

Proposed Plan Change 18: Frost Control Fans

Notified 6 December 2008

Format

- 1. Summary of the change**
- 2. The Changes**
- 3. Section 32 Report, including description of the changes**

Summary

This Plan Change:

- (a) Inserts a policy which identifies the appropriate effects and circumstances for the use of frost control fans;
- (b) Inserts specific rules to permit the establishment and operation of frost control fans in the Waipara Wine Growing Area subject to new performance standards, including maximum noise level, separation distances and time of use of the wind machines;
- (c) Inserts new rule to require resource consent for the establishment and operation of frost control fans in other areas (outside the Waipara Wine Growing Area) as a restricted discretionary activity;
- (d) Amends Rule A1.2.7(a) for maximum height of structures to exclude frost control fans up to 12m (excluding blades);
- (e) Amends Rule A1.2.9 (i) for exemptions to noise standards, to include specific reference to frost control fans; and
- (f) Inserts a specific rule requiring noise insulation for new dwellings in close proximity to frost control fans.

The Changes

Chapter headed “Protection & enhancement of environmental quality”:

Add a new policy under Policy 10.9 to read as follows:

“Policy 10.9a: To provide for frost control fans as part of primary production activities, while avoiding the generation of unnecessary or unreasonably high noise levels.”

“Methods” under Policy 10.9:

Amend from “Policy 10.9 shall be implemented through” to read:

“Policies 10.9 and 10.9(a) shall be implemented through”.

“Explanation” under Policy 10.9:

Add tenth and eleventh paragraphs to the “Explanation” to read as follows:

“Some machines and devices used in primary production activities have the potential to generate noise levels which can create a nuisance to residential activities in the rural area. Bird scaring devices and frost control fans are two forms of equipment used by primary producers to protect crops from damage that can generate significant off-site noise emissions.

Generally, these machines and devices are used on a seasonal basis, and therefore have a limited period in which the potentially high noise levels in the rural environment can be expected. Given the important role of primary production and the growing importance of viticulture activities to the District, these periods of slightly higher noise levels are appropriate, particularly in the Waipara Wine Growing Area. However, these higher noise levels can conflict with the typically quiet rural environment at night time and early morning. Accordingly, limits are used on the establishment and operation of these machines and devices to ensure the noise levels do not result in unreasonable or unnecessary noise, but not to an extent which diminishes the effectiveness of these devices in serving the purpose for which are they designed.”

Chapter A1, Environmental Amenity

Amend Rule A1.2.7 Height (b) Exemptions by adding an exclusion for blades on frost control fans to read as follows:

“Frost control fans up to 12m height (not including blades)”

Amend Rule A1.2.9(i) Noise Exemptions (i) for normal agricultural practices to exclude frost control fans to read as follows:

“Normal agricultural practices undertaken for a limited duration, such as harvesting, but not the use of frost control fans (refer Rule A1.2.9(i))”.

Amend Rule A1.2.9(i) Noise Exemptions by re-numbering to “(j)”.

Amend Rule A1.2.9 Noise by adding a new rule “(i)” for frost control fans to read as follows:

- “(i) Frost control fans in the Waipara Wine Growing Area as identified in Appendix E4 of this Plan – any frost control fan in the above area shall be constructed and operated in accordance with the following conditions:*
- (i) Noise of frost control fans shall not exceed 55dB $L_{Aeq, 10min}$ when assessed at the notional boundary of any dwelling on a separate lot under different ownership. The noise limit applies to the total noise from all frost control fans in the vicinity operating simultaneously. The noise limit includes a correction for the special audible characteristics of frost control fans and no further penalty shall be applied to measured or calculated noise levels.*
 - (ii) Frost control fans shall be located no closer than 500 metres of a dwellinghouse on a separate lot under different ownership or within 500 metres of an urban area; and*
 - (iii) There shall be a total of no more than five frost control fans located between 500 and 1000 metres of a dwellinghouse on a separate lot under different ownership on any other site or of an urban area (note: the total number includes frost control fans on all sites within that distance, including the application site. For the purpose of this rule, “frost control fan” includes a proposed frost control fan for which an approved building consent and/or resource consent has been granted.*
 - (iv) Frost control fans shall only operate when the local air temperature is 2°C or below. The thermometer used to measure the air temperature shall be located at a height above ground relevant to the height of the buds above ground on the plants being protected.*
 - (v) Operation for maintenance purposes shall be restricted to between the hours of 9.00am and 5.30pm weekdays. Test operation may take place only for emergency maintenance purposes outside these hours.*
 - (vi) A written log shall be maintained, clearly recording the date and length of time each frost control fan is used. The log shall include the air temperature at which each frost control fan started operation, and include running for maintenance purposes. A copy of the log shall be made available to the Council upon request.*
 - (vii) For the purpose of this rule, “dwellinghouse” includes a proposed dwellinghouse for which an approved building consent and/or resource consent has been granted.*

Amend Rule A1.2 Conditions for Permitted Activities by adding a new rule “A1.2.21 Acoustic Insulation near Frost Control Fans” to read as follows:

“A1.2.21 Acoustic insulation near frost control fans

- (a) *Any new dwellinghouse located on a separate lot under different ownership within 1000 metres of any frost control fan within the Waipara Wine Growing Area identified in Appendix E4 or within 2000 metres of any frost control fan in any other area shall be designed and constructed to ensure that the noise level inside any bedroom of the dwelling shall not exceed 30 dBA L_{Aeq} with all fans operating at normal duty, and shall incorporate a mechanical ventilation system in accordance with the New Zealand Building Code. Compliance with this standard shall be demonstrated by the production of a design certificate from an appropriately qualified and experienced acoustic engineer.”*
- (b) *For the purpose of this rule, “frost control fan” includes a proposed frost control fan for which an approved building consent and/or resource consent has been granted.*

Amend Section A1.3(a) Restricted Discretionary Activities by adding a new rule “(v)” for frost control fans to read as follows:

- “(v) Frost control fans in the Waipara Wine Growing Area as identified in Appendix E of the Plan which do not meet the requirements in Rule A1.2.9(i), or any frost control fan in all other areas of the District.*

Standards and terms

Noise of frost control fans in the Waipara Wine Growing Area identified in Appendix E4 shall not exceed the maximum noise limit under Rule A1.2.9 (i)(i).

Noise of frost control fans outside the Waipara Wine Growing Area identified in Appendix E4 shall not exceed 45dB $L_{Aeq, 10min}$ when assessed at the notional boundary of any dwelling on a separate lot under different ownership.

Restriction on Discretion

In considering applications for resource consent under this rule, the Council shall restrict its discretion to the following matters:

- (a) *Operational requirements of frost control fans*
- (b) *Noise mitigation measures*
- (c) *Cumulative effects of noise from other frost control fans in the vicinity*
- (d) *Hours of operation*
- (e) *Benefits of the use of the frost control fans, having regard to alternative methods.*

Amend Section A1.5 Non-complying Activities by adding a new rule “(e)” for frost control fans to read as follows:

“(e) *Frost control fans which do not meet the requirements in Rule A1.3(a)(v).*

Chapter C1, Resource Consent Procedures

Amend Assessment Criteria C1.2.4 (a) Environmental Amenity by adding a new section “(xi)” for frost control fans to read as follows:

“(xi) *Frost Control Fans*

- *Whether there is an operational necessity to operate the frost control fans outside the permitted activity standards and, if so, whether;*
- *The noise levels are likely to detract from the amenity or general environmental quality of the area in which they are received, including noise levels likely to cause sleep disturbance or result in adverse health effects;*
- *Mitigation measures are the best practicable option; these mitigation measures may include shielding of devices, selection of the most appropriate type or types of device, and location and position of device/s;*
- *Hours of operation;*
- *Protocols, codes of practice and industry guidelines are used;*
- *The cumulative effects of multiple frost control fans in the vicinity;*
- *The proximity to residential areas or to residential dwellings in rural areas;*
- *The presence of topographic features or predominant climatic characteristics enhancing propagation of sound;*
- *The availability of inaudible or less noisy frost mitigation devices;*
- *The unsuitability of the site due to being unusually frost prone.*

Section D, Interpretation

Add a definition of “frost control fan” to Section D to read as follows:

“Frost control fan means a land based device designed or adapted to control frost by fanning warmer air over the frost-affected surfaces, and includes the support structure.”

Proposed Plan Change 18: Frost Control Fans

Section 32 Report

Introduction

This is a summary of the evaluation of proposed Plan Change (18) that decided whether it is the most appropriate option that led to the introduction of specific provisions concerning frost control fans being introduced into the District Plan. The evaluation is done under section 32 of the Resource Management Act 1991 (the RMA).

Section 32 of the RMA

Section 32 of the RMA requires Council, in achieving the purpose of the Act, to conduct and record a specified evaluation before notifying a proposed change to the District Plan. Council has to:

1. *Carry out an evaluation that examines:*
 - a) *The extent to which each objective is the most appropriate way to achieve the purpose of the Act;*
 - b) *Whether, having regard to their efficiency, the policies, rules or other methods are the most appropriate for achieving the objectives;*
2. *For the purposes of that examination, take into account:*
 - a) *The benefits and costs of policies, rules or other methods; and*
 - b) *The risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the policies, rules or other methods.*

This s32 report will first describe the context of the plan change and the reasons for it. Part of the comparison of options is in that discussion. It will continue with a detailed comparison following the description.

Description of the Changes

Issues

First, horticulture and viticulture activities are an important and growing part of Hurunui District's economy and community, contributing towards the social and economic wellbeing of the District. Due to geographical and climatic conditions, some crops are at risk of frost damage which can reduce their productive

potential, particularly during late winter and early spring. Therefore, managing the risk of frost damage is an important aspect in the operation of these industries.

One technique used to manage the risk of frost damage is the operation of frost control fans. However, frost control fans have the potential to generate noise emissions which are incompatible with other people and their activities, principally residential activities, given their use coincides with periods of sleep. The adverse effects of frost control fans located close to residential areas and rural dwellings can significantly detract from amenity values and the health and welfare of people living within those areas.

This Plan change addresses the above issues by introducing specific rules for the establishment and operation of frost control fans in the rural area.

Background

Context of the Issue

Hurunui's rural areas are a valued part of the district, in that they provide for a range of primary productive activities that contribute to the economic and social wellbeing of the district. Providing the ability for these activities to continue operating without significant controls would ensure this contribution is sustained. The rural areas also provide a living environment for many people.

Primary production activities can generate some external effects which can be anticipated by rural residents. These effects can be generated by a range of activities, including agricultural spraying, odour from waste byproducts, and noise from seasonal activities, such as harvesters, bird scaring devices and wind machines for frost control. The District Plan seeks to maintain amenity values at a level which is commensurate with the predominant land uses in the area. In the rural area, these values are based on maintaining the ability of primary production activities to be operated in an efficient and reasonable manner, without overly compromising the amenity for rural residents.

These outcomes are recognised in the District Plan in several places. Among other relevant provisions, the District Plan has an objective of "*a healthy and safe environment within the District and maintenance and/or enhancement of amenity values which the community wishes to protect*", and a policy "*to avoid, remedy or mitigate the adverse effects of activities on amenity values*".

Furthermore, the District Plan includes policy direction "*to manage subdivision, residential and other development adjacent to intensive productive rural activities in a way that avoids or mitigates significant potential cross-boundary adverse effects on amenity values, without unreasonably inhibiting the continued use and development of existing productive rural land uses.*"

It is important that the Council uses District Plan mechanisms as a means of protecting and maintaining these environmental qualities, and providing for rural activities.

Horticulture and viticulture activities are an important and growing part of Hurunui District's economy and community. The Council's valuations database shows that the number of properties classified as being in horticulture or viticulture uses has increased in the District by 162.3% from 2002 to 2008. This increase is part of a regional and national trend towards growth in the number of wineries, land area in vineyards and grape tonnage produced in Canterbury and nationally, over the last 10 years¹.

Much of this growth is centred around vineyards in the Waipara Valley area which has around 80 vineyards and over 1200 hectares of plantings (Source: www.waiparawine.co.nz/home/2008). The Hurunui District Plan specifically identifies the Waipara Wine Growing Area in Appendix E4, acknowledging the prevalence of the activity in that area and its growing importance. However, viticulture and horticulture activities are occurring in other parts of the District as well, e.g. Amberley, Pyramid Valley and Cheviot. These activities contribute to Hurunui District's economy through both primary production and tourism. The Waipara Valley is part of the Alpine Pacific Triangle and the annual Waipara Wine and Food Festival is a showcase regional event.

Adverse Effects of Frost Control Fans

The type and degree of adverse effects generated by frost control fans are primarily noise and vibration effects on surrounding activities, particularly residential activities in the immediate vicinity. Other adverse effects include visual amenity.

The use of frost control fans which make noise or cause air vibration is not, in itself, an issue. It becomes an issue when it affects other people and their activities. These effects can occur in two ways:

- (i) The effects are such that they disturb other people's sleep or other activities; or
- (ii) The effects are regarded by other people as inappropriate in a quiet, rural setting and detracting from the amenity of the area (even if it does not disturb sleep).

People's perceptions of what noise levels are appropriate/inappropriate in a rural area generally depend on the reasons why they reside there. For example, a person who has moved to the country for a peaceful, quiet alternative to urban or city living may be less tolerant of night-time noise than a person who regards the rural area as an area of primary production or rural industry. Therefore, this type of effect will vary both between areas and among people within an area.

The adverse effects are influenced by a number of factors, including the susceptibility of crops to frost damage, climatic conditions, topography, the number, location and type of frost control fan, and the operation of the frost

¹ The NZ Agricultural Production Statistics for June 2007 show an increase in the total area planted in grapes of 71% since 2002, with Canterbury increasing 125% from 750 ha to 1,680 ha.

control fan itself. It is recognised that the climatic conditions and the topography are some of the natural characteristics which make the area desirable for horticulture and viticulture. However, the combination of these characteristics and the crops grown mean they are susceptible to the risks of frost damage.

The potential effects on visual amenity are not considered significant, as a feature of the rural area are structures associated with primary production activities. The form of the wind machines typically consists of a single mast/pole with rotor blades (two or four) attached at the top. These structures are similar in form and scale to some network utility structures.

Safety concerns have also been raised about the operation of frost control fans, particularly if they are operated outside the parameters of the manufacturer's specifications. The Department of Labour under the *Health and Safety in Employment Act 1992* and associated regulations would be the primary statute for managing the safe operation of frost control fans; therefore, this matter is not a direct responsibility for the District Council under the Resource Management Act. However, many of the factors involved with determining the environmental effects of frost control fans would also have an indirect relationship with safety concerns, such as setback distances from neighbouring dwellings.

The District Plan is able to manage the establishment and operation of frost control fans if there is potential for significant adverse effects to occur. The parameters for establishing and operating frost control fans have a direct correlation with the nature and degree of environmental effects.

Current Rules for Frost Control Fans

Under the Operative Hurunui District Plan, there are currently no specific rules on managing frost control fans. However, there are general rules that apply, and wind machines and their use presently need to comply with.

The relevant general rules that manage frost control fans include the maximum height standard of 10 metres in the Rural Area (Rule A1.2.7). All models of wind machines currently available are taller than 10 metres, and therefore, they require a resource consent under Rule A1.4(e).

The maximum noise limits for permitted activities (Rule A1.2.9) apply to the Rural Area. However, there is an exemption from the noise rules for "Normal agricultural practices undertaken for a limited duration, such as harvesting" (Rule A1.2.9(i), p.006), which has been assumed to apply to frost control fans. However, it has recently been questioned whether this clause applies as an exemption for frost control fans.

Consultation on Proposed Changes to District Plan

Consultation has been undertaken prior to the notification of this Plan Change. The principal form of consultation was the preparation of an Issues and Options Paper on Frost Protection Devices in June 2008, where the community was

invited to make comments on this paper, and provide any other relevant information. In total, 92 responses were received on the Issues and Options Paper, and these responses expressed a spectrum of views about frost control fans.

Issues raised during consultation included:

- Confusion with the Council's administration of the current District Plan rules as they relate to frost control fans, including notification and decisions on resource consent applications
- The importance and value of the wine industry to the Hurunui district
- The mix of activities in the rural area, and differing expectations people have on the appropriate level of amenity in the rural area
- Different methods for frost control, including frost control fans and helicopters, and whether one method is preferred compared to other methods.

In addition, indirectly, through the resource consent process for individual frost control fans applications, and in the Council responding to enquiries and complaints about wind machines, Council has gained a better understanding of the issues and adverse effects from frost control fans.

Assessment under Section 32

The Section 32 evaluation must demonstrate that any objective in this plan change is necessary to achieve the purpose of the RMA; and that the policies and rules or other methods to achieve those objectives, are the most appropriate option.

Objectives Most Appropriate to Achieve the Purpose of the RMA

The existing objectives that are relevant to managing the effects from frost control fans are:

Objective 1: To maintain those physical and biological characteristics of the soils of the District which enable them to retain their life-supporting capacity and to sustain plant growth.

Objective 10: A healthy and safe environment within the District and maintenance and/or enhancement of amenity values which the community wishes to protect.

The plan change does not propose to add any new objectives or amend any existing objectives, as it is considered that these existing objectives the most appropriate way to achieve the purpose of the Act.

Policies, Rules and Other Methods Most Appropriate to Achieve the District Plan Objectives

The next step is to evaluate whether the proposed policies, rules or other methods are the most appropriate option for achieving the objectives, having regard to the main alternative(s).

Section 32(3)(b) of the RMA requires the Council to undertake an evaluation of the policies and rules in the plan change. Section 32(3)(b) states:

“(b) whether having regard to their efficiency and effectiveness, the policies, rules or other methods are the most appropriate for achieving the objectives”

Section 32(4) then describes the requirements of the evaluation. It states:

“For the purposes of the examinations referred to in subsections 3 and 3(a) an evaluation must take into account –
(a) the benefits and costs of policies, rules or other methods; and
(b) the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the policies, rules or other methods...”

In managing the potential adverse effects of frost control fans, the following options were evaluated to determine the most appropriate approach, having regard to their efficiency and effectiveness, and the benefits and costs:

Option A: Retain the Status Quo – no change to the existing district plan rules

Option B: Use Industry Code of Practice

Option C: Rely on Section 16 of RMA

Option D: Introduce noise rules for frost control fans

- Apply noise standard at vineyard boundary
- Apply noise standard at notional boundary of nearest dwelling

Option E: Introduce separation distances between frost control fans and dwellings

- Apply setback from vineyard boundary
- Apply setback from nearest dwelling on another property
- Option F: Control type of frost control fans which may be used
- Model of frost control fan
- Frequency of use

Option G: Require all frost control fans to get resource consent

Option H: Greater control over the use of land in the rural area for residential or rural lifestyle blocks

Option I: Require additional noise insulation in dwellings

Below is a summary of the options (refer to the Issues and Options Paper for full explanation of each option):

Option A: Retain the Status Quo – no change to the existing district plan rules

Option A is to retain the current district plan provisions for frost control fans (as described above). Assuming that frost control fans are exempt from noise rules, if they are less than 10 metres in height, they are a permitted activity. However, as noted above, all models of frost control fans currently available exceed 10 metres in height, therefore, they require resource consent for exceeding the maximum height limit only (i.e. noise emissions cannot be considered).

Option B: Use Industry Code of Practice

New Zealand Winegrowers has published a *Wind Machine Code of Practice 2008*, which includes guidelines for winegrowers on the operation of frost control fans to maximise their effectiveness and to minimise the effects of noise and disturbance on neighbouring properties. The Civil Aviation Authority has a publication *Consider Thy Neighbour – Helicopter Frost Protection* which includes suggestions to reduce noise complaints from neighbours and to improve operational safety.

Option C: Rely on Section 16 of RMA

Section 16 of the RMA imposes a duty on every person to avoid unreasonable noise, even if the activity they are undertaking is lawful (i.e. has resource consent or complies with district plan rules). The Act requires people to take the 'best practicable option' to ensure their noise does not exceed a reasonable level.

The provisions in Section 16 of the RMA are what the Council is currently relying on to deal with noise issues arising from wind machines which have been lawfully established in the district.

Option D: Introduce noise rules for frost control fans

Maximum noise limits can apply as general noise rules to all activities, including frost control fans. Alternatively, noise rules can specifically apply to frost control fans.

A review of other District Plans highlights specific noise levels for frost control fans vary from 55dBA L₁₀ to 65 dBA L₁₀, with one plan having no noise level (Wairarapa). How these noise levels are measured and applied also varies: some are measured within a specified distance of the frost control fan, while others are at the notional boundary of a dwelling or at the edge of a Residential Zone. Most of the specific frost control fan rules also include separation distances from dwellings or Residential zones, and other rules controlling the use of the machines, e.g. minimum air temperature or maximum number of times when the machines may be used. Therefore, it is very important not to compare noise rules between district plans in isolation. The rules must also be considered in the context of policies and rules for activities and amenity values in rural areas including rules for subdivision and residential density.

The Marshall Day Report (2008) recommends a noise limit of 55dB $L_{Aeq, 10min}$ measured at the notional boundary of any dwelling within the Waipara Wine Growing Area and 45dB $L_{Aeq, 10min}$ measured at the notional boundary of any dwelling within any other area. Marshall Day also recommends that controls be applied on the use of frost control fans. The report also recommends that the noise rules need to apply to cumulative effects of multiple frost control fans.

Option E: Introduce separation distances between frost control fans and dwellings

Option E involves using minimum separation distances between frost control fans and dwellings on adjoining properties (as permitted activities). A resource consent can be applied for, to reduce the separation distance.

Several district plans use separation distances between frost control fans and dwellings in the rural area, and/or Residential or Urban zones. The distances vary between district plans. For example, Central Otago (Proposed) is 300m from a Residential Zone and 100m from the notional boundary of any dwelling in the Rural Zone, Wairau/Awatere is 500m and 100m, respectively.

As with noise standards, it is important not to compare district plan rules in isolation, as the separation rules often work in combination with noise standards and other rules.

The Marshall Day Report (2008) recommends that a 1 km separation distance within the Waipara Wine Growing Area would be effective in managing the cumulative noise effects from frost control fans. Marshall Day also recommends that it would be appropriate to allow up to five frost control fans within 500 – 1000 metres of any dwelling.

Option F: Control type of frost control fans which may be used.

Option F involves the use of rules which control the way frost control fans are used. For example:

- Rules that control the model of frost control fan that may be used, e.g. a four blade rotor.
- Rules that control the maximum number of nights on which frost control fans can be used in a season, or the maximum number of hours they can be used per night.
- Rules that specify a minimum air temperature before frost control fans can be used, e.g. 2°C in Wairau/Awatere and 1°C in Central Otago and Wairarapa.
- Rules that require logbooks be kept and submitted to the Council on the use of frost control fans.

These are all examples of the types of rules that are included in district plans for permitted activities (and as conditions on resource consents).

Option G: Require all frost control fans to get resource consent

Option G requires the use of any frost control fans to obtain a resource consent, with the Council retaining the right to notify (or require the written approval of) affected parties; and the right to decline an application if the effects cannot be adequately managed. This option is to be the main alternative to having rules by which the use of wind machines is a permitted activity.

Option H: Greater control over the use of land in the rural area for residential or rural lifestyle blocks

The nature and intensity of residential or rural lifestyle blocks in the rural area can increase the potential for 'reverse sensitivity' issues to arise with primary production activities. 'Reverse sensitivity' issues are the effect that development of one kind (typically residential) may have on activities already occurring in an area (such as primary production activities). It usually results from the people involved in an activity that is newly established, complaining about the effects of existing activities in an area.

These situations can come about due to the way the district plan manages activities in the rural area. In particular:

- (i) The physical distance between activities, which is (partly) affected by rules in the district plan about minimum lot sizes for subdividing land or erecting dwellings.
- (ii) What controls are placed on different types of activities in rural areas, which send a signal as to the type of environment the rural area is and its associated amenity values.

The Hurunui District Plan currently has a relatively small lot size for subdivision and erecting dwellings over most of the rural area (excluding Environments of Special Concern). This approach means there is potential for neighbouring activities to locate relatively closely.

The district plan rules for activities in the rural area provide for a wide range of activities, except for in the Environments of Special Concern. Therefore, the rural area is a place for activities which are attracted to its open space, peace and tranquility such as rural lifestyle and visitor accommodation; a place for traditional rural activities based around primary production; and a place for businesses and industrial activities. This approach provides landowners with a lot of flexibility in the use of rural land. However, it may also create a greater potential for activities with incompatible effects to locate near one another. One option to manage this issue, is to review how the rural area is managed in the district plan.

Option I: Require additional noise insulation in dwellings

This option is to introduce higher noise insulation requirements in dwellings which are located in proximity to viticulture or horticulture properties. The Council is able to require higher standards for noise insulation in dwellings than those required under the Building Act 2004, if it is for a resource management purpose. This approach has to be done using rules in the district plan.

The Marshall Day Report (2008) recommends that noise insulation be required for any new dwelling within 1 km of any frost control fan in the Waipara Wine Growing Area, or within 2 km in any other area.

Summary Evaluation

The evaluation is set out in the following table:

OPTIONS	EFFECTIVENESS & EFFICIENCY	BENEFITS	COSTS
<p>Option A: Retain the Status Quo</p>	<p>As highlighted by the increasing number of complaints received by Council on frost control fans, the existing approach is not effective in managing the effects from frost control fans.</p> <p>The uncertainty about the ability to enforce the existing noise rules further questions their effectiveness.</p> <p>As all frost control fans exceed the maximum height standards, the efficiency of the current resource consent process creates uncertainty for viticulturalists and other users of frost control fans. In addition, it is questionable whether in assessing an application to exceed the maximum height, it is appropriate to assess the noise effects, particularly if the permitted noise levels provide for this level and type of noise.</p>	<ul style="list-style-type: none"> - Does not incur any costs with a plan change process. - Provides certainty to landowners that the existing rules continue to apply. 	<ul style="list-style-type: none"> - Noise effects generated by frost control fans are not effectively managed, resulting in loss of rural amenity. - Costs of applying for resource consent for each frost control fan. - Uncertainty about the processing of applications for frost control fans. - Potential for current conflicts between residential activities and primary production activities using frost control fans could increase.
<p>Option B: Use of Industry Code of Practice</p>	<p>The Wind Machine Code of Practice 2008 published by NZ Winegrowers focuses on the operational performance of frost control fans to maximise their effectiveness in terms of frost control and to minimise the effects of noise and disturbance to neighbours. In this regard, the Code of Practice is effective in educating operators of the machines in a responsible manner. However, compliance with the Code is voluntary and is therefore, not fully effective at managing the effects from frost control fans in all circumstances. In addition, the Code of Practice recognises that noise limits are established in District Plans which are to be complied with.</p>	<ul style="list-style-type: none"> - Voluntary initiative provides flexibility for frost control fan operators to maximise performance in frost control. - No costs or uncertainty with applying for resource consent for frost control fans. - Can be readily updated as new technology is developed. 	<ul style="list-style-type: none"> - Noise effects generated by frost control fans are not effectively managed, resulting in loss of rural amenity. - Operating within the parameters of the Code of Practice may not achieve the level of frost protection desired by some operators. - Potential for current conflicts between residential activities and primary production activities using frost control fans could increase.

OPTIONS	EFFECTIVENESS & EFFICIENCY	BENEFITS	COSTS
<p>Option C: Use of Section 16 of the RMA</p>	<p>Section 16 is effective in responding to unforeseen problems or 'one off' activities. However, it is inefficient to rely on Section 16 in managing regular or anticipated noise issues. In this regard, this method is retrospective, dealing with a problem once it is established, rather than avoiding the problem in the first instance.</p>	<ul style="list-style-type: none"> - Does not incur any costs with a plan change process. - Provides flexibility to operators of frost control fans in adopting the 'best practicable option' for managing noise generated. 	<ul style="list-style-type: none"> - Noise effects generated by frost control fans are not effectively managed, resulting in loss of rural amenity. - High level of uncertainty to frost control fan operators, neighbours and Council as to what "an unreasonable level of noise" actually means. - Litigation costs in determining/proving the above.
<p>Option D: Use of Noise Standards</p>	<p>General or specific noise standards are an effective method in achieving the desired maximum level of noise in a particular environment. Different noise standards can apply to different activities recognising the particular operational and acoustic characteristics of these activities, such as frost control fans. Applying standards to the notional boundary (being a set distance from the closest dwelling) means the point at which the noise levels are measured can change when a new, closer dwelling is constructed.</p> <p>Care is required in determining the appropriate threshold for the noise standard, to ensure it achieves the objectives of the Plan.</p> <p>To be the most effective and efficient, the noise standards are applied in combination with other methods to achieve a reasonable level of noise not to cause a nuisance. Using a noise level as a standalone standard is not totally effective, as it does not address the special acoustic characteristics associated with the use and operation of frost control fans.</p> <p>In monitoring the noise levels, it is important they can distinguish between the effects from single machines and the cumulative effects of multiple machines operating at the same time.</p>	<ul style="list-style-type: none"> - Provides a high level of certainty to landowners, neighbours and Council as to the degree of noise allowable by frost control fans. - Readily measurable standard. - Provides for the development and adoption of new technology in the operation of frost control fans within set limits. - Assessment process (resource consent application) for frost control fans which do not comply and assessed on a case-by-case basis. - Applying the notional boundary provides flexibility in operating wind machines where there are no nearby neighbouring dwellings. 	<ul style="list-style-type: none"> - Some constraints on the operation of frost control fans, which may limit their performance in terms of frost control. - Costs of preparing and processing a Plan Change. - Costs of monitoring and enforcing compliance with the rules. - Costs of applying for resource consent for frost control fans that do not comply with the noise standards. - Applying the notional boundary may result in constraints on the operation of existing frost control fans if new dwellings are established nearby. - Alternative frost control measures may be used, such as helicopters, which may generate higher levels of noise.

OPTIONS	EFFECTIVENESS & EFFICIENCY	BENEFITS	COSTS
<p>Option E: Use of Separation Distances</p>	<p>Minimum separation distances are an effective method in managing the noise and vibration effects from frost control fans. The greater the separation distance between a frost control fan and a dwelling on an adjoining property, the lower the noise and vibration levels.</p> <p>As with the use of noise standards noted above, to be the most effective and efficient, the separation distances are applied in combination with other methods to achieve a reasonable level of noise not to cause a nuisance.</p>	<ul style="list-style-type: none"> - Provides a high level of certainty to landowners, neighbours and Council about the siting and location of frost control fans in relation to existing dwellings. - Readily measurable standard which seeks to avoid adverse effects on neighbouring dwellings at the time of building the frost control fan. - Assessment process (resource consent application) for frost control fans which do not comply and assessed on a case-by-case basis. 	<ul style="list-style-type: none"> - Some constraints on the operation of frost control fans, especially on smaller properties with neighbouring dwellings in close proximity. This may result in limited opportunity to manage frost control. - Costs of preparing and processing a Plan Change. - Costs of monitoring and enforcing compliance with rules. - Costs of applying for resource consent for frost control fans that do not comply with the separation distance standards. - Alternative frost control measures may be used, such as helicopters, which may generate higher levels of noise.
<p>Option F: Controls Over the Use of Frost Control Fans</p>	<p>Controlling the operational parameters (e.g. rotor speed, temperature controls on use) of frost control fans can be effective in ensuring a certain type of outcome is achieved. However, this approach may be ineffective in achieving the objectives of the Plan, in providing for primary production activities and maintaining the amenity values of the area.</p> <p>The actual effects in terms of noise and vibration levels are not managed, rather the operational parameters which may influence these levels.</p> <p>Some operational parameters may not be effective over time, given natural climate and weather variations determine when and how often wind machines are used. Furthermore, different crops may have different susceptibility to frost conditions, therefore, the controls may either be overly wide to cover all crops, or too narrow to provide a viable operating environment to achieve frost control.</p>	<ul style="list-style-type: none"> - Provides a high level of certainty to landowners, neighbours and Council about the operational parameters of frost control fans. - Readily measurable standards which seek to limit adverse effects. - Assessment process (resource consent application) for frost control fans which are not to be operated in compliance with the controls, and determined on a case-by-case basis. 	<ul style="list-style-type: none"> - Some constraints on the operation of frost control fans, less flexible for operators of frost control fans, and this may result in limited opportunity to effectively control frost damage. - Controls may constrain the development and adoption of new technology. - Costs of preparing and processing a Plan Change. - Costs of monitoring and enforcing compliance with the rules. - Costs of applying for resource consent for frost control fans that do not comply with the controls. - Alternative frost control measures may be used, such as helicopters, which may generate higher levels of noise.

OPTIONS	EFFECTIVENESS & EFFICIENCY	BENEFITS	COSTS
<p>Option G: Require Resource Consent for All Frost Control Fans</p>	<p>This option is effective in terms of assessing each frost control fan to be installed on a case-by-case basis. This assessment would consider the local environment (proximity to existing dwellings), particular crop, a specific frost control fan and any operational parameters proposed. However, this method is not as efficient as the use of permitted activity controls in achieving the objective for supporting the economic and social benefits from primary production activities due to time and cost uncertainties with the resource consent process.</p>	<ul style="list-style-type: none"> - Case-by-case assessment ensures frost control fans only establish if the noise and vibration effects can be avoided or mitigated. - Effects on the local environment can be assessed, including proximity to existing dwellings can be assessed. - Specific conditions for each frost control fan responding to the particular operational requirements of the machine and local environment. - Provides for the development and adoption of new technology, including quieter machines. 	<ul style="list-style-type: none"> - Uncertainty to landowners about whether they can establish and operate frost control fans via the resource consent process. - If frost control fans cannot be established, potential loss and damage to crops, resulting in economic and social costs. - Costs of preparing and processing a Plan Change. - Costs of monitoring and enforcing compliance with the rules. - Costs of applying for resource consent for frost control fans. - Alternative frost control measures may be used, such as helicopters, which may generate higher levels of noise.
<p>Option H: Review Management of Residential Development and Amenity Values in the Rural Area</p>	<p>The existing management framework in the rural area provides a high level of flexibility in the establishment and operation of a wide range of activities. There is the potential for residential development to be incompatible with other activities, and the result amenity conflicts can result in the objectives of the Plan not being effectively achieved. A review of managing residential development and amenity values in the rural area would ascertain what recent trends have emerged since the District Plan was first prepared. While this option may be effective in addressing the wider issues in the rural area, it does not efficiently the issue associated with frost control fans in the short term.</p>	<ul style="list-style-type: none"> - Considers the wide issues for achieving the objectives for the rural area, which frost control fans are only part of the issue. - More targeted controls can be placed on different activities. - Better manages the type of environment sought for the rural area. 	<ul style="list-style-type: none"> - Uncertainty to landowners wanting to establish frost control fans until review is completed. - Higher costs of preparing and processing a more comprehensive Plan Change. - Alternative frost control measures may be used in the interim, such as helicopters, which may generate higher levels of noise.

OPTIONS	EFFECTIVENESS & EFFICIENCY	BENEFITS	COSTS
<p>Group 1: Noise Insulation in Dwellings</p>	<p>Noise insulation of dwellings is effective in creating a 'quiet' environment inside a dwelling. However, outside the dwelling, the noise levels may not be at a reasonable level, which does not achieve the objectives in the Plan.</p> <p>The insulation requirements could only apply to new dwellings, and therefore, it would be ineffective in managing the internal noise levels for existing dwellings.</p>	<ul style="list-style-type: none"> - Provides a high level of certainty to wind machine operators. - Achieves a quiet environment for new dwellings. 	<ul style="list-style-type: none"> - Costs of insulating dwellings is incurred by adjoining landowners, rather than the generators of the noise. - Existing dwellings are not insulated, therefore, occupiers could experience unreasonable levels of noise. - Costs of preparing and processing a Plan Change. - Noise effects generated by frost control fans are not effectively managed outside, resulting in loss of rural amenity.

Plan Change Consistency With ss74-75 RMA Requirements

Section 74 of the RMA sets out the matters to be considered by a territorial authority when preparing or changing its district plan. Section 75 of the RMA sets out the content of district plans. The relevant matters in these Sections are discussed below.

Ensures that the Plan Gives Effect to National Policy Statements

There are no relevant National Policy Statements.

Ensures that the Plan Gives Effect to the New Zealand Coastal Policy Statement

The NZ Coastal Policy Statement is not relevant.

Ensures that the Plan is Not Inconsistent with a Water Conservation Order

The change is not inconsistent with any Water Conservation Order.

Ensures that the Plan Gives Effect to the Regional Policy Statement

The Proposed Plan Change gives effect to the provisions of the RPS as it enables rural activities to provide for their economic, social and cultural well-being, and makes efficient use of the land resource.

Ensures that the Plan is Not Inconsistent with a Regional Plan

There is no relevant regional plan.

Having regard to any proposed Regional Policy Statement

There is no proposed Regional Policy Statement.

Having regard to the Proposed Regional Plan

The Proposed Regional Plan has been notified and submissions have been received. Decisions have been made on submissions on some chapters. It is considered that the change is consistent with the proposed chapters in the Regional Plan.

Having Regard to Relevant Management Plans and Strategies Prepared Under Other Acts

None are relevant.

Having Regard to the Extent to Which the Plan Needs to be Consistent with the Plans of Adjacent Territorial Authorities

It is considered that no cross-boundary issues that make the Plans of adjacent authorities relevant arise in this proposed change.

Taking Into Account Relevant Planning Documents Recognised by the Iwi Authority and Lodged With the HDC

There are no issues concerning relevant planning documents recognised by the Iwi Authority and lodged with the HDC.

Accord With HDC's Functions Under the Act

It is considered that the proposed Plan change is in accordance with the Council's functions under the Act. The change (applying s31 of the Act):

- Achieves the integrated management of the effects of the use, development, or protection of land and associated natural and physical resources of the district;

- Assists the Council to control the actual or potential effects of the use, development, or protection of land;
- Assists the Council to control the emission of noise and the mitigation of the effects of noise.

Accord With the Purpose and Principles of the Act

The purpose is set out in section 5 of the Act as follows:

The purpose of this Act is to promote the sustainable management of natural and physical resources.

In this Act, “sustainable management” mean managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while-

- (a) *Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and*
- (b) *Safeguarding the life –supporting capacity of air, water, soil, and ecosystems; and*
- (c) *Avoiding, remedying, or mitigating any adverse effects of activities on the environment.*

The principles are set out in sections 6-8 of the Act as follows:

6. Matters of national importance—

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall recognise and provide for the following matters of national importance:

- (a) *The preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development:*
- (b) *The protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development:*
- (c) *The protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:*
- (d) *The maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers:*
- (e) *The relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga.*
- (f) *the protection of historic heritage from inappropriate subdivision, use, and development.*

7. Other matters—

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall have particular regard to—

- (a) *Kaitiakitanga:*
- (aa) *The ethic of stewardship:*

- (b) *The efficient use and development of natural and physical resources:*
- (ba) *The efficiency of the end use of energy:*
- (c) *The maintenance and enhancement of amenity values:*
- (d) *Intrinsic values of ecosystems:*
- (e) *Repealed.*
- (f) *Maintenance and enhancement of the quality of the environment:*
- (g) *Any finite characteristics of natural and physical resources:*
- (h) *The protection of the habitat of trout and salmon:*
- (i) *The effects of climate change:]*
- (j) *The benefits to be derived from the use and development of renewable energy.*

8. Treaty of Waitangi—

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).

It is considered that the current objectives and policies of the Plan have regard to the purpose and principles of the Act. The change is consistent with the current objectives and policies, the new policy is consistent with the purpose and principles of the Act; and in particular, with the duty to have particular regard to maintenance and enhancement of amenity values and of the quality of the environment.

The Risk of Acting or Not Acting

The evaluation under Section 32 must consider the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the proposed approach. In this case, it is considered that there is sufficient information available to understanding the effects of frost control fans to be able to make a determination about the risks of not acting. Principally, the noise effects are well understood, with appropriate technical advice from an acoustic specialist with experience in the issues.

Conclusion of s32 Analysis

The evaluation of the objectives, policies, methods and rules for managing the effects of frost control fans concludes that the most appropriate approach is to provide for the establishment and operation of frost control fans within the Waipara Wine Growing Area as a permitted activity. This status is subject to any applicant/owner meeting a range of conditions that specify noise limits, separation distances and operational requirements.

The resource consent process is considered the most appropriate method for managing the effects of frost control fans outside the Waipara Wine Growing Area or frost control fans within that area that do not comply with the Plan's conditions and terms. It is recognised that given the state of knowledge of the Districts acoustic environment it is appropriate that the installation of frost control fans involves a case-by-case assessment of each proposal that would consider the local environmental context and specific type of wind machine proposed.

Furthermore, the proposed plan change also addresses the reverse sensitivity issues associated with the construction of new dwellinghouses within close proximity of existing frost control fans by specifying noise insulation standards.

Collectively, the proposed approach would be the most effective and efficient in achieving the objective of maintaining amenity values in the rural area.