pasture or ground cover.

Issue

A matter of concern to the region's community regarding activities affecting some aspect of natural and physical resources and the environment of the region.

Iwi

Tribe.

Kai Tahu

Descendants of Tahu, the tribe.

Kaitiaki

Guardians.

Kaitiakitanga*

The exercise of guardianship by the tangata whenua of an area in accordance with tikanga Maori in relation to natural and physical resources; and includes the ethic of stewardship.

Land use consent*

Has the meaning set out in section 87(a) (of the Resource Management Act 1991).

Local authority

A term that collectively describes regional councils, city councils, and district councils.

Mahika kai

Place where food is produced or procured.

Mana

Authority, prestige, influence.

Marae

Courtyard, meeting place for tangata whenua.

Mass emission rate

The quantity of contaminants discharged on a mass per unit time basis.

Mauri

Life force.

Mean high water springs	The average line of spring high tide.
Method	The practical action by which a policy is implemented.
Micron	One-millionth of a metre.
Mineral	Means a naturally occurring inorganic substance beneath or at the surface of the earth, whether or not under water; and includes all metallic minerals, non-metallic minerals, fuel minerals, precious stones, industrial rocks and building stones, and a prescribed substance within the meaning of the Atomic Energy Act 1945.
Mitigate	To make or become less severe or harsh. To moderate.
Mobile operations	In relation to abrasive blasting and spraypainting, mobile operations refer to operations where the activity is undertaken for five days or less on one site.
Multifuel heater	Means a domestic heating appliance designed to burn more than one type of solid fuel.
Municipal waste	Waste generated by the local community and disposed of at a central location.
Natural and physical resources*	Includes land, water, air, soil, minerals, and energy, all forms of plants and animals (whether native to New Zealand or introduced), and all structures.
NESAQ	Resource Management (National Environmental Standards Relating to Certain Air Pollutants, Dioxins and Other Toxics) Regulations 2004.
Objective	The desired result, end state, situation or condition that is aimed for.
Oil	(a) Means petroleum in any form (other than gas); and (b) Includes crude oil, fuel oil sludge, oil refuse, and refined oil products (e.g. diesel fuel, kerosene and motor gasoline).
Open fire	A fireplace which is designed to operate as an open fireplace in which solid fuel is burnt for heating.
Operative*	In relation to a policy statement or plan or a provision of a policy statement or plan, means that the policy statement, plan or provision has become operative in terms of clause 20 of the First Schedule and has not ceased to be operative.
Outdoor burning	Burning in or on the ground, or in a container, taking place outside of a building.

Outside storage Means material stored outside without wind protection above and on at least three sides (or ¾ of the perimeter) of the storage area.

Permitted activity* If an activity is described in the Resource Management Act 1991, regulations, or a plan or proposed plan as a permitted activity, a resource consent is not required for the activity if it complies with the standards, terms, or conditions, if any, specified in the plan or proposed plan.

Person* Includes the Crown, a corporation sole, and also a body of persons, whether corporate or unincorporate.

Place of public assembly Land or buildings which are used in whole or in part for the assembly or gathering of people for such purposes as meetings, conferences, worship, entertainment, recreation, celebration, education or similar purposes and includes such buildings associated with public or private hotels, travellers' accommodation and marae.

PM_{10} Means particulate matter that is -

(a) Less than 10 microns in aerodynamic diameter; and

(b) Measured in accordance with the United States Code of Federal Regulations, Title 40 – Protection of Environment, Volume 2, Part 50, Appendix J – Reference method for the determination of particulate matter as PM_{10} in the atmosphere.

Note: There is a link to (b) on the Ministry for the Environment website (www.mfe.govt.nz).

Point source discharge A discharge of water or contaminant that enters the air from a definable point, often through a stack or chimney.

Policy The course of action to achieve the objective.

Production land* Means any land and auxiliary buildings used for the production (but not processing) of primary products (including agricultural, pastoral, horticultural, and forestry products):
Does not include land or auxiliary buildings used or associated with prospecting, exploration, or mining for minerals;
and "production" has a corresponding meaning.

Prohibited activity If an activity is described in the Resource Management Act 1991, regulations, or a plan as a prohibited activity, no application may be made for that activity and a resource consent must not be granted for it.

Proposed plan* Means a proposed plan, or variation to a proposed plan, or change to a plan that has been notified under clause 5 of the First Schedule but has not become operative in terms of clause

	20 of the First Schedule, but does not include a proposed plan or change originally requested by a person other than a local authority or a Minister of the Crown, unless the proposed plan or change is adopted and notified by the local authority under clause 25(2)(a) of the First Schedule.
Public amenity area	Means any area to which the public has right of access under any statute, regulation, law or by-law, including: (a) Crown and council properties, reserves, gardens, parks and airfields; (b) Grasslands, sports grounds and recreational turf; (c) Forest and bush areas; (d) Roads railways and their verges and embankments, pedestrian walkways, malls and precincts; (e) Beaches, beach reserves and adjacent foreshore areas.
Rangatiratanga	Chieftainship, decision-making rights.
Regional coastal plan*	Means an operative plan approved by the Minister of Conservation under the First Schedule of the Resource Management Act, and includes all operative changes to such a plan (whether arising from a review or otherwise).
Regional plan*	Means an operative plan (including a regional coastal plan) approved by a regional council or the Minister of Conservation under the First Schedule; and includes all operative changes to such a plan (whether arising from a review or otherwise).
Regional Plan: Air	Means the Regional Plan: Air for Otago.
Regional policy statement*	Means an operative regional policy statement approved by a regional council under the First Schedule; and includes all operative changes to such a policy statement (whether arising from a review or otherwise).
Recognised heritage building	Any Category I or Category II building as listed on The Register of Historic Buildings, Historic Areas, Wahi Tapu and Wahi Tapu Areas, or any other building listed as a heritage building in a district plan.
Residential dwelling	Means any building, that is occupied, whether permanently or temporarily, in whole or in part, as a residence; and includes any structure or outdoor living area that is accessory to, for the purposes of, the residence; but does not include the land upon which the residence is sited.
Residential portion	The portion of a property in the vicinity of a residential dwelling which is used primarily for domestic purposes.

Residential property	A property that contains at least one permanent residential dwelling and is used primarily for domestic purposes; but does not include a hostel or boarding house or other specialised accommodation.
Resource consent	A consent for an activity as set out in Section 87 (of the Resource Management Act); and includes all conditions to which the consent is subject.
Ship*	Has the same meaning as in Section 2 of the Maritime Transport Act 1994.
Solid fuel	Means a solid substance that releases useable energy when burnt (for example, wood and coal).
Taoka	Treasure.
Territorial authority	A term that collectively describes city councils and district councils, but not regional councils.
The Act	In this Plan, reference to "the Act" means the Resource Management Act 1991.
The Plan	Means the Regional Plan: Air for Otago.
Thermal efficiency	Ratio of useable heat energy output to energy input.
Treaty of Waitangi (Te Tiriti o Waitangi)	The same meaning as the word "Treaty" as defined in Section 2 of the Treaty of Waitangi Act 1975.
Untreated wood	Any wood material or product, including sawdust, which is not treated with copper, chrome or arsenic ("CCA" treated or "Tanalised"), or with any organochlorine preservative.
Vacuum blasting	Dry blasting where the abrasive is applied via a nozzle surrounded by a shroud or mask equipped with a vacuum, and where debris and abrasive is effectively collected in control equipment.
Waahi taoka	Treasured resource.
Waahi tapu	Sacred places.
Wairua	Life principle, spirit.
Waste	Means substances or objects that are disposed of or intended to be disposed of.
Wet abrasive blasting	Abrasive blasting when water or a mixture of abrasive and water is added to the air flow carrying the abrasive material prior to the blasting nozzle exit, or when the blasting medium

is predominantly a pressurised slurry.

Woodburner

(a) Means a domestic heating appliance that burns wood; but
(b) Does not include –
  (i) An open fire; or
  (ii) A multifuel heater, a pellet heater, or a coal burning heater; or
  (iii) A stove that is –
    (A) Designed and used for cooking; and
    (B) Heated by burning wood.